

Digitized by the Internet Archive
in 2009 with funding from
University of Toronto

23

THE

British Medical Journal.

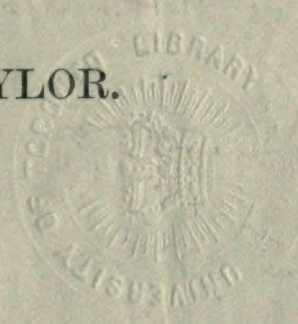
THE JOURNAL OF THE BRITISH MEDICAL ASSOCIATION.

EDITED BY

DAWSON WILLIAMS, M.D., D.Sc.(Hon.),

ASSISTED BY

CHARLES LOUIS TAYLOR.



VOLUME I, 1916.

JANUARY TO JUNE.

144814
10/1/18

London :

PRINTED AND PUBLISHED AT THE OFFICE OF THE BRITISH MEDICAL ASSOCIATION

429, STRAND, W.C.



R
31
B93
1.016
v.1
cop.2

INDEX TO VOLUME I FOR 1916.

READERS in search of a particular subject will find it useful to bear in mind that the references are in several cases distributed under two or more separate but nearly synonymous headings—such, for instance, as Brain and Cerebral; Heart and Cardiac; Liver and Hepatic; Renal and Kidney; Cancer and Epithelioma, Malignant Disease, New Growth, Sarcoma, etc.; Child and Infant; Bronchocele, Goitre, and Thyroid; Diabetes, Glycosuria and Sugar; Light, Roentgen, Radium, X Rays; Status Lymphaticus and Thymus; Eye, Ophthalmia and Vision; Bicycle and Cycle; Motor and Automobile; Association, Institution, and Society; Paris, France; Berlin, Prussia, Germany; Vienna, Austria, etc. Subjects dealt with under various main headings in the JOURNAL have been set out in alphabetical order under their respective headings—for example, "Correspondence," "Leading Articles," "Reviews," etc. Original Articles are indicated by the letter (O).

A.

AASER, Einar: Experiences of a Norwegian doctor in Austria 65
Abdominal wounds (Payr), 895
ABERCHROMBIE, R. G.: Treatment of tetanus, 339—Systolic pressure in acute nephritis, 878
Aberdeen, Red Cross ambulance train at, 867
Abortion, criminal: Duties of medical practitioners in cases of, 206—Mr. Justice Hawkins, 206—Mr. Justice Avory, 206—Deputation to the Lord Chief Justice, 207—Royal College of Physicians and, 207—Opinion of Mr. R. D. Muir, 207—Correspondence on, 255, 293
Abortion in Moscow (A. N. Rachmanow), 507
Abyssinian medicine, review of books on, 758
Abscess, artificial, 768
Abscess, fixation, in treatment of septicaemia (J. D. Speld Sinclair), 653
Académie Française: Bequest of a prize of £20,000 to be applied for benefit of large families in need of assistance, 883
Academy of Medicine in Paris: Appeal to soldiers re alcohol, 247
ACADEMY, ROYAL, OF MEDICINE IN IRELAND: *Section of Anatomy and Physiology*.—W. H. Thompson: The daily food ration of Great Britain, 239
Section of Medicine.—Walter Smith: Soya bean (*Glycine hispida*) and its uses in physiology and medicine, 486
Section of Pathology.—T. T. O'Farrell: *Bothrioccephalus latus*, 309
Section of Surgery.—Major F. C. Purser: Injuries to peripheral nerves, 820—W. S. Haughton: Bullet injuries to nerves, 821
Academy, Royal, 663
Acetonuria and acidosis, 315
Acne rosacea, 872, 904
Act, Mental Deficiency, administration of (A. Brown Ritchie), 866
Act, Midwives (Scotland), receives the Royal Assent, 29—Parliamentary questions on, 354
Act, Military Service (1916), 211, 313, 354, 391, 761, 802, 829—(Leading articles), 761, 798—Recognition of professional committees under, 860
Act, Naval and Military War Pensions (1915), Leading article on, 387—Disablement Subcommittee of Statutory Pensions Committee, 391
Action for libel (Bonayne v. Doyle), 536
Actinomycosis and actinobacillosis in oxen, 104
ADAM, Captain Alan Gordon Acheson, killed in action, 216
ADAM, James: Severe tetanus successfully treated by antitoxin, 296

ADAMS, David Rutherford: Ganglio-neuroma of the sympathetic, 650
ADAMSON, Colonel H. M., C.B. conferred upon, 605
ADAMSON, R. S. (and H. R. DEAN): Method for the preparation of a non-toxic dysentery vaccine, 611
ADDISON, Christopher, created a privy councillor, 823
Adrenalin in asthma, 36
Adrenalin poisoning and nephritis (G. S. Thompson), 818
AFFLECK, Sir James: Appreciation of John Wyllie, 220
Africa, East: The campaign in (leading article), 100—Army Medical Department issues a pamphlet, *How to Keep Fit in the African Tropics*, 145
Africa, German East, health of, 600
AIRMAN, Captain J. H., Military Cross conferred upon, 216
AINSWORTH, Major R. B., D.S.O. conferred upon, 146
Air raid casualties in Great Britain. *See* Casualties
AITCHISON, Lieut. Andrew J., dies of wounds, 896
AIYAR, T. A. R.: Pepper in prophylaxis and treatment of filariasis, 508
Alberta, College of Physicians and Surgeons, 32—Medical Association, 70
ALBRECHT, Professor: Indications for amputation, 355
Alcohol, estimate of the number of deaths caused by, 533
Alcohol for medicinal purposes, duty on (parliamentary question), 106
Alcohol and the soldier (appeal from the Academy of Medicine in Paris), 247
Alcoholism and soldiers (Sydney), 182
ALEXANDER, David A.: Trench foot at home, 374
Alexandria, jaundice at—discussion, 320—Plague in, 894
Alimentary hygiene in children (Mitchell Smith), 90
ALLAN, C. E.: *The Housing of the Working Classes Acts, 1890-1909, and the Housing Acts, 1914: Annotated and Explained, together with the Rules, Regulations, Forms, and Instructions of the Local Government Board*, rev., 692
ALLATT, Colonel H. T., dies on service, 734
ALBUTT, Sir Clifford (and others): Case of splenectomy, 365
Alleged improper use of the title of doctor (Dr. Temple Company), 185
Alleged waste of army medical officers. *See* Army, British
Allen and Hanburys, bicentenary of the firm, 72
Alliance Year Book for 1916, 533
ALZHEIMER, Dr., death of, 506
Ambulance motor, development of (H. Massac Buiet), 18
Ambulance organization in Austria, faulty (Einar Aaser), 65
Ambulance train at Aberdeen, Red Cross, 867

America. *See* United States
American Journal of Orthopaedic Surgery, 183
Amoebae in urine in a case of infectious jaundice (H. B. Fantham), 553
Amoebic dysentery. *See* Dysentery
Amoss: Chemical treatment of cerebro-spinal fever, 763
Amputation, indications for (Albrecht), 355
Amputations and amputation stamps, War Office memorandum, 534—Correspondence on, 836
Amputations at base hospitals in France (C. Gordon Watson), 479. (O)
Amputation stumps, after-treatment of (C. W. G. Bryan), 480. (O)
Anaemia, pernicious (O. Leyton), 784. (O)—Correspondence on, 570
Anaemia, pernicious, and erythraemia, 570
Anaemia, tropical. *See* Uncinariasis
Anaerobic culture, simple method of (Dr. Beattie), 569, 756. (O)
Anaesthesia, local, by quinine and urea hydrochloride solution, 640
Anaesthesia, sudden heart failure under, direct massage of heart, recovery (Gerald Sichel), 201
Anaesthetics administered by unqualified persons, 425
Anaesthetics, influence of on the body temperature (M. S. Pembrey and F. E. Shipway), 655
Anaesthetics, review of books on, 622
ANASTASSION, N.: *Greek Self-taught (Modern), with Phonetic Pronunciation (Thimm's System)*, rev., 692
Anatomy, review of books on, 203
ANDERSON, F. T.: Introduction of cinchona trees into India, 324
ANDERSON, G. H., obituary notice of, 575
ANDERSON, James, obituary notice of, 775
ANDREWS, F. W.: Bacteriology of cerebro-spinal fever, 689
ANDREWS, H. R.: Appreciation of R. Drummond Maxwell, 434
Aneurysm, arterio-venous, of the subclavian artery and vein (Comyns Berkeley and Victor Bonney), 753. (O)
Aneurysm, traumatic, case of marked temporary aphasia after ligation of the common carotid artery for (Frank Cole Madden), 585. (O)
ANGULUS, Ludovici, 260, 296
ANICOT, Dr., killed at his post, 808
Animals, living, chlorine gas for (parliamentary question), 25
ANDERSON, Captain J. W., Military Cross conferred upon, 146
Ankle, splint for compound fracture (Major M. Sinclair), 197. (O)
Ankylosis following gunshot injuries of positions of election for (Lieut.-Col. Jones), 609. (O)
Anodyne powder, 608
Antenatal clinics and prematers at the Edinburgh Royal Mater in the years 1909-1915 (J. W. Be), 234, 275. (O)

- Anthropology, review of books on, 376
 Antimony in kala-azar. *See* Kala-azar
 Antiseptic, brilliant green as an (Archibald Leitch), 236. (O)
 Antiseptic, a new intestinal (J. T. Ainslie Walker), 311
 Antiseptics, influence of on the activities of leucocytes and on the healing of wounds (C. J. Bond), 777. (O)
 Antiseptics, studies in: II, Chloramine (H. D. Dakin, J. B. Cohen, and J. Kenyon), 160. (O) —Note on, 388
 Antitetanic serum, two cases of tetanus treated successfully by subdural injections of (N. W. Mackworth), 620
 Antitetanic serum, value of (J. Crawford Renton), 89. *See also* Tetanus
 Antitoxin, free, in Ontario, 632
 Antitoxin treatment of tetanus. *See* Tetanus
 Antityphoid inoculation: French army results in (Jules Courmont), 27—Parliamentary questions on, 105, 533, 829—In the Russian army, 775—Research Defence Society's leaflet, 147
 Aorta, compression of in post-partum haemorrhage (C. Stennett Redmond), 15
 Aphasia, marked temporary, after ligation of the common carotid artery for traumatic aneurysm (Frank Cole Madden), 585. (O)
 Apothecaries' Hall of Ireland, 399
 Apothecaries' Society of London, degrees and pass lists, 35, 116, 186, 362, 505, 571, 635, 774
 Appendicitis, cause of (John Haddon), 757
 Appendicitis, mechanical causation of (S. G. Shattock), 690
 Appendicitis oxyurica (Suzuki), 223
 Appleton's Medical Dictionary, rev., 378
 Apraxia, bilateral motor, with disturbance of visual orientation (S. Smith and Gordon Holmes), 437. (O)
 Argentine Congress of Medicine. *See* Congress
 ARKRIGHT, J. A. (and others): Examination of fifty dysentery convalescents for carriers, 683
 Arm, artificial, 92
 Arm, artificial, prize for the best, offered by Society of German Engineers, 116
 Armlets and attestation, 313
 Armour, 603. *See also* Steel helmets
 ARMSTRONG, W. E. M. (and Frederick JEFFERSON): A method of treatment for conjunctivitis, 342
 ARMSTRONG, Captain Walter Seymour, killed in action, 864
 Army, Austrian: Self mutilation, 41—Inoculation against cholera, 41—Inoculation against typhoid, 41—Immunization against small-pox, 41. *See also* Austria
 ARMY, BRITISH:
 Army Council and medical recruiting, 102
 Army medical administration (leading article), 560—Questions in Parliament, 564, 602—Correspondence on, 567
 Army Medical Advisory Board (parliamentary question), 353, 497
 Army medical officers, alleged waste of, 325
 Army medical organization, 429, 460, 461
 Army medical services, 427, 602—Direction of, 180, 458
 Auxiliary R.A.M.C. Widows and Orphans Fund, 868—Leading article on, 889—Provisional committee, 902. *See also* Benevolent societies
 Canadian graduates and the R.A.M.C., 70
 Comforts fund, 352
 Dental treatment (parliamentary question), 733
 Enrolment of medical officers, 69
 Enteric fever, statistics, 180
 Estimates (Mr. Tennant's statement), 427
 Exchanges desired, 36, 72, 112, 151, 219, 259, 294, 325, 362, 399, 435, 471, 571, 608, 639, 675, 708, 741, 774, 804, 839, 902
 Honours, 804. *See also* Honours in General Index
 Medical officers, Special Reserve and Territorial, 899
 Numbers in the field, 258
 Parliamentary questions, 180, 213, 353, 427, 533, 768. *See also* Parliament
 Pensions. *See* Pensions
 Position of officers resigned, 768
 R.A.M.C. officers in German typhus camps, 768
 R.A.M.C., 533—Remuneration of re-employed retired officers, 180—Income tax, 180—Promotion in, 180—Work of in Northern France, 500
 Salaries of Director-Generals, 180
 Standards of vision, 537, 697, 730. *See also* Eyes and Rifle shooting
 Temporary officers R.A.M.C., 768
 v. British, Colonial Medical Services, 147
 British, Territorial Force: Emoluments of medical officers, 69—Gratuity, 741
 Territorial Decoration, 435—Territorial officers (parliamentary question), 899—Correspondence on, 899
 Officers (parliamentary question), 899
 Antityphoid vaccination
 Malingering in, 64
 Casualties (parliamentary question), 180—Eye injuries and blindness in (W. Unthoff), 603—Casualties among doctors, 670—Number of doctors serving, 670—Suppression of quackery by, 698—Medical services, 670, 702
 Army, Indian: Officers retained, 675—Outfit allowances, 471—Payment of specialists, 639
 Army, Indian: Indian Subordinate Medical Service, 216
 Army medical officers. *See* Army, British
 Army Medical Service. *See* Army, British
 Army, Russian, antityphoid vaccination in, 775
 Army, United States: Deputation to President Wilson re new legislation for the medical department, 354—Report on sickness in, 546—Medical needs of, in a few years' time, 872
 ARNOLD, F. S.: Fasting treatment for diabetes, 576
 ARNOLD, W. J. J.: Sodium sulphate in dysentery and infantile diarrhoea, 49
 Arsenic in the treatment of protozoan diseases, history of organic compounds of (Benjamin Moore), 616. (O)
 Arsenical nephritis, 628
 Arterio-venous aneurysm. *See* Aneurysm
 Arterio sclerosis, retinal circulation in (Foster Moore), 691
 Arthritis, dysenteric (T. Gillman Moorhead), 483. (O)—Correspondence on, 776
 Artificial abscess. *See* Abscess
 Artificial limbs (parliamentary question), 179, 565, 768, 829—Factory for in Italy, 400, 720—In France, 826. *See also* Soldiers, crippled
 Association, Alberta Medical, 70
 Association, American Climatological, *Transactions for 1915*, rev., 623
 Association of Anaesthetists, American, 634
 Association, Anzac Medical: Lice (Major Butler), 630; (Captain Phipson), 630
 Association, Asylum Workers', 840
 Association, British: Report on school books and eyesight, 424
 Association, British Dental: Annual meeting, 886—Discussion on war injuries of the jaws, 886
 Association, British Medical, in 1915 (leading article), 20
 ASSOCIATION, BRITISH MEDICAL:
 New South Wales Branch: Department of Public Instruction and, 898
 Staffordshire Branch: Mitchell Smith: Alimentary hygiene in children, 90—G. A. Carter: Nose bleeding, 90—S. McMurray and E. E. Young: Intracranial new growth simulating miner's nystagmus, 90—Mr. Priestley: Heart disease in school children, 375—Dr. Cookson: Some after-histories, 375; Early carcinoma, 375—Mr. Cholmeley: Splenectomy for Banti's disease, 819; Diaphragmatic hernia, 819—Dr. Mactier: Insurance Act developments and problems, 819—J. A. Codd: Coolidge tube, 819
 Association, Cottage Benefit Nursing, 897
 Association for Feeble-minded, National, 188. *See also* Feeble-minded
 Association Générale des Médecins de France receives the estate of Madame Dard, 489
 Association, Infant Welfare, 540
 Association, Medico-Psychological, of Great Britain and Ireland—George M. Robertson: Female nurses in male wards of mental hospitals, 308—Dr. Orr and Major Rows: Toxic causes of idiocy and imbecility, 757
 Association, Mental After-care, annual meeting, 400
 Association for Mentally Deficient, 188. *See also* Mentally deficient
 Association, National, for Prevention and Cure of Consumption (Sydney), 467—Bequest to, 840
 Association, Ontario Medical, 632
 Association, Poor Law Medical Officers' of England and Wales, 185, 639
 Association, Poor Law Medical Officers', Scottish, annual meeting, 223
 Association for Promoting Training and Supply of Midwives, annual meeting, 436
 Association of Registered Medical Women, 16—Discussion on treatment of syphilis, 16—Discussion on control of venereal disease, 721
 Asthma, adrenalin in, 36
 Asylum, Ayr District, report, 289
 Asylum, Glasgow Royal, annual meeting, 324
 Asylum, Royal Blind, Edinburgh, and blinded sailors and soldiers, 395, 536
 Asylum Workers' Association. *See* Association
 Asylums, female nurses in (parliamentary question), 26—(George M. Robertson), 308. *See also* Hospitals, mental, and Nurses
 Asylums, pay of medical officers at (parliamentary question), 463
 Athenaeum Subject Index to Periodicals, 295
 Atheroma, cholesterol as a cause of, 352
 Athy Union, large number of unvaccinated children in, 695
 ATRINS, Colonel J. C. M.G. conferred upon, 146
 ATLEE, Lieut. H. B. Military Cross conferred upon, 216
 Attendance on soldiers by civil medical practitioners, 840, 872
 Attested medical men. *See* War emergency
 AUSTEN, Midshipman Mark, killed in action, 865, 896
 AUSTIN, Captain Elfred Chalmers, dies on service, 864
 Australian Medical Corps (parliamentary question), 141
 Austria, experiences of a Norwegian doctor in (Einar Aaser), 65—Faulty ambulance organization, 65—Feeding the wounded at railway stations, 65—Dysentery, 65—Cholera, 65—Quarantine arrangements, 66—Care of cripples in, 567—Industrial poisoning in the munition factories (Oppenheim), 675
 Austria, problems of medical education in, 107—Footwear of the soldiers, 108—Losses among the medical men, 109—Shortage of drugs in, 390
 Austrian army. *See* Army
 Austro-German experiences: Two unfamiliar fevers—obscure five-day fever (H. Werner), 769—Gaither-pain fever (Grätzer and Zanko), 769
 Austro-Hungarian casualties, 503
 Aviation, injuries and diseases of, 389
 Aviators, physiological tests for, 531, 730
 Axis tractor adaptable to any obstetric forceps, 455
 Axone, spelling of, 774
 B.
 BABBIE, Surgeon-General William, K.C.M.G. conferred upon, 670
 BACCCELLI, Guido, obituary notice of, 114—Statute to, 325
 Bacillary dysentery. *See* Dysentery
Bacillus dysenteriae (Shiga) vaccine for prophylactic purposes (J. D. Thomson), 303. (O)
 BACOT, A. W.: Temperature necessary for the destruction of lice and their eggs, 167—*Pediculus humanus* (vestimenti) and *Pediculus capitis*, 788
 Bacteria of gangrenous wounds (Major H. R. Dean and Captain T. B. Mouat), 77. (O)—Correspondence on, 184
 Bacteria, new forms of plating dishes for the cultivation of (S. Delépine), 588. (O)
 Bacterial fermentation tests, new apparatus for: fermentation bulbs (S. Delépine), 620. (O)
 Bacteriology and brewing (leading article), 727
 BACULO, Professor: Apparent death and premature burial in infants, 698
 BAGSHAWE, Major V., D.S.O. conferred upon, 833
 BAILEY, C. H.: Cholesterol as a cause of atheroma, 352
 BAINBRIDGE, W. S.: *The Cancer Problem*, rev., 17
 BAINES, Sir J. Athelstane: Effect of war on population, 728
 BAJ, Piero, death of, 75
 BAKER, F. C. J.: Increased motor licenses, 634
 BALE, William Barker, obituary notice of, 258
 BALL, Sir Charles, obituary notice of, 469
 BALL, Lieut. Malcolm Edward, dies of wounds, 604
 BALLANCE, C. A., C.B. conferred upon, 670
 BALLANTYNE, J. W.: Antenatal clinics and prematurity practice at the Edinburgh Royal Maternity Hospital in the years 1909-1915, 189, 234, 275—Neo-natal mortality in Edinburgh, 504—Notification of pregnancy, 594
 BALLENGER, W. L., death of, 187
 BALLEET, Gilbert, obituary notice of, 575
 BALLINGALL, Captain D. C. G., Military Cross conferred upon, 146
 Ballinrobe guardians and Dr. Hawkshaw, 536
 BANNERMAN, Surgeon-General: Hospitals in India, 633
 BANNINGTON, B. G.: *English Public Health Administration*, rev., 17, 219
 BANNISTER, J. B. (and O. Nepean LONGRIDGE): *Manual for Midwives*, rev., 760
 Banti's disease, splenectomy for (Mr. Cholmeley), 819
 BARANY, R.: Treatment of brain wounds, 567
 BARCLAY, H. Clifford: *Lectures on Elementary Anatomy and Physiology*, rev., 855
 BARDSWELL, Noel, M.V.O. conferred upon, 823
 BARKER, Arthur E. J., death of, 564; obituary notice of, 607, 638
 BARLING, Gilbert, retirement of, 30—Remarks on delayed tetanus, 337
 BARLOW, Sir Thomas: Appreciation of A. E. Barker, 638
 BARNES, Captain John Christopher Craven, killed in action, 833
 BARNETT, the late Canon and Mrs.: *Practical Socialism*, rev., 18
 BARR, Captain George Flett, dies on service, 502
 BARR, Sir James: "The soldier's heart" and its relation to thyroidism, 544, 739, 899
 BARROW, Boyce: Case of hiatal oesophagismus under the care of, 589
 BARROWS, C. L., death of, 187
 BARRY, Brigade-Surgeon Lieut.-Col., estate of 267

- BARTLETT, Major B. S., D.S.O. conferred upon, 833
- BASU, Major B. D.: *The Dietetic Treatment of Diabetes*, rev., 310
- BATE, Colonel A. F. L., C.M.G. conferred upon, 833
- BATEMAN, Francis John Harvey, appointed J.P. for County of London, 436
- BATES, Midshipman Edwin Raymond, killed in action, 865
- BATES, Captain H. T. (and Captain John FRASER): Treatment of acute toxæmia secondary to gas gangrene by the intravenous injection of a solution of hypochlorous acid, 83—Penetrating wounds of the abdomen, 509
- BATES, Tom, obituary notice of, 574
- Bath, baths extension at, 351
- BATH, Lieut. J. E. W., killed in action, 28
- Baths, divisional (Lieut. A. Cowe), 630
- Battle of the clubs in New Zealand, 860. *See also* New Zealand
- Battle front in Northern France, some notes from (A. Laphorn Smith), 581. (O)
- Battlefields of East Prussia, 827
- BATTYE, Major W. R., D.S.O. conferred upon, 216; Legion of Honour conferred upon, 357
- BEALISS, W. M.: *Principles of General Physiology*, rev., 279—Spelling of "neuron" and "axone," 774—"Neurone" or "neuron," 888
- BAZETT, Captain H. C., Military Cross conferred upon, 146
- BEACH, Colonel C. B., C.M.G. conferred upon, 833
- BEALE, Lieut. Clifford William, killed in action, 430
- BEARBLOCK, Fleet Surgeon Walter J., killed in action, 832
- BEARN, Captain F. A., Military Cross conferred upon, 146
- BEASLEY, Lieut. James Joyce, killed in action, 68
- BEATTIE, J. M.: Simple method of anaerobic culture, 569—Simple and inexpensive methods for fermentation tests and for obtaining cultures of anaerobes, 756
- BEATTY, Lieut. Eric Edge, killed in action, 735
- BEAUMONT, G. (editor): *A Book of English Poetry*, rev., 18
- BECHER, Major Archibald V., dies on service, 252
- BEDDOWS, Captain E. C., Military Cross conferred upon, 146
- BEDFORD, Surgeon-General W. C. A., C.B. conferred upon, 833
- Beds and stretchers: The Bradford frame, 499—The Bryan bed, 499
- Beers, light, 776
- BEESELY, L. (and T. B. JOHNSTON): *Manual of Surgical Anatomy*, rev., 486
- BEEVOIR, Colonel W. C., C.B. conferred upon, 146
- BELCHER, H. E.: How medical writings may be given a marked development, 837
- Behind the Lines*, 828
- BELEMORE, Lieut.-Col. Alfred John, obituary notice of, 435
- Belfast, Health Society, 360
- Belgian atrocities, 827
- Belgian colleagues at home and abroad, 871—Correspondence on, 71—Subscriptions, 106 255, 741, 871—Vacation classes, 106
- Belgian field hospital, 630
- BELL, Major F. McKelvey: Bloodless operation for hæmorrhoids and prolapsus ani, 415
- BELL, Major J. G., D.S.O. conferred upon, 670
- BELL, R. Gordon: Caesarean section in a pitman's cottage, 195
- BELL, W. Blair: Functions of the pituitary body, 322
- Benevolent societies for families of officers and other ranks of the R.A.M.C., proposed, 460, 628, 699, 730, 766, 828, 868—Leading article on, 889—Provisional committee, 902
- Bengal, sanitation in, 632; malaria in, 671
- BENNETT, Charles: Inguinal incision for intrascrotal affections, 675
- BENNETT, Sir William, appointed Surgeon-in-chief to St. John Ambulance Brigade, 363
- Besquets to hospitals and medical charities, 49, 112, 543, 602, 694, 775
- BERDOE, Edward, obituary notice of, 398
- BERZEGOWSKY: Gunshot wounds, 422
- Beri-beri in the Amazon basin (Allen Walcott), 447
- Beri-beri, relapsing (J. C. McWalter), 201
- BERKELEY, Comyns (and Victor BONNEY): Arterio-venous aneurysm of the subclavian artery and vein, 753—*The Difficulties and Emergencies of Obstetric Practice*, rev., 758
- Berlin, diphtheria in, 99
- BERRY, George Andreas, knighthood conferred upon, 53
- BERRY, Lieut. Percy Haycraft, dies on service, 465
- BIARUCHA, Captain P. B., D.S.O. conferred upon, 605
- BIANCHI, Leonardo, member of the new Italian Ministry, 894
- Bilharzia, relation between the terminal spined and lateral spined eggs of (Lieut.-Col. R. T. Leiper), 411. (O)
- Bill, Finance, 894. *See also* Budget
- Bill, Indian Medical Degrees, 773
- Bill, Midwives, for Ireland, 898
- Bill, Military Service, 178, 732, 766. *See also* Act
- BINET, A. (and Th. SIMON): *Mentally Defective Children*, rev., 377
- BINNING, William B., dies of wounds, 670
- Biology, review of books on, 758
- BIRD, F. D., C.B. conferred upon, 670
- BIRD, James Brown, obituary notice of, 706—Memorial fund, 725, 902. *See also* Fund
- BIRDWOOD, Sir George: Introduction of cinchona trees into India, 293—The Countess of Chinchon, 296
- BIRDWOOD, Lieut.-Col. G. T.: *Clinical Methods for Students in Tropical Medicine*, rev., 133
- BIRDWOOD, Lieut. Herbert Frederick, killed in action, 503
- Birthday honours, 823
- Birth-rate in war time, 105
- Birth-rate and war wastage (report by Dr. Newsholme), 555
- Birth-rate and war, 769
- Births, voluntary restriction of, 697
- BLACK, Major R. B., Legion of Honour conferred upon, 354
- BLACK, Private Thomas Samuel Outhbert, dies of wounds, 68
- BLACKHAM, Lieut.-Col. R. J. (and Sir Pardey LUKIS): *Tropical Hygiene for Residents in Tropical and Subtropical Climates*, rev., 133—*The Indian Manual of First Aid*, rev., 555
- BLACKMAN, J. G.: Trench foot, 818
- BLAIR, Alexander: Physics of a surgical dressing, 468
- BLAKE, F. G.: Rat-bite fever, 285
- BLANC, Leon, obituary notice of, 839
- BLAND-YUTTON, Sir John: Hunterian lecture on ulcers new and old: jejunal for duodenal ulcers, 272
- BLANDY, Captain G. S., Military Cross conferred upon, 833
- BLANE, Sir Gilbert, 426
- BLASCHKE: Venereal disease, 600
- BLENKINSOP, Colonel A. P., C.B. conferred upon, 833
- BLIN, Adolphe, death of, 75
- Blind, "sight" for (leading article), 424
- Blinded sailors and soldiers (parliamentary question), 353—Provision for in Scotland, 395, 536—School of massage for at Reuilly, 455—Care of in Germany, 604. *See also* Soldiers
- Blindness and deaf-mutism, temporary, 255
- Blindness in the German army, 603
- Blood pressure measurement, theory of (Leonard Hill and James M. McQueen), 875. (O)
- Blood serum, action of hypochlorites on (H. D. Dakin), 852. (O)
- Blood stains (leading article), 283
- Blood from veins, improved technique for intravenous injection and removal of (C. O. Hawthorne), 168
- BLUMFELD, J.: Appreciation of Sir F. W. Hewitt, 113
- Board of Agriculture, Departmental Committee on employment of discharged soldiers and sailors on the land, 187
- Board, Central Midwives, 187, 331, 471, 608, 808, 903
- Board, Central Midwives, for Scotland, 253, 324, 360
- Board of Education, annual report of chief medical officer, 18, 55, 57, 98—Leading article on, 57, 348—Report on grants to universities and university colleges, 138
- Board, Local Government, general order re notification of measles, 24, 205—Report re actinomycosis and actinobacillosis in oxen, 104—Circulars re maternity and child welfare, 241, 280—Report on bovine tuberculosis in man (A. Eastwood and F. Griffiths), 248—Report of the medical officer, 249—Report on maternal and infantile mortality, 489—Circular re payment of compensation in respect of Poor Law institutions, 507—And control of venereal diseases, 597—Annual report on public health and medical subjects: notification of infectious diseases and tuberculosis, 697—Blue Book on cerebrospinal fever, 724—Order requiring medical officers of health to notify cases of tuberculosis to Army Council, 738
- Board, Local Government, Ireland: Circular re infant and maternal welfare, 867
- Board of Trade, application by the Association re doctors and increased price of petrol, 244—Control of petrol supplies, 528
- Boards of guardians and their medical officers who have joined the R.A.M.C. (co. Fermanagh and co. Westmeath), 323, 395—Swinford, 431
- Body temperature. *See* Temperature
- BOLARD, Assistant Surgeon E. H., Military Cross conferred upon, 146
- Bold advertisement, 472
- Bolus and bullet, 872
- Bomb fires, extinction of, 765
- Bombay Medical Union, 632
- BOND, C. J.: Influence of antiseptics on the activities of leucocytes and on the healing of wounds, 777
- Bonesetters (parliamentary question), 497
- Bonesetting, review of books on, 417
- BONNEY, Victor: Jejunostomy and jejunocolostomy, 571, 673—Fæcal and intestinal vomiting and jejunostomy, 583—(and Comyns BERKELEY): Arterio-venous aneurysm of subclavian artery and vein, 753; *The Difficulties and Emergencies of Obstetric Practice*, rev., 758
- Books and journals, fewer, owing to the war, 342
- Books, medical, decrease in publication of, 223
- BOOTH, Lieut. A., killed in action, 702, 734
- BOOTH, Major E. B., D.S.O. conferred upon, 146
- Bootle, inspection of school children, 704
- BORGER, Dr., death of, 187
- BORNE, Dr.: *La rééducation des blessés et des mutilés de la guerre*, 668
- BOSANQUET, W. C. (and J. W. H. EYRE): *Serums, Vaccines and Toxins in Treatment and Diagnosis*, rev., 887
- Boston, U.S.A., zones of silence to be observed round the hospitals of, 783—Medical inspection of school children in, 848
- Boston Medical Library receives fewer books and journals owing to the war, 342
- Bothrioccephalus latus* (T. T. O'Farrell), 309
- BOTTAZZI, Filippo, Academia dei Lincei of Rome awards the King's prize to, 305
- Bougie, suction or vacuum, for treatment of chronic gonorrhoea (Captain A. Campbell), 817. (O)
- BOURDILLON, Captain L. G., Military Cross conferred upon, 146
- BOURKE, Lieut.-Col. E. A., D.S.O. conferred upon, 833
- Bovine tuberculosis. *See* Tuberculosis
- BOVHAY, Captain Eustace C., killed in action, 430
- BOWLEY, Sir Anthony, K.C.V.O. conferred upon, 53
- BOWMAN, F. B.: Ulcero-membranous stomatitis and gingivitis among troops on active service, 373
- BOYD, Captain J. E. M., Military Cross conferred upon, 146
- BOYD, James Stanley Newton, death of, 212—Obituary notice of, 256, 295—Estate of, 471
- Boylston Medical Prize, 608
- BRACKENRIDGE, Lieut.-Col. F. J., C.M.G. conferred upon, 146
- BRADFORD, Sir John Rose: Gunshot wounds of chest, 129—Elected President of the London and Counties Medical Protection Society, 331—Trench nephritis, 351
- Bradford bed frame, 499
- BRADLEY, Maïron, Médaille d'Honneur des Epidémies bestowed upon, 568
- BRADLEY, O. C.: *The Structure of the Fowl*, rev., 759
- Bradycardia associated with jaundice (E. E. Læset), 553
- BRAIDE, Lieut.-Col. George Frederick William, obituary notice of, 399
- Brain: Wounds of (W. v. Brunn), 287—(v. Eiselsberg), 895—Prolapse of, 288—Treatment of (R. Bárány), 567
- BRAMWELL, William: Physiological cardiac irregularity, 36—Temporary deaf-mutism and blindness, 255—Pruritus of face, 744—How medical writings may be given a marked development, 773—Treatment of chlorine gas poisoning, 808
- BRAND, A. T. (and J. R. KEITH): Puerperal septicaemia treated by intravenous injection of eusol, 415
- BRANFOT, Dame Lucy Innes, dies on service, 503
- BRASH, Captain James Couper, Military Cross conferred upon, 834
- BRAY, Lieut.-Col. H. A., C.M.G. conferred upon, 837
- BRAY, John Laing, obituary notice of, 186
- Bread for French prisoners, new arrangements, 865
- Breads for children, 361
- BRECHIN, Captain W. A., Military Cross conferred upon, 833
- BREMNER, Captain A., Military Cross conferred upon, 833
- BREND, W. A.: *Inquiry into the Statistics of Deaths from Violence and Unnatural Causes in the United Kingdom*, rev., 377
- BRENNAN, Captain E. T., Military Cross conferred upon, 216
- Brenford guardians and medicines to the sick poor, 260
- Brewing and bacteriology (leading article), 727
- BRICE, Major Ernest, dies on service, 604
- Brigade Revue*, 828
- BRIGGS, Dr.: Appreciation of A. W. W. Lea, 742
- Brilliant green as an antiseptic (Archibald Leitch), 236. (O)
- Brilliant green and telluric acid in the isolation of pathogenic organisms (C. H. Browning and L. H. D. Thornton), 632. (O)
- British Dental Association. *See* Association
- British Dental Association. *See* Association
- British *Dominions Year Book*, 1916, 224
- British Expeditionary Force, the work of a consulting surgeon with (Colonel Andrew Fullerton), 50—Medical Advisory Board, France, 830
- British Dental Journal*, war supplement, 534, 588
- British Fire Prevention Committee, 16
- British Journal Photographic Almanac*, 311
- British Medical Association. *See* Association
- British prisoners. *See* Prisoners
- British Red Cross. *See* Red Cross
- British School of Motoring, premises, 507

British Science Guild, annual meeting, 730
 BROMHALL, C. H.: obituary notice of, 222
 Bromides in epilepsy, 32, 188, 808
 Bronchitis and malingering (R. Hamburger), 502
 Bronchopneumonia with secondary haemorrhagic meningitis and recovery (A. Geoffrey Spera), 198. (O)
 Bronchopneumonia (G. A. Lurie), 315
 BROWN, Alexander: Immediate treatment of severe post-partum haemorrhage, 332
 BROWN, Lieut. Francis F., Serbian Order of St. Sava conferred upon, 735
 BROWN, Major G. H. J., D.S.O. conferred upon, 146
 BROWN, Jno.: Election of Direct Representatives on the General Medical Council, 740, 838
 BROWN, Major J. P., D.S.O. conferred upon, 146
 BROWN, Lieut. Richard Gavin, dies on service, 356
 BROWN, Major T. F., D.S.O. conferred upon, 833
 BROWN, W. Langdon (and J. Keogh MURPHY): *The Practitioners' Encyclopaedia of Medical Treatment*, rev., 169—Trench nephritis, 278, 397—Fasting treatment for diabetes, 452
 BROWNE, Colonel E. G., C.B. conferred upon, 146
 BROWNING, C. H. (and L. H. D. THORNTON): Importance of method in the isolation of pathogenic organisms of the typhoid group of faeces, 682
 Brown-Séquard epilepsy, 494
 BRUCE, Sir David, awarded the Leeuwenhoek medal, 25
 BRUCE, H. A.: *Sleep and Sleeplessness*, rev., 558
 BRUCE, Captain L. C., Military Cross conferred upon, 833
 BRUCE, Lieut. Vincent Connell, killed in action, 535
 BRUNN, W. v.: Wounds of the head and brain, 287
 BRUNT, Captain E. H. (and others): Trench fever, 225
 Bryan bed, 499
 BRYAN, C. W. G.: After-treatment of amputation stumps, 480—The Bryan bed, 499
 BUBB, Charles Henry (and Percival P. COLE): Deformities of the jaws resulting from operation or injury, 263
 BUCHAN, Wm.: *The Log of H.M.S. Bristol*, rev., 310
 BUCHANAN, A. M.: *Manual of Anatomy, Systematic and Practical, including Embryology*, rev., 203
 Budget, 533, 561, 731, 767, 894—Leading article on, 561
 BUIST, H. Massac: Motor ambulance development, 18—Motors for medical men, 96—Motor notes for medical men, 243, 379, 557
 Bullet and bolus, 872
 Bullet removed from upper surface of diaphragm (E. D. Telford), 549. (O)
 Bullets, localization of, 862
 BUNDY, Elizabeth R.: *Textbook of Anatomy and Physiology for Training Schools and other Educational Institutions*, rev., 454
 "Bungbaga," on a disease called (O. R. Patton), 483. (O)
 BURD, C. P.: Treatment of pruritus ani, 472
 BURGESS, Mildred M.: The education of nurses, 292
 BURKE, Major B. B., D.S.O. conferred upon, 146
 BURKE, Captain Henry James, Military Cross conferred upon, 28
 BURNHAM, Fred. W. E.: How medical writings may be given a marked development, 837
 BURR, C. W. (editor): *Textbook of Nervous Diseases*, rev., 133
 BURROUGHS, WELLCOME, AND CO.: Many names for the same drug, 571
 BURTCHELL, Colonel C. H., Legion of Honour conferred upon, 357
 BUSBY, Thomas, obituary notice of, 114
 BUTLER, Major: Lice, 630
 UTLEB, Captain W. H., Military Cross conferred upon, 833
 BUTT, Lieut. John Gillis, believed killed in action, 321, 357
 BUZZARD, E. Farquhar: Gunshot wounds of the head, 432
 BYERS, Sir John: Medical dialect and folklore of the North of Ireland, 324—Shakespeare's English in Ulster, 627
 BYLES, F. G., death of, 187

C.

Caecum, review of books on, 204
 Caesarean section in a pitman's cottage (R. Gordon Bell), 195. (O)
 CAHILL, Lieut. P., Military Cross conferred upon, 146
 Calcutta, School of Tropical Medicine, 459, 460
 CAINE, J. N.: *Biology*, rev., 758
 CAIRN, Dion: *The Wounded French*, 5
 Hall: Auscultation of the heart,

CALWELL, William: Effect of position in auscultation of the heart, 396
 CAM, Walter H.: Traumatic rupture of spleen: splenectomy: recovery, 199
 CAMERON, Sir Charles: Statistics of food inspection in Dublin, 359
 CAMERON, James: Fees of locumtenents, 901
 CAMERON, Margaret W.: Maternity and child welfare, 505
 CAMERON, Captain Norman, Serbian Order of St. Sava conferred upon, 735
 CAMPBELL, Captain A.: Suction or vacuum bougie for treatment of chronic gonorrhoea, 817
 CAMPBELL, Captain Archibald Thomson, dies on service, 356, 398
 CAMPBELL, Colin G., obituary notice of, 637
 CAMPBELL, Harry: Soldier's heart and its relation to thyrotoxicosis, 605
 CAMPBELL, Major J. H., D.S.O. conferred upon, 146
 CAMPBELL, Captain R. D., D.S.O. conferred upon, 833
 CAMPBELL, William: Pathological findings in their relation to the "epidemic" jaundice of the Dardanelles, 444
 Camps, training, sickness in (parliamentary question), 105
 CAMUS, Jean: Physical treatment for disabled soldiers, 319
 CAMUS, Professor: Physiological tests for aviators, 531
 CANADA:
 Alberta: College of Physicians and Surgeons, 32—Medical Association, 70
 Boundary Waters Commission, 772
 Canadian casualties, 704
 Canadian Department of Public Health, 732
 Canadian graduates and the R.A.M.C., 70
 Deaths in the medical profession in 1915, 239
 Free antitoxin in Ontario, 632
 Honours: Two McGill V.C.'s, 704
 International Joint Commission on Boundary Waters, 772
 Military Hospital Commission, 183, 557
 "Mount Cavell," 675
 No. 7 Overseas Stationary Hospital, 111
 Ontario Medical Association, 632
 Patriotic Fund, 111
 Prohibition in, 31
 Red Cross Society, 772
 Regular versus irregular practitioners (Ontario), 31
 Serums supplied free, 71
 Ste. Agatha Sanatorium, 32
 Sterilization of water by ultra-violet rays, 111
 Summer courses in medicine, 537
 Two McGill V.C.'s, 704
 War emergency, 252

Cancer, deaths from, in the United States, 522, 706
 Cancer, increasing mortality from (leading article), 890
 Cancer, osmosis in treatment of, 608
 Cancer, review of books on, 17, 554
 Cancrum oris treated by galy (B. A. Peters), 719
 Cannata, epidemic jaundice due to *B. paratyphosus* B, 800
 CANTLIE, Colonel James: Medicine and the National Volunteers, 872
 CAPPS, Fleet Surgeon Frederick A., killed in action, 832
 Caracas, medical school established at, 570
 Carbuter, Zenith, 565
 Carcinoma. See Cancer
 Cardiac disease, vascular phenomena of (Basil Parsons-Smith), 120. (O)
 Cardiac irregularity and pain at root of neck, 576, 608
 Cardiac irregularity, physiological, 36
 CARLE, M.: *Les écoles professionnelles des blessés*, 668
 CARLES, J.: *Les fièvres paratyphoïdes*, rev., 622
 CARLETON-JONES, Surgeon-General: Appreciation of Lieut.-Col. A. W. Tanner, 864
 CARLIE, H. G. (and H. D. DAKIN): Electrolytic hypochlorite for hospital ships, 455
 CARLYLE, Oliver: Physics of a surgical dressing, 504
 CARMICHAEL, Archibald, obituary notice of, 434
 Carnegie United Kingdom Trust: Infant and maternal welfare, 599, 867
 CARR, Captain G. D.R., Military Cross conferred upon, 216
 CARRARO: Filiciction, 598
 CARREL: Secondary closing of war wounds, 211
 CARTER, Sergeant Arthur Rowland, killed in action, 535
 CARTER, Surgeon-Major Frederick, obituary notice of, 331—Estate of, 482
 CARTER, G. A.: Nose bleeding, 90
 CASEMENT, Captain F., Legion of Honour conferred upon, 357
 CASTELLANI, Aldo: Insecticides, 151—Notes on dysenteric vaccination, 306—Paracholera, 448. (O)
 Castellani's "tetra vaccine" and "pentavaccine" (G. A. Lurie), 45. (O)
 Casualties, air raid, in Great Britain (parliamentary question), 803

Casualties, Austro-Hungarian, 503
 Casualties, Dardanelles (parliamentary question), 26
 Casualties, German army (parliamentary question), 26; among German doctors, 670—Official announcement, 770
 Casualties in the medical services of the navy and army, 28, 67, 108, 147, 181, 215, 252, 288, 321, 356, 394, 430, 465, 502, 535, 568, 604, 631, 669, 701, 734, 770, 803, 832, 864, 895
 Casualties in the medical services in 1915, 92
 Casualties, Mediterranean (parliamentary question), 26
 Casualties and recoveries, 25
 Casualties, total (parliamentary question), 26, 213, 391
 Catgut sterilization (Quénou), 800
 CATHART, Charles W.: Sphagnum moss as a surgical dressing, 893
 CATHART, Lieut. F. J., killed in action, 865
 CATO, Dorothy: *In a French Military Hospital*, rev., 510
 CAVELL, Edith, mountain named after, 675
 Cavendish Electrical Company's pamphlet on equipment for military hospitals, 400
 CECCHERELLI, Andrea, death of, 187
 Cellulitis, magnesium sulphate lotion in, 400, 508
 CEMERY, Percival Conrad, killed in action, 465
 CENTER, Fleet Surgeon William Rudolf, dies of wounds (H.M.S. Russell), 669
 Central Control Board. See Liquor restrictions
 Central Medical War Committee. See War emergency
 Central Midwives Board. See Board
 Central Pensions Committee. See Pensions
 Cerebral injury, severe, associated with laughter (J. M. MacPhail), 688
 Cerebral lesions, visual disturbances from (Colonel Lister and Lieut.-Col. Gordon Holmes), 485
 Cerebro-spinal fever. See Fever
 Cerebro spinal meningitis. See Fever, cerebro-spinal
 Certificates, signing of, 776
 CERVANTES and medicine (leading article), 726
 Chailey Home for Cripples, 605
 CHAMPEYNS, Lieut. John Dalrymple, dies of wounds, 896
 CHANCE, Sir Arthur, appointed consulting surgeon to Dr. Stevens's Hospital, 835
 Channel Islands, conditions of practice in, 296
 CHAPIN, H. D.: The full diet for enteric fever in children, 103
 CHAPLIN, A. Chaston: Skilled chemists on active service, 260
 CHAPLIN, Surgeon H. G., lost in H.M.S. *Hampshire*, 864
 CHAPUIS, Edmond, death of, 187
 CHARLES, Sir R. Havelock, to be Dean of the London School of Tropical Medicine, 662
 CHARLESWORTH, George Henry, obituary notice of, 399
 CHAUDHURI, E. K.: Dysenteric arthritis, 776
 Chausseurs, dearth of, and instruction in motoring, 507—Where to apply, 675—Of medical practitioners (parliamentary question), 768
 CHAVASSE, Captain Arthur Ryland, dies on service, 465—Estate of, 894
 CHAVASSE, Captain N. G., Military Cross conferred upon, 146
 CHEATLE, G. Lenthal: Medical arrangements at Suvla landing, 468
 CHEEVER, David W., obituary notice of, 470
 Chemical preparations useful for medicinal purposes, committee appointed to study in Italy, 550
 Chemical treatment of cerebro-spinal fever. See Fever
 Chemical work (in France), 464
 Chemiotherapy, rationale and practice of (J. E. B. McDonagh), 591, 826, 901—Discussion, 591, 820—Correspondence on, 901
 Chemistry, review of books on, 622, 657
 Chemists on active service, 260
 Chemists, meeting re founding a general union of in France, 708
 CHESTER, Colonel William Litchfield, obituary notice of, 775
 Chest, gunshot wounds of. See Gunshot
 Chest wounds (Payr), 895
 Chest wounds, perforating and penetrating, with severe haemorrhage (A. Don), 816. (O)
 CHEYNE, Sir William Watson, K.C.M.G. conferred upon, 53
 Chilblains, 260
 Child welfare scheme (Manchester), 396
 CHILDE, Captain Charles M., killed in action, 535
 CHILDE, Lieut.-Col. Letterstedt Frederick, obituary notice of, 35
 CHILDES-EVANS, Captain D. B., D.S.O. conferred upon, 833
 Chile, Commission for the Study of Crime appointed, 380
 CHILLINGWORTH, Andrew: Unusual case of mumps, 653
 China: Inland mission report, 151—Medical education in, 507
 CHINCHON, the Countess of, 296
 Chinese Recorder, 507
 Chloramine, its preparation, properties, and use (H. D. Dakin, J. B. Cohen, and J. Kenyon), 160. (O)

Chloramine group, antiseptic action of, 388
Chloramine in the treatment of wounds of the mouth and jaws (Staff Surgeon A. R. Fisher), 87. (O)
Chloramine-T, 289. *See also* Tolamine
Chloramine-T disinfectant, 454—Price of, 455
Chlorine gas. *See* Gas
Chlorine, poisoning by, 34, 774
Cholecystitis, acute gangrenous, with spreading peritonitis occurring in the epidemic of jaundice, Gallipoli, 1915 (John Morley, F. Battinson Smith and William Campbell), 444. (O)
Cholera in Austria (Einar Aaser), 65
Cholesterol as a cause of atheroma, 352
CHOLMELEY, Mr.: Splenectomy for Banti's disease, 819—Diaphragmatic hernia, 819
Cholo-haemorrhax, case of (T. R. Elliott and Herbert G. M. Henry), 9. (O)
CHOPPING, Lieut.-Col. A., C.M.G. conferred upon, 146—Order of the Crown of Belgium conferred upon, 357
CHRISTIE, Lieut. Dugald R., killed in action, 394
CHRISTOPHERSON, J. B., receives permission to accept the Egyptian Order of the Nile, 436
CHURCH, A. (and F. PETERSON): *Nervous and Mental Diseases*, rev., 132
CHURCH, Henry MacDonald, estate of, 46
Cinchona trees, introduction of into India, 247—Correspondence on, 293, 324
Civil hospital staffs. *See* Hospital staffs
Civil liabilities (parliamentary question), 803
Civil Service estimates (Irish hospital), 431
CLARK, Lieut.-Col. Sir J. B. A., C.M.G. conferred upon, 833
CLARKE, J. Jackson: *Rhizopod Protozoa: The Cause of Cancer and other Diseases*, rev., 759
CLARKE, John S.: Lice and the clothes brush, 837
CLARK, Richard C.: Fatal case of acute nephritis occurring in the Expeditionary Force, 586
Claw-foot (Lieut.-Col. Robert Jones), 749. (O)
CLEMENS, Surgeon Frederick W. T., killed in action, 832
CLEMENTS, Captain John M., Serbian Order of St. Sava conferred upon, 735
CLIFFORD, Captain E. C., Military Cross conferred upon, 605
CLIFFORD, Captain W. J.: Cocaine in Calcutta, 632
Clothes brush for lice, 837
Clothing against cold (W. T. Grenfell), 86. (O)
COATES, Nurse W. B., dies on service, 288
Cobra venom (Cushny and Yagi), 316
Cocaine in Calcutta, 632
Cocaine in India (parliamentary question), 391
Codd, J. A.: Coolidge tube, 819
COHEN, J. B. (and H. D. DARIN and J. KENYON): *Studies in antiseptics: chloramine*, 160, 388
Cold, clothing against (W. T. Grenfell), 86. (O)
Cold feet and stuffy heads, 708, 840
"Colds" and the influence of the atmosphere on the nasal mucous membrane (Leonard Hill), 541. (O)
COLZ, Percival P. (and Charles Henry Bubb): Deformities of the jaws resulting from operation or injury, 268
Coleridgean "amenities of debate," 426
COLES, Alfred C.: Easy and rapid method of doing Widal's reaction for typhoid, 684
COLES, A. E. (and others): Infectious jaundice, 526
COLHOUN, Captain William Albert, Military Cross conferred upon, 182
College, Epsom, 400
College, Jefferson Medical, Philadelphia, 883
College, Lady Hardinge Medical, 633
College for nurses. *See* Nurses
College of Physicians, Philadelphia, Library Committee report on decrease of medical publications, 472
College, Royal (Dick) Veterinary, 771
College, Royal, of Physicians, Edinburgh, offers its diploma of membership to Major H. G. Priestley, Captain A. C. Vidal, and Captain J. L. Lauder, 706 *Reports from the Laboratory of*, 170
College, Royal, of Physicians of Ireland, degrees and pass lists, 571
COLLEGE, ROYAL, OF PHYSICIANS OF LONDON:
Admission of Fellows, 741
Admission of Members, 219, 675
Committee, 399, 607, 675, 741
Diplomas in Public Health, 219
Duties of medical practitioners in cases of criminal abortion, 219
Election of Fellows, 675
Election of President, 607
Licences, 219, 675
Other business, 219
President's address, 607
Reports, 607
Representative on General Medical Council, 607
Resignation of Representatives, 675
College, Royal, of Surgeons of Edinburgh, Admission of Fellows, 774—Bathgate memorial prize, 774—Ivison Macadam memorial prize, 774

COLLEGE, ROYAL, OF SURGEONS OF ENGLAND:
Appointment of examiners, 871
Bradshaw lecture, 435
Cartwright prize, 774
Contribution to British Red Cross Fund, 149
Council meeting, 294, 607
County examiners, 149
Court of Examiners, 871
Dental surgery, 435, 871
Diplomas, 294, 774
Earlier closure of library, 149
Election of Council, 740, 774, 838, 871—Candidates, 871
Election of members of twenty years' standing to the Fellowship, 608
Elections, 294, 741
Examination results, 871
General Medical Council, 435
Hunterian oration 1917, 149
Museum, 223
Musk oxen, 607
Prizes, 607
Removal of member, 149
Vote of condolence, 294
College, Royal, of Surgeons of Ireland, and the rebellion, 671—Election of officers, 902—Lord Kitchener, 902
College of Science, Imperial, 800
College of Surgeons, American, Fellows' Endowment Fund, 187
College, Trinity, Dublin, degrees and pass lists, 34—Roll of honour, 68
COLLIER, Capt. Jas.: Gunshot wounds of the spine, 451
COLLINS, Lieut. N. H., killed in action, 735
Colonial allowances (parliamentary question), 391
Colonial medical services, 147. *See also* Army, British
COLSON, Major Edward, dies of wounds, 216
COLT, G. H.: Note on wick drains, 14
COLWELL, H. A. (and Sidney Russ): *Radium, X rays, and the Living Cell*, rev., 132
COMENGE, Luis, obituary notice of, 506
Commissions for men between 45 and 55, 860, 891
Committees, professional, recognition of, under the Military Service Act, 860
COMPTON, Captain A. G. W., Military Cross conferred upon, 146
Compulsion and enrolment (leading article), 891
Compulsory service (parliamentary question), 629, 665, 699
Concussion, nature and treatment of (T. E. Harwood), 551. (O)
Congress of American Physicians and Surgeons, 507
Congress, German Surgical War, the second, 774
Congress on Home Problems, 331
Congress, International Medical, *Transactions* presented to the Library of the British Medical Association, 665, 744
Congress of Medicine, Argentine (1916), 32
Congress, Pan-American, on childhood, 708
Congress, Pan-American Medical, and the systematic investigation of the medicinal flora of America, 307
Conjoint Board in England, pass lists and degrees, 219, 259, 294, 635, 741
Conjoint Board in Ireland, pass lists and degrees, 116, 635
Conjoint Board in Scotland, pass lists and degrees, 186, 571, 675
Conjunctivitis, method of treatment for—usul (Frederick Jefferson and W. E. M. Armstrong), 342. (O)
Conscientious objectors. *See* War emergency
Constipation, gerontal, and its treatment (W. Ainslie Hollis), 677. (O)
Consultation clinic to be opened at the Massachusetts General Hospital, 139
Consumption. *See* Tuberculosis
Consumptives, after-care of (J. Redman Ormerod), 110
Consumptives, enlistment of (parliamentary question), 317
Continued treatment after discharge from hospital (parliamentary question), 700
Convalescent officers, arrangements for (in France), 181
COOKE, Charles J.: Medical Officers' Mercantile Marine, 804
COOKSON, Dr.: Some after-histories of carcinoma, 375—Some cases of early carcinoma, 375
COOLIDGE, A.: *Diseases of the Nose and Throat*, rev., 486
Coolidge tube (J. A. Codd), 819
COOMBE, Major Russell: Delayed tetanus, 433—A correction, 904
COOPER, Midshipman William Francis Reginald Ashley, killed in action, 865
CÓRDOVA, Raúl Flores: Therapeutic value of hypochlorous acid, 653
CORFIELD, Nurse A. B., dies on service, 394
Corfu, nurses and doctors go to nurse wounded Serbian soldiers at, 708
CORIAT, I. H.: The meaning of dreams, 658
CORREY, Lieut. I. W., Military Cross conferred upon, 833
CORLEY, Captain Anthony Purdon Hegarty, killed in action, 68
CORMACK, Captain H. S., Military Cross conferred upon, 146

Cornell University Medical College reorganizes its surgical service, 36
CORNFOR, Cope: *With the Grand Fleet*, 23
Coroner for Wigan's remarks at inquest on illegitimate child, 471
Coroners' Society, 871
Corrections, 357, 503, 735, 904
Correspondence:
Abortion, criminal, 255, 293
Alleged waste of army medical officers, 325
Amount of free hypochlorous acid in usul, 340
Amputations, War Office Memorandum, 836
Army standards of vision, 537
Auscultation of the heart of the recruit, 361—Effect of position in, 396
Bacteria of gangrenous wounds, 184
Belgian colleagues, 71
Breads for children, 361
Bromides in epilepsy, 32
Cerebro-spinal fever, etiology of, 291
Chemiotherapy, rationale and practice of, 301
Chlorine gas poisoning, treatment of, 774
Cinchona trees; introduction of into India, 293, 324
Consumptive soldiers and others, segregation of, 292
Deaf-mutism and blindness, temporary, 255
Drugs, imported synthetic, 868
Drugs, price of, 468
Duties of medical practitioners in cases of criminal abortion, 255
Dysocia due to constricted os, 218
Economic obstacles to early marriage, 740
Education of nurses. *See* Nurses
Educational unrest, 254
Election of the Council of the Royal College of Surgeons of England, 740
Election of direct representatives on the General Medical Council, 740, 838
English public health administration, 219
Fees of locumtenents, 838, 868, 901
Fees of general practitioners, 675
Fergusson's speculum, 397
Fractures, malunited and ununited, 900
Gunshot wounds of the head, 432
Heart, auscultation of, 71
Heart disease in the recruit, functional, diagnosis of, 218—Murmurs in, 433
Heart, soldier's irritable, 218, 292
Heart, soldier's, and the strained heart, 184, 218, 292, 396, 504, 804, 837
Heart, soldier's, and its relation to thyroidism, 605, 672, 706, 739, 868, 899
Horror of Wittenberg camp, 606, 804
Indian Medical Degrees Bill, 773
Infantile mortality, 706
Industrial fatigue and its causes, 570
Inguinal incision for intracrotal affections, 673, 705
In memory of the three brave doctors who died at Wittenberg, 773
Jejunal for duodenal ulcers, 324
Jejunostomy and jejuno-colostomy, 571, 634, 673, 705, 739
Legal and moral obligation, 293
Leprosy and leper houses, 113
Lice and the clothes brush, 837
Locumtenents, the demand for, 72
Many names for the same thing, 571
Maternity and child welfare, 505
Measles notification, 292, 360
Medical arrangements at Suvla landing, 468
Medical clerks, 32
Medical Officers' Mercantile Marine, 773, 804
Medical officers, Special Reserve and Territorial, 899
Medical recruiting, enrolment, 432
Medical students and the inspection of recruits, 33
Medical writings, how they may be given a marked development, 738, 773, 804, 837
Metric prescribing, 504
Motor licences, the increased, 634
Nomenclature of typhoidal diseases, 570
Nurses, education of, 292, 325
Nurses, State registration of, and the Red Cross scheme, 72, 111
Paraffin for lousiness, 837
Pernicious anaemia and erythraemia, 570, 606
Physics of a surgical dressing, 290, 324, 361, 468, 504
Poisoning by chlorine, 34
Potassium chlorate, internal use of, 704
Projectile, cause of the divulsive effect of, 143
Recruiting and discharge: the other side of the shield, 33
Recruits' heart. *See* Heart
Retired medical men and military service, 217
Royal College of Surgeons of England, 838
Science and antisense, 836
Science, education, and Government, 293
Sherburn Hospital, 149
Soldier's heart. *See* Heart
Spelling of "neuron" and "axone," 774
Tetanus, delayed, 433
Time in surgery, 633, 671
Tonsils, 33, 71, 111, 149
Trench fever, 291
Trench nephritis, 397
Typhus fever, 705
Venereal diseases, control of, 672, 740, 837
Visual neuroses of miners, 397, 434

Correspondence (continued)

War Office memorandum on amputations and amputation stumps, 836
Wounds caused by high explosives, strange, 184
Wounds of jaw and face, 673

Cottage Benefit Nursing Association, 897

COULTER, J. M.: *The Evolution of Sex in Plants*, rev., 171

Council, General Medical: *Minutes*, 378—*General Index to Minutes, 1909-1915*, 378—Election of Direct Representatives, 740, 838

Council, London County: Infant mortality, 737—Lying-in homes, inspection of, 536—Mental defect, cases of, 738—Mental defectives, supervision of, 834—Midwives, instruction classes for, 834—Number of patients (pauper, criminal, and private), 369—Tuberculosis in London, model scheme, 358; residential treatment of, 738—By-laws for massage establishments, 866

COFFLAND, Sydney: *The Harvestian Oration, 1916*, rev., 92—The alleged increase of insanity, 105

COURMONT, Jules: Results of antityphoid vaccination in the French army, 27

COWAN, P. O.: Housing problem in Dublin, 253

COWE, Lieut. A.: Divisional baths, 630

COWELL, Captain E. M.: "Cage" splint for fractures of the humerus, 849

COWIE, Surgeon-Major R. M., D.S.O. conferred upon, 833

CRAIG, John: Appreciation of R. W. Middleton, 294

CRAIGLEITH Hospital Chronicle, 250, 576, 828

CRAYEN, Captain J. W., Legion of Honour conferred upon, 357

CRAWFORD, Captain A. B., killed in action, 770

CRAWFORD, Raymond: *Plague and Pestilence in Literature and Art*, rev., 454

CREAN, Lieut. H.: Treatment of acute dysentery, 144

CREE, Captain R. E., Military Cross conferred upon, 146

Cremation in the United States, 176—In New South Wales, crematorium for Sydney, 507

Creosote in rheumatism and gout (Alfred Orchard), 167

CRIBB, A. G.: Epilepsy, 188

CRICHTON-BROWN, Sir James: *Bernhardt and Creation: A New Theory of Evolution*, 53

CRILE, G. W.: *The Origin and Nature of the Emotions*, rev., 52

Crime, commission for study of, appointed in Chile, 380

"Crimes of the German Army" (*The Field*), 176

Criminal abortion. *See* Abortion

Criminals, paupers and defectives, bureau for study of established in America, 570

CRIMMIN, Colonel J., appointed Honorary Physician to the King, 804

Crippled soldiers. *See* Soldiers

Cripples in Germany and Austria, care of, 567

CRITCHETT, Sir Anderson: Appreciation of Charles Edward Fitzgerald, 869

CROMBIE, J. F.: Early diagnosis of whooping-cough, 688

CROOM, Sir Halliday: Appreciation of Sir A. R. Simpson, 573

CROSBY, Sir Thomas Boor, obituary notice of, 574—Estate of, 808

CROSSLAND, G. W. K., D.S.O. conferred upon, 833

CRUCHET, René: A trench journal, *Entre les Brancards*, 32

CRUDDAS, Major H. M., C.M.G. conferred upon, 146

CRUICKSHANK, John, awarded Foulis memorial scholarship, 187

Cullen, enteric fever at, 30

CULLEN, Rev. Peter, Kaiser-i-Hind gold medal bestowed upon, 823

CULLUM, Captain J. A., Croix de Guerre conferred upon, 535

CULPIN, M.: Diagnosis of abortive cerebrospinal meningitis, 307

CUMING, R. I.: Axis tractor adaptable to any obstetric forceps, 455

CUMMING, Lieut.-Col. C. C., C.B. conferred upon, 833

CUMMINS, Captain A. G., receives permission to accept the Egyptian Order of the Nile, 436

CUMMINS, Lieut. Harry Jackson, killed in action, 252

CUMMINS, Lieut.-Col. S. L., Order of the Crown of Belgium conferred upon, 357

CUHNY, A. R.: Cobra venom, 316

D.

D. C. Townshend, death of, 506

DAIN, H. D. (and J. B. COHEN and J. KENYON): Studies in antiseptics, chloramine, 160, 388—(and H. G. CARLISLE): Electrolytic hypochlorite for hospital ships, 455—Behaviour (hypochlorites on intravenous injection and their action on blood serum, 852

DALTON, Fleet Surgeon Frederick J. A.: Sodium hypochlorite in treatment of septic wounds, 126

DALTON, Nurse Jeanie Glasford, dies on service, 503

DANIEL, E. C.: Increased motor licences, 634

DARBISHIRE, Private Arthur Duckinfield, dies on service, 109

Dardanelles, casualties (parliamentary question), 26—Names of chief medical officers (parliamentary question), 829

DARLING, Alfred Beswick, obituary notice of, 399

DARLING, Major J. M., D.S.O. conferred upon, 833

DART, G. H.: Domiciliary treatment of pulmonary tuberculosis, 48

DAVERESNE, M. (and others): Antiseptic action of the chloramine group, 388

DAUNT, Lieut. Giles V., killed in action, 770

DAVIDSON, Sir James Mackenzie: Electrical methods in surgery, 698—*Localization by X Rays and Stereoscopy*, rev., 854

DAVIDSON, Major P., C.M.G. conferred upon, 146

DAVIS, Major E. G., C.M.G. conferred upon, 670

DAVIS, G. G.: *Applied Anatomy*, rev., 203

DAVIS, Brigade Surgeon John Norman, obituary notice of, 295

DAWSON, Sir Bertrand E., C.B. conferred upon, 146—(and T. H. WHITTINGTON): Death from paratyphoid fever, 425

Daylight treatment (leading article), 173

Deaf and Dumb, Edinburgh Royal Institution for, 569

Deaf-mutism and blindness, temporary, 255

Deafness, nerve and mumps (Hubbard), 62

DEAN, Major H. R. (and Captain T. B. MOUTAT): Bacteria of gangrenous wounds, 77—(and R. S. ADAMSON): Method for the preparation of a non-toxic dysentery vaccine, 611

DEANE, Captain Edward Wilkinson, dies on service, 669

DEANS, Lieut. William Wilkie, dies of wounds, 147

Death, apparent, and premature burial in infants, 698

Death certificates (parliamentary question), 566

Death from bichloride douche (Foskett), 679

Death, Professor Metchnikoff on, 60

Death, review of books on, 376

Death-rate for 1914 in the United States, 207

Deaths caused by alcohol, estimate of the number of, 533

Deaths in the profession abroad. *See* under the surname of deceased

Deaths in the United States, statistics of the causes of, 711

DEHVELLY: Secondary closing of war wounds, 211

DEIGHTON, F. (and others): Case of splenectomy, 365

DELEPINE, S.: New forms of plating dishes for the cultivation of bacteria, 588—New apparatus for bacterial fermentation tests; fermentation bulbs, 620—Simple portable refrigerator box and its use as a temporary incubator in military work, 718

DELMERGE, Lieut. J. A.: Treatment of acute dysentery, 144

DENNIS, Surgeon-General J. J., C.B. conferred upon, 833

Dental cases amongst soldiers (Samuel A. Hopkins), 258. (O)

Dental and gingival sepsis, prophylaxis of, 332

Dental hygienists, women being trained in New York, 775

Dental research and dental nursing, 664

Dental surgery, school of, for Columbia University, 420

Dental treatment, army (parliamentary question), 733

Dentists' Register, 1916, rev., 487

DEWAR, Lieut. George, killed in action, 252

Diabetes, fasting treatment of (W. Langdon Brown), 452—Leading article on, 458—Correspondence on, 576—(E. I. Spriggs), 841. (O)

Diabetes, treatment of (John Hume), 587. (O)

Diaphragm, removal of a bullet from the upper surface of (E. D. Telford), 549. (O)

Diarrhoea, infantile, and dysentery, sodium sulphate in (W. J. J. Arnold), 49

Dictionaries, Medical, rev., 378

Dictionary, medical terms in the New English, 62, 764

Diet, purin-free, for chilblains, 188—In epilepsy, 188. *See also* Epilepsy

Dietary scale in Irish workhouses, revision of, 217

DINGLE, Surgeon-Probationer Hugh J., killed in action, 833

Di-ortho-amino-thio-benzene ("Intramine") (Mr. McDonagh), 202

Diphtheria in Berlin, 99

"Diphtheria bacillus carrying," control of (W. S. Thacker), 374

Diphtheria, diagnosis and treatment of, 472

Directory of British Manufacturers for Russian Trade, 364

Disabled soldiers. *See* Soldiers

Disablement, pensions for. *See* Pensions

Disablement Subcommittee, 391

Discharges for physical incapacity (parliamentary question), 140

Disease and mortality, influence of sex on, 459

Disease, war, and a museum, 214

Disinfection by hot air, 734

Disinfectant, a giant, 355

Dispatches from the Cameroons, names of medical men mentioned, 834

Dispatches from Admiral of Eastern Mediterranean Squadron, names of medical men mentioned, 431

Dispatch from Lord French, 66, 109, 216—Names of medical men mentioned, 66, 216

Dispatch from Sir Douglas Haig, 896—Names of medical men mentioned, 896

Dispatch from Sir Ian Hamilton, 109, 216, 252—Names, 216, 252

Dispatches from Mesopotamia, 568, 735—Names, 568, 735

Dispatches from Teingtau, 803

Dispensary doctors' graded salaries, Newry guardians refuse to adopt, 468

District nursing in London, Central Council for, 357

DIXON, R. Garside (and P. McEWAN): Case of penetrating wound of heart, 755

DOANE, R. W. (and V. L. KELLOGG): *Elementary Textbook of Economic Zoology and Entomology*, rev., 759

DOBIE, Lieut. William Murray, killed in action, 604

DOBSON, Captain Harold Pierce, killed in action, 604

Doctor's superannuation (Ennisceorthy guardians), 183

DODS, Captain J. E., Military Cross conferred upon, 146

DOHRN, Rudolf, death of, 506

Dominions Year Book, 224

DON, A.: Dressings used in a casualty clearing station, 648—Perforating and penetrating wounds of the chest, with severe haemorrhage, 816

DONALD, Captain Robert, dies on service, 702

DONAGAN, Lieut.-Col. J. F., C.B. conferred upon, 605

Dope, non-poisonous (parliamentary question), 391, 463, 733

DORAN, Alban: Fergusson's speculum, 397

DORE, Captain N. A.: Lice, 630

DORLAND, W. A. Newman: *An Illustrated Medical Dictionary*, 378

DORMAN, Lieut. Thomas Robert Hobart, reported missing, 535

DOUBLEDAY, F. N.: Wounds of jaw and face, 673

DOUGLAS, Captain C. G., Military Cross conferred upon, 146

DOUGLAS, Lieut.-Col. H. E. M., C.M.G. conferred upon, 146

DOUGLAS, Captain W. R., Military Cross conferred upon, 833

DOWNES, H.: Fees of locumtenents, 868

DOWNIE, Captain J., D.S.O. conferred upon, 146

DOWSE, Captain J. C. A., Military Cross conferred upon, 146

Dr. Temple Company, case of, 185

Drainage tube, silver wire, 823

Drainage works to reclaim swamps, etc., in the United States, fund for, 345

Dressing for foul wounds, patty pans and (D. W. Samways), 49

Dressing for infected wounds, quinine solutions as (Sir John Tweedy), 11. (O)

Dressings used in a casualty clearing station (A. Don), 648. (O)

Dressing, surgical, physics of (Lieut.-Col. A. Primrose), 238. (O)—Correspondence on, 290, 324, 361, 468, 504. *See also* Surgical

Dressing, surgical, sphagnum moss as, 893

DREW, A. H. (and W. J. PENFOLD and H. M. WOODCOCK): The excystation of *Entamoeba histolytica* (tetragenae) as an indication of the vitality of the cysts, 714

DRIBERG, Lieut. J. D., Military Cross conferred upon, 146

DRINKWATER, H.: Incompatibility, 332—Inherited abnormality of the fingers, 640

Droitching brine baths, 576

Drug shortage in Austria, 390

Drugs, German (deputation to Australian Prime Minister), 182

Drugs, many names for the same, 532, 571

Drugs, price of, 460, 468

Drugs, synthetic, imported, 828, 868

DRUMMOND, W. B.: *The Child: His Nature and Nurture*, rev., 454

DRURY, Captain K. K., Military Cross conferred upon, 833

DUBLIN:

Arrival of a hospital ship, 395

Dublin Castle Red Cross Hospital, 323

Food inspection in (Sir Charles Cameron), 359

Housing problem in, 253

Infant Aid society, 30

Rebellion in, 671, 702, 738

Research Defence Society, 395

Small-pox danger, 431

Vaccination prosecutions (parliamentary question), 26

DUCKWORTH, Sir Dyce: *Views on Some Social Subjects*, rev., 53

DUCKWORTH, W. L. H.: *Morphology and Anthropology*, rev., 376

Ductless glands. *See* Glands

DUDGEON, Captain C. R., Military Cross conferred upon, 833

DUDLEY, Samuel Robert, obituary notice of, 222

DUFF, Lieut.-Col. Hew Ramsay, dies on service, 288.

DUGGAN, Major C. W.: Physics of a surgical dressing, 361—Osmosis in treatment of cancer, 608.

DUMAS: Secondary closing of war wounds, 211.

DUNBAR-BRUNTON, James: Quinine and malaria, 776.

DUNCAN, Captain Ronald Wingrave, killed in action, 502.

DUNCAN, Lieut. William Williamson Kerr, dies on service, 394.

Dundee, report of M.O.H. 569—Infant mortality, 569—Maternity and infant welfare scheme, 772.

DUNLOP, Andrew, obituary notice of, 74.

DUNLOP, Binnie: Infantile mortality, 706.

Duodenal ulcers. See Ulcers.

Duodenum congenital atresia of, treated successfully by operation (N. P. Ernst), 644. (O)

DUST, stone, inhalation of, 138.

DYASS, Captain G. F., Military Cross conferred upon, 833.

Dysenteric arthritis (T. Gillman Moorhead), 483. (O)—Correspondence on, 776.

Dysentery, acute, treatment of, discussion on at Alexandria, 142.

Dysentery, amoebic, in a man who had never left England (C. Worster-Drought and D. D. Rose-warne), 715. (O).

Dysentery, amoebic, prevention of (J. Gordon Thomson and D. Thomson), 881. (O).

Dysentery in Austria (Einar Aasar), 65.

Dysentery, bacillary, sensitized Shiga and Flexner vaccines in the treatment of chronic (Sir Leonard Rogers), 7. (O).

Dysentery, bacillary, serum treatment of (leading article), 136.

Dysentery, bacillary, typhoid and paratyphoid fever, combined preventive inoculation against (J. Pratt Johnson and A. J. Milne), 88. (O).

Dysentery bacillus. See Bacillus.

Dysentery convalescents, examination of for carriers (J. A. Arkwright, O. H. Priestley, and W. Gilmore), 683. (O).

Dysentery convalescents, serological tests in (J. C. G. Ledingham and W. J. Penfold), 47. (O).

Dysentery, German treatment of (F. Meyer), 465.

Dysentery and infantile diarrhoea, sodium sulphate in (W. J. J. Arnold), 49.

Dysentery, paraffin in, 152.

Dysentery vaccination (J. D. Thomson), 303. (O). Aldo Castellani, 306. (O).

Dysentery vaccine, method for preparation of a non-toxic (H. R. Dean and R. S. Adamson), 611. (O). See also Vaccine.

Dystocia due to constricted os (J. Owen-Jones and Chas. E. Morris), 167—Correspondence on, 218 (J. F. Keenan), 343. See also Procidencia uteri.

E.

EAGER, Major R.: Emoluments of medical officers Territorial or with temporary commissions, 69.

Ear, external, deformity of, 296.

Ear, internal, injury to, presenting some unusual features (H. Lawson Whale), 587. (O).

East Africa. See Africa.

EASTON, Major R. G., D.S.O. conferred upon, 146.

EASTWOOD, A.: Bovine tuberculosis in man, 248.

ECKMAN, R. S. (and L. W. HILL): *Starvation Treatment of Diabetes*, 458.

Economies in health departments, 865.

EDDLSTONE, Neville A.: State registration of nurses and the Red Cross scheme, 111.

EDINBURGH:

Blinded sailors and soldiers, 395, 536.

Children's Hospital, 569.

French professors in, 866.

Neonatal mortality in, 504.

Royal Institution for Deaf and Dumb, 569.

School Board, report, 253.

School of Medicine for Women, entries, 703.

Tuberculosis matters in, 29.

Women medical students at, 866.

EDINGTON, Lieut.-Col. G. H.: Traumatic implantation of epidermis in track of gunshot wound, 12.

Education and the neglect of science (leading article), 695.

Education to-day and to-morrow (leading article), 101.

Educational menu card, 596.

Educational unrest (Sir Philip Magnus), 254—Note on, 250.

EDWARDS, Captain A. C., Military Cross conferred upon, 833.

EDWARDS, Lieut. A. J. A., dies of wounds, 670.

EDWARDS, Lieut.-Commander Harrington Douty, lost at sea, 465.

Egypt, ophthalmic hospitals in, report, 595.

EINELSHERG: Wounds of brain and nerves, 895.

Electrical methods in surgery (Sir J. Mackenzie Davidson), 698.

Electro-medical apparatus, 488.

Electrolytic hypochlorite for hospital ships, 455. See also Hypochlorite.

ELLIOTT, Private Thomas Cecil Moore, killed in action, 68.

ELLIOTT, T. B. (and Herbert G. M. HENRY): Case of cholo-haemothorax, 9—"Traumatic gastric ulcers," 523.

ELPHICK, Lieut. William Roy, dies on service, 896.

ELSNER, Henry L., death of, 775.

ELVEY, Captain P. G. M., Military Cross conferred upon, 146.

Embryology, review of books on, 52.

Emergencies in General Practice (Richard Lenzmann), 187.

Emergency Surgical Aid Corps in London, 217.

EMMETT, Assistant Surgeon Alexis Renwick, killed in action, 465.

Emoluments of medical officers. See Army, British.

Emotional mutism. See Mutism.

Emotions, review of books on, 52.

Employment for soldiers. See Soldiers.

Emulsions for Widal's test, 744. See also Widal.

Encephalitis, symptoms of (Brunn), 288.

Encyclopaedia Medica, 723.

Encyclopaedia of Religion and Ethics, medicine in, 862.

Encyclopaedias of medicine, reviews of, 169, 170.

Endarteritis, local, 708.

Endocranial casts and brain-form (Professor Symington), 317.

Endophthalmitis, metastatic, in a case of cerebro-spinal meningitis (Lieut. A. Leonard Weakley), 47. (O).

ENGELL, Rodolphe, death of, 187.

ENGINEER, Lieut. G. S., dies on service, 864.

England and Wales, vital statistics, 1915, 185.

English public health administration, 17, 219.

Ennisworthy Union and vaccination defaulters, 30—And a doctor's superannuation, 183.

Enrolment (leading article), 57, 385, 423, 761, 798, 824, 859, 860. See also War emergency.

Enrolment form a certificate of eligibility for home military posts, 390.

Enrolment scheme, official registration of, 531.

Entamoeba histolytica (tetragena), excystation of as an indication of the vitality of the cysts (W. J. Penfold, H. M. Woodcock, and A. H. Drew), 714. (O).

Enteric fever. See Fever.

Epidermis, traumatic implantation of in track of gunshot wound (Lieut.-Col. G. H. Edington), 12. (O).

Epilepsy, 188, 224.

Epilepsy, bromides in, 32, 188, 808.

Epilepsy, Brown-Béquard, 494.

Epileptic colony at Warford: Ice accident, 254—Royal Humane Society awards special testimonial to Dr. McDougall, 254.

EPINGER, H. (and L. HESS): *Vagotonia: A Clinical Study in Vegetable Neurology*, rev., 309.

Epson College. See College.

ERNST, N. P.: Congenital atresia of duodenum treated successfully by operation, 644.

ERRINGTON, Captain R., Military Cross conferred upon, 146.

Erysipelas, ichthyol in (Helen Sexton), 201.

Erythraemia and pernicious anaemia, 570, 606. See also Anaemia.

Espirt de Liège, 419.

Ether anaesthesia, 61.

ETHERINGTON, F. C. M. G. conferred upon, 670.

Ethyl hydrocuprein, toxic effects of on the eye (George H. Oliver), 580. (O).

Eugenical News, 172.

Eugenics and the war (E. B. Poulton), 314.

Eupad, 171.

Eusol, 171.

Eusol, amount of free hypochlorous acid in, 740.

Eusol in dysentery, 144, 611; in conjunctivitis, 342; in puerperal septicæmia (A. T. Brand and J. R. Keith), 415.

Eusol, simple method for intravenous injection of (James M. Graham), 651. (O).

EUSTACHIUS, memorial to, in Rome, 25.

EVANS, Lieut. David Owen, killed in action, 322.

EVANS, Major H. M.: Poison apparatus of the sting ray, 827.

EVANS, Jameson: Peripheral lesions of shell concussion, 721.

EVANS, Captain T. J. C., Military Cross conferred upon, 833.

EVATT, Surgeon-General G. J. H.: Medical officers mercantile marine, 773.

EVATT, Surgeon-General J. H.: The medical topography of Persia in 1873, 103.

EVELYN, John (William Jones), 30.

EVERETT, William, lost in the Persia, 109, 571.

EVERIDGE, John: Mental symptoms complicating a case of acute tetanus during treatment by carbolic injections, 443.

Every Day Directory for War Time, 857.

EVILL, F. Claude: Medical recruiting, enrolment, 432.

EWART, R. J.: Birth-rate in war time, 105.

EWART, William: The soldier's heart and the strained heart, 218—Pernicious anaemia and erythraemia, 570.

EWENS, Captain Bernard C., Serbian Order of St. Sava conferred upon, 735.

EWING, Sir James Alfred, appointed Principal of Edinburgh University, 766.

Explosives, gassing accidents from the fumes of (Louis G. Irvine), 162. (O).

Explosives, high, strange wounds caused by (J. Lewis Thomas), 89—Correspondence on, 184.

Eye affections, syphilitic, treated by the newer methods, discussion, 720.

Eye injuries in the German army (Uthoff), 603.

Eye and orbit, foreign bodies in (A. L. Whitehead and Herbert Parsons), 692.

Eye, toxic effects of ethylhydrocuprein on (George H. Oliver), 580. (O).

Eyes, relation of to rifle shooting, 493—Correspondence on, 537.

Eyes, review of books on, 554, 821.

Eyesight and school books, 424.

Eyesight of recruits. See Recruits.

EYRE, J. W. H. (and W. C. BOSANQUET): *Serums, Vaccines, and Toxins in Treatment and Diagnosis*, rev., 886.

F.

Face wounds (leading article), 457—Correspondence on, 573. See also Jaw.

Factory and Workshop Act, Home Office Order re toxic jaundice, 36.

Faculty of Physicians and Surgeons of Glasgow, war service of medical practitioners, 259.

Faecal vomiting. See Vomiting.

Faeces, human, *Spirochaeta eurygyrata* in (H. B. Pantham), 815. (O).

Faeces, importance of method in isolation of pathogenic organisms of the typhoid group from (C. H. Browning and L. H. D. Thornton), 682. (O).

FAGUOLI, A.: Vaccine-therapy in enteric fever, 61.

FALTA, W.: *The Ductless Glandular Diseases*, rev., 203.

FANTHAM, H. B.: Spirochaetes and their granule phase, 409—Amoebae in urine in a case of infectious jaundice, 553—*Spirochaeta eurygyrata* as found in human faeces, 815.

FARGAS Y KOCA, Miguel A., obituary notice of, 707.

FARMER, Francis Mark, knighthood conferred upon, 823.

FARQUHAR, George Bowie, sentence on, 774.

FARQUHAR, J.: Immediate treatment of severe post-partum haemorrhage, 332.

FARRANT, Major C., D.S.O. conferred upon, 833.

FARRANT, Rupert: Causation and cure of certain forms of lunacy, 882.

FARRAR, Lieut. Valentine Anstruther, dies of wounds, 465.

FARROW, Captain J. F., Military Cross conferred upon, 833.

Fasting treatment of diabetes. See Diabetes.

Fat embolism (leading article), 625.

Fatigue, industrial. See Industrial.

FAULKNER, R. B.: *The Tonsil and its Uses: Focal, Mechanic, and Physiologic*, rev., 887.

FAULENER, Lieut. Robert Irvine, killed in action, 865.

FAVILL, Henry Baird, death of, 639.

FAWCETT, Major B. F. M., D.S.O. conferred upon, 833.

FAZAN, Captain E. A. O., Military Cross conferred upon, 146.

Feeble-minded, National Association for, annual report, 188.

Feeble minded, review of books on, 50.

Feeble-minded, Sandbridge Colony for, 70.

Feeble-minded. See also Mentally deficient.

Fees of general practitioners, 673.

Fees, increased, 576.

Fees of locumtenents, 838, 868, 901.

Fees for medical examination of recruits (parliamentary question), 317, 629.

Fees, notification (parliamentary question), 533, 565, 666.

Feet, cold. See Cold.

FELCE, Stamford, obituary notice of, 505.

Female nurses in asylums. See Asylums and Nurses.

FENTON, H. J. H.: *Physical Chemistry for Schools*, rev., 658.

FENWICK, Lieut.-Col. P. C., C.M.G. conferred upon, 833.

FERGUSON, Colonel Richard Patrick, obituary notice of, 506.

Ferguson's speculum, 76.

Fernanagh, small-pox in, 70.

Fermentation bulbs (S. Delépine), 620. (O).

Fermentation tests, simple and inexpensive methods for (J. M. Beattie), 756. (O).

FERNANDEZ, Assistant Surgeon Joseph Valentine, dies on service, 734.

FERRARI, Professor: Psychology of the wounded soldier, 563.

FERRIS, Surgeon-Probationer David H., killed in action, 833.

- Ferrivine, 202, 591, 820, 826. *See also* Chemiotherapy
- FERRY, G.: Injuries and diseases of aviation, 339
- Fever, cerebro-spinal, Local Government Board issues a Blue Book on, 724
- Fever, cerebro-spinal, in 1915 (report of Research Committee), 513
- Fever, cerebro-spinal, bacteriology of (F. W. Andrews), 689
- Fever, cerebro-spinal, Lister Institute and, 250
- Fever, cerebro-spinal, diagnosis of abortive (M. Colpin), 307. (O)
- Fever, cerebro-spinal, epidemic (Edward C. Hort), 155 (O)—Correspondence on, 291
- Fever, cerebro-spinal (leading article), 174
- Fever, cerebro-spinal (Captain W. J. Wilson), 359
- Fever, cerebro-spinal, chemical treatment of, 763
- Fever, cerebro-spinal, metastatic endophthalmitis in a case of (Lieut. A. Leonard Wakeley), 47. (O)
- Fever, cerebro-spinal (parliamentary question), 391, 463, 497
- Fever, cerebro-spinal, review of books on, 592
- Fever, enteric, anomalous case of (reported by Oscar Holden), 485
- Fever, enteric, control of, 626
- Fever, enteric, full diet for in children, 103
- Fever, enteric, German treatment of (F. Meyer), 465
- Fever, enteric, review of books on, 418
- Fever, enteric, rural sanitation to check the spread of in America, 444
- Fever, enteric, statistics of in the British armies (parliamentary question), 180
- Fever, enteric, in Tipperary district, 30
- Fever, enteric, vaccine therapy in (A. Fagioli), 61
- Fever, enteric, in war (Goldscheider), 501
- Fever, enteric, Widal's reaction for, easy and rapid method of (Alfred C. Coles), 684. (O)
- Fever, gaiter pain (Gritzer and Zanko), 769
- Fever, kedani, in Sumatra, 316
- Fever with meningismus (Stephan), 861
- Fever, obscure five-day (H. Werner), 769
- Fever, paratyphoid, death from (Sir Bertrand Dawson and T. H. Whittington), 425
- Fever, paratyphoid B, incubation period of (T. J. Hallinan and H. E. Roaf), 885
- Fever, paratyphoid, review of books on, 622
- Fever, paratyphoid, typhoid, and bacillary dysentery, combined preventive inoculation against (J. Pratt Johnson and A. J. Milne), 88. (O)
- Fever, phlebotomus, at an island in the Eastern Mediterranean (Surgeon J. T. D. S. Higgins), 166. (O)
- Fever, rat bite, 285
- Fever, trench (Captain J. W. McNee, Lieut. Arnold Renshaw, and Captain E. H. Brunt, with a note by Colonel Sir Wilmot Herringham), 225. (O)—Leading article on, 245—Correspondence on, 291
- Fever, typhus, review of books on, 621—Correspondence on, 705—R.A.M.C. officers in German typhus camps, 768
- Fever, yellow, expedition to study, in the U.S.A., 814
- Fever, yellow, report of the commission appointed by the Colonial Office, 419
- Fevvers, infectious, review of books on, 344
- FRENCH, W. J. L.: Immediate treatment of severe post-partum hæmorrhage, 364
- Fibrositis, review of books on, 90
- FIDDIAN, G. V.: Bromides and epilepsy, 808
- Field, German atrocity number, 151, 176
- Fife and Kinross, school medical inspection in, 835
- Fifth arm, 730. *See also* Aviators
- Filaria, pepper in prophylaxis and treatment of, 508
- Finance Bill, 894. *See also* Budget
- FINCHAM, H. W.: *Order of the Hospital of St. John of Jerusalem, and its Grand Priory of England*, rev., 821
- FINDLATER, Captain Alexander, D.S.O. conferred upon, 182
- Fingers, inherited abnormality of, 640
- FINNY, Alderman W. E. St. L., called to the Bar, 223
- First aid, review of books on, 170
- First aid, standardization of equipments in America, 471
- FISHER, Staff Surgeon A. R.: Chloramine in the treatment of wounds of the mouth and jaws, 87
- FISHER, Herbert: Hereditary optic atrophy, 691
- FITZGERALD, Captain C. C., Military Cross conferred upon, 216
- FITZGERALD, Charles Edward, death of, 840—Obituary notice of, 869
- FITZWILLIAMS, Duncan C. L.: Elections to the Council of the Royal College of Surgeons of England, 740
- "Fixation abscess" *See* Abscess
- Flat-foot and high heels, 152
- FLEMING, Brigade Surgeon Lieut.-Col. Joseph, estate of, 106
- FLEMING, Robert A., appointed to the staff of the King's Body Guard for Scotland, 898
- FLEMING, Lieut. Thomas Frederick Stewart, killed in action, 865
- FLETCHER, Lieut. Guy Verney, dies on service, 669
- FLETCHER, Captain J. H., Military Cross conferred upon, 146
- FLETCHER, N. Corbett: *Compendium of Aids to Home Nursing (Home Nursing Simplified and Tabulated)*, rev., 454
- FLEXNER, Simon, Third Order of the Rising Sun conferred upon by the Emperor of Japan, 116—Elected president of the American Society for Experimental Pathology, 507—Chemical treatment of cerebro-spinal meningitis, 763
- FLYNN, J.: Chillsains, 260
- FLYNN, John: *Reflections on the Morphology and Physiology of the Caecum, with special reference to Intestinal Toxaemia*, rev., 204
- Food and drink, 764
- Food parcels to Germany (parliamentary question), 829
- Food ration of Great Britain, the daily (W. H. Thompson), 239—Correspondence on, 296
- Food Reform Association, National, 223
- FOOT, Captain W., Military Cross conferred upon, 146
- Foot, the soldier's, and the treatment of common deformities of the foot (Lieut.-Col. Robert Jones), 709, 749, 782. (O)
- Foot, trench, causes and prevention of (Basil Hughes), 712 (O). *See also* Trench
- Footwear of the Austrian soldiers, 108. *See also* Austrian
- FORBES, Captain Alexander A., Serbian Order of St. Sava conferred upon, 735
- FORBES, A. Mackenzie: Notes on war surgery, 369
- FORD, Surgeon-General R. W., C.B. conferred upon, 146
- Foreign bodies in the eye and orbit, discussion on, 720
- Foreign bodies, localization of (Küttner), 895
- Foreign bodies in rectum (Joseph Stark), 15—(C. P. G. Wakeley), 224
- Foreign body, intracranial, removal of under x rays (John Robert Lee), 447. (O)
- FORGAN, Captain R., Military Cross conferred upon, 146
- FORREST, Lieut.-Col. J. V., C.M.G. conferred upon, 833
- FORREST, Lieut.-Col. T. H., D.S.O. conferred upon, 833
- FORSTER, Captain Charles M., Serbian Order of St. Sava conferred upon, 735
- FOKETT, Bichloride douche causing death, 679
- FOSTER, M. (and J. F. GASKELL): *Cerebro-spinal Fever*, rev., 592
- FOTHERGILL, John Rivington, obituary notice of, 75
- FOTHERGILL, W. E.: Dystocia due to constricted os, 218
- FOTHERINGHAM, Lieut.-Col. J. T., C.M.G. conferred upon, 833
- FOUCAU, Major J. L. (and G. MARTIN): *Sulphuric Acid and Sulphur Products*, rev., 658
- Fourth War Budget (leading article), 561
- Fox, Charles Henry, obituary notice of, 150
- FOX, Fortescue: Account of the Grand Palais, Paris, now a hospital for wounded, 75—Physical treatment for disabled soldiers, 319
- FOX, H. (and A. STENGEL): *Textbook of Pathology*, rev., 240
- FOX, Thomas Colcott, death of, 608—Obituary notice of, 636, 674
- Fracture of ankle, compound, splint for (Major M. Sinclair), 197. (O)
- Fractures, gunshot, treated by external fixation apparatus (B. Sangster Simmonds), 481. (O)
- Fractures of humerus, "cage" splint for (Captain E. M. Cowell), 849. (O)
- Fractures of jaws, gunshot, 287. *See also* Jaws
- Fractures, malunited and ununited (Lieut.-Col. Robert Jones), 809. (O)—Correspondence on, 900
- Fractures, maxillary, treatment of (V. H. Kazanjian), 266. (O)
- Fractures, review of books on, 656
- Fractures, septic compound, discussion on, 239
- FRANCE:
- Academic year, number of students, 151
- Alcohol and the soldier, appeal by Paris Academy of Medicine, 247
- Antityphoid vaccination results, 27—In the army, 27
- Artificial limbs, making and fitting of, 826
- Chemical work in, 464
- "Hôpital dépôt," organization of, 251
- Maimed soldiers, exposition of the work of, 899
- Malingering in the army, 64
- Massage school for blinded soldiers at Reuilly, 455
- Medical Advisory Board (British) in, 830
- Notes from the battle front (A. Laphorn Smith), 581. (O)
- Parliamentary statement, 428
- Plea for the sick soldier, 23
- "Prophylactic Institute" formed in Paris, 436
- Rabies, recrudescence of, 878
- Red Cross appeal, 295
- Trade education of maimed soldiers, 825
- Work of the R.A.M.C. in Northern France, 500
- Wounded from Verdun, 503
- FRANÇOIS, Alexander: Pain at root of neck and cardiac irregularity, 608
- Franco-American ambulance, work of, 318
- FRASER, Captain A. D., Military Cross conferred upon, 833
- FRASER, C. L.: Second case of complete inversion of the uterus, 128
- FRASER, H. C., death of, 223
- FRASER, Major A. N., D.S.O. conferred upon, 835
- FRASER, Captain John (and Captain H. T. BATES): Treatment of acute toxæmia secondary to gas gangrene by the intravenous injection of a solution of hypochlorous acid, 85—Penetrating wounds of the abdomen, 509
- FRASER, R. W.: *Indian Thought, Past and Present*, rev., 310
- FREEMAN, Private Buchanan William, dies on service, 322
- FREEMAN, Colonel E. C., C.M.G. conferred upon, 833
- FRER, Alfred, obituary notice of, 903
- French prisoners in German camps, 865—New bread rules, 865
- French professors in Edinburgh, 866
- FRENCH, Sister, memorial to, 36
- FRERE, Ernest F. J. H. T., Military Cross conferred upon, 216
- Fresh air craze, 904
- FRIEL, A. R. (and others): Infectious jaundice, 526
- FRIEND, J. N.: *The Theory of Valency*, rev., 657
- FROMME: Weil's disease, 861
- FRUGONI: Epidemic jaundice due to *B. paratyphosus* B, 800
- FRY, Herbert: *Royal Guide to London Charities*, rev., 345
- FRY, Major Walter Burgess, dies on service, 321
- FULLERTON, Colonel Andrew: Work of a consulting surgeon with the British Force in France, 50—C.M.G. conferred upon, 833
- Fund, Auxiliary R.A.M.C. Widows and Orphans. *See* Benevolent society
- Fund, Bird Memorial, 725, 902
- Fund, Indian Soldiers', 147, 252
- Fund, King Edward's Hospital, 31, 116, 803—Annual meeting, 803
- Fund, motor ambulance, Westmeath and, 29
- Fund, R.A.M.C. Comforts, 352
- Fund, Red Cross (Ireland), 183
- Fund, Royal Medical Benevolent, 56, 97, 134, 172, 378, 420, 559, 594, 623, 760, 888
- Fund, Royal Medical Benevolent, of Ireland, annual meeting, 835
- Fund Guild, Royal Medical Benevolent, annual meeting, 311, 594—An appeal, 460
- G.
- GAIRDNER, Captain Eric D., French Military Cross awarded to, 322—Croix de Guerre conferred upon, 535—D.S.O. conferred upon, 833
- "Gaiter pain," 108
- Gaiter pain fever (Gritzer and Zanko), 769
- GALBRAITH, Lieut. C. T., Military Cross conferred upon, 833
- GALLIENI, General, funeral of, 840
- GALLIE, Lieut.-Col. J. S., D.S.O. conferred upon, 833
- GALLOWAY, James, appointed Consulting Physician to the Forces in France, 631
- Galton lecture. *See* Lecture
- Galvanometer as an aid to the diagnosis of nerve lesions (C. Nepean Longridge), 717. (O)
- Galy in cancerum oris (B. A. Peters), 719
- GAMBLE, Lieut. Richard Maurice Brooks, killed in action, 68
- Gamma ray spectrum. *See* Spectrum
- Ganglio-neuroma of the sympathetic (David Rutherford Adams), 650. (O)
- Gangrene, due to tourniquets and bandages, 355—Due to wounds of blood vessels, 355—Due to infection, 355
- Gangrene, gas. *See* Gas
- Gangrene, white (Major A. J. Hull), 756. (O)
- Gangrenous wounds. *See* Wounds
- GARDNER, H. Bellamy: *A Manual of Surgical Anæsthesia*, rev., 622
- GARRETT, J. H.: Notification of measles, 292
- GARRETT, Philip Gell, goes to Corfu to treat wounded Serbian soldiers, 708
- GARBOD, Archibald E., C.M.G. conferred upon, 670
- GARBOD, Lieut. Alfred Noel, killed in action, 215
- Gas, chlorine, for living animals (parliamentary question), 26
- Gas gangrene exhibiting unusual proofs of a blood infection (G. T. Mullally and J. W. McNeel), 478. (O)
- Gas gangrene, treatment of acute toxæmia secondary to, by intravenous injection of hypochlorous acid (Captain John Fraser and Captain H. J. Bates), 83. (O)
- Gas poisoning, chlorine, treatment of, 774, 808
- GASKELL, Fleet Surgeon Arthur, C.B. conferred upon, 53
- GASKELL, J. F. (and M. FOSTER): *Cerebro-spinal Fever*, rev., 592

GANKELL, W. H.: *The Involuntary Nervous System*, rev., 722

Gassing accidents from the fumes of explosives (Louis G. Irvine), 162. (O)

Gastric ulcers. See Ulcers

Gastro-intestinal diseases, review of books on, 344

GATT, Major V. E. H.: Luetin test, 152

GAUTIER, Léon, obituary notice of, 871

GAUTRELET, E. (and H. DE LALAUBIE): *L'Arthritisme-diathèse à Vichy: Physiologie pathologique et thérapeutique physiologique*, rev., 204

GAMIN, Lieut. Neil Murphy, killed in action, 465, 503

GEM, Captain William, dies on service, 465

General practitioners' fees. See Fees

GEOGHEGAN, Fleet-Surgeon Herbert L., killed in action, 833

GEORGE, A. W. (and R. D. LEONARD): *Roentgen Diagnosis of Surgical Lesions of the Gastro-intestinal tract*, rev., 344

GEORGE, J. G., obituary notice of, 186

GERMAN, Captain Frederick Francis, dies on service, 535

German army casualties (parliamentary question), 26, 180—Crimes of, 176—Eye injuries and blindness in (Unthoff), 603—Army medical services, 670, 702—Suppression of quackery by, 698

German atrocity number of the *Field*, 151, 176

German casualties, 770

German casualties among doctors, 670

German child, health of, 893

German Culture: *The Contribution of the Germans to Knowledge, Literature, Art, and Life*, rev., 169

German drugs, deputation to Australian Prime Minister, 182

German East Africa, health of, 600

German Emperor, health of, 177

German experiences, neurasthenia among soldiers (Stadelmann), 464—Treatment of typhoid fever and dysentery (F. Meyer), 465—Medical problems in war (Goldscheider), 501—Typhoid fever, 501; other infectious diseases, 501—Heart disease, 501—Bronchitis and malingering (F. Hamburger), 502

German military hospitals, medical women in, 814

German medical men, losses among, 109

German New Guinea, operations in, 147

German prison camps (Langensalz), 420—(Wittenberg), 562, 598, 606, 664, 804—Parliamentary questions, 666, 802—Dr. Ribadeau-Dumas's experiences, 801—White Papers relating to, 856—French and Russian prisoners in, 865—New bread rules, 865—Plans of new camps, 892

German prisoner, leprosy (parliamentary question), 26

German prisoners in Switzerland, 834

German Red Cross and new hospitals, 109

German scientists (parliamentary question), 206

German Surgical War Congress, the second: Localization of foreign bodies (Kittner), 895—Wounds of brain and nerves (v. Eiselsberg), 895—Wounds of limbs, abdomen, and chest (Payr), 895

German treatment of British prisoners, 601, 892. See also Prisoners in General Index

German typhus camps, R.A.M.C. officers in, 768

German universities, falling off in numbers of foreign students, 295—Number of foreign students in 1914, 651

Germans in Belgium (Arthur Tacquin), 151

GERMANY:

Battlefields of East Prussia, 827

British prisoners in (parliamentary question), 700, 732. See also Prisoners in General Index

Campaign against venereal disease, 600

Care of crippled soldiers, 29, 567

Food parcels to (parliamentary question), 106

Lice (Albrecht Hase), 734

Medical education problems, 107

Urgency medical diplomas in, 107

War wastage and the birth-rate, 555

Gerontal constipation. See Constipation

GHON, A.: *The Primary Lung Focus of Tuberculosis in Children*, rev., 170

GIBB, Charles John, obituary notice of, 742

GIBBON, Brigade-Surgeon Edward Acton, obituary notice of, 435

GIBLIN, Lieut.-Col. W. W., C.B. conferred upon, 216

GIBSON, Captain G. H. R.: Croix de Guerre conferred upon, 535

GIFFARD, Captain Colin Hay, killed in action, 465

GILBERT, Lieutenant John Wesley, Military Cross conferred upon, 182

GILBERT-BALLET, Professor, death of, 470

GILCHRIST, Captain A. J., Military Cross conferred upon, 146

GILLESPIE, Major Paul A., dies on service, 669

GILLON, G. Gore: Duodenal and jejunal ulcers, 343

GILMORE, W. (and others): Examination of fifty dysentery convalescents for carriers, 685

GILMOUR, Captain J., Military Cross conferred upon, 833

GILROY, James, obituary notice of, 870

Gingivitis and ulcero-membranous stomatitis among troops on active service (F. B. Bowman), 373. (O)

Giornale Internazionale delle Scienze Mediche ceases to appear, 187, 347—Its successor, 347

GIRARD, Charles, obituary notice of, 576

GLADSTONE, Lieut. W. G. C., memorial to, 601

Glands, ductless, review of books on, 203

Glasgow Coal Co., Ltd., v. Welsh, 470

Glasgow School Board report, 289—Classes for children with myopia, 431—Municipal dairy to supply milk to the hospitals, 569—Subscriptions to the Hospital for Limbless Sailors and Soldiers, 569—Women medical students at, 866

Glaucoma, traumatic (Goldzieher), 665

Glove for paralysis of hands and fingers, 594

GODDARD, Major Charles E.: Duties of a sanitary section in the field, 215

Goat's milk, 855. See also Milk

GODDARD, H. H.: *Feeble-mindedness: Its Causes and Consequences*, rev., 50

GODDING, Captain H. C., Military Cross conferred upon, 146

GODLEWSKI: Blood from sucklings for haemoculture and Wassermann's reaction, 456

GOLDING-BIRD, C. H.: Appreciation of Sir J. F. Goodhart, 806

GOLDSCHNEIDER: Medical problems in war, 501

GOLDZIEHER: Traumatic glaucoma, 665

GONCHAROV, Ivan: *Obolomov*, rev., 593

GONORRHOEA, chronic, suction or vacuum bougie for treatment of (Captain A. Campbell), 817. (O)

GOODALL, E. W.: Nomenclature of typhoid diseases, 570

GOODFELLOW, Lieut. E. H., killed in action, 503

GOODHART, Sir James F.: The soldier's heart and the strained heart, 184—Obituary notice of, 805

GORDON, Lieut.-Col. M. H.: Inhibitory action of saliva on the growth of the meningococcus, 849

GORDON, William: Murmurs in the recruit's heart, 433

GORGAS, Surgeon-General William C., presented with the gold medal of the Geographical Society of Chicago, 223—Report of sickness in the U.S. army, 546—Tropical sanitation, 627—Goes on expedition to study yellow fever, 814—On the medical requirements of the U.S. army, 872

GOSTLING, Lieut.-Col. E. V., D.S.O. conferred upon, 670

GOUGH, Lieut. Bernard Bradley, killed in action, 356, 434

GOULD, G. M.: *Pocket Medical Dictionary*, rev., 822

Gout, cresote in (Alfred Orchard), 167

GRACE, Alfred, obituary notice of, 839

GRACE, William Gilbert, estate of, 10

GRAHAM, James M.: Simple method for intravenous injection of euol, 652

GRAHAM, Captain John Arthur, killed in action, 503

Grand Palais, Paris, a hospital for wounded, 75

GRANT, Christian Davidson, obituary notice of, 223

GRANT, Dundas, surgeon in charge of Ear Department, New Zealand Military Hospital, 466—(and others): *Injuries of the Eyes, Nose, Throat, and Ears*, rev., 821

GRANT, George Cowie, appointed J.P. for Banffshire, 840

GRANT, Captain G. R., Military Cross conferred upon, 833

GRANT, Sir Ludovic J.: Appreciation of Sir William Turner, 330

GRANT, Lieut.-Col. Robert Alexander Peter, obituary notice of, 470

Grants to universities. See Universities

GRÄTZER, A.: Gaiter-pain fever, 569

GRAY, Colonel H. M. W.: General treatment of infected "gunshot wounds," 1—C.B. conferred upon, 146—Gunshot wounds of the head, 261

GRAYFOOT, Colonel B. B., C.B. conferred upon, 146

Great Britain, war wastage and the birth-rate, 555

GRECH, Lieut.-Col. J., D.S.O. conferred upon, 833

GREENWOOD, Major, jun.: Typhus fever, 705

GRELLET, Charles John, obituary notice of, 707

GRELLIER, Captain Bernard, Military Cross conferred upon, 535

GRENFELL, W. T.: Notes on clothing against cold, 86—Work of the R.A.M.C. in Northern France, 500

GREVILLE, Captain E. R. G., Military Cross conferred upon, 833

GRIFFIN, Captain Montague Claude, killed in action, 109

GRIFFIN, Captain James Edward, dies of wounds, 357

GRIFFITH, F.: Actinomycosis and actinobacillosis in oxen, 104

GRIFFITH, Lieut. Harry Rathbone, dies on service, 833

GRIFFITH, Richard Evelyn, killed in action, 322

GRIFFITHS, F.: Bovine tuberculosis in man, 248

GRIMSHAW, Lieut.-Col. Ewin Wrigley, killed in action, 216

GROSS, Captain Geoffrey Yates, killed in action, 604

GROVES, E. W. Hey: *On Modern Methods of Treating Fractures*, rev., 656

GRUNE, Lieut. Gilbert Dennis, dies on service, 833

GUILBERT, Ch. (and G. MAUCOURIER): *Guide de rééducations physiques en groupe. Méthode de gymnastique rééducative pour les blessés militaires*, rev., 723

GUILLOZ, Théodore, obituary notice of, 674

GULLAND, G. Lovell: Appreciation of John Wyllie, 221

GULLY, Nurse Dorothy, Médaille d'Honneur des Epidémies bestowed upon, 568

Gunshot fractures of jaws, 287

Gunshot fractures treated by an external fixation apparatus (B. Sangster Simmonds), 481. (O)

Gunshot injuries of joints, positions of election for ankylosis following (Lieut.-Col. Robert Jones), 609. (O)

Gunshot wound of superior longitudinal sinus (A. W. Nuthall), 12. (O)

Gunshot wound, traumatic implantation of epidermis in track of (Lieut.-Col. G. H. Edington), 12. (O)

Gunshot wounds (Bereznegowsky), 422

Gunshot wounds of the chest, discussion at Medical Society of London, 129

Gunshot wounds of knee-joint, treatment of (Captain A. L. Lockwood), 153. (O)

Gunshot wounds of the head (Col. H. M. W. Gray), 261. (O)—Correspondence on, 432

Gunshot wounds of the spine (Captain James Collier), 451—Discussion, 452—(Alfred J. Hull), 577. (O)

Gunshot wounds, general treatment of infected (Col. H. M. W. Gray), 1. (O)

Gunshot wounds, treatment of (Sir Berkeley Moynihan), 333. (O)—Discussion on, 416

GUTHRIE, Lieut. Douglas: The tonsils, 149

GUTHRIE, Captain R. N., Military Cross conferred upon, 146

GWYNNE, Lieut. Owen Perrott, killed in action, 181

Gymnastics, review of books on, 668, 723

Gynaecological Society. See Society

H.

HABERSHON, Lieut. Kenneth Rees, killed in action, 322

HACKETT, Captain Bartholomew James, Military Cross conferred upon, 28

HACKMAN, Cedric Craven, killed in action, 466

HADDEN, David, obituary notice of, 638

HADDON, John: Physician *versus* surgeon, 224—Cause of appendicitis, 757

Haemoculture and Wassermann's reaction, blood from sucklings for (Godlewski), 456

Haemoglobinuria in soldiers, paroxysmal (Desmond MacManus), 552. (O)

Haemolytic splenomegalic jaundice. See Jaundice

Haemorrhage, post-partum, compression of aorta in (C. Stennett Redmond), 15

Haemorrhage, post-partum, immediate treatment of severe (R. K. Howat), 193. (O)—Correspondence on, 332, 364

Haemorrhoids and prolapsus ani, bloodless operation for (Major F. McKelvey Bell), 415. (O)

HAIRINE, Captain O., Military Cross conferred upon, 146

HALDANE, J. B.: Inhalation of stone dusts, 138

HALE, Colonel C. H., C.M.G. conferred upon, 216

HALL, B.: Paraffin for lousiness, 837

HALL, Colonel Gordon: Treatment of acute dysentery, 145

HALL, Major G., C.M.G. conferred upon, 833

HALL, Major: Treatment of acute dysentery, 145

HALLINAN, T. J. (and H. E. ROAF): Incubation period of paratyphoid B fever, 885

HALLUMS, Assistant Surgeon Edmund Carey, dies on service, 702

HAMBURGER, F.: Bronchitis and malingering, 502

HAMBURGER, H. J.: Researches on phagocytosis, 37

HAMELIN, Elphège, death of, 187, 775

HAMILTON, Lieut.-Col. J. A., C.M.G. conferred upon, 146

Hammer-toe (Lieut.-Col. Robert Jones), 782. (O)

Hammer-toes (parliamentary question), 140

HAMPSON, Captain T., Military Cross conferred upon, 145

HANAFIN, Major P. J., D.S.O. conferred upon, 146

HANDLEY, W. Hampson: New method of treating general peritonitis with obstruction, and its application in military surgery, 519—Jejunostomy an ileuno-colostomy, 634

HANNA, William, awarded Henry Saxon Snell prize, 715

- HARDEN, Arthur: Emulsions for Vidal's test, 744
- HARDING, Major D. L., D.S.O. conferred upon, 146
- HARDWICKE, W. W.: Metric prescribing, 504, 540, 576
- HARE, Dorothy C. (and others): Case of splenectomy, 365
- HARFORD, Charles F.: Visual neuroses of miners in their relation to military service, 340, 434
- HARMAN, N. Bishop: Influence of syphilis on the chances of progeny, 196. (O)—*The Eyes of Our Children*, rev., 554
- HAROLD, John, obituary notice of, 869
- HARPER, James, obituary notice of, 636
- HARPER, Colonel James, dies on service, 502
- HARPER, Lieut. John Alexander, Military Cross conferred upon, 535
- HARPER, Surgeon Maurice H. de J., killed in action, 832, 864
- HARRISON, Colonel C. E., C.M.G. conferred upon, 833
- HARRISON, Edward: Some hints on time saving in operations, 645
- HARRISON, Hon. James Herbert Hugh, obituary notice of, 707
- HART, Captain Henry Percival, Military Cross conferred upon, 834
- HARTIGAN, Major J. A., D.S.O. conferred upon, 146
- HARTNELL, Captain Edward Bush, dies on service, 669
- HARTT, C. H.: Appreciation of Sir J. F. Goodhart, 807
- Harvard Medical School issues a schedule of questions to practitioners, 116—Report of librarian, 126
- Harvest bugs, 904
- HARVEY, Lieut. Ralph de Warene, dies of wounds, 896
- HARWOOD, T. E.: Nature and treatment of concussion, 551
- HARZER, A.: Fever with meningismus, 861
- HASE, Albrecht: Lice, 734
- HASSELWANDER: Localization of bullets, 862
- HAUER, A. v.: Self-mutilation, 41—Eight months' experience in the field, 41
- HAWESHAU v. Ballinrobe Guardians, 536
- HAWKESLEY, Major Walter Linney, killed on service, 568
- HAWTHORNE, O. O.: Improved technique for intravenous injections and removal of blood from veins, 168—Clinical values of a urine test glass, 564
- HAYES, Maurice, 738
- Head and brain, wounds of (W. v. Brunn), 287
- Head, gunshot wounds of (Colonel H. M. W. Gray), 261. (O)—Correspondence on, 432
- Health departments, economies in, 865
- Health experiment and research laboratory in Kansas, proposed, 899
- HEALY, Colonel C. W.: Treatment of acute dysentery, 145—C.M.G. conferred upon, 833
- Heart, action of in jaundice (J. Davenport Windle), 123. (O)
- Heart, auscultation of, 71—Effect of position in, 396
- Heart-block in jaundice (R. D. Rudolf), 552. (O)
- Heart disease in war (Goldscheider), 501
- Heart disease in the recruit, diagnosis of functional (T. Stewart Allan Orr), 218
- Heart failure under anaesthesia, sudden: direct massage of heart: recovery (Gerald Sichel), 201
- Heart, irritable, of soldiers (R. McN. Wilson), 119. (O)—Correspondence on, 218, 292
- Heart, penetrating wound of (R. Garside Dixon and P. McEwan), 755. (O)
- Heart of the recruit, auscultation of, 361
- Heart, right side of, and its relation to overstrain (William Russell), 873. (O)
- Heart in school children (Mr. Priestley), 375
- Heart, soldier's (parliamentary question), 700
- Heart, the soldier's (Sir James Mackenzie), 117. (O)—Discussion on, 130—Leading article on, 137—Correspondence on, 184, 218, 292, 396, 433, 504, 804, 837
- Heart, soldier's, and its relation to thyroïdism (Sir James Barr), 544. (O)—Correspondence on, 605, 672, 706, 739, 868, 899
- HERBERT, Captain Robert Francis, dies on service, 503
- HERBERDEN, George Alfred, obituary notice of, 362
- HECKEL, Edmond, death of, 506
- Helmets, khaki, 54
- Helmets, steel. See Steel
- HENDERSON, Major P. H., D.S.O. conferred upon, 833
- HENDERSON, R.: *Mortality Laws and Statistics*, rev., 170
- HENRY, Herbert G. M. (and T. R. Elliott): Case of cholo-haemothorax, 9—Traumatic gastric ulcers, 523
- HENRY, Captain H.: Gunshot wounds of chest, 130
- Henry Saxon Snell prize, 775
- Hepatitis, toxic, specimens illustrating (B. H. Spilsbury), 689
- Herb-growing association, formation of, 116
- HERBERT, A. O., death of his wife from cerebro-spinal fever, 744
- HERBERT—DIXON, Midshipman Charles Douglas Horsfall, D.S.C. conferred upon, 466
- Heredity as a factor in alcoholic degeneration, prizes for essays on, 76
- HERESCU, Peter, death of, 187
- HERMS, W. B.: *Medical and Veterinary Entomology: A Textbook for Use in Schools and Colleges as well as a Handbook for the Use of Physicians, Veterinarians, and Public Health Officials*, rev., 822
- Hernia, diaphragmatic (Mr. Cholmeley), 819
- Hernia, William Lawrence's treatise on, 871, 904
- HERON, Major G. W., D.S.O. conferred upon, 833
- Herpes of penis, 152, 508
- HERRINGHAM, Colonel Sir Wilmot: Note on trench fever, 225
- HERTZLER, A. E.: *Surgical Operations with Local Anaesthesia*, rev., 622
- HERXHEIMER, G.: Weil's disease, 861
- HESLOP, Captain A. H., D.S.O. conferred upon, 833
- HESS, L. (and H. EPPINGER): *Vagotonia: A Clinical Study in Vegetable Neurology*, rev., 309
- HEUSTON, Lieut. Frederick Gibson, killed in action, 68
- HEWETT, Frederick S., M.V.O. conferred upon, 823
- HEWITT, Sir Frederic William, obituary notice of, 113—Estate of, 655
- HIALAL OESOPHAGISMUS. See Oesophagismus
- HIBBERD, Henry J.: Breads for children, 361
- HIGGINS, Surgeon J. T. D. B.: Cases of phlebotomy fever at an island in the Eastern Mediterranean, 166
- High heels and flat-foot, 152
- Highlands and Islands, Medical Service. See Insurance
- HILDEBRAND, O.: *Grundriss der Chirurgisch-Topographischen Anatomie*, rev., 203
- HILDIGER, H. J.: Medicine and the National Volunteers, 840
- HILL, Captain J. McAdam, Serbian Order of St. Sava conferred upon, 735
- HILL, Leonard: On "colds" and the influence of the atmosphere on the nasal mucous membrane, 541—(and James M. McQUEEN): Theory of blood pressure measurement, 875
- HILL, L. W. (and R. S. ECKMAN): *Starvation Treatment of Diabetes*, 488
- HILL, Captain Robert McOwan, D.S.O. conferred upon, 735
- HILL, William: The tonsils, 71
- HIND, Lieut. Charles Raymond, killed in action, 865
- HINGE, Lieut.-Col. H. A., C.M.G. conferred upon, 146
- HIRD, R. Beaton: Sarcoma of frontal lobe giving rise to ocular signs only, 678
- HISLOP, Surgeon-Probationer John, killed in action, 833
- HOBLING, Major J. H.: Strange wounds caused by high explosives, 184
- HOCHENEGG, Julius v.: On medical education problems, 107
- HODGSON, Midshipman Edward Thomas, killed in action, 865
- HODSON, V. S., receives permission to accept the Egyptian Order of the Nile, 436
- HOFFMAN, F. L.: *The Mortality from Cancer throughout the World*, 890
- HOLDEN, Oscar, reports an anomalous case of enteric fever, 485
- HOLLIS, W. Ainslie: Gerontal constipation and its treatment, 677. (O)
- HOLLOWAY, Dr., Serbian Order of Saint Sava conferred upon, 605
- HOLMES, Major Charles James, dies on service, 568
- HOLMES, Gordon (and S. SMITH): Case of bilateral motor apraxia with disturbance of visual orientation, 437. (O)—(and Colonel LISTER): Visual disturbances from cerebral lesions, 485
- HOLMES, Philip Lawton, killed in action, 288
- HOLMES, Captain R. J., dies on service, 669
- HOME, George: Local treatment of suppurating skin lesions and infections, 14
- Home Office, new order re toxic jaundice, 36—Appoints a committee to consider licences to partially disabled men to drive motor cars, 259
- Hong Kong, plague in, 716
- Honours, 28, 146, 181, 252, 322, 357, 395, 466, 535, 568, 604, 670, 702, 704, 735, 804, 833, 896
- Honours, Birthday, 823
- Honours, New Year, 53, 105
- Hood, Lance-Corporal George Christie, dies of wounds, 357
- HOOD, Wharton Peter, obituary notice of, 674
- HOOPER, Staff Surgeon Alfred Oswald, lost in the *Natal*, 67
- HOOPER, Lieut.-Col. A. W., C.M.G. conferred upon, 146
- HOOTON, W. M.: *Qualitative and Volumetric Analysis*, rev., 658
- HOPKINS, James Gilbert, obituary notice of, 707
- Hôpital d'opht., organization of a French, 251
- HOPKINS, Francis Gethin, obituary notice of, 331
- HOPKINS, Samuel A.: Dental cases amongst soldiers, 268
- HORGAN, James B.: The tonsils, 111
- Horlick's malted milk lunch tablets, 345
- HORN, Robert James, obituary notice of, 506
- Horrors of a German prison camp, 562, 598, 606, 664, 804. See also Prison
- HORSLEY, Sir Victor, C.B. conferred upon, 670—(and Mary D. STURGE): *Alcohol and the Human Body*, rev., 759
- HORT, Edward C.: Epidemic cerebro-spinal fever: the place of the meningococcus in its etiology, 156—Trench fever, 291
- HOSKINS, Surgeon-Major Edmund John, obituary notice of, 470
- Hospital, 3rd London General, *Gazette*, 576, 828
- Hospital, 3rd Western General (parliamentary question), 317
- Hospital, 4th London General, *Gazette*, *The Fourth*, 885
- Hospital, No. 7 Overseas Stationary (Canada), 111
- Hospital, Ancots, report, 396
- Hospital, Angell Memorial, Massachusetts, dental department for, 507
- Hospital, Anglo-Russian, 252, 431
- Hospital, Australian, discussion on thigh cases, 392
- Hospital, base, work at (W. Rankin), 371. (O)
- Hospital beds in London (parliamentary question), 354
- Hospital, Belfast Royal Victoria, annual meeting, 605
- Hospital, Belgian field: Experiences of E. C. Thompson, 630
- Hospital, Birmingham Territorial General: *The "Southern" Cross*, 363
- Hospital, Bolingbroke, Wandsworth: Treatment of septicaemia by "fixation abscess" (J. D. Speid Sinclair), 653
- Hospital, Brighton, for patients who have lost limbs, 667, 702, 770
- Hospital, Cancer, report, 436
- Hospital Commission, Canadian Military, 183, 537
- Hospital consultations and the private practitioner (Massachusetts General Hospital), 139
- Hospital, Dublin, Dr. Steevens's, 835
- Hospital, Dublin Royal Victoria Eye and Ear, annual meeting, 468
- Hospital, Dundee Royal Victoria, annual meeting, 360
- Hospital, Edinburgh Royal, for Sick Children, 569
- Hospital, Edinburgh Royal Maternity, antenatal clinics and prematurity practice at, in the years 1909-1915 (J. W. Ballantyne), 189, 234, 275. (O)—Annual meeting, 703
- Hospital, Federated Malay States, 897
- Hospital, French: First-aid lectures, 775
- Hospital, Fulham Military: Exhibition of cases, 89—Discussion on septic compound fractures, 239
- Hospital, Glasgow District Mental, annual report, 148
- Hospital, Glasgow Maternity and Women's, annual meeting, 289
- Hospital, Guy's, *Reports*, vol. lxxviii, rev., 133
- Hospital, Hammersmith Military Orthopaedic, 559
- Hospital, King Edward VII, Cardiff: Medicine in South Wales, 147—Opening of new wing, 222
- Hospital, King George, protozoan infections occurring at (H. M. Woodcock and W. J. Pinfold), 407. (O)
- Hospital, King's College: Case of hiatal oesophagismus in a man aged 36 years (under the care of Mr. Boyce Burrow; reported by C. P. G. Wakeley), 589
- Hospital for limbless men. See Hospital, Princess Louise
- Hospital, Liverpool Merchants' Mobile, 702
- Hospital, Liverpool Royal Southern, report, 323
- Hospital, London, syphilis department of, 771
- Hospital, London Mission, Jammalamadugu, report, 360
- Hospital, Lord Derby War, Warrington: Case of sudden heart failure under anaesthesia: direct massage of heart: recovery, 201
- Hospital, Middlesex: *Archives*, vol. xv, rev., 295
- Hospital, Miller General, extension of its massage and electrical departments, 694
- Hospital, Norfolk, war magazine, 828
- Hospital, Orthopaedic, Incorporated, of Ireland, report, 359
- Hospital, Orthopaedic, scope of, 559
- Hospital, Princess Louise Scottish, for limbless sailors and soldiers, 567, 772
- Hospital, Psychopathic, for New York, 775
- Hospital, Queen Charlotte's, annual meeting, 400
- Hospital, Queen Mary Auxiliary, 559
- Hospital, Red Cross. See Red Cross
- Hospital reports, 89, 201, 239, 485, 589, 653
- Hospital, Royal Free: Arrangements for dental students, 311—Infant welfare department, 363—Award of post-graduate scholarship, 741
- Hospital, Royal Prince Alfred (Sydney), and the war, 899
- Hospital, St. Bartholomew's: *Gazette*, 471—Roll of honour, 471
- Hospital, St. John Voluntary Aid Detachment, Southport, 608, 668
- Hospital, St. Thomas's: *Reports*, vol. xlii, rev., 170
- Hospital, Scottish Women's, 288
- Hospital, Sherburn, 149
- Hospital ship, *St. Margaret of Scotland*, 431

Hospital ships, electrolytic hypochlorite for, 455
 Hospital ships, improved method of lifting patients on to from barges and boats (Colonel A. W. Mayo Robson), 10. (O)
 Hospital, Southampton Isolation: Anomalous case of enteric fever (reported by Oscar Holden), 485
 Hospital, South London, for Women, 872
 Hospital staffs of military age, civil 249
 Hospital stoppages (parliamentary question), 391
 Hospital Supply Dépôt, Irish War, 110, 289—New in Manchester, 897
 Hospital, Swedish War, in London, 322
 Hospital, Temple Hill Auxiliary, annual meeting, 217
 Hospital, University College: *Collected Papers of the Research Department*, vol. v, rev., 555
 Hospital, Withington, 357
 Hospital for wounds of jaw and face, appeal for, 770
 Hospitals and asylums, military (parliamentary question), 105
 Hospitals, bequests to. *See* Bequests
 Hospitals, Canadian, 670
 Hospitals, general and stationary, 141
 Hospitals in India, 633
 Hospitals, Liverpool, 323
 Hospitals, Manchester infectious, 536
 Hospitals, mental, female nurses in male wards of (parliamentary question), 26—(George M. Robertson), 308. *See also* Asylums and Nurses
 Hospitals, military, duration of treatment in (parliamentary question), 602
 Hospitals, military, journals of, 250, 576, 885. *See also* Craigleith
 Hospitals, military, massage in (parliamentary question), 602
 Hospitals, military, medical appliances for (parliamentary question), 213
 Hospitals, military orthopaedic, 559
 Hospitals need for resident surgical officers at, 435, 472
 Hospitals for officers (parliamentary question), 26
 Hospitals, ophthalmic, of Egypt, report, 595
 Hospitals, orthopaedic, 559
 Hospitals, Red Cross, in Italy, 187—Dublin Castle, 323
 Hospitals, voluntary, medical officers of (parliamentary question), 768
 Hospitals for wounded soldiers, selection of (parliamentary question), 213
 Hot air, disinfection by, 734
 Housing problem in Dublin, 253
 Housing and Town Planning Council, and a congress on home problems, 331
 Housing of a virile race (leading article), 696—Note on, 804
 Houston, Lieut. C. F., Military Cross conferred upon, 833
 Houston, Captain J. W., D.S.O. conferred upon, 146
 Howard, Lieut. Cecil Cunningham, dies of wounds, 803
 Howat, R. K.: Immediate treatment of severe post-partum haemorrhage, 193
 Howell, Captain F. D. G., Military Cross conferred upon, 146
 Howes, F. O. Plumtree, obituary notice of, 743
 Hubbard: Nerve deafness and mumps, 62
 Hubner: Weil's disease, 861
 Hudson, Corporal Arthur Frederick, killed in action, 68
 Hughes, Basil: Causes and prevention of trench foot, 712
 Hughes, Major B. M., killed in action, 68
 Hughes, Surgeon John, lost in the *Arabis*, 430
 Hull, Major Alfred J.: *Surgery in War*, rev., 526—Treatment of gunshot wounds of the spine, 577—White gangrene, 756
 Hume, John: Treatment of diabetes, 587
 Hume, Captain N. H. (and Sir Leonard Rogers): Treatment of kala-azar (Indian form) by tartar emetic and by injections of metallic antimony, 301
 Humerus, fractures of. *See* Fractures
 Humphreys v. Miller, 838
 Humphry, John, obituary notice of, 222
 Humphry, Lieut.-Col. L., C.M.G. conferred upon, 835
 Humphry, L. (and others): Cases of splenectomy, 365
 Hunter, Colonel G. D., C.M.G. conferred upon, 146
 Hunter, Colonel William, C.B. conferred upon 670—Serbian Order of St. Sava conferred upon, 735
 Hunterian lecture. *See* Lecture
 Husband, Captain G. S., D.S.O. conferred upon, 835
 Hutshands, H. Weasen: Case of abnormally large placenta, 904
 Hutchinson, A.: Serbian Order of St. Sava conferred upon, 605
 Huxley, T. H.: *Lessons in Elementary Physiology*, rev., 90
 Hyde, Major C., killed in action, 28
 Hygiene, personal: Baths, 630—Lice, 630
 Hymen, imperforate, and absence of uterus (Leslie J. Miles), 15
 Hypochlorite, electrolytic, for hospital ships, 455
 Hypochlorite solutions in treatment of septic wounds (Fleet Surgeon Frederick J. A. Dalton), 126. (O)

Hypochlorites, behaviour of, on intravenous injection and their action on blood serum (H. D. Dakin), 852. (O)
 Hypochlorous acid in eusol, amount of free, 740
 Hypochlorous acid, therapeutic value of (Raul Flores Cordova), 651. (O)
 Hypochlorous acid in treatment of acute toxæmia secondary to gas gangrene (Captain John Fraser and Captain H. J. Bates), 83 (O)—Note on, 175
 Hypochlorous acid in surgery, report of investigations in Edinburgh, 171

I

Ichthyol in erysipelas (Helen Sexton), 201
 Idiocy and imbecility, toxic causes of (Dr. Orr and Major Rows), 757
 Illegal operation, imprisonment for (Jane Robertson or Edward), 607—(J. T. Dickie and Ann Taylor), 741
 Illegitimate child's inquest. *See* Inquest
 Illumination problems, 698
 Imperial College of Science, 800
 IMPER, Elizabeth Stephens, lost in the *Persia*, 109
 Income tax, 76, 152, 180, 224, 296, 332, 364, 508, 540, 629, 676, 744, 776—Parliamentary question, 629—Rebate on motor spirit, 76—Petrol duty, 152, 224, 332, 676—B.A.M.C. (parliamentary question), 180—Assessability of gratuities to temporary lieutenants, 260—Of officers (parliamentary question), 430, 629—Review of books on, 487
 Incompatibility, 224, 260, 332
 Incubator, temporary, use of a simple portable refrigerating box as (S. Delépine), 718. (O)
 Index Catalogue of the Library of the Surgeon-General's Office, United States Army, rev., 527
 Index of Prognosis and End-results of Treatment, rev., 310
 Indexes, half-yearly, 893

INDIA:
 Bombay Medical Union, 632
 Calcutta School of Tropical Medicine, 466
 Cocaine in (parliamentary question), 391
 Cocaine in Calcutta, 632
 Hospitals in, 633
 Lady Hardinge Medical College, 633, 835
 London Mission Hospital, Jammalamadugu, 360
 Malaria in Bengal, 671
 Medical inspection of schools in Madras, 633
 Plague in India, 671
 St. John Ambulance and Red Cross work, 633
 Sanitation in Bengal, 632
 War funds, gifts from India, 835
 Indian Medical Degrees Bill, 773. *See also* Bill
 Indian Soldiers' Fund, 147, 252
 Indians, mortality among educated (leading article), 762
 Industrial diseases clinic at Hospital of University of Pennsylvania, 894
 Industrial fatigue and its causes (leading article), 529—Correspondence on, 570. *See also* Munition
 Industrial lighting, 139. *See also* Lighting
 Infancy, society for scientific study of, established in Naples, 551
 Infant Aid Society (Dublin), 30. *See also* Society
 Infant life preservation (leading article), 58
 Infant and maternal welfare, 599, 737, 867
 Infant welfare (parliamentary question), 602
 Infant Welfare Association, 540
 Infantile diarrhoea. *See* Diarrhoea
 Infants, apparent death and premature burial in, 698
 Infectious disease, myeloid leukaemia as an (Schmeisser), 23
 Infectious diseases, notification of, 697
 Infectious diseases in schools, code of rules, 286
 Infectious diseases in war (Goldscheider), 501
 Infirmary, Cork South Charitable, report, 359
 Infirmary, Edinburgh Royal, report, 69
 Infirmary, Glasgow Eye, report, 207
 Infirmary, Glasgow Royal, 69—Report, 289
 Infirmary, Glasgow Western, 69
 Infirmary, Liverpool Royal, annual meeting, 323
 Infirmary, Manchester Royal, memorial to Sister French, 36, 357
 Infirmary, Southport, report, 363
 Infirmary, Worcester, and its civil hospital staff of military age, 249
 Inglis, Elsie, Order of the White Eagle of Serbia conferred upon, 605
 Ingram, Captain Thomas Lewis, D.S.O. conferred upon, 834
 Inguinal incision for intrascrotal affections (A. Ernest Maylard), 589—Correspondence on, 673
 INMAN, F. William: Soldier's heart and its relation to thyroidism, 606

Inoculation, antityphoid: French army, results of in, 27—Parliamentary questions on, 105, 533, 829—Research Defence Society's leaflet, 147
 Inquest on illegitimate child at Wigan, coroner's remarks, 471
 Insanitary dwellings, Tabard Street, Southwark (leading article), 695—(Parliamentary questions), 700
 Insanity, alleged increase of, 105
 Insanity, campaign for prevention of by education in America, 234
 Insanity and war, 148
 Insanity of wives (parliamentary questions), 179
 Insecticides (Castellani and Jackson), 151
 Instinct, the problem of, 763
 Institution, Liverpool Medical:—William Jones: John Evelyn, 30—Annual meeting and election of officers, 187—Congratulatory to Captain Noel G. Chavasse, 223—W. Blair Bell: Functions of the pituitary body, 322—Special meeting: Jubilee of Drs. E. A. Browne and G. C. Walker, 467—Professor Beattie: Simple method of anaerobic culture, 569
 Insurance Agency, the Medical, 887
 Insurance companies, medical referees to, 676
 Insurance, compulsory health, in Massachusetts, 219
 Insurance, Council of the Faculty of, appoints committee to advise on whole position of the insurance scheme, 872
 Insurance premiums (parliamentary question), 534
 Insurance, National:
 Developments and problems (Dr. Mactier), 819
 Finance of the Act, deputation to the Treasury, 177
 Highlands and Islands Medical Service Board, 216
 Insurance Commissioners and medical recruiting (leading article), 174—Note on, 212
 Lanarkshire Insurance Committee and bad housing in the county, 216
 Lancashire Insurance Committee and the after-care of consumptives, 110
 Panel patients, attendance on during the war, in Manchester and Salford, 70
 Parliamentary statement, 893
 Public medical service in Leicester, 359
 Salford Insurance Committee: Small-pox and tuberculosis, 358
 Sanatorium treatment in London, 834
 Wexford County, 431
 Intestinal vomiting. *See* Vomiting
 Intracranial new growths simulating miner's nystagmus (S. McMurray and E. E. Young), 90
 "Intramine" (J. E. B. McDonagh), 202, 591, 820, 826—Description of, 593. *See also* Chemotherapy
 Intrascrotal affections, inguinal incision for (A. Ernest Maylard), 589—Correspondence on, 673, 705
 Intussusception of the small intestine due to fibromyoma, excision, recovery (R. P. Rowlands), 343
 Invalid prisoners. *See* Prisoners
 Iodine, nascent, in phthisis, 332
 Iodine in tetanus (A. T. MacConkey and S. S. Zilva), 411. (O)
 IRANI, Major M. S.: Herpes of the penis, 508

Ireland:

Action for libel: Ronayne v. Doyle, 536
 Ashy Union, large number of unvaccinated children in, 605
 Automobile Club and the war, 359
 Ballinrobe guardians and Dr. Hawkshaw, 536
 Belfast Health Society, 360—Royal Victoria Hospital, 605
 Boards of guardians and their medical officers who have joined the B.A.M.C. (co. Fermanagh and co. Westmeath), 323—(Delvin, co. Westmeath), 395—(Swinford), 431, 605
 Cerebro-spinal meningitis (W. J. Wilson), 359
 Civil Service Estimates, 431
 Cork, South, Charitable Infirmary, report, 359
 Cork unions, amalgamation of, 183
 Crippled soldiers, instruction of in new trades, 110
 Dietary scale in the workhouses, economical revision of, 217
 Dispensary doctors' graded salaries, refused by Newry board of guardians, 468
 Doctor's superannuation (Ennisclorthy board of guardians), 183
 Dr. Stevens's Hospital, 835
 Dublin Castle Red Cross Hospital, 323, 536
 Food inspection in Dublin, 359
 Hayes, Maurice, 738
 Hospital ship arrives at Dublin, 395
 Housing problem in Dublin, 253
 Incorporated Orthopaedic Hospital of Ireland, report, 359
 Industrial training of wounded soldiers, 395
 Infant Aid Society, 30
 Infant and maternal welfare, 867

Ireland (continued)

- Infant mortality, means to lessen in Ireland, 570
 Medical dialect and folklore of the North of Ireland, 324
 Medical treatment of schoolchildren (parliamentary question), 566
 Midwives, bill for, 898
 Motor taxation, letter to Chief Secretary, 633
 Murphy, William W., presentation to, 431
 O'Sullivan, J. J., presentation to, 217
 Pearson, Charles Yelverton, appointed one of H.M. honorary surgeons in Ireland, 536
 Petrol supply, 570
 Power, John L., dinner to, 431
 Power, Joseph, testimonial to, 253, 431
 Rebellion, The, 671, 702, 738—Medical work in Dublin during, 702
 Red Cross Fund, 183
 Research Defence Society (Dublin Branch), 395
 Roanthee, Dr., of Bray, goes on active service, 570, 633
 Ronayne v. Doyle, 536
 Royal Medical Benevolent Fund of Ireland, 835
 Royal Victoria Eye and Ear Hospital, Dublin, annual meeting, 468
 Royal Victoria Hospital, Belfast, 605
 Russell, Captain G. H., granted extension of leave, 633
 St. Patrick's Home for Supplying Trained Nurses, report, 995
 Small-pox in county Fermanagh, 70
 Small-pox, danger of, 431
 Steel, Major Edwin, memorial to, 69
 Swinford guardians. *See* Boards of guardians
 Temple Hill Auxiliary Hospital, 217
 Thompson, E. C., appointed Deputy Lieutenant for co. Tyrone, 570
 Tipperary district, fever in, 30
 Ulster Medical Society, 110, 359, 835
 Vaccination defaulters (Enniscorthy district), 30—(Queen's County), 431
 Vaccination in (parliamentary question), 106
 War Hospital Supply Depot, 110, 289
 Westmeath and the Motor Ambulance Fund, 29
 Wexford medical practitioners thank Dr. Hennessy *re* the certification question, 431
 Workhouse amalgamation (Cork Unions), 183—Co. Tyrone, 570

Irish Automobile Club and the war, 359

- IRVINE, Major A. E. S., D.S.O. conferred upon, 146
 IRVINE, Louis G.: Gaassing accidents from the fumes of explosives, 162

ITALY:

- Artificial limbs factory, 400, 720
 Campaign against venereal diseases, 744
 Case of crippled and maimed soldiers, 29, 720
 Committee appointed to study chemical preparations likely to be useful for medicinal purposes, 550
 Committee for re-education of the wounded, 187
 League university, opening of, 507
 League founded for hygienic well-being of soldiers in the field, 151
 Medical men in the new Ministry, 894
 Medical practitioners up to 46 called up for military service, 828
 Medical service of Italy, 284
 Number of qualified doctors in, 277
 Propaganda *re* Red Cross work in, 131
 Red Cross Hospitals in, 187
 Society for Study of Infancy, 551
 Society for Study of Malaria, appeal, 489

ITO: Spirochaete of Weil's disease, 627

- IVY, R. H. (and B. A. THOMAS): *Applied Immunology*, rev., 887
 IWANOW, B. M.: Local anaesthesia by the quinine and urea hydrochloride solution, 640

J.

- JACK, W. R.: *Wheeler's Handbook of Medicine*, rev., 758
 JACKSON: Insecticides, 151
 JACKSON, G. T., death of, 187
 JACKSON, Lieut.-Col. James, C.I.E. conferred upon, 833
 JACOB, H. W.: Early diagnosis of whooping-cough, 589
 JACOBS, C.: Our Belgian colleagues, 71
Jacobson's Surgery, rev., 656
 Jaffa, plague at, 894
 JALLAND, Lieut. Stephen, killed in action, 394
 JAMES, Lieut.-Col. H. E. R., C.M.G. conferred upon, 833
 JAMIESON, William Allan, obituary notice of, 635
 Japan, deaths from tuberculosis in, 819
 Japanese charms, amulets, and votive offerings, exhibition of, 675
 Japanese, lactation among, 76
 Japanese obstetrics, Junker on, 676

- Jaundice at Alexandria, discussion on, 320
 Jaundice, bradycardia associated with (E. M. Laslett), 553
 Jaundice, epidemic, of campaigns (W. H. Willcox), 297. (O)—Leading article on, 491
 Jaundice, epidemic, due to *B. paratyphosus B.*, 800
 Jaundice, haemolytic splenomegalic, cured by x rays, 495
 Jaundice, heart's action in (J. Davenport Windle), 123. (O)
 Jaundice, heart-block in (R. D. Rudolf), 552. (O)
 Jaundice, infectious (A. B. Ward, A. E. Coles, and A. R. Friel), 526
 Jaundice, infectious, amoebae in urine in a case of (H. B. Pantham), 553
 Jaundice, infectious, spirochaete of, 627
 Jaundice, toxic, Home Office order *re* notification of, 36
 Jaundice, toxic, due to tetrachlorethane poisoning, treatment of (W. H. Willcox), 300. (O)
 Jaundice. *See also* Weil's disease
 Jaw injuries (parliamentary question), 732
 Jaw wounds (leading article), 457—Discussion at British Dental Association, 886
 Jaw wounds, chloramine in treatment of (Staff Surgeon A. R. Fisher), 87. (O)
 Jaws, deformities of, resulting from operation or injury (Percival P. Cole and Charles Henry Bubb), 268. (O)
 Jaws and face wounds, 673
 Jaws and face, war injuries, discussion at Royal Society of Medicine, 363, 375
 Jaws, gunshot fractures of, 287
 JEANNERET-MINKINE, M.: *Le typhus exanthématique*, rev., 621—Correspondence on, 705
 JEFFERSON, Frederick (and W. E. M. ARMSTRONG): A method of treatment for conjunctivitis, 342
 Jefferson Medical College, Philadelphia, 883
 JEFFRIES, Benjamin Joy, death of, 187
 Jejunal ulcers. *See* Ulcers
 Jejunostomy and faecal and intestinal vomiting (Victor Bonney), 583. (O)
 Jejunostomy and jeuno-colostomy, 571, 634, 673, 705, 739
 JEKYLL, Captain Arthur Cyril Albert, killed in action, 770
 JEPSON, Dr.: Women munition workers and a monthly rest, 508
 JESSOP, Walter H.: Some ophthalmic lessons of the war, 691
 JEUDWINE, Major W. W., C.M.G. conferred upon, 146
 JOBLING, E.: *Catalysis and its Industrial Application*, rev., 170
 JOE, Surgeon-Probationer Alexander, reported killed in action, 833—Since reported prisoner of war, 864
 JOHANNESSEN, C.: With the Russian Red Cross, 531
 Johns Hopkins Hospital, gift of books, etc., to, 72
 JOHNSON, Private Bernard Angus, killed in action, 466
 JOHNSON, Major Frederick Miller, killed in action, 68
 JOHNSON, Surgeon George Moore, killed in action, 832, 895
 JOHNSON, H. L. E., death of, 187
 JOHNSON, J. Pratt (and A. J. MILNE): Combined preventive inoculation against typhoid and paratyphoid fever and bacillary dysentery, 88
 JOHNSTON, Lieut. Alec Leith, killed in action, 670
 JOHNSTON, Lieut. H. A., killed in action, 430
 JOHNSTON, Surgeon-Probationer James, killed at sea, 465
 JOHNSTON, Lieut. James McC., killed in action, 803
 JOHNSTON, B. Mackenzie, elected Curator of Patronage of Edinburgh University, 363
 JOHNSTON, T. B. (and L. BEESLY): *Manual of Surgical Anatomy*, rev., 486
 JOHNSTON, Lieut. Thomas William Gerald, Military Cross conferred upon, 28
 Joints, positions of election for ankylosis following gunshot injuries of (Lieut.-Col. Robert Jones), 609. (O)
 Joints, septic wounds of, 356
 JOLY, J.: *Birthtime of the World, and other Scientific Essays*, rev., 377
 JONA, G.: Haemolytic splenomegalic jaundice cured by x rays, 495
 JONES, A. Bassett (and L. Jones LLEWELLYN): *Fibrositis (Gouty Infective, Traumatic), so-called Chronic Rheumatism, including Villous Synovitis of Knee and Hip, and Sacro-Iliac Relaxation*, rev., 90
 JONES, Captain Alfred Gwilym, dies on service, 356
 JONES, Surgeon Cyril O. H., killed in action, 832
 JONES, Captain E. H.: Traumatic rupture of spleen, 200
 JONES, Surgeon-General Guy Carleton, C.M.G. conferred upon, 53
 JONES, Captain Harry John Rutherford, dies on service, 394
 JONES, Lieut.-Col. Robert: War orthopaedics, 315, 318—Appointed inspector of military orthopaedics, 559—Remarks on positions of election for ankylosis following gunshot injuries of joints, 609—On suture of nerves

- and alternative methods of treatment by transplantation of tendon, 641, 679—The soldier's foot and the treatment of common deformities of the foot, 709, 749, 782—On mal-united and ununited fractures, 809
 JONES, Lieut.-Col. T. P., C.M.G. conferred upon, 833
 JONES, William: John Evelyn, 30
 JORGE, Ricardo: The German manifesto, 495
 JOSHI, L. L.: *The Milk Problem in Indian Cities, with Special Reference to Bombay*, 770
Journal of Bacteriology, 721
Journal of Cancer Research: Cambridge University Press becomes the agent for in Great Britain, 325, 507
Journal of Immunology, 640
Journal de Médecine de Bordeaux: Number of students in the academic year, 151
 Journals and books, fewer owing to the war, 342
 JULIAN, Colonel O. R. A., C.B. conferred upon, 833
 JUNG, C. G.: *Collected Papers on Analytical Psychology*, 676; rev., 886
 JUNKER on Japanese obstetrics, 676
 JÜRGENS: Oedema disease of war prison camp, 801

K.

- Kaifeng, medical work done in, 151
 Kala-azar (Indian form) treated by tartar emetic intravenously and by inunctions of metallic antimony (Sir Leonard Rogers and Captain N. H. Hume), 301. (O)
 Kansas State Board and the establishment of a health experiment and research laboratory, 899
 KARTULIS, S.: Treatment of acute dysentery, 144
 Kashmir, work of the brothers Neve in, 640
 KAZANJIAN, V. H.: Treatment of maxillary fractures, 266
 Kedani fever in Sumatra, 316
 KEEN, W. W., re-elected President of American Philosophical Society, 400—War surgery, old and new, 563
 KEENAN, J. F.: Procidencia uteri in a nullipara, 343
 KEEP, Captain A. C., Military Cross conferred upon, 833
 KEITH, Arthur: *The Antiquity of Man*, rev., 16—Appreciation of Sir William Turner, 327
 KEITH, J. R. (and A. T. BRAND): Puerperal septicaemia treated by intravenous injections of eusol, 415
 KELLER, Major W. L.: Novocain in sciatica, 478
 KELLOGG, J. H. (and M. V. O'SHEA): *The Body in Health*, rev., 593
 KELLOGG, V. L. (and R. W. DOANE): *Elementary Textbook of Economic Zoology and Entomology*, rev., 759
 KELSON, W. H.: *Diseases of the Throat, Nose, and Ear*, rev., 486
 KENDREW, Captain A. J., Military Cross conferred upon, 833
 KENNEDY, Alex. Mills (and B. B. G. RUSSELL): Relapsing paratyphoid A infection, 618. (O)—(and C. WORSTER-DROUGHT): Acute urinary infection with paratyphoid B bacillus, 649. (O)
 KENYON, Lieut. Charles Wilton, killed in action, 535
 KENYON, J. (and H. D. DAKIN and J. B. COHEN): Studies in antisepsis: chloramine, 160, 388
 KEOGH, Sir Alfred, elected Honorary Freeman of the Society of Apothecaries, 895
 KERANS, Major C. L., D.S.O. conferred upon, 146
 KERLEY, C. G.: *What Every Mother Should Know about Her Infants and Young Children*, rev., 454
 KERR, Captain: Treatment of acute dysentery, 143
 KETTLE, E. H.: *Pathology of Tumours*, rev., 821
 KETTNER, A. H.: Health of the German child, 893
 Khaki helmets (parliamentary question), 733
 Kharsivan, in syphilis, 16. *See also* Salvarsan
 Kharsivan, therapeutic and reaction effects of—a record of 600 injections (H. C. Lucy), 614. (O)
 KIDD, Captain G. E., Military Cross conferred upon, 833
 KIDDLE, Lieut.-Col. F., C.M.G. conferred upon, 146
 Kidney, congenital cystic, with local diffuse peritonitis: surgical destruction of part of kidney: recovery (John D. Malcolm), 879. (O)
 KILNER, T. P.: Severe tetanus successfully treated by antitoxin, 46
 KIMBELL, Lieut. Harry John Sullings, dies on service, 833
 King Edward's Hospital Fund. *See* Fund
 KING, Lieut. Maurice Edmund, killed in action, 535
 Kinkhost. *See* Whooping-cough

KINLOCH, J. Parlance: Temperature necessary for the destruction of lice and their eggs, 224—The best methods of destroying lice and other body vermin, 789. (O)
KINNEAR, Forbes, and the liquor restrictions, 729
KIRCHNER, Professor: The battlefields of East Prussia, 827
KIRKBY-GOMES, Sidney G., receives permission to wear the Chinese decoration of the Order of the Excellent Cross, 435
KIRKLAND, Lieut. J. T., Military Cross conferred upon, 146
KIRKWOOD, George, obituary notice of, 294
KLEIN, A.: War nephritis, 64
Knee-joint, gunshot wounds of (Captain A. L. Lockwood), 153. (O)
KNIGHT, Lieut. William John, Military Cross conferred upon, 834
KNOWLES, F. O.: Larva migrans, 596
KNOWLES, Captain H. R.: Military Cross conferred upon, 146
KNOX, R.: *Radiography, X-Ray Therapeutics, and Radium Therapy*, rev., 132
KNOX, Robert: The soldier's heart, 804
KRONFELD: "Gaiter pain" 108—Footwear of the Austrian soldier, 108
KUPIN, A.: *The Duel*, rev., 555
Kut garrison, 770
KÜTTNER: Localization of foreign bodies, 895

L.

LABBÉ, Léon, death of, 470—Obituary notice of, 571
Lactation among the Japanese, 76
Lady Hardinge Medical College, 633, 835
LAKE, Edgar Howard, obituary notice of, 186
LAKIN, Charles, obituary notice of, 362
LALABIE, H. de (and E. GAUTRELET): *L'arthritisme-diatèse à Vichy: Physiologie pathologique et thérapeutique physiologique*, rev., 204
LAMBERT, Major Francis Courtenay, dies on service, 568
Lambia infections, treatment of (George C. Low), 450. See also Protozoan
La Medicina Pratica, 347
Lanarkshire Insurance Committee. See Insurance
Lancashire, report of M.O.H., 703
Land mine wounds (P. R. von Walzel), 631
LANG, R. M.: Acetonuria and acidosis, 315
LANGDALE, Deputy-Surgeon-General James, obituary notice of, 470
LANGDALE, Captain James Russell, killed in action, 466
LANGDON, Lieut. Lawrence, dies of wounds, 466
LANGE, C.: Fever with meningismus, 861
LANGHANS, T., death of, 506
LANGIER, Maurice, death of, 187
LANGWILL, H. G.: Appreciation of John Wyllie, 221
La Nipitologia, 295
LARGE, Captain S. D., Military Cross conferred upon, 146
LARKIN, Reginald: Malunited and ununited fractures, 900
LARKING, Arthur E.: Price of drugs, 468—Appointed J.P. for Borough of Buckingham, 903
LAROQUETTE, Miramond de: Daylight treatment, 173
Larva migrans (F. C. Knowles), 596
Laryngology, review of books on, 486
LASLETT, E. E.: Bradycardia associated with jaundice, 553
Latin in the medical curriculum, 259
Laudanum, restrictions on the sale of, 286
LAUDER, Captain James La Fayette, D.S.O. conferred upon, 604
LAUDER, Private Stanislaus, killed in action, 108
LAURENCE, Stephen M.: What determines sex? 472
LAYER, H.: *Colchester Oyster Fishery*, rev., 453
LAWRENCE, Frederick, memorial to, 771
LAW, W. F.: Mental symptoms in acute tetanus, 589
LAWRENCE, Henry, obituary notice of, 150
LAYMAN, Lieut. Douglas Arthur Campbell, dies of wounds, 394
LEA, Arnold William Warrington, death of, 708—Obituary notice of, 742
LEADER, Lieut.-Col. Nicholas, obituary notice of, 222
LE BAR, G.: *The Molecular Volumes of Liquid Chemical Compounds from the Point of View of Kopp*, rev., 657

Leading Articles:

Bacteriology and brewing, 727
Blood stains, 283
British Medical Association in 1915, 20
British Red Cross work, 59
Budget, 561
Campaign in East Africa, 100
Cancer, increasing mortality from, 890
Cerebro-spinal fever, 174
Cervantes and medicine, 726
Commissions for men between 45 and 55, 860

Leading Articles (continued)

Compulsion and enrolment, 891
Daylight treatment, 173
Education and the neglect of science, 695
Education to-day and to-morrow, 101
Enrolment, 57—Object and purpose of, 385—An urgent national need, 423—Urgent demand for medical officers, statement by the War Office, 661—And the Military Service Act, 761—Under 41 and unenrolled, 824—A duty for men between 41 and 45, 859—Commissions for men between 45 and 55, 860—Compulsion and enrolment, 891
Epidemic jaundice, 491
Fasting treatment of diabetes, 458
Fat embolism, 625
Fourth war budget, 561
Housing of a virile race, 696
Industrial fatigue and its causes, 529
Infant life preservation, 59
Insurance Commissioners and medical recruiting, 174
Man with the muck-rake, 560
Medical recruiting, 208
Military orthopaedics, 624
Mortality among educated Indians, 762
"Patent medicines," 245
Penetrating wounds of the abdomen, 530
Pensions and allowances on disablement by disease, 312
Pillmiction, 598
Position of medical men under the Military Service Acts, 798
Reciprocal duties of State and profession, 858
Recruitment of doctors in England and Wales, 348
Retrenchments, 349
Royal Commission on Venereal Diseases, report, 385
Science, education, and government, 209, 695
Scottish and English skulls, 824
Serum treatment of bacillary dysentery, 136
"Sight" for the blind, 424
Slovenly scheme, 889
Soldier's heart, 137
State and the care of the children, 348
Sursum corda, 491
Toxicology of salvarsan, 492
Treatment and education of disabled men, 387
Trench fever, 245
Turner, Sir William, 312
Two score and five to three score and ten, 135
Under forty-one and unenrolled, 824
Urgent demand for medical officers, statement by the War Office, 661
Venereal diseases, the control of, 597
What is a Teuton? 528
Women munition workers, 282
Wounds of jaw and face, 457

LEAKE, Lieut.-Col. J. W., C.M.G. conferred upon, 146
Lecture, the Galton: Eugenic problems after the war (E. B. Poulton), 314
Lecture, Hunterian: Ulcers new and old, jejunal for duodenal ulcers (Sir John Bland-Sutton), 272
Lectures, the Milroy: Infantile mortality (B. G. Moore), 659, 693
Lectures, the Morison, 324
LEDINGHAM, J. C. G. (and W. J. PENFOLD): Serological tests in dysentery convalescents, 47. (O)
LEE, Lieut. Charles Stewart, killed in action, 68
LEE, John Robert: Removal of [intracranial foreign body under x rays, 447
Leeuwenhoek medal awarded to Sir David Bruce, 25
Legal and moral obligation, 293. See also Abortion, criminal
Leicester, public medical service, 359
LEIPER, Lieut.-Col. R. T.: Relation between the terminal spined and lateral spined eggs of bilharzia, 411. (O)
LEINHMAN, Sir W. B., Commander of the Legion of Honour conferred upon, 357
LEITCH, Archibald: Brilliant green as an antiseptic, 236. (O)
LELAN, Major P. S., C.B. conferred upon, 833
LEHMANN, Richard: *Emergencies in Medical Practice*, 187
LEON, John T., obituary notice of, 537
LEONARD, R. D. (and A. W. GEORGE): *Roentgen Diagnosis of Surgical Lesions of the Gastro-intestinal Tract*, rev., 344
Leprosarium, proposed national, for America, 271
Leprosy, case of (Humphreys v. Miller), 838
Leprosy and fish eating, 508
Leprosy and leper houses (Charles Mercier), 54—Correspondence on, 111
Leprosy in the Philippines, 688
Leprosy statistics in America, 456
Leprous German prisoner (parliamentary question), 26
Leucocytes, influence of antiseptics on the activities of and on the healing of wounds (C. J. Bond), 777. (O)
Leucoderma, 708
Leukaemia, myeloid, as an infectious disease (H. C. Schmeisser), 23
LEVER, Frederick, obituary notice of, 674

Lever's disease. See Optic atrophy
LEVIS, Private George John France, killed in action, 68
LEVIS, Lieut. James Henry Bruce, killed in action, 68
LEWERS, A.: *Medicina and Meditation*, rev., 623
LEWIS, Surgeon Charles W., killed in action, 832
LEWIS, F. T. (and P. STÖHR): *Textbook of Histology arranged upon an Embryological Basis*, rev., 91
LEYTON, O.: An observation in pernicious anaemia, 784
Libel action (Ronayne v. Doyle), 536
Lice (Captain N. A. Dore), 630—(Major Butler), 630—(Captain Phipson), 630—(Albrecht Haase), 734
Lice and other body vermin, the best methods of destroying (J. Parlance Kinloch), 789. (O)
Lice and the clothes brush, 837
Lice and their eggs, the temperature necessary for the destruction of (A. W. Bacot), 167. (O)—Correspondence on, 224, 837
Lice, paraffin for, 837, 872
Lice, *Pediculus humanus (vestimenti)*, and *Pediculus capitis* (A. Bacot), 788. (O)
Lice, problem of: at the Western front (Lance-Sergeant A. D. Peacock), 745, 784. (O)
Licences for motor car drivers. See Motor car, Home Office
Life-saving waistcoat, 534
Lifting patients. See Patients
Lighting, industrial, 139
Lighting restrictions, the new, 175
LIGHTSTONE, Captain H., Military Cross conferred upon, 146
Limb wounds (Payr), 895
Limbs, artificial, factory for in Italy, 400, 720
See also Soldiers, crippled
LINDSAY, Lieut.-Col. O. H., C.M.G. conferred upon, 670—A correction, 735
LINTHICUM, J. G., death of, 187
LIPETZ, I. H.: How medical writings may be given a marked improvement, 804
Lipo-sarcoma in the guinea-pig, transplantable (J. A. Murray), 689
Liquor control regulations, effect of (parliamentary question), 213—Leading article, 727—Note on, 729
LISTER, Lieut.-Col. A. H.: Treatment of acute dysentery, 143—C.M.G. conferred upon, 833
LISTER, Colonel W. T., C.M.G. conferred upon, 146—(and Lieut.-Col. Gordon HOLMES): Visual disturbances from cerebral lesions, 485
Lister Institute and cerebro-spinal fever, 250—Annual meeting, 728
Liver diseases, chronic, Wassermann's reaction in (Verdozzi and Urbani), 286
Liverpool hospitals, 323—Roll of honour week, 569, 771—School clinics for, 628—Infant and maternal welfare scheme, 737—Treatment of school children, 771
Liverpool Medical Institution. See Institution
LILWELLYN, Ll. Jones (and A. Bassett Jones): *Fibrositis (Gouty, Infective, Traumatic), so-called Chronic Rheumatism, including Villous Synovitis of Knee and Hip and Sacro-iliac Relaxation*, rev., 90
LLOYD, Lieut.-Col. L. N., C.M.G. conferred upon, 146
LLOYD, E. E.: *What is Adaptation?* rev., 91
LLOYD-OWEN, E.: Cold feet and stuffy heads, 840
LOBB, Fleet Surgeon Francis F., killed in action, 832
Local Government Board. See Board
Local loans (parliamentary question), 180
LOCKHART-MUMFERY, P.: War Office memorandum on amputations and amputation stumps, 836
LOCKWOOD, Captain A. L.: Treatment of gunshot wounds of the knee-joint, 153. (O)
Locumtenents, demand for, 72—Fees of, 838, 888, 901
LODGE, Sir Oliver: Microscopic structure of semi-permeable membranes and the part played by surface forces in osmosis, 271
LOMAS, Fleet Surgeon E. O., C.B. conferred upon, 833
LONDON:
Central Council for District Nursing in, 357
County Council. See Council in General
Index
Emergency Surgical Aid Corps established in, 217
Health conditions in, 771
Infant mortality, 737
Milk supply (parliamentary question), 829
Night noises in (parliamentary question), 105
Red Cross work in, 897
Sanatorium treatment in, 834
School of Medicine for Women, 741
Syphilis Department of the London Hospital, 771
Tuberculosis in, 358
LONGLAND, S. E.: Science, education, and government, 293
LONGRIDGE, C. Nepean: Use of the galvanometer as an aid to the diagnosis of nerve lesions, 717. (O)—(and J. B. BANNISTER): *Manual for Midwives*, rev., 760

Loos, battle of (parliamentary question), 105
 LORENTZEN, L. R., death of, 639
 LOUGHLIN, Surgeon Dermot, D.S.O. conferred upon, 181
 LOUGHNAN, Captain W., Arnold gold medal presented to, 507
 LOUSE. *See* Lice
 LOVELL, Captain C., Military Cross conferred upon, 833
 LOVELL, Sir Francis Henry, obituary notice of, 221
 Low, George C.: Treatment of Lambliæ infections, 450
 Low, Harold, appointed anaesthetist to the King's household, 259
 Low, Major N., D.S.O. conferred upon, 146
 Low, W. Warren, C.B. conferred upon, 670
 LOWNDS, James Richard, obituary notice of, 743
 LUCAS, Clement, estate of, 41
 LUCE, Colonel R. H., C.B. conferred upon, 833
 LUCEY, H. C.: Therapeutic and reaction effects of kharsivan, a record of 600 injections, 614 (O)
 Luetin test, 152
 LUKIS, Surgeon-General Sir Pardey (and Lieut.-Col. R. J. BLACKHAM): *Tropical Hygiene for Residents in Tropical and Sub-tropical Climates*, rev. 133—Appointed Commissioner for St John Ambulance Brigade overseas within the empire of India, 633
 Lunacy, causation and cure of certain forms of (Rupert Parant), 882. (O)
 Lunacy institutions (parliamentary questions), 179, 430
 LUND, Captain Sydney, Serbian Order of St. Sava conferred upon, 735
 LURIE, G. A.: Observations on Castellani's "Tetravaccine" and "Pentavaccine," 45. (O)
 —Bronchopneumonia, 315
 LUTHER, Captain Guy Fitzmaurice John, killed in action, 68
 LYALL, Lieut. Edward, D.S.O. conferred upon, 535
 LYDALL, Rev. Cyril Wykeham, killed in action, 865
 LYELL, John Hepburn, obituary notice of, 774
 Lying-in homes in London, inspection of, 536
 LYNE, W. Courtney: Does the Pitdown canine tooth belong to the Pitdown skull? 202
 LYON, Major H. G.: Winter climate of the Mediterranean, 177
 LYTH, J. O.: Increased motor licences, 634

M.

MACALISTER, Sir Donald: Appreciation of Sir William Turner, 329
 MACARTHUR, Captain W. F., D.S.O. conferred upon, 146
 MACBRIDE, E. W. (and A. E. SHIPLEY): *Zoology: An Elementary Textbook*, rev., 240
 MACCAGNO, M.: Fat embolism, 625
 MCCALLUM, Lieut. J. S., Military Cross conferred upon, 833
 MACCALLAN, A. F.: Report on the ophthalmic hospitals in Egypt, 595
 MCCAMMON, Captain F. A., Military Cross conferred upon, 833
 MCCANN, Frederick J.: Treatment of backward displacements of the uterus, 883
 MCCARRISON, Major R.: Treatment of acute dysentery, 143—*Collected Papers on Gout and Cretinism*, 1913-14 rev., 555
 MCCARTHY, Captain W. H. L., Military Cross conferred upon, 146
 MCCLATCHY, Captain Samuel E., Serbian Order of St. Sava conferred upon, 735
 MCCLURE, J. Campbell: Physical treatment for disabled soldiers, 319—*Handbook of Fevers*, rev., 344
 MCCONAGHEY, Lieut. Charles Jack, killed in action, 735
 MACCONKEY, A. T. (and S. S. ZILVA): Iodine in tetanus, 411. (O)
 MCCORMAC, Surgeon John S. D., killed in action, 833
 MCCORMACK, Captain J. D., Military Cross conferred upon, 833
 MCCONAGHE, J. E. R.: Di-ortho-amino-thio-benzene ("intramine") in syphilis, 202—*Researches on syphilis*, 591, 820. 826—*Rationale and practice of chemotherapy*, 901
 MACDONALD, Captain Colin, killed in action, 28
 MACDONALD, D. M.: *Practical Prescribing and Treatment in Diseases of Infants and Children*, rev., 205
 MACDONALD, George, obituary notice of, 186
 MACDONALD, Captain M. A.: French Military Cross conferred upon, 182—Military Cross conferred upon, 833
 MACDONALD, Colonel S., C.M.G. conferred upon, 146
 MACDONALD, Lieut. Walter Halli Burton, obituary notice of, 222
 McDONAGALL, Dr., Royal Humane Society awards special testimonial to, 254
 McEWAN, P. (and R. Garside DIXON): Case of penetrating wound of the heart of, 755. (O)

MACFADDEN, A. W. J., C.B. conferred upon, 105
 MCGIBBON, Lieut. P., Military Cross conferred upon, 833
 MACGILLICUDDY, Lieut. R. H., Military Cross conferred upon, 146
 MACGREGOR, R. D.: Soldier's heart and the strained heart, 504
 MACGREGOR, Captain Reginald Kinloch, accidentally killed, 670
 MACILWAINE, Captain A. G., C.I.E. conferred upon, 833
 MCINTYRE, Surgeon-Probationer John E., killed in action, 833
 MACKAY, J. W. N., estate of, 151
 MACKAY, Hon. William, obituary notice of, 115
 MACKAY, Major W. B., C.M.G. conferred upon, 146
 MCKEE, S. H., C.M.G. conferred upon, 670
 MACKREITH, John: Value of tuberculin treatment, 904
 MCKENDRICK, A.: *Back Injuries and their Significance under the Workmen's Compensation and other Acts*, rev., 486
 MCKENZIE, Bartholomew Edwin, obituary notice of, 775
 MCKENZIE, Dan: *The City of Din: a Tirade against Noise*, rev., 417
 MCKENZIE, Captain E. F. W., Military Cross conferred upon, 146
 MCKENZIE, Sir James: The soldier's heart, 117
 MCKENZIE, Captain J. G., killed in action, 833
 MCKENZIE, R. Tait: *Exercise in Education and Medicine*, rev., 453
 MACKINTOSH, D. J.: *Construction, Equipment, and Management of a General Hospital*, rev., 344
 MACKINTOSH, Lieut. John James, dies on service, 604
 MACKWORTH, N. W.: Two cases of tetanus treated successfully by subdural injections of antitetanic serum, 620
 McLACHLAN, Samuel F., obituary notice of, 870
 MACLAGAN, R. C.: Appreciation of W. Allan Jamieson, 636
 MACLAREN, Colonel M., C.M.G. conferred upon, 146
 MCLEAN, Major J. B., D.S.O. conferred upon, 833
 MACLEOD, Colonel Kenneth: The soldier's "irritable heart," 218—*Instinct and Reason*, 763
 MACMANUS, Desmond: Paroxysmal haemoglobinuria in soldiers, 552. (O)
 MACMILLAN, Captain J., Military Cross conferred upon, 146
 MACMULLIN, Surgeon Alfred Robinson, D.S.O. conferred upon, 357
 MACMUNN, James: Two cases of stone in the prostate, 89—Use of some simple things in surgery, 720
 McMUNN, Lieut.-Col. J. R., C.M.G. conferred upon, 146
 McMURRAY, S.: Intracranial new growth simulating miner's nystagmus, 90
 McNALLY, Surgeon Hugh Francis, lost in H.M.S. *Hampshire*, 864
 MACNAMARA, N. O.: *Instinct and Intelligence*, rev., 240
 MACNAUGHT, Lieut. Frederick Clement, killed in action, 181
 McNEE, Captain J. W. (and others): "Trench fever," 225. (O)—(and G. T. MULLALLY): Case of gas gangrene exhibiting unusual proofs of a blood infection, 478. (O)
 MacNETT, J. B.: *A Manual for Health Officers*, rev., 692
 MACPHAIL, J. M.: Severe cerebral injury associated with laughter, 688
 MACPHERSON, Surgeon-General W. G., Commander of the Legion of Honour conferred upon, 357
 MACPHERSON, William Grant, obituary notice of, 575—Memorial to, 703
 McQUEEN, Captain C., Military Cross conferred upon, 146
 McQUEEN, James M. (and Leonard HILL): Theory of blood pressure measurement, 875
 MACROSTY, Lieut. Henry Hugh, killed in action, 28
 MACRURY, John, obituary notice of, 115
 MACTIER, Dr.: Insurance Act developments and problems, 819
 MACVIE, Samuel, obituary notice of, 398
 McVITIE, Surgeon-General Charles Edwin, obituary notice of, 435
 McWALTER, J. C.: Poisoning by chlorine, 34—Relapsing beri-beri, 201—Daily food ration of Great Britain, 296—Trench nephritis, 400—Economic obstacles to early marriage, 740
 MACWATT, Lieut.-Col. Robert Charles, C.B. conferred upon, 53
 McWHAE, Captain D. M., Legion of Honour conferred upon, 357
 MADDEN, Frank Cole: Case of marked temporary aphasia after ligation of the common carotid artery for traumatic aneurysm, 585
 MADGE, Lieut.-Col. Charles Albert, killed in action, 770
 Madras: Medical Council (parliamentary question), 141—Medical inspection of schools, 635
 MAPPEY, Quartermaster and honorary Lieutenant E., dies of wounds, 803

MAGILL, E. M.: *Notes on Galvanism and Paralysis*, rev., 887
 MAGINI, Giuseppe, death of, 775
 MAGNIN, Lieut. Oscar Gladstone, dies of wounds, 108
 MAGNONE, Roberto: *Tratamiento de la Fiebre Tifoidea por la Vacuna Dessy*, rev., 418
 Magnesium sulphate lotion in cellulitis, 400, 508
 MAGNUS, Sir Philip: Educational unrest, 213
 MAHER, Colonel J., C.B. conferred upon, 146
 MAHER, Odillo, obituary notice of, 470
 MAIN, D. D., receives permission to wear insignia of the Chinese Order of the Excellent Crop, 436
 MAINE, Assistant Surgeon W. J. S., Military Cross conferred upon, 146—Lost in the *Malaja*, 394
 MAIRET, A.: Brown-Séquard epilepsy, 494
 MAKARA, Lajos, death of, 506
Makers of Man (C. J. Whitby), translated into Japanese, 180
 MALACHIA, Dr., obituary notice of, 186
 Malaria, control of (conference in Sydney), 563—In the United States, 563—In Bengal, 671
 Malaria, Italian society for the study of, appeal, 489
 Malaria and quinine, 776
 Malaria on shipboard (Staff Surgeon Leslie M. Morris), 389
 MALCOLM, John D.: Jejunostomy and jejuno-colostomy, 705—Congenital cystic kidney with local diffuse peritonitis: surgical destruction of part of kidney: recovery, 879
 Malingering in the French army, 64; in the German army (Hamburger), 502
 Man, antiquity of, 16
 Man with the muck-rake (leading article), 560. *See also* Army, British, Army Medical Administration
 MANCHESTER AND DISTRICT: Ancoats Hospital, annual meeting, 396
 Child welfare scheme, 396
 Infectious hospitals, 536
 Insurance Act: Attendance on panel patients during the war, in Manchester and Salford, 70
 New hospital supply dépôt at, 897
 Radium Institute report, 247, 254
 Sandlebridge colony for the feeble-minded, 70
 Small-pox and tuberculosis in Salford, 358
 MANN, E. W. (editor): *Southall's Organic Materia Medica*, rev., 593
 MANNERS, Sister, the Hon. Angela, Royal Red Cross conferred upon, 395
 MANSFIELD, Deputy Surgeon-General C. J., obituary notice of, 707
 MANSON, J. S.: The soldier's heart and the strained heart, 184—Industrial fatigue and its causes, 570
 Many names for the same thing. *See* Drugs
 MARCH, Henry Colley, obituary notice of, 637
 MARCHANT, Assistant Surgeon Arthur Charles, killed in action, 502
 MARCHIAFAVA, Ettore, appointed to the Chair of Clinical Medicine in Rome, 436
 MARTON, G.: *Indications générales du traitement des plaies de guerre*, rev., 527
 MARRACK, Captain J. B., Military Cross conferred upon, 146
 Marriage, early, economic obstacles to, 740
 MARSH, Lieut. T. E. L. (lost in the *Russell*), 670
 MARSHALL, Lieut. John Morrice Maitland, killed in action, 288
 MARTIN G. (and Major J. L. FOUCAR): *Sulphuric Acid and Sulphur Products*, rev., 658
 MARTIN, Lieut.-Col. T. M., C.M.G. conferred upon, 146
 MARTIN-CLARK, Henry, obituary notice of, 638
 MASON, Captain Arthur Edward Knight, killed in action, 430
 Massachusetts, compulsory health insurance in, 219
 Massage in military hospitals (parliamentary question), 602
 Masseuses, Society of Trained Candidates, 436—The Queen becomes a patroness, 871
 Massage establishments in London, by-laws for, 866
 Massage school for blinded soldiers at Reuilly, 455
 Maternal and infantile mortality. *See* Mortality
 Maternity and child welfare: Local Government Board circulars, 241, 280—Correspondence on, 505—Scheme for Dundee, 772—Offer of a prize for best thesis on, by Royal Sanitary Institute, 808
 MATHEWS, R. H. F., killed in action, 770
 MATHURA, Parshad Barswit Indian Distinguished Service Medal conferred upon, 146
 MATTHEWS, F. R.: *Refuse Disposal: A Practical Manual for Municipal Engineers, Members of Local Authorities, etc.*, rev., 453
 MATTHEWS, Lieut. Humphrey, lost in H.M.S. *Hampshire*, 865
 MATSUZAKI: Spirochaete of Weil's disease, 627
 MAUCURIER, G. (and Ch. GUILBERT): *Guide de rééducation physique en groupe. Méthode de gymnastique rééducative pour les blessés militaires*, rev., 723

- MAVETY, Lieut. J. Le K., killed in action, 181
 Maxillary fractures, treatment of (V. H. Kazanjian), 266. (O)
 MAXWELL, Richard Drummond, obituary notice of, 398, 434
 MAY, Amlmer, to act as assistant to Sir Almoth Wright in France, 259
 MAYLARD, A. Ernest: Inguinal incision for intracrotal affections, 589—Time in surgery, 633
 MAYO-ROBSON. *See* Robson
 MEACHEN, G. Norman: Leprosy and leper houses, 111
 MEADEN, Major A. A., D.S.O. conferred upon, 146
 MEARA, F. S.: *Treatment of Acute Infectious Diseases*, rev., 344
 Measles, notification of, Local Government Board Order, 24, 205—Correspondence on, 292, 360—*Lowlet* on 507
 Meat prices (parliamentary question), 768
 Medals relating to medicine, 643
 Medical Advisory Board in France, 830
Medical Annual: A Year Book of Treatment and Practitioner's Index, rev., 692
 Medical appliances for military hospitals (parliamentary question), 213
 Medical arrangements at Suvla landing. *See* Suvla
 Medical baths at Torquay, 663
 Medical boards (parliamentary question), 733
 Medical books, decrease in publication of, 223, 472
 Medical charities, bequests to. *See* Bequests
 Medical clerks, 32
Medical Clinics of Chicago, vol. 4, No. 1, rev., 241
 Medical Defence Union, assessability of gratuities to temporary lieutenants, 260
 Medical dialect and folklore of the north of Ireland, 324
Medical Dictionaries, rev., 378
 Medical diseases in the Mediterranean area, 500
 Medical education of women in Wales, 358
 Medical enrolment, 25, 432. *See also* War emergency
 Medical examination of enrolled medical men, text of an instruction, 313
 Medical examination fees (parliamentary question), 629
 Medical examination of recruits (*Sunday Chronicle*), 139, 629, 733. *See also* Recruits
 Medical heraldry, 24
 Medical Insurance Agency, 887
 Medical jurisprudence, review of books on, 554
 Medical libraries and a uniform method of preparing statistics of their contents, 450
 Medical magistrates, 116, 436, 840, 903
 Medical man, the attested, 211. *See also* War emergency
 Medical men and Military Service Act. *See* Act and War emergency
 Medical men, retired, and military service, 217
 Medical Mission, American, 766
 Medical Mission, Gospel, 775
 Medical officer vindicated (Dr. Maule Smith), 62
 Medical officers in the navy and army, number of (parliamentary question), 564
 Medical officers over 45 (parliamentary question), 317
 Medical officers of voluntary hospitals (parliamentary question), 768
 Medical officer of health, work of an absent, 148
 Medical officers of health, tenure of: Correspondence with Local Government Board, 97
 Medical officers, mercantile marine, 773, 804
 Medical Officers of Schools Association issues code of rules on prevention of infectious diseases in schools, 286
 Medical officers with special experience (parliamentary question), 497
 Medical officers, Special Reserve and Territorial, 899. *See also* Army, British
 Medical practitioners' chauffeurs. *See* Chauffeurs
 Medical problems in war (Goldscheider), 501
 Medical profession in Canada and United States, deaths in, in 1915, 239
 Medical publications. *See* Medical books
 Medical recruiting, Army Council and, 102—Leading article, 208—Note on, 212—Enrolment, 432. *See also* War emergency
 Medical referees to insurance companies, 676
Medical Register, number of names added in 1915, 105—For 1916, rev., 487
 Medical registrations and medical students in 1915, 134
 Medical Research Committee: Report on bacteria of gangrenous wounds (Major H. R. Dean and Captain T. H. Mouat), 77—Report on treatment of acute toxæmia secondary to gas gangrene by intravenous injection of a solution of hypochlorous acid (Captain John Fraser and Captain H. T. Bates), 83—Report on hypochlorous acid in surgery, 171—Report on cerebro-spinal fever in 1915, 313—Report on electrolytic hypochlorite for hospital ships, 455—Report on penetrating wounds of the abdomen (Captain John Fraser and Captain H. T. Bates), 509—Report on the method of preparation of a non-toxic dysentery vaccine (H. R. Dean and R. S. Adamson), 611
 Medical staff, employment of (parliamentary question), 353
 Medical students (parliamentary question), 140, 179, 213, 353, 391
 Medical students and the inspection of recruits, 33
 Medical students and medical registrations in 1915, 134
 Medical students and the Military Service Act, 313
 Medical students at Edinburgh and Glasgow, women, 866
 Medical and Surgical Appliances:
 Artificial arm, 92
 Axis tractor adaptable to any obstetric forceps, 455
 Electro-medical apparatus, 488
 Plates for one-armed men, 133
 Silver wire drainage tube, 823
 Medical terms in the New English Dictionary, 62, 764
 Medical unfitness, 430. *See also* Recruits
 Medical War Committee. *See* War
 Medical women in German military hospitals, 814
 Medical work in Paris, 318
 Medical writings: how they may be given a marked development, 738, 773, 804, 837
 Medicinal and Dietetic Preparations:
 Chloramine-T disinfectant, 454
 Esprit de Liège, 419
 Glove for paralysis of hands and fingers, 594
 Horlick's malted milk lunch tablets, 345
 Indian thymol, 593
 Intestinal antiseptic, a new, 311
 "Intramaine" in syphilis, 593
 Santas-spyol, 593
 Medicine in the *Encyclopædia of Religion and Ethics*, 862
 Medicine, medals relating to in the U.S. Army Museum, 643
 Medicine and the National Volunteers, 840, 872
 Medicine, review of books on, 758
 Medicine in South Wales, 147
 Medicines to the sick poor, Brentford guardians and, 260
 Medico-Legal:
 Alleged improper use of the title of doctor (Dr. Temple Company), 185
 Case of leprosy (Humphreys v. Miller), 838
 Charges for water for washing cars, 35
 Illegal operations, 741
 Imprisonment for illegal operation, 607
 Sentence for pretending to be a qualified practitioner (G. B. Farquhar), 774
 Workmen's compensation for rheumatism (Glasgow Coal Company, Ltd., v. Welsh), 470
 Mediterranean area, medical diseases in, 500
 Mediterranean casualties (parliamentary question), 26
 Mediterranean, winter climate of (Major H. G. Lyon), 177
 MELDRUM, Sister A., Royal Red Cross conferred upon, 466
 Memoranda: Medical, Surgical, Obstetrical, 15, 49, 89, 128, 167, 201, 343, 374, 415, 450, 526, 553, 588, 620, 653, 688, 719, 757, 818, 885
 Men, disabled, 387. *See also* Soldiers, disabled
 Men discharged as medically unfit (parliamentary question), 26
 Men temporarily unfit (parliamentary question), 63
 Men, unfit (parliamentary question), 463
 MENDONÇA, A., death of, 639
 Meningismus with fever, 861
 Meningitis, cerebro-spinal. *See* Fever, cerebro-spinal
 Meningococcus, inhibitory action of saliva on the growth of (Lieut.-Col. M. H. Gordon), 849. (O)
 Mental After-care Association. *See* Association
 Mental conditions following strain and nerve shock (R. G. Rows), 441. (O)
 Mental defects, in London, 738, 834—Super-
 vision of, 854
 Mental Deficiency Act. *See* Act
 Mental deficiency, psychopathic laboratory for examination of prisoners, in New York, 303
 Mental disorders in their early stages, absence of proper facilities for treatment of (Bedford Pierce), 41. (O)
 Mental hospitals. *See* Hospitals
 Mental shock, nervous. *See* Shock
 Mental symptoms and tetanus. *See* Tetanus
 Mentally defective children, review of books on, 377
 Mentally Deficient, Central Association for Care of, foundation of, 188
 Mentioned in dispatches. *See* Dispatch
 Menu card, educational, 596
 MURAN, Dr.: *Médecine et médecine en Éthiopie*, rev., 758
 MERCIER, Charles: *Leper Houses and Medical Hospitals*, rev., 54—Sherburn Hospital, 149—Duties of medical practitioners in cases of criminal abortion, 255—Legal and moral obligation, 293—How medical writings may be given a marked development, 738, 838
 MENKEL, F.: *Die Anatomie des Menschen*, rev., 203
 MESLIER, Dr., death of, 223
 Mesopotamia, parliamentary statement, 428, 430, 462, 496, 533, 802, 829—Dispatches. *See* Dispatches
 METCHNIKOFF on death, 60
 Metric prescribing, 504, 540, 576. *See also* Prescribing
 MEYER, F.: Treatment of typhoid fever and dysentery, 465
 MICHELL, Robert: Soldier's heart and the strained heart, 396
 Microscope, progress and development of vision and definition under, 284
 MIDDLEMISS, J. E.: "Medical clerks," 32
 MIDDLETON, Robert William, obituary notice of, 294
 Midwives Act. *See* Act
 Midwives Association, annual meeting, 436
 Midwives Bill. *See* Bill
 Midwives Board. *See* Board
 Midwives, instruction classes in London, 834
 MILBY, Dr. William Kildare, lost in the *Malaja*, 394
 Military hospital journals and gazettes, 250, 828
 Military hospitals. *See* Hospitals
 Military medical services in 1915, 92—The army, 92 Killed or died of wounds or disease, 93—Sons of medical men, 94—Medical students, 94—Medical men and dentists killed or died of wounds whilst serving as combatants, 94—Wounded, 94—Honours, 94—Promotions, 95—Nurses, 95—Indian Medical Service, 95—Colonial services, 95—The Royal Navy, 95—The mercantile marine, 96
 Military orthopaedics. *See* Orthopaedics
 Military service Bill, 178, 313. *See also* Bill and Act
 Military surgery, importance of general principles in (G. Grey Turner), 401. (O)
 Milk, clean, campaign for, 799
 Milk to Glasgow hospitals, municipal dairy for, 569
 Milk, goat's, 855. *See also* Goats
 Milk supply of London (parliamentary question), 829
 Milk, Wassermann reaction in, 564
 MILL, Lieut.-Col. J., Croix de Guerre conferred upon 535
 MILLARD, A., death of, 223
 MILLER, Captain Albert Guy, killed in action, 111
 MILLER, Major Frederick Richard, obituary notice of 363
 MILLER, Captain G., Military Cross conferred upon, 146
 MILLER, Captain S., Military Cross conferred upon, 146
 MILLER, Thomas, death of, 223
 MILLER, Captain T. M., Military Cross conferred upon, 146
 MILLIGAN, H.: Remarks at inquest on illegitimate child at Wigan, 471
 MILLIGAN, Sir William: Horrors of Wittenberg Camp, 606, 804
 MILNE, A. J. (and J. Pratt Johnson): Combined preventive inoculation against typhoid and paratyphoid fever and bacillary dysentery, 111
 MILNE, Captain H. S., Military Cross conferred upon, 833
 MILNE, Leslie J.: Imperforate hymen and absence of uterus, 15
 MILNE-THOMSON, Lieut.-Col. A., C.M.G. conferred upon, 146
 Milroy lectures. *See* Lectures
 Mind of a profession, 23
 Miners' neuroses. *See* Neuroses
 MINOT, C. S.: *Modern Problems of Biology*, rev., 759
 MITCHELL, Lieut. Arthur Gorman, killed in action, 770
 MITCHELL, Lieut. Francis Sidney, killed in action, 356
 MITCHELL, Matron M. S., Royal Red Cross conferred upon, 466
 MOLONEY, M. C., obituary notice of, 35
 MOLZKE, Field Marshal von, death of, 855—A supporter of Christian science, 885
 MONK, Katherine, memorial to, 295
 MONKHAM, Captain H. S., killed in action 252
 MONTAGUE, Hon. Walter Humphries, obituary notice of, 151
 MONTEATH, Thomas Pullar, obituary notice of, 639
 Montenegro army in the first Balkan war, with the, 389
 MONTGOMERY, Frederick, C.M.G. conferred upon, 823
 MOODY, Surgeon Douglas Whinster, lost in the *Natal*, 67
 MOON, Surgeon George B., killed in action, 833
 MOORE, Benjamin: History of organic compounds of arsenic in the treatment of protozoan diseases, 616
 MOORE, Foster: Retinal circulation in arteriosclerosis, 691

MOORE, Lieut.-Col. G. A., C.M.G. conferred upon, 146

MOORE, S. G.: Infantile mortality and the relative value of measures for its prevention, 659, 693

MOORES, Colonel S. G.: Order of the Crown of Belgium conferred upon, 357

MOOREHEAD, Colonel Arthur Henry, dies on service, 394

MOOREHEAD, Lieut. George Oliver, killed in action, 803

MOOREHEAD, T. Gillman: Note on dysenteric arthritis, 483

MORDWINOW, K. K.: Wassermann reaction in milk, 564

MORGAN, Lieut.-Col. C. K., C.M.G. conferred upon, 146

MORGAN, W. Parry: Treatment of wound infections, 685

MORISON, Albert E.: Magnesium sulphate lotion in cellulitis, 508

MORISON, Alexander: The soldier's heart and the strained heart, 184

MORISON, Surgeon Archibald A., killed in action, 832

MORISON, B. G.: *Life: A Poem*, rev., 205

MORISON lectures. *See* Lectures

MORLEY, Alexander, estate of, 324

MORLEY, Major J., Legion of Honour conferred upon, 357

MORLEY, John (and others): Acute gangrenous cholecystitis, with spreading peritonitis, 444. (O)

Morphology, review of books on, 375

MORPHY, B. H.: Tungsten as a source of ultra-violet rays, 564

MORRIS, Lieut. Colin Dwight, killed in action, 503

MORRIS, Chas. E. (and J. Owen Jones): Dystocia due to constricted os, 167

MORRIS, Staff Surgeon Leslie M.: Malaria on shipboard, 389

MORRISON, C. S., obituary notice of, 75

Mortality among educated Indians (leading article), 762

Mortality, infantile (parliamentary question), 566, 629—In Dundee, 569—Means to lessen (Ireland), 570—In Liverpool, 737—In London, 737

Mortality, infantile, and the relative value of measures for its prevention (S. G. Moore), 659, 693—Correspondence on, 706

Mortality, maternal and infantile, national aspects of, report by L.G.B. medical officer, 489

Mortality, neo-natal, in Edinburgh (J. W. Ballantyne), 504

MORTON, Charles A.: Three cases of abdominal growths presenting very unusual characters, 413. (O)

Moscow, abortion in (A. H. Rachmanow), 507

Moseley grooved motor covers, 808

Moss, sphagnum, as a surgical dressing, 893

Motor ambulance development (H. Massac Buist), 18

Motor ambulance fund. *See* Fund

Motor car duties (parliamentary question), 666, 733, 829

Motor cars: Home Office Committee to consider *ve* licences to practically disabled men, 259

Motor cars, Zenith carburettor, 566

Motor cars, Studebaker, 116

Motor car and cycle licences (parliamentary question), 565

Motor licenses, the increased, 634

Motor notes for medical men (H. Massac Buist), 243, 379, 557

Motor operating theatres (parliamentary question), 565

Motor spirit, rebate on, 76

Motor taxes: Irish Medical Secretary addresses a letter to Chief Secretary for Ireland, 633

Motors for medical men (H. Massac Buist), 96

MOUT, Captain T. B. (and Major H. R. DEAN): Bacteria of gangrenous wounds, 77. (O)

MOUILLON, Captain Augustus de Thierry, dies of wounds, 181

"Mount Cavell," 675

Mouth wounds, chloramine in the treatment of (Staff Surgeon A. B. Fisher), 87. (O)

MOUTRIER, Alexandre, death of, 506

MOYNIHAN, Sir Berkeley: Treatment of gunshot wounds, 333

Mucous colitis, treatment of toxæmia in, 808

MUHAMMAD, Subassistant-Surgeon Ghaua, Serbian Order of St. Sava conferred upon, 735

MULLALLY, G. T. (and J. W. McNEE): Case of gas gangrene exhibiting unusual proofs of a blood infection, 478. (O)

MULLARD, S. R.: Tungsten as a source of ultra violet rays, 564

Mumps and nerve deafness (Hubbard), 62

Mumps, unusual case of (Andrew Chillingworth), 653

Munition factories, hours of work in (parliamentary question), 629—Industrial poisoning in Austrian (Oppenheim), 675—Number of factories and canteens, 840

Munition workers: Welfare of, 102—Women (leading article), 282—Memorandum on canteen construction, 363—Health of, issue of memorandums, 488, 529—Monthly rest for women, 508—Industrial fatigue and its causes (leading article), 529—Health of (parliamentary questions), 565—And the use

of sulphuric acid, 576—Weekly rest for (parliamentary question), 602—Hours of work in factories (parliamentary question), 629

MURDOCH, Captain J., Military Cross conferred upon, 146

MURDOCH, Mary Charlotte, obituary notice of, 505—Proposed memorial to, 628

MURPHY, Lieut. Gavin Neil, killed on service, 465 *See* Gavin

MURPHY, John B.: *Clinics of, at Mercy Hospital, Chicago*, rev., 487

MURPHY, J. Keogh (and W. Langdon Brown): *The Practitioner's Encyclopaedia of Medical Treatment*, rev., 169

—*The Practitioner's Encyclopaedia of Medicine and Surgery in all Their Branches*, rev., 170

MURPHY, Lieut. James Neville Herbert, killed in action, 68

MURPHY, Timothy, obituary notice of, 743

MURPHY, William W., presentation to, 431

MURRAY, Lieut. Graham-Dunmore, killed in action, 216

MURRAY, J. A.: Transplantable liposarcoma in the guinea-pig, 689

MURRAY, Lieut.-Commander J. B., lost in the *Natal*, 147

MURRAY, Captain Randolph Noel Churchill, reported missing, 735

MURRAY, Lieut. William Dunmore, obituary notice of, 363

Museum, Natural History, South Kensington, 507

Museum, war, disease and, 214

MUTHU, C.: Indian Medical Degrees Bill, 773

Mutism, emotional, 769

Myeloid leukaemia. *See* Leukaemia

Myocardial failure, venous thrombosis in, 459

N.

NAIDU, Sub-Assistant Surgeon T. N. Swami Nadha, Distinguished Service Medal conferred upon, 395

Names, many, for the same thing, 532

NANCE, Henry C.: Physics of a surgical dressing, 361

Napthaline as an insecticide, 151

Napoleon and Tissot, 862

Nasal mucous membrane, "colds" and the influence of the atmosphere on (Leonard Hill), 541. (O)

NASMITH, Lieut.-Col. G. G., C.M.G. conferred upon, 146

National League for Physical Education and Improvement: Lectures on care of the school child, 608—Issues a pamphlet *To Wives and Mothers*, 903

National Milk Hostels Committee, 295

National Patriotic Organizations, Central Committee report, 332

National Union of Trained Nurses. *See* Nurses

Naval and Military War Pensions Committee (parliamentary question), 63. *See also* Pensions

Navy, Royal: appointments, 774—Number of medical officers in (parliamentary question), 564

Navy, Royal: Royal Naval Volunteer Reserve, prize money, 112

Navy, United States, report for 1915, 267

NEEDHAM, Major R. A., D.S.O. conferred upon, 146

NEIL, Lieut.-Col. J. Hardie: Anodyne powder, 608

NEILANS, Alison: Control of venereal diseases, 837

NEILL, A. S.: *A Dominie's Log*, rev., 692

NELIGAN, A. R.: *Hints for Residents and Travellers in Persia*, rev., 723

NELIGAN, Captain G. E., Military Cross conferred upon, 146

NELIS, Lieut. James Edward Thornhill, killed in action, 68

NELSON, Captain J. J. Arthur: Appreciation of William Everett, 575

Neo-natal mortality. *See* Mortality

Nephritis, acute, fatal case of occurring in the Expeditionary Force (Richard C. Clarke), 586. (O)

Nephritis, acute, systolic pressure in (Rodolph G. Abercrombie), 878. (O)

Nephritis and adrenalin poisoning (G. B. Thompson), 818

Nephritis, arsenical, 628

Nephritis, trench, discussion at Royal Society of Medicine, 278—(Sir John Rose Bradford), 351—Correspondence on, 397, 400

Nephritis, war (A. Klein, and Pulay and others), 64—Note on from a correspondent in Northern France, 251

NEPPER, Dr.: Physiological tests for aviators, 531

Nerve deafness. *See* Deafness

Nerve lesions, use of the galvanometer as an aid to the diagnosis of (C. Nepean Longridge), 717. (O)

Nerve-shaken, cheer for the, 436

Nerve shock and strain, mental conditions following (R. G. Rows), 441. (O)

Nerve wounds (v. Eiselsberg), 895

Nerves, peripheral, injuries to (Major F. C. Purser), 820

Nerves, review of books on, 240

Nerves, suture of, and alternative methods of treatment by transplantation of tendon (Lieut.-Col. Robert Jones), 641, 679. (O)

Nervous shock. *See* Shock

Nervous system, review of books on, 722

NEUGEBAUER, F. L. von, death of, 639

Neurasthenia amongst soldiers (Stadelmann), 464

Neurological notes (Hermann Oppenheim), 393

Neurology, review of books on, 132

Neurology, war, 456

"Neurone" or "neuron" (W. M. Bayliss), 888

"Neuron," spelling of, 774, 888

Neuroses, visual, of miners, in their relation to military service (Charles F. Harford), 340. (O)—Correspondence on, 397, 434

NEVE brothers: their work in Kashmir, 640

New Guinea, German, operations in, 147

NEWMARSH, Lieut.-Col. B. J., C.M.G. conferred upon, 833

NEWSHOLME, Dr.: Report on war wastage and the birth-rate, 555

NEWTON, Homer G., death of, 35

NEWTON, H. M., Kaisari-Hind gold medal bestowed upon, 823

New Year honours, 53, 105

New York: Prevention of unnecessary noises in, 151—Clinics for school children with diseased tonsils and adenoids, 242—Psychopathic laboratory for examination of prisoners in respect of mental deficiency, 303, 775—Educational menu card of the public health department, 596—Control of typhoid fever, 626—Association for Prevention and Cure of Tuberculosis incorporated, 647—Academy of Sciences, centenary, 673—Proposed reorganization of hospital department of Sing-Sing prison, 675—Psychopathic hospital to be established in, 775—Women being trained as dental hygienists in, 775

New Zealand, battle of the clubs in, 860

NICHOL, Colonel C. E., C.M.G. conferred upon, 146

NICHOL, Lieut. John, killed on service, 604

NICHOLLS, Captain William Howard, dies on service, 394

NICHOLSON, Captain Charles R., Serbian Order of St. Sava conferred upon, 735

NICHOLSON, Captain R. B., Military Cross conferred upon, 146

NICKERSON, Lieut.-Col. W. H. S., C.M.G. conferred upon, 146

NICOLAI, A.: Fat embolism, 625

NIGHTINGALE, Florence, memorial to in St. Paul's Cathedral, 287

Nobel prizes for 1914, 1915, actual delivery of postponed till June, 1916, 340

Noise, review of books on, 417

Noise: Zones of silence to be observed round hospitals of Boston, U.S.A., 783

Noises in London, night (parliamentary question), 106

Noises in New York, prevention of, 151

Norfolk War Hospital Magazine, 576

NORMAN, Surgeon-General William Henry, C.B. conferred upon, 53

NORRIS, Fleet Surgeon Hugh L., killed in action, 832

North Staffordshire Field Club, 435

Norwegian doctor's experiences in Austria (Einar Aaser), 65—Faulty ambulance organization, 65—Feeding the wounded at railway stations, 65—Dysentery, 65—Cholera, 65—Quarantine arrangements, 66

Nose bleeding (G. A. Carter), 90

Nose, review of books on, 554, 820

Notes, Letters, Answers, etc.:

Acne rosacea, 872, 904

Adrenalin in asthma, 36

Andreas Vesalius, 296

Angulus Ludovici, 260

Anodyne powder, 608

Attendance on soldiers by civil medical practitioners, 840, 872

Bold advertisement, 472

Bolus and bullet, 872

Boylston medical prize, 608

Bromides and epilepsy, 808

Cardiac irregularity, physiological, 36

Channel Islands, 296

Cheer for the nerve-shaken, 436

Chilblains, 260

Chlorine gas poisoning, treatment of, 808

Cold feet and stuffy heads, 708, 840

Correction, 904

Countess of Chinchon, 296

Daily food ration of Great Britain, 296

Deformity of the external ear, 296

Dental and gingival sepsis, prophylaxis of, 332

Diphtheria, diagnosis and treatment of, 472

Directory of British manufacturers for Russian trade, 364

Dominions Year Book, 224

Dysenteric arthritis, 776

Emulsions for Widal's test, 744

Endarteritis, local, 708

Epilepsy, 188

Epsom College, 400

Fasting treatment of diabetes, 576

Notes, Letters, Answers, etc., (contd.)

Fergusson's speculum, 76
Fingers, inherited abnormality of, 640
Foreign body in the rectum, 224
Fresh air craze, 904
Harvest bugs, 904
Hereditry, 776
Hernia, William Lawrence's treatise on, 904
Herpes of the penis, 152, 508
High heels and flat-foot, 152
Inadequate medical examination of recruits, 872
Income tax, 76, 152, 224, 296, 332, 364, 508, 540, 676, 744, 776—Rebate on motor spirit, 76—
Petrol duty, 152, 224, 332, 676
Incompatibility, 224, 260, 332
Increased fees, 576
Iodine, nascent, in phthisis, 332
Jung's *Collected Papers on Analytical Psychology*, 676
Junker on Japanese obstetrics, 676
Lactation among the Japanese, 76
Leprosy and fish eating, 508
Leucoderma, 708
Lice and their eggs, temperature necessary for the destruction of, 224
Light beers, 776
Luetin test, 152
Magnesium sulphate lotion in cellulitis, 400, 508
Medical publications, decrease of, 472
Medical referees to insurance companies, 676
Medicine and the National Volunteers, 840, 872
Metric prescribing, 540, 576
Munition workers, women, and a periodical rest, 508—And sulphuric acid, 576
Nascent iodine. *See* Iodine
National Patriotic Association, 332
Need for resident surgical officers at hospitals, 436, 472
Obstetrica for the curious, 400
Osmosis in treatment of cancer, 608
Pain at root of neck and cardiac irregularity, 576, 608
Paraffin in dysentery, 152
Paraffin for lousiness, 872
Pepper in the prophylaxis and treatment of filariasis, 508
Petrol duty, 152, 224, 332
Physician versus surgeon, 224
Placenta, case of abnormally large, 904
Post-partum haemorrhage, immediate treatment of severe, 332, 364
Prizes offered for essays on heredity as a factor in alcoholic degeneration, 76
Pruritus ani, treatment of, 364, 472
Pruritus of face, 640, 676, 744
Quinine collyria, 472
Quinine and malaria, 776
Salvarsan, 540
Signing certificates, 776
Small-pox in Persia, 608
Snoring, 36
Stimulants at a temperance hospital, 904
Tetanus, severe, successfully treated by antitoxin, 296
Tonsils, enlarged, in a singer, 640
Toxaemia, treatment of, 744, 808
Trachoma in U.S.A., 508
Trench nephritis, 400
Tuberculin treatment, value of, 840, 904
Urine test glass, clinical values of, 364
"Urodonal," 364
Vallauri prize, 904
What determines sex? 472
Whooping-cough and kinkhoost, 76, 188

Notification fees. *See* Fees

Notification of infectious diseases and tuberculosis, 697
Novocain in sciatica (Major W. L. Keller), 478
NOVIS, Major T. S.: Treatment of acute dysentery, 143
NOYES, William, death of, 35
Nurses, College of, proposed foundation of, 576
Nurses, education of, 292, 325
Nurses, female, in male wards of mental hospitals (parliamentary question), 26—
(George M. Robertson), 308. *See also* Hospitals, mental, and Asylums
Nurses, National Union of Trained, memorial to President of Board of Trade, 540
Nurses, Queen Victoria's Jubilee Institute for, annual report of Scottish Branch, 148
Nurses, State registration of, and the Red Cross scheme, 72, 111—Condemned by Society for State Registration of Nurses, 116
Nursing, proposed college of, 60
NUTTALL, G. H. (and C. WARBURTON): *Ticks: A Monograph of the Ixodidae*, rev., 417

O.

O'BRIEN, Lieut.-Col. Henry Joseph, obituary notice of, 675
O'BRIEN, Captain Hugh Rivers Hamilton, killed in action, 865
O'BRIEN, Lieut. J. W., Military Cross conferred upon, 833
O'BRIEN, P. C., obituary notice of, 575

O'BRIEN, Lieut.-Col. Thomas Michael, obituary notice of, 187
Obstetrica for the curious, 400
Obstetrics, review of books on, 758
OCHSNER, A. J.: *Surgical Treatment of Gastric Cancer*, rev., 554
O'CONNELL, Joseph J., death of, 187
O'CONNOR, Roderic: Relation of the eyes to rifle shooting, 493
O'CONNOR, Lieut.-Col. William Moyle, obituary notice of, 187
O'DONNELL, Surgeon-General T. J., C.B. conferred upon, 833
Oesophagismus, hiatal, case of in a man of 36 (under the care of Mr. Boyce Barrow; reported by C. P. G. Wakeley), 589
O'FARRELL, T. T.: *Bothriocephalus latus*, 309
Officers' income tax. *See* Income
Officers' ration allowance (parliamentary question), 666, 768
Officers, resigned, position of (parliamentary question), 768
OGILVIE, Lieut.-Col. W. B.: Case of probable spontaneous rupture of spleen, 200. (O)
OGSTON, Sir Alexander: Retired medical men and military service, 217
O'HARA, Lieut.-Col. Alfred James, obituary notice of, 187
O'KEEFE, Captain J. J.; Military Cross conferred upon, 146
Old age pensions. *See* Pensions
OLDFIELD, Josiah: The Royal College of Surgeons of England, 838
O'LEARY, Deputy Surgeon-General Eugene Francis, obituary notice of, 435
OLIVER, F. S.: *Ordeal by Battle*, rev., 487
OLIVER, George, obituary notice of, 73—Estate of, 640
OLIVER, George H.: Toxic effects of ethyl-hydrocuprein on the eye, 580. (O)
OLIVER, Somerville, estate of, 237
O'NEILL, Edward Daniel, obituary notice of, 150
O'NEILL, Gordon, receives permission to wear the Chinese Order of the Excellent Crop, 483
O'NEILL, Captain E. M., D.S.O. conferred upon, 146
Ontario: The regular versus the irregular practitioner, 31—Serums supplied free, 71—
Medical Association, 632—Free antitoxin in, 632
Open-air schools for tuberculous and anaemic children in the United States, 716
Operating theatre, motor. *See* Motor
Operations, illegal. *See* Illegal
Operations, some hints on time saving in (Edward Harrison), 645. (O)
Ophthalmic lessons of the war (W. H. Jessop), 691
Ophthalmology and oto-laryngology, training in, 664
Ophthalmology, review of books on, 592
OPPENHEIM, Hermann: Neurological notes, 393
OPPENHEIM, Professor: Industrial poisoning in factories of Austria, 675
OPPENHEIMER, Captain F.: Treatment of acute dysentery, 143
Optic atrophy, hereditary (Herbert Fisher), 691
ORCHARD, Alfred: Creosote in rheumatism and gout, 167
ORMEROD, J. Redman: After-care of consumptives, 110
ORMOND, Captain: Treatment of large traumatic haemorrhage in the vitreous, 721
ORR, Dr.: Toxic causes of idiocy and imbecility, 757
ORR, T. Stewart Allan: Diagnosis of functional heart disease in the recruit, 218
ORR-EWING, Captain E. J., Military Cross conferred upon, 833
Orthopaedics, military: Lieut.-Col. Robert Jones appointed Inspector of Military Orthopaedics, 559—Hospitals for men who have lost limbs, 559—Scope of military orthopaedic hospitals, 559—Hammersmith Military Orthopaedic Hospital, 559—Original notes on, 609, 641, 673, 709, 749, 782, 809—
Leading article, 624
Orthopaedics, war (Robert Jones), 315, 318—
(Fortescue Fox and Campbell McClure), 319
ORTNER, N.: *Treatment of Internal Diseases by Physicians and Students*, rev., 488
Os, constricted, causing dystocia (J. Owen-Jones and Charles E. Morris), 167—Correspondence on, 218
OSBURN, Major A. C., D.S.O. conferred upon, 833
O'SHEA, M. V. (and J. H. KELLOGG): *The Body in Health*, rev., 593
OSLER, Sir William: *Science and War*, rev., 133—Trench nephritis, 278
Osmosis in treatment of cancer, 608
OSTWALD, W.: *A Handbook of Colloid Chemistry: the Recognition of Colloids, the Theory of Colloids, and their General Physico-chemical Properties*, rev., 622
O'SULLIVAN, Alderman J. J., presentation to, 217
OSWALD, Surgeon-Probationer David J. T., reported killed in action, 833—Since reported prisoner of war, 864
Otolary, review of books on, 486
OTT, Isaac, death of, 399—Leaves money to endow an Ott chair of physiology at Penn-

sylvania University, 526—Obituary notice of, 639

OWEN, Lieut.-Commander, dies on service, 770
OWEN, E. Lloyd: Cold feet and stuffy heads, 708
OWEN, Sir Hugh, obituary notice of, 222
OWEN-JONES, J. (and Charles E. MORRIS): Dystocia due to constricted os, 167
Oxyuria (Suzuki), 223

P.

PADILLA, Tiburcio, death of, 639
PAGE, C. Max: Simple system of skeleton splinting, 845
PAGE, Lieut. Henry Ranthwell, killed in action, 896
Pain at root of neck and cardiac irregularity, 576, 608
PAISE, Sir George: Number of men in the field, 258
"Panteutomania," 495
PANTON, Captain H. F., Military Cross conferred upon, 833
Paper, economy in, 496—Parliamentary questions, 566
Paracholera (Aldo Castellani), 448. (O)
Paraffin in dysentery, 152
Paraffin for lousiness, 837, 872
Paratyphoid A infection, relapsing (Alex. Mills Kennedy and B. E. G. Russell), 618. (O)
Paratyphoid B bacillus, acute urinary infection with (C. Worster-Drought and Alex. Mills Kennedy), 649. (O)
Paratyphoid fever. *See also* Fever
PARES, Surgeon-Major B., C.M.G. conferred upon, 833
PARGAN SINGH, Indian Order of Merit conferred upon, 146
Paris, medical work in, 318
Parke, Davis and Co., *Collected Papers from the Research Laboratory of*, rev., 205
PARKE, T. H., appointed J.P. for Derbyshire, 116
PARKER, Constance: In memory of the three brave doctors who died at Wittenberg, 773
PARKER, Rushton: Time in surgery, 671—
Light beers, 776
PARKES, Lieut.-Col. W. H., C.M.G. conferred upon, 146
PARKINSON, Thomas Wright, knighthood conferred upon, 53

Parliament, Medical Notes in:

3rd Western General Hospital, 317
Act, Midwives (Scotland), 354
Act, Military Service, 178, 391, 732, 766, 802
Air raid casualties in Great Britain, 803
Alcohol for medicinal purposes, duty on, 106
Antityphoid inoculation, 105, 533
Army dental treatment, 733
Army dispensers, 700
Army estimates, 427
Army medical administration, 564
Army Medical Advisory Board, 213, 353, 497
Army medical organization, 429, 461
Army medical services (Advisory Board), 213
Army medical services in France, 461
Army medical service, 427, 602—Direction of, 180
Army pensions. *See* Pensions
Army. *See also* R. A. M. C.
Artificial limbs, 179, 565, 768, 829
Asylums, female nurses in, 26
Attested men found physically unfit, 317
Australian Medical Corps, 141
Battle of Loos, 105
Bill, Military Service, 178, 732, 766
Blinded sailors and soldiers, 353
Bonnetters, 497
British prisoners in Turkey, 180, 802; in Germany, 700, 732, 802
Budget, 533, 731, 894
Casualties, Dardanelles, 26
Casualties, German army, 26
Casualties, Mediterranean, 26
Casualties, total, 26, 213, 391
Central Medical War Committee, 140, 178, 353
Cerebro-spinal meningitis, 391, 463, 497
Chlorine gas for living animals, 26
Civil liabilities, 803
Cocaine in India, 391
Colonial allowances, 391
Compulsory service, 629, 665, 699, 829. *See also* Military Service
Consumptives, enlistment of, 317
Continued treatment after discharge from hospital, 700
Dardanelles, 829
Death certificates, 566
Disablement Subcommittee of Statutory Pensions Committee, 391
Discharges for physical incapacity, 140
Dope poisoning, 391, 463
Employment of medical staffs, 353
Enteric fever in the British armies, statistics of, 180

Parliament, Medical Notes in (contd.)

Fees for medical examination of recruits, 317
 Female nurses in asylums. *See* Asylums
 Finance Bill, 894
 Food parcels to Germany, 829
 France, 428
 German army casualties, 26, 180
 German scientists, 566
 German treatment of British prisoners, 601
 Hammer-toes, 140
 Hernia, 602
 Hospital beds in London, 354
 Hospital stoppages, 391
 Hospitals for officers, 26
 Income tax, 629
 Infant welfare, 602
 Infantile mortality, 566, 629
 Inoculation, 829
 Insanitary dwellings (Tabard Street area), 700
 Insanity of wives, 179
 Insurance, national, 893
 Insurance premiums, 534
 Invalid prisoners in Switzerland, 732. *See also* British and Prisoners
 Jaw injuries, 732
 Khaki helmets, 733
 Leprous German prisoner, 26
 Liquor control regulations, effect of, 213
 Local loans, 180
 Lunacy institutions, 179, 430
 Madras Medical Council, 141
 Message in military hospitals, 602
 Meat prices, 768
 Medical appliances for military hospitals, 213
 Medical Boards, 733
 Medical examination fees, 629
 Medical examination of soldiers and recruits, 700, 733
 Medical officers in the navy and army, number of, 564
 Medical officers over 45, 317
 Medical officers with special experience, 497
 Medical officers of voluntary military hospitals, 768
 Medical practitioners' chauffeurs, 768
 Medical students, 140, 179, 213, 391
 Medical treatment of school children in Ireland, 566
 Medical unfitness, 430
 Medical units in Serbia, 26
 Medical War Committee, 428
 Men discharged as medically unfit, 26
 Men temporarily unfit, 63
 Mesopotamia, 428, 462, 496, 533, 802, 829
 Military hospitals and asylums, 105—Duration of treatment in, 602
 Military Service Act, 354, 391, 802, 829
 Military Service Bill, 178, 732, 766. *See also* Compulsory
 Milk supply of London, 829
 Motor car and cycle licences, 565
 Motor car duties, 666, 733, 829
 Motor operating theatre, 565
 Mr. Tennant's statement, 427, 462
 Munition factories, hours of work in, 629
 Munition workers, health of, 565, 602
 Naval and Military War Pensions Committee, 63
 Nervous shock, 353, 463
 Night noises in London, 106
 Non-poisonous dope. *See* Dope
 Notification fees, 533, 565, 666
 Officers' income tax, 430
 Officers' ration allowance, 666
 Old age pensions, 733
 Paper, 566
 Part-time hospital work, 497
 Pay of medical officers at asylums, 463
 Pensions, 427, 463, 534
 Pensions Committee, Naval and Military War, 63
 Pensions for discharged soldiers, 354
 Pensions and grants, 26, 602
 Petrol supplies, 733
 Physical unfitness, 140, 179, 213. *See also* Soldiers and Recruits
 Position of officers resigned, 768
 Potash salts, 106
 Prisoners, British, in Turkey, 180, 802; in Germany, 700, 732, 802
 Prisoners' camps, Germany, 666
 Prisoners, German treatment of British, 601
 Prisoners, 427—Invalid, in Switzerland, 565, 666, 732, 767
 Prisoners, wounded, in Switzerland, 391, 565, 666
 R.A.M.C., 533—Remuneration of re-employed officers, 180—Income tax, 180—Promotions in, 180—Temporary officers, 768—Officers in German typhus camps, 768
 Ration allowance to wounded officers, 497, 768
 Recruiting, medical examination, 427, 430, 565, 629, 768
 Recruits' eyesight, 141, 179
 Recruits, physically unfit, 140, 179, 213, 430—Medical examination of, 700, 733. *See also* Soldiers
 Refrenchment, 391
 Royal Commission on Venereal Diseases, 700
 Salaries of Director-Generals, 180
 Sanatogen, 534
 Science and education, 733
 Scientific research, 213
 Serbia, medical units in, 26

Parliament, Medical Notes in (contd.)

Sickness in training camps, 106
 Small-pox and vaccination, 829
 Soldiers: Employment for wounded and discharged, 106—Medically unfit, 106, 463—Physically unfit, 140, 179, 213, 768—Wounded, selection of hospitals, 213—Blinded, 353—Pensions for discharged, 354 (*see also* Pensions)—Tuberculosis, 391, 497, 534—Spectacled, 463—Wounded discharged, 534—And recruits, medical examination of, 700, 733—Continued treatment after discharge from hospital, 700—Artificial limbs for, 179, 565, 768, 829
 Soldier's heart, 700
 Soldiers and sailors, sanatorium grants, 565
 Spectacled soldiers, 463
 Steel helmets, 497, 601, 629, 733
 "Summer time," 700
 Temporary officers R.A.M.C., 768
 Territorial medical officers, 564
 Theological and medical students, 353
 Tuberculosis, 463
 Tuberculosis Order, 391
 Tuberculosis, pulmonary, 629
 Tuberculosis, soldiers and sailors, 391, 497, 534
 Unfit men, 463
 Vaccination: Prosecution in Dublin, 26—In Ireland, 106—Various questions on, 141, 180—Of soldiers, 700
 Venereal diseases, 463, 566—Examination of prisoners, 566—Royal Commission on, 700
 Verandas for consumption, 602
 Vision, standard of, 354
 War taxation and finance, 731, 767
 Wastage, 179
 Wounded soldiers. *See* Soldiers
 Year of war, 427, 461

PARMENTIER, Henry, death of, 35
 PARSONS, Herbert: Foreign bodies in the eye and orbit, 720
 PARSONS SMITH, Basil: Vascular phenomena of cardiac disease, 120
 Part-time hospital work (parliamentary question), 497
 PASCOE, Major J. S., Legion of Honour conferred upon, 357
 Passport declarations (case of A. H. Vassie), 176
 "Patent medicines" (leading article), 245
 PATERSON, A. Melville: *Manual of Embryology*, rev., 52
 PATERSON, James V.: Army standards of vision, 537
 PATERSON, Lieut. Richard Eadson, killed in action, 833
 PATERSON, Rev. W. P. (editor): *German Culture: The Contribution of the Germans to Knowledge, Literature, Art, and Life*, rev., 169
 Pathogenic organisms of typhoid group. *See* Typhoid
 Pathology, review of books on, 240
 Pathometry, 766
 Patients, improved method of lifting from barges and boats to hospital ships (Colonel A. W. Mayo Robson), 10. (O)
 Patients, reports on the condition of, 665
 Patients under the care of the London County Council, number of, 569
 PATON, Leslie: Cures following detachment of retina, 721
 PATON, Captain W. C., Military Cross conferred upon, 146
 Patriotic Fund (Canada), 111
 PATTISON, Captain Peterswald, dies on service, 356
 PATTON, C. R.: On a disease called "Bung-paga," 483
 Patty paps in wound dressing (D. W. Samways), 49
 PAULIN, Annie, death of, 576
 PAULY, Professor I. P., obituary notice of, 283—Now reported to be alive, 665
 Pay of medical officers at asylums (parliamentary question), 463
 PAXMASTERS, Lieut. E. A. B.: Magnesium sulphate lotion in cellulitis, 400
 PAYNE, Lewin: War injuries of the jaws and face, 363
 PAYR: Wounds of limbs, abdomen, and chest, 895
 PEACOCK, Lance-Sergeant A. D.: The louse problem at the western front, 745, 784
 PEARSON, Charles Selverton, appointed one of H.M. honorary surgeons in Ireland, 536
Pediculus humanus (vestimentum) and *Pediculus capitis* (A. Baet), 788. (O). *See also* Lice
 Fellagra, scheme to check, in U.S.A. 444
 PEMBERTON, M. S. and F. E. SHIPWAY: Influence of anaesthetics on the body temperature, 655
 PENFOLD, W. J. (and J. C. G. LEDINGHAM): Serological tests in dysentery convalescents, 47—(and H. M. WOODCOCK): Protozoan infections occurring at the King George Hospital, 407—The exystation of *Entamoeba histolytica* (tetragena) as an indication of the vitality of the cysts, 714
 Penis, herpes of, 152, 508
 Pennsylvania University. *See* University
 PENNY, Colonel F. S., C.M.G. conferred upon, 146
 Pensions Act. *See* Act
 Pensions, army (parliamentary question), 534

Pensions and allowances on disablement by disease (leading article), 312
 Pensions for discharged soldiers (parliamentary question), 354
 Pensions Committee Naval and Military War (parliamentary question), 63—First meeting of, 137—Central Pensions Committee, 210
 Pensions and grants (parliamentary question), 26, 463, 497, 498, 602
 Pensions, old age (parliamentary question), 733
 Pensions (parliamentary statement), 427, 463
 Pensions, war, N.C.O.'s and men, 497—Nurses, 498—United States, 498
 "Pentavaccine" (G. A. Lurie), 45. (O)
 Pepper in prophylaxis and treatment of filariasis, 508
 PERCIVAL, A. S.: Physics of a surgical dressing, 290
 PEREIRA, Major Frank Charles, dies on service, 701
 Periodicals, scientific, public asked not to cease to subscribe to, 223
 Peripheral nerves. *See* Nerves
 Peripheral shock. *See* Shock
 Peritonitis, chronic non-tuberculous, in a child (Cecil Worster-Drought), 449. (O)
 Peritonitis, general, with obstruction, new method of treating, and its application in military surgery (W. Sampson Handley), 519. (O)
 Persia, small-pox in, 608
 Persia in 1873, medical topography of, 103
 PETERS, B. A.: Cancerum oris treated by galyl, 719
 PETERSON, F. (and A. CHURCH): *Nervous and Mental Diseases*, rev., 132
 PETIT, Captain G., Military Cross conferred upon, 146
 Petrol for doctors, 388
 Petrol duty, 152, 224, 332, 676
 Petrol, increased price of, application by the Association to the Board of Trade, 244, 352
 Petrol supply (Ireland), 570, 823—Control of, 628, 823—Parliamentary question, 733—Memorandum on, 823
 Phagocytosis, researches on (H. J. Hamburger), 37. (O)
 Philadelphia College of Physicians, library report, 472—Jefferson Medical College, 883
 Philippines, leprosy in, 688
 PHIPSON, Captain E. S., D.S.O. conferred upon, 216—Lice, 630
 Phlebotomus fever. *See* Fever
 Phthisis. *See* Tuberculosis
 Physical clinic for wounded and disabled soldiers, 897
 Physical unfitness (parliamentary question), 140, 179, 213. *See also* Recruits
 Physician versus surgeon, 224
 Physics of a surgical dressing. *See* Surgical
 Physiological Abstracts, 507
 Physiological tests for aviators, 531
 Physiology, review of books on, 90, 279
 PICKARD, Lieut.-Col. R., C.M.G. conferred upon, 146
 PICKLES, Surgeon Philip Dobson, dies on service (B. M. S. Russell), 669
 PIERCE, Bedford: Absence of proper facilities for the treatment of mental disorders in their early stages, 41
 PIERON, H.: Brown-Séquard epilepsy, 494
 PIKE, Colonel W. W., C.M.G. conferred upon, 146
 Pilimiction (leading article), 598. *See also* Urine
 PILKINGTON, Sir George Augustus, obituary notice of, 222
 Pittdown skull and the Pittdown canine tooth (W. Courtney Lyne), 202
 PINKERTON, Surgeon Major-General John, obituary notice of, 295
 Pirogoff Society, reports on the diminution of sickness due to drink suppression, 363
 Pituitary body, functions of (Blair Bell), 322
 Placenta, case of abnormally large, 904
 Plague in India, 671—in Hong Kong, 716—in Alexandria, 894—in Jaffa, 894
 PLANK, Max, and the Belgian atrocities, 827
 Plating dishes for the cultivation of bacteria, new forms of (S. Delépine), 588. (O)
 Plea for the sick soldier, 23
 Pneumonia problem, commission appointed in America to study the, 237
 POCKLEY, B. C., memorial tablet to, 260
 POHLO RAM, Indian Distinguished Service Medal conferred upon, 146
 Poison apparatus of the sting ray, 827
 Poisoning, adrenalin, and nephritis (G. S. Thompson), 818
 Poisoning by chlorine, 34
 Poisoning, industrial, in munition factories of Austria (Oppenheim), 675
 "Poisoning by irrespirable gases" (Richard Lenzmann), 187
 Poisoning, potassium chlorate, in an infant (E. W. Squire), 450
 Poisoning, tetrachlorethane, treatment of toxic jaundice due to (W. H. Willcox), 300. (O)
 POLLOCK, Alexander Barr, obituary notice of, 707
 Poor Law institutions, payment in respect of compensation, Local Government Board circular, 507
 Poor Law Medical Officers' Association. *See* Association

- POPE, A. E.: *Textbook of Anatomy and Physiology for Nurses*, rev., 454—(and T. E. POPE), *Quiz Book of Nursing for Teachers and Students*, rev., 454
- Population, effects of war on, 728
- PORRITT, Norman: Jejunal for duodenal ulcers, 324 Estimate of the number of deaths caused by alcohol, 533—Treatment of puerperal sepsis by uterine suction and drainage, 716
- PORTER, Surgeon-General Sir James, K.C.M.G. conferred upon, 53—Order of the Crown of Belgium conferred upon, 357
- PORTER, Surgeon-General R., C.B. conferred upon, 833
- Portrait painting and pathology, 494
- Potash salts (parliamentary question), 106
- Potassium chlorate poisoning in an infant (E. W. Squire), 450
- Potassium chlorate, internal use of, 704
- POTIGNER, Dr., death of, 35
- POULTON, E. B.: *Science and the Great War*, rev., 241—Eugenic problems after the war, 314
- POWELL, E. A.: *Vive la France*, rev., 555
- POWELL, Captain Scott, dies of wounds, 604
- POWER, Captain D'Arcy, Military Cross conferred upon, 833
- POWER, John L., dinner to 431
- POWER, Joseph, testimonial to, 253, 431
- POYNTON, Dr.: The soldier's heart, 130
- Practitioners' encyclopaedias, reviews of, 169
- PRALL, Lieut.-Col. Cedric Buckley, dies on service, 604
- PRATT, E. A.: *The Rise of Rail-Power in War and Conquest, 1845-1914*, 63
- PRATT, J. Tidd: *Income Tax Law: Excess Profits Duty*, rev., 487
- Pregnancy, notification of (J. W. Ballantyne), 594
- PRENTISS, C. W.: *Laboratory Manual and Textbook of Embryology*, rev., 52
- Prescribing, metric, 504, 540
- Presentations, 106, 217, 431
- PRIESTLEY, Mr.: Heart disease in school children, 375
- PRIESTLEY, Major Harold Edgar, C.M.G. conferred upon, 604
- PRIESTLEY, O. (and others): Examination of fifty dysentery convalescents for carriers, 683
- PRIMROSE, Lieut.-Col. A.: The physics of a surgical dressing, 238
- Principe, sleeping sickness in, 285
- PRINGLE, J. J.: Appreciation of T. Colcott Fox, 674
- Prison camps, German, 420, 562, 598, 606, 664, 801, 804, 892; (Langensalza), 420; (Wittenberg), 562, 598, 606, 664, 801, 804—(Parliamentary question), 666—Dr. Ribadeau-Dumas's experiences of, 801—White Papers relating to, 856, 892—Food question at Ruhleben, 857—Ill-treatment of French and Russian prisoners in, 865—Plans for new camps, 892
- Prison, Sing-Sing, New York, proposed re-organization of hospital department, 675
- Prisoner, leprous German (parliamentary question), 26
- Prisoners, British, German treatment of (parliamentary question), 601
- Prisoners, British, in Turkey (parliamentary question), 180, 802—British, in Germany, 892—(Parliamentary question), 700, 732, 802
- Prisoners in German camps, French and Russian, new bread rules, 865
- Prisoners, parliamentary statement, 427
- Prisoners, invalid. *See* Prisoners, wounded
- Prisoners, tuberculous, convoys of French and German arrive at Switzerland, 250
- Prisoners of war, 216, 864, 896—German treatment of, 892
- Prisoners, wounded, in Switzerland (parliamentary question), 391, 565, 666, 732, 767—Arrival of British and German, 834
- PRITCHARD, E.: *The Infant: Nutrition and Management*, rev., 205
- Prize offered for best artificial arm by Society of German Engineers, 116
- Prize, Vallauri, 904
- Prizes offered for essays on heredity as a factor in alcoholic degeneration, 76
- Procidencia uteri in a nullipara (J. F. Keenan), 343. *See also* Dystocia
- Profession and the Department of Public Instruction (Sydney), 466, 898
- Prognosis, review of books on, 310
- Prohibition in Canada, 31
- Projectiles, cause of the divulsive effect of, 148
- Prolapsus ani, bloodless operation for (Major F. McKelvey Bell), 415. (O)
- Promotion in R.A.M.C. *See* Army, British
- "Prophylactic Institute" formed in Paris, 436
- Prostate, stone in (James MacMunn), 89
- Protozoan diseases, history of organic compounds of arsenic in treatment of (Benjamin Moore), 616. (O)
- Protozoan infections occurring at the King George Hospital (H. M. Woodcock and W. J. Penfold), 407. (O). *See also* Lambliæ
- Pruritus ani, treatment of, 364, 472
- Pruritus of face, 640, 676, 744
- Pseudo-Darwinism and the war, 562
- Psycho-analysis, review of books on, 886
- Psychology of the wounded soldier, 563
- Psychopathic laboratory for examination of prisoners in respect of mental deficiency, established in New York, 303
- Public health and Poor Law medical services: Poor Law Medical Officers' Association of England and Wales, 185, 639—Scottish Poor Law Medical Officers' Association, annual meeting, 223—Vital statistics in England and Wales (1915), 185
- Public health magazine to be distributed free in America, 347
- Public health, review of books on, 17, 453
- Public medical service (Leicester), 359
- Puerperal sepsis treated by uterine suction and drainage (Norman Porritt), 716. (O)
- Puerperal septicaemia, treated by intravenous injections of eusol (A. T. Brand and J. R. Keith), 415
- PULAY: War nephritis, 64
- Pulmonary tuberculosis. *See* Tuberculosis
- PUNCH, Surgeon Sidney, killed in action, 832
- PURSER, Major F. C.: Injuries to peripheral nerves, 820
- PUTNAM, J. J.: *Human Motives*, rev., 658
- Q.
- Quackery, suppression of, by the German army, 698
- Quarantine arrangements in Austria (Einar Aaser), 66
- Queen's nurses. *See* Nurses
- QUENT: Catgut sterilization, 800
- Quinine collyria, 472
- Quinine and malaria, 776
- Quinine solutions as a dressing for infected wounds (Sir John Tweedy), 11. (O)
- Quinine and urea hydrochloride solutions in operations under local anaesthesia (B. M. Iwanow), 640
- R.
- R.A.M.C. Comforts Fund, 352
- R.A.M.C. at work in Northern France, 500
- R.A.M.C. *See also* Army, British
- Rabies, recrudescence of in France, 878
- RACHMANOW, A. N.: Abortion in Moscow, 507
- Radium Institute, Manchester and District, report, 247, 254
- Radium, review of books on, 132
- RAI KAILASH BASU BAHADUR, knighthood conferred upon, 53
- Railways in war, 63
- RAM SINGH, Indian Order of Merit conferred upon, 146
- RAMSAY, A. M. (and others): *Injuries of the Eyes, Nose, Throat, and Ears*, rev., 821
- RAMSAY, Lieut. Derrick Winson, killed in action, 394
- RANKIN, W.: Work at a base hospital, 371
- Rat-bite fever. *See* Fever
- Rathdown Dispensary District of Bray, Dr. Roan tree goes on active service, 570, 633
- Ration allowance to wounded officers (parliamentary question), 497, 768
- RAVENHILL, Thomas H., Serbian Order of St. Sava conferred upon, 735
- RAWNSLEY, Colonel G. T., C.M.G. conferred upon, 146
- RAYNER, Henry: Bromides in epilepsy, 33
- Ray, gamma, and spectrum. *See* Spectrum
- Rebellion, Irish, 671, 702, 738
- Reciprocal duties of State and profession (leading article), 858
- Recoveries among the wounded, proportion of, 356
- Recruit, auscultation of the heart of, 361
- Recruit's heart. *See* Heart
- Recruiting and discharge, the other side of the shield, 33
- Recruitment of doctors in England and Wales (leading article), 348
- Recruits, eyesight of (parliamentary question), 141, 179
- Recruits, fees for medical examination of (parliamentary question), 317
- Recruits, inadequate medical examination of, 872
- Recruits, medical examination of (*Sunday Chronicle*), 139—(Parliamentary statement), 427—(Parliamentary question), 430, 565, 629, 700, 733, 768—Inadequate, 872
- Recruits, medical students and the inspection of, 33
- Recruits, physically unfit (parliamentary question), 140, 179, 213, 430, 768
- Rectum, foreign bodies in (Joseph Stark), 15—(C. P. G. Wakeley), 224
- Red Cross, American, proposed amalgamation of all war relief societies, 26
- Red Cross ambulance train at Aberdeen, 867
- Red Cross, British, work of (leading article), 59—Convoys at Verdun, 667—Manuals, 770—Notes on the work of, 834
- Red Cross, Canadian, annual meeting, 772
- Red Cross, French, appeal, 295
- Red Cross Fund (Ireland), 183
- Red Cross, German, and new hospitals, 109
- Red Cross hospital, Dublin Ca, tile, 323, 536
- Red Cross hospitals in Italy, 187
- Red Cross, Italian, propaganda concerning, 131
- Red Cross manuals, British, 770
- Red Cross, Russian, with the (C. Johannessen), 531
- Red Cross scheme and State registration of nurses. *See* Nurses
- Red Cross Society, British, work of Fife Branch, 835—Work in France, 896—in the County of London, 897—Scottish Branch, 898
- Red Cross work and St. John Ambulance (India), 633
- REDFIELD, Caspar L., offers Heredity prize, 776
- REDMAN, J. H.: *Pratt and Redman's Income Tax Law*, 107, 487
- REDMOND C. Stennett: Compression of aorta in post-partum haemorrhage, 15
- REED, Lieut. J. Sleeman, dies on service, 252
- REES, Ferdinand: State registration of nurses and the Red Cross scheme, 72
- REES, Milsom, knighthood conferred upon, 53
- Refrigerating box, simple portable, and its use as a temporary incubator in military (M. Delépine), 718. (O)
- Refuse, domestic destruction of, 704
- Regular versus irregular practitioners (Ontario), 31
- Remuneration of re-employed officers R.A.M.C. (parliamentary question) 180. *See also* Army, British
- RENSHAW, Lieut. Arnold (and others): "Trench fever," 225
- RENTON, J. Crawford: Value of antitetanic serum, 89
- Reports on condition of patients. *See* Patients
- Research Defence Society. *See* Society
- Retina, cures following detachment of (Leslie Paton), 721
- Retired medical men. *See* Medical
- Retrenchment Committee, final report, 346—Leading article, 349—Parliamentary questions on, 391
- RETTIE, Theodore: Amount of free hydrochlorous acid in enamel, 740
- REUTER: Weil's disease, 861
- Reviews of Books:
- Adolescent Period, its Features and Management (L. Starr), 623
- Alcohol and the Human Body (Sir Victor Horsley and Mary D. Sturge), 759
- American Climatological Association, Transactions for 1915, 623
- Analysis, Qualitative and Volumetric (W. M. Hooton), 658
- Analytical Psychology, Collected Papers on (C. G. Jung), 886
- Anatomy: Anatomie der Bauchspeicheldrüse (Pankreas) (J. Sobotta), 204
- Anatomy from the Anatomical Department of the University of Birmingham, Studies in, 658
- Anatomy, Applied (G. G. Davis), 203
- Anatomy: Die Anatomie des Menschen (F. Merkel), 203
- Anatomy: Grundriss der Chirurgisch-Topographischen Anatomie (O. Hildebrand), 203
- Anatomy: Intervertebral Foramina in Man (H. Swanberg), 204
- Anatomy and Physiology, Lectures on Elementary (H. Clifford Barclay), 855
- Anatomy and Physiology for Nurses, Textbook of (A. E. Pope), 454
- Anatomy and Physiology for Training Schools and other Educational Institutions, Textbook of (Elizabeth B. Bundy), 454
- Anatomy, Systematic and Practical, including Embryology, Manual of (A. M. Buchanan), 203
- Antiquity of man (Arthur Keith), 16
- Arthritisme-diathese à Vichy: Physiologie pathologique et thérapeutique physiologique (H. Gautrelet and H. de Lalaubie), 204
- Back Injuries and their Significance under the Workmen's Compensation and other Acts (A. McKendrick), 486
- Beri-beri: Its Etiology, Symptoms, and Treatment: with a Detailed Clinical Account of Thirty-two Cases occurring in Sierra Leone (Espiné Ward), 418
- Biology (G. N. Calkins), 758
- Biology, Modern Problems of (C. S. Minot), 759
- Birth-time of the World and other Scientific Papers (J. Joly), 377
- Body in Health (M. V. O'Shea and J. H. Kellogg), 593
- Bonesetting for the Medical Profession, Modern (M. Romer), 417
- Book of English Poetry (edited by G. Beaumont), 18
- Botany: A Textbook for Senior Students (D. Thoday), 419
- British Journal Photographic Almanac and Photographer's Daily Companion, 1916, 311
- Caecum, Reflections on the Morphology and Physiology of, with special reference to Intestinal Toxaemia (John Flynn), 264
- Cancer Problem (W. S. Bainbridge), 17
- Cancer of the Stomach (F. Smithies), 554
- Catalysis and its Industrial Application (E. Jobling), 170

Reviews of Books (continued)

- Cerebro-spinal Fever (M. Foster and J. F. Gaskell), 592
- Chemical Compounds, Molecular Volumes of Liquid, from the Point of View of Kopp (G. Le Bas), 657
- Chemistry, Colloidal, Handbook of (W. Ostwald), 622
- Chemistry, Elementary, Laboratory Outline of (A. Smith), 658
- Chemistry, Elementary, Textbook of (A. Smith), 658
- Chemistry, Inorganic: Qualitative and Volumetric Analysis (W. M. Hooton), 658
- Chemistry, Physical, for Schools (H. J. H. Fenton), 658
- Child, The: His Nature and Nurture (W. B. Drummond), 454
- Children. *See* Infants
- City of Din: A Tirade against Noise (Dan McKenzie), 417
- Clinics of John B. Murphy, M.D., at Mercy Hospital, Chicago, 487
- Colchester Oyster Fishery (H. Laver), 453
- Colloid Chemistry Handbook: The Recognition of Colloids, the Theory of Colloids, and their General Physico-Chemical Properties (W. Ostwald), 622
- Compendium of Aids to Home Nursing (Home Nursing Simplified and Tabulated), (N. Corbet Fletcher), 454
- Construction, Equipment, and Management of a General Hospital (D. J. Mackintosh), 344
- Death and Hereafter (C. Williams), 278
- Deaths from Violence and Unnatural Causes in the United Kingdom: Inquiry into the Statistics of (W. A. Hendon), 377
- Dentists' Register, 1916, 487
- Diabetes, Dietetic Treatment of (B. D. Basu), 310
- Dictionary, Appleton's Medical (edited by Smith Ely Jelliffe), 378
- Dictionary, Illustrated Medical (W. A. Newman Dorland), 378
- Domine's Log (A. S. Neill), 692
- Dreams, Meaning of (I. H. Coriat), 658
- Ductless Glandular Diseases (W. Falta), 203
- Duel, The (A. Kuprin), 555
- Embryology, Laboratory Manual and Textbook of (C. W. Prentiss), 52
- Embryology, Manual of (A. Melville Paterson), 52
- Emotions, Origin and Nature of the (G. W. Crile), 52
- Encyclopaedia Medica, 723
- Eyes of Our Children (N. Bishop Harman), 554
- English Public Health Administration (B. G. Bannington), 17
- Eugenics, Progress of (C. W. Saleeby), 53
- Evolution of Sex in Plants (J. M. Coulter), 171
- Exercise in Education and Medicine (R. Tait McKenzie), 453
- Eyes, Nose, Throat, and Ears, Injuries of (A. M. Ramsay, J. Dundas Grant, H. Lawson White, and C. E. West), 821
- Feeble-mindedness, its Causes and Consequences (H. H. Goddard), 50
- Fever, Handbook of (J. Campbell McClure), 344
- Fibrositis (Gouty, Infective, Traumatic), so-called Chronic Rheumatism, including Villous Synovitis of Knee and Hip, and Sacro-iliac Relaxation (L. Jones Llewellyn and A. Bassett Jones), 90
- First Aid to the Injured and Sick: An Advanced Ambulance Handbook (F. J. Warwick and A. C. Tunstall), 170
- Food Analysis: Typical Methods and the Interpretation of Results (A. G. Woodman), 419
- Fowl, structure of the (O. C. Bradley), 759
- Fractures, Modern Methods of Treating (E. W. Hey Groves), 656
- Fractures, Treatment of, with Notes upon a Few Common Dislocations (C. L. Scudder), 91
- Fry's Royal Guide to London Charities, 345
- Galvanism and Faradism, Notes on (E. M. Magill), 887
- General Medical Council Minutes, 378—General Index to the Minutes, 1903-1915, 378
- German Culture, The Contribution of the Germans to Knowledge, Literature, Art, and Life (edited by the Rev. W. P. Paterson), 169
- Gout and Cretinism, 1913-14: Collected Papers on (R. McCarrison), 555
- Greek, Self-Taught (Modern), with Phonetic Pronunciation (Thimm's System) (N. Anastassion), 692
- Guy's Hospital Reports, vol. Ixviii (edited by F. J. Steward and Herbert French), 133
- Gymnastics: Guide de rééducation physique en groupe. Méthode de gymnastique rééducative pour les blessés militaires (Ch. Guilbert and G. Maucurière), 723
- Harveian Oration, 1916 (Snyder Coupland), 92
- Health Officers, Manual for (J. S. MacNutt), 692
- Histology, Textbook of, Arranged upon an Embryological Basis (F. T. Lewis and P. Stöhr), 91

Reviews of Books (continued)

- Hospital Construction, Equipment, and Management (D. J. Mackintosh), 344
- Housing of the Working Classes Acts, 1890-1909, and the Housing Acts, 1914: Annotated and Explained, together with the Rules, Regulations, Forms, and Instructions of the Local Government Board (C. E. Allan), 692
- Human Motives (J. J. Putnam), 658
- Immunology, Applied: The Practical Application of Sera and Bacterins Prophylactically, Diagnostically, and Therapeutically. With an Appendix on Serum Treatment of Hemorrhage, Organotherapy and Chemotherapy (B. A. Thomas and R. H. Ivy), 887
- In a French Military Hospital (Dorothy Cator), 310
- Income Tax Law, Pratt and Redman's (J. H. Redman), 487
- Index Catalogue of the Library of the Surgeon-General's Office, United States Army, 527
- Index of Prognosis and End-Results of Treatment (by Various Authors, edited by A. Rendle Short), 310
- Indian Manual of First Aid (Lieut.-Col. R. J. Blackham), 555
- Indian Thought, Past and Present (B. W. Frazer), 310
- Infant Nutrition and Management (E. Pritchard), 205
- Infants and Children, Practical Prescribing and Treatment in Diseases of (D. M. MacDonald), 205
- Infectious Diseases, Treatment of Acute (F. S. Meara), 344
- Instinct and Intelligence (N. C. Macnamara), 240
- Internal Diseases, Treatment of, for Physicians and Students (N. Orner), 488
- Intervertebral Foramina in Man (H. Swanberg), 204
- Involuntary Nervous System (W. H. Gaskell), 722
- Life: A Poem (B. J. Morison), 205
- Localization by X Rays and Stereoscopes (Sir J. Mackenzie Davidson), 854
- Log of H.M.S. *Bristol* (William Buchan), 310
- Medical Annual: A Yearbook of Treatment and Practitioner's Index, 692
- Medical Clinics of Chicago, Vol. i, No. 1, 241—Vol. ii, 487
- Medical Diagnosis, Handbook of (J. C. Wilson), 758
- Medical Dictionary, Pocket (G. M. Gould), 822
- Medical Ethnology (C. E. Woodruff), 854
- Medical Jurisprudence, Toxicology, and Public Health, Manual of (W. G. Aitchison Robertson), 554
- Medical Register 1916, 487
- Medical and Veterinary Entomology: a Textbook for Use in Schools and Colleges as well as a Handbook for the Use of Physicians, Veterinarians, and Public Health Officials (W. B. Herms), 822
- Médecins et Médecine en Ethiopie (Docteur Mérab), 758
- Medicine, Manual of the Practice of, Prepared Expressly for Students (A. A. Stevens), 205
- Medicine and Meditation (A. Lewers), 623
- Medicine, Wheeler's Handbook of (W. R. Jack), 758
- Mentally Defective Children (A. Binet and Th. Simon), 377
- Midwives, Manual for (C. Nepean Longridge and J. B. Bannister), 760
- Mind Cures (Geoffrey Rhodes), 760
- Molecular Volumes of Liquid Chemical Compounds from the Point of View of Kopp (G. Le Bas), 657
- More Minor Horrors (A. E. Shipley), 854
- Morphology and Anthropology (W. L. H. Duckworth), 376
- Mortality Laws and Statistics (R. Henderson), 170
- Nervous Diseases, Textbook of (edited by C. W. Burr), 133
- Nervous and Mental Diseases (A. Church), 132
- Nervous System, Diseases of (H. Campbell Thomson), 133
- Nose and Throat, Diseases of, comprising Affections of the Trachea and Oesophagus: A Textbook for Students and Practitioners (Sir St. Clair Thomson), 554
- Nose and Throat, Diseases of (A. Coolidge), 486
- Nutritional Physiology (P. G. Stiles), 692
- Obesity and Obese Heart, cure of (J. S. Kellett Smith), 823
- Obolomov (Ivan Goncharov), 593
- Obstetric Practice, Difficulties and Emergencies of (Comyns Berkeley and Victor Bonney), 758
- Ordeal by Battle (F. S. Oliver), 487
- Order of the Hospital of St. John of Jerusalem, and its Grand Priory of England (H. W. Fincham), 821
- Other Side of the Lantern (Sir F. Treves), 855
- Paratyphoid Fever: Les Fièvres Paratyphoïdes (J. Carles), 622
- Parke, Davis, and Co., Detroit, Michigan: Collected Papers from the Research Laboratory of—Reprints, vol. iii (1915), 205

Reviews of Books (continued)

- Pathology, Textbook of (A. Stengel and H. Fox), 240
- Persia, Hints for Residents and Travellers in (A. R. Neliang), 723
- Physiology, Lessons in Elementary (T. H. Huxley), 90
- Physiology, Nutritional (P. G. Stiles), 692
- Physiology, Principles of General (W. M. Bayliss), 279
- Plague and Pestilence in Literature and Art (Raymond Crawford), 454
- Poetry, Book of English (edited by G. Beaumont), 18
- Practical Socialism (the late Canon S. A. Barnett and Mrs. Barnett), 18
- Practitioner's Encyclopaedia of Medical Treatment (edited by W. Langdon Brown and J. Keogh Murphy), 169
- Practitioner's Encyclopaedia of Medicine and Surgery in all their Branches (edited by J. Keogh Murphy), 170
- Prognosis and End-Results of Treatment, Index of (by Various Authors), 310
- Psychiatry, The New (W. H. B. Stoddart), 205
- Psychology, Analytical, Collected Papers on, (C. G. Jung), 885
- Public Health Administration, English (B. G. Bannington), 17
- Quiz Book of Nursing for Teachers and Students (A. E. Pope and T. E. Pope), 754
- Radiography, X Ray Therapeutics, and Radium Therapy (E. Knox), 132
- Radium, X Rays, and the Living Cell (H. A. Colwell and Sidney Russ), 132
- Refuse Disposal: A Practical Manual for Municipal Engineers, Members of Local Authorities, etc. (E. R. Matthews), 453
- Rhizopod Protozoa: The Cause of Cancer and other Diseases (J. Jackson Clarke), 759
- Roentgen Diagnosis of Surgical Lesions of the Gastro-Intestinal Tract (A. W. George and R. D. Leonard), 344
- Roses and their Cultivation (T. W. Saunders), 18
- Royal College of Physicians, Edinburgh, Reports from the Laboratory of (edited by J. J. Graham Brown and J. Ritchie), 170
- Royal Guide to London Charities, 345
- Rural Sanitation in the Tropics (M. Watson), 417
- Russian Grammar and Reading Book, 345
- St. Thomas's Hospital Reports, vol. xlii (edited by J. J. Perkins and C. A. Ballance), 170
- Science and the Great War (E. B. Poulton), 241
- Science and War (Sir W. Osler), 133
- Serums, Vaccines, and Toxins in Treatment and Diagnosis (W. C. Bosanquet and J. W. H. Eyre), 887
- Seven Ages of Woman: A Consideration of the Successive Phases of Woman's Life (M. Scharlieb), 723
- Sleep and Sleeplessness (H. A. Bruce), 658
- Southall's Organic Materia Medica (revised and enlarged by E. W. Mann), 593
- Sulphuric Acid and Sulphur Products (G. Martin and Major J. L. Foucar), 658
- Surgery, Operations of, Jacobson (R. P. Rowlands and F. Turner), 656
- Surgery in War (A. J. Hull), 526
- Surgery in War: Indications générales du traitement des plaies de guerre (G. Marion), 527
- Surgical Anaesthesia, Manual of (H. Bellamy Gardner), 622
- Surgical Anatomy, Manual of (L. Beesly and T. B. Johnstone), 486
- Surgical Operations with Local Anaesthesia (A. E. Hertzler), 622
- Swanzy's Handbook of Diseases of the Eye and their Treatment (edited by L. Werner), 592
- Sylvia's Marriage (Upton Sinclair), 53
- Throat, Nose, and Ear, Diseases of (W. H. Kelson), 486
- Ticks, a Monograph of the Ixodoidea (G. H. F. Nuttall and C. Warburton), 417
- Tonsil and its Uses: Vocal, Mechanic, and Physiologic (R. B. Faulkner), 887
- Tropical Hygiene for Residents in Tropical and Subtropical Climates (Sir Pardey Lukis and Lieut.-Col. R. J. Blackham), 133
- Tropical Medicine, Clinical Methods for Students in (Lieut.-Col. G. T. Birdwood), 133
- Tropics, Rural Sanitation in; being Notes and Observations in the Malay Archipelago, Panama, and other Lands (M. Watson), 417
- Tuberculosis in Children, Primary Lung Focus of (A. Ghon), 170
- Tumours, Pathology of (E. H. Kettle), 821
- Typhoid Fever: Tratamiento de la Fiebre Tifoidea por la Vacuna Dessy (Roberto Maglione), 418
- Typhus Fever: Le typhus exanthématique (M. Jeanneret-Minkine), 621
- University College Hospital Medical School Research Department, Collected Papers, vol. v, 555
- Vagotonia: A Clinical Study in Vegetable Neurology (H. Eppinger and L. Hess), 309

Reviews of Books (continued)

- Valency, *The Theory of* (J. N. Friend), 657
 Vichy, Arthritic Diathesis at (E. Gautrelet and H. de Lalanbie), 204
 Views on Some Social Subjects (Sir Dyce Duckworth), 53
 Vive la France (E. A. Powell), 555
 War and Civilization: An Open Letter to a Swedish Professor (Right Hon. J. M. Robertson), 168
 What is Adaptation? (R. E. Lloyd) 91
 What every Mother should know about her Infants and Young Children (C. G. Kerley), 454
 Wheeler's Handbook of Medicine (W. R. Jack), 758
 Whitaker's Almanack, 170
 Yearbook of the Scientific and Learned Societies of Great Britain and Ireland, 1916, 487
 Zoology: An Elementary Textbook (A. E. Shipley and F. W. MacBride), 240
 Zoology, Economic, and Entomology, Elementary Textbook of (V. L. Kellogg and R. W. Doane), 759
- Revue neurologique*, War Number, 456
 REYMOND, Emile, bust of, 8
 Rheumatism, cresote in (Alfred Orchard), 167
 Rheumatism, workmen's compensation for (Glasgow Coal Company, Limited, v. Welsh), 470
 RHODES, Geoffrey: *Mind Cures*, rev., 760
 RIACHE, Major W., C.M.G. conferred upon, 146
 RIBADEAU-DUNAS, Dr., his experiences of German prison camps, 801
 RICHARDS, Theodore W., Nobel prize in chemistry for 1914 awarded to, 305
 RICHARDSON, Captain Thomas Charles, killed in action, 288
 RICHET, Charles, elected honorary member of the University of Moscow, 128
 Richmond Home for Helpless Men. *See* Star and Garter
 RIDDELL, Captain Hugh Y., Serbian Order of St. Sava conferred upon, 735
 RIDGE, Lieut. Edwyn Manners, killed in action, 109
 RIDGE, Captain Percy Brewster, dies on service, 465
 RIBLLY, Captain William Ernest, dies on service, 108
 RIEU, Henry, killed in action, 252
 Rifle shooting, relation of the eyes to, 493—Correspondence on, 537
 Rifles, telescopic sights for, 765
 RIGBY, Hugh M., appointed consulting surgeon to the forces in France, 568
 RIORDAN, Colonel, reduces the price of his *Manual for Army Medical Services*, 364
 RISHWORTH, Captain W. N., Military Cross conferred upon, 670
 RITCHIE, A. Brown: Administration of the Mental Deficiency Act, 866
 RITCHIE, John: Incompatibility, 260
 RITCHIE, Major M. B. H., D.S.O. conferred upon, 146
 RIVA, Alberto, obituary notice of, 869
 RIVERS-WILSON, Dr., obituary notice of, 839
 ROAF, H. E. and T. J. HALLINAN: Incubation period of paratyphoid B fever, 885
 ROBERTS, Major F. E., D.S.O. conferred upon, 146
 ROBERTS, Nathaniel E., obituary notice of, 362
 ROBERTSON, George M.: Female nurses in male wards of mental hospitals, 308
 ROBERTSON, Sir George Scott, obituary notice of, 73, 115—Estate of, 384
 ROBERTSON, James, obituary notice of, 707
 ROBERTSON, Right Hon. J. M.: *War and Civilization: An Open Letter to a Swedish Professor*, rev., 168 *The Germans: D The Teutonic Gospel of Race; 20 The Old Germany and the New*, 528
 ROBERTSON, M. G., Kaisari-Hind gold medal conferred upon, 823
 ROBERTSON, Captain R. C., Military Cross conferred upon, 146
 ROBERTSON, Robert, elected vice-president of the Royal National Consumption Hospital, Ventnor, 840
 ROBERTSON, Lieut. Thomas Arthur May, killed in action, 896
 ROBERTSON, W. J. Aitchison: *Manual of Medical Jurisprudence, Toxicology, and Public Health*, rev., 554
 ROBINSON, Arthur: Appreciation of Sir William Turner, 329
 ROBINSON, Lieut. Arthur Linnel, dies of wounds, 394
 ROBINSON, Captain F. A., Military Cross conferred upon, 605
 ROBINSON, Captain G. E. J. A., Military Cross conferred upon, 833
 ROBINSON, Lieut.-Col. O. L., C.M.G. conferred upon, 833
 ROBSON, Colonel A. W. Mayo: Improved method of lifting patients on to hospital ships from barges and boats, 10—C.B. conferred upon, 670
 ROCHE, Lieut. A. R., Military Cross conferred upon, 146
 RODMAN, William Louis, obituary notice of, 506
 ROE, John O., death of, 399
 ROE, Major W. F., D.S.O. conferred upon, 146
- ROGERS, Major, J. S. Y., D.S.O. conferred upon, 146
 ROGERS, Sir Leonard: Sensitized Shiga and Flexner vaccines in treatment of chronic bacillary dysentery, 7—(and Captain N. H. HAMEL: Treatment of kala-azar (Indian form) by tartar emetic intravenously and by injections of metallic antimony, 301
 ROLLESTON, Humphry Davy, C.B. conferred upon, 53—Sir Gilbert Blane, 426
 ROMER, F.: *Modern Booksetting for the Medical Profession*, rev., 417
 RONALDSON, James Bruce, obituary notice of, 774
 RONATNE v. Doyle, 536
 ROQUES, F., death of, 639
 ROSE, Achilles, obituary notice of, 506
 ROSEWARNE, D. D. (and C. WORSTER-DROUGHT): Amoebic dysentery in a man who had never left England, 715
 ROSS, Lieut.-Col. A. E., C.M.G. conferred upon, 146
 ROSS, Sir Ronald: Treatment of acute dysentery, 142—Pathology, 766—Science and antiscience, 836
 ROSS, S. J.: Leucoderma, 708
 ROUTH, Amand: Appreciation of Stanley Boyd, 256
 ROWE, Surgeon-Captain W. T., Military Cross conferred upon, 833
 ROWELL, Lieut. H. A., Military Cross conferred upon, 146
 ROWLANDS, R. P.: Intussusception of the small intestine due to fibro-myoma: excision; recovery, 343—Time in surgery, 549—(and P. TURNER): *The Operations of Surgery* (Jacobson), rev., 656—Jejunostomy and jejuno-colostomy, 739
 ROWS, Major: Toxic causes of idiocy and imbecility, 757
 ROWS, B. G.: Mental conditions following strain and nerve shock, 441
 Royal Academy, 663
 Royal Commission on University Education in Wales. *See* Wales
 Royal Institution, report, 666—Electrical methods in surgery, 698
 Royal Medical Benevolent Fund. *See* Fund
 Royal Medical Benevolent Fund Guild. *See* Fund
 Royal Naval Volunteer Reserve. *See* Navy, Royal
 Royal Navy. *See* Navy
 Royal Sanitary Institute, award of Henry Saxon Snell Prize, 775—Offers prize for best thesis on maternity and child welfare, 808—War-time sanitation 865—Economies in health departments, 865—Administration of the Mental Deficiency Act, 866
 RUDOLF, Lieut.-Col. Robert Dawson: Auscultation of the heart of the recruit, 361—Heart-block in jaundice, 552
 RUFFER, Amand M., knighthood conferred upon, 823
 Ruhleben, food question at, 857. *See also* Prison camps
 Rural sanitation, 862
 RUSS, Sidney: From the visible to the gamma ray spectrum, 124—(and H. A. COLWELL): *Radium, X-rays, and the Living Cell*, rev., 132
 RUSSELL, B. R. G. (and Alex. Mills KENNEDY): Relapsing paratyphoid A infection, 618
 RUSSELL, Captain G. H., further leave of absence granted to, 633
 RUSSELL, Colonel J. J., C.B. conferred upon, 146
 RUSSELL, Colonel M. W., C.B. conferred upon, 146
 RUSSELL, William: Right side of the heart and its relation to overstrain, 873
 Russia, Pirogoff Society reports on drink suppression and diminution of sickness, 363—Antityphoid vaccination in the army (Taraskevitch), 775
 Russian Grammar and Reading Book, rev., 345
 Russian prisoners in German camps, 865
 Russian Red Cross, with the (C. Johannessen), 531
 RUTHERFORD, Captain W., Military Cross conferred upon, 216
 RYAN, C. Snodgrass, C.B. conferred upon, 670
 RYAN, Major E., D.S.O. conferred upon, 146—Legion of Honour conferred upon, 357
- SAINT, Charles F. M.: Principles of treatment and their application to wounds, 367
 Salaries of Director-Generals (parliamentary question), 180
 SALEEBY, C. W.: *Progress of Eugenics*, rev., 53
 Salford Insurance Committee. *See* Insurance
 Saliva, inhibitory action of on the growth of the meningococcus (Lieut.-Col. M. H. Gordon), 849. (O)
 Salvaresan (dioxidyamido-arseno-benzol (salvarsan or kharsivan)), toxicology of (William Henry Wilcox and John Webster), 473. (O)
 —Leading article on, 492—Correspondence on, 540
 SAMSON, Major F. C., D.S.O. conferred upon, 146
 SAMPSON, H. H.: Penetrating wounds of abdomen, 547
 SAMPSON, Captain H. H., Military Cross conferred upon, 833
 SAMWAYS, D. W.: Wound dressing, 49—Physics of a surgical dressing, 290—The fresh air craze, 904
 SANARELLI, Giuseppe, appointed editor of the *Avvenire Sanitario*, 131—National League for Hygienic Well-being of Soldiers in the Field founded by, 151
 Sanatogen (parliamentary question), 534
 Sanatorium grants for soldiers and sailors (parliamentary question), 565
 Sanatorium treatment in London, 834. *See also* Insurance Act
 Sanatoriums for consumption: Ste. Agathe (Canada), 32—King Edward Memorial, Bhowali report, 608—Edward VII, Midhurst, report, 763
 SANDERS, T. W.: *Roses and their Cultivation*, rev., 18
 SANDERSON, Surgeon-Major Arthur, obituary notice of, 435
 Sandfly fever. *See* Fever, phlebotomus
 Sandbridge colony for the feeble-minded, 70
 SANDWICH, F. M., C.M.G. conferred upon, 670
 SANGSTER, Lieut. William Campbell, killed in action, 430
 Sanitary conference of representatives of the Allied Powers, 496
 Sanitary section in the field, duties of (Major Charles E. Goddard), 215
 Sanitas-Sypol, 593
 Sanitation in Bengal, 632
 Sanitation, rural, 862
 Sanitation, tropical, 627
 Sanitation, war-time, 865
 Sarcoma of frontal lobe giving rise to ocular signs only (R. Beaton Hird), 678. (O)
 SAUNDERS, Captain Leonard Douglas, Military Cross conferred upon, 535
 SCHAEFER, F.: Campaign against venereal disease in Germany, 600
 SCHÄFER, Sir E. A.: Treatment of chlorine gas poisoning, 774
 SCHARLIEB, Mary: Treatment of syphilis, 16—Control of venereal diseases, 721 *The Seven Ages of Woman: A Consideration of the Successive Phases of Woman's Life*, rev., 723
 SCHIFF, A.: War nephritis, 64
 SCHLESINGER, H.: War nephritis, 64
 SCHMEISSNER, H. C.: Myeloid leukaemia as an infectious disease, 23
 SCHMIDT-RIMPLE, Dr., death of, 36
 SCHOFIELD, C. Rowney: Appreciation of A. W. W. Lea, 742
 School Board for Glasgow, report, 289
 School books and eyesight, 424
 School children, medical care of (annual report of Chief Medical Officer of Board of Education), 18, 55, 98—Leading article on, 58, 348
 School children, medical inspection of (Sydney), 466—(Madras), 633—(Boothle), 704—(Pife and Kinross), 835—(Boston, U.S.A.), 848
 School children, medical treatment of in Ireland (parliamentary question), 565—In Liverpool, 771
 School children suffering from myopia, special classes for in Glasgow, 431
 School children suffering from tonsils and adenoids, clinics for in New York, 242
 School clinics for Liverpool, 628
 School hygiene, experiment in, in Massachusetts, 484
 School of Medicine for Women, Edinburgh, new entries, 703
 Schools, infectious diseases in code of rules for prevention of, 286
 SCHROETTER, Hermann von: With the Montenegrin army in the first Balkan war, 389
 SCHÜFFNER: Kedari fever in Sumatra, 316
 SCHULLER: "Gaiter pain," 108
 SCHWARZ, E.: War nephritis, 64
 Sciatica, novocain in (Major W. L. Keller), 478
 Science and advertising, 63
 Science and antiscience, 836
 Science and education (parliamentary question), 733
 Science, education and Government (leading article), 209, 696—Correspondence on, 293
 Science, industry, and medicine, 730
 Scientific meetings with the British Expeditionary Force, 701
 Scientific papers, publication of, memorandum from D.G.M.S., 27
 Scientific periodicals, public asked not to cease to subscribe to, 223
- St. John Ambulance and Red Cross work (India), 633
 St. John of Jerusalem, Order of, review of book on, 821
 St. Patrick's Home for Supplying Trained Nurses, 395
 "Safety first" train, 774
 Sailors, blinded (parliamentary question), 353
 Sailors, tuberculous (parliamentary question), 534
 Sailors, maimed. *See* Soldiers and sailors, crippled
 SAINSBURY, Harrington: Appreciation of Stanley Boyd, 257

Scientific research (parliamentary question), 213

Scotland:

Aberdeen University accepts a painting of Marischal College, 898
Ayr District Asylum, 289
British Red Cross Society, Fife Branch, 835
Conscientious objector (at Oban), 503
Disabled soldiers, provision for in Scotland, 111, 395, 503, 536, 772
Dundee, infant mortality in, 569
Edinburgh: Children's Hospital, 569—French professors in 866—Royal (Dick) Veterinary College, 771—Royal Infirmary, report, 69—Royal Institution for Education of Deaf and Dumb Children, 569—Royal Maternity Hospital, annual meeting, 703—School board report, 253—School of Medicine for Women, new students, 703—Women medical students in, 866
Fleming, Robert A., appointed on staff of officers of King's Body Guard for Scotland, 898
Glasgow: Maternity and Women's Hospital, 289—Municipal milk supply, 569—Royal Asylum, 324—Royal Infirmary, 69, 289—School board report, 289—Western Infirmary, 69—Women medical students in, 866
Highlands and Islands Medical Service Board, 216
Lincolnshire Insurance Committee and bad housing, 216
Macpherson, W. G., memorial to, 703
Maternity and infant welfare in Dundee, 772
Midwives Act, 29
Midwives Board (Central) for, 253, 324, 360
Morison lectures, 324
National Society for Prevention of Cruelty to Children, 671
Neonatal mortality in Edinburgh (J. W. Ballantyne), 504
Queen's nurses, 148
Princess Louise Scottish Hospital for Maimed Soldiers and Sailors, 772. *See also* Disabled soldiers
Red Cross ambulance train at Aberdeen, 867
Royal Blind Asylum, Edinburgh, and blinded soldiers, 536
Royal (Dick) Veterinary College, 771
Royal Society of Edinburgh, election of Fellows, 431
Royal Victoria Hospital, Dundee, 360
School children, medical inspection of (Fife and Kinross), 835
School children suffering from myopia, special classes for in Glasgow, 431
Scottish Red Cross Branch, 898
Scottish Red Cross Hospital Ship, 431
Scottish Veterans' Garden City Association, 569
Simpson, the late Sir Alexander, 605
Tuberculosis matters in Edinburgh, 29
Turner, Sir William, resolutions of sympathy, 395
War and insanity, 148
Women medical students at Edinburgh and Glasgow, 866
Work of an absent M.O.H., 148

SCOTT, Lieut. A. G., killed in action, 147
SCOTT, Captain John H. V., Serbian Order of St. Sava conferred upon, 735
SCOTT, Joseph: Small-pox in Persia, 608
SCOTT, Joseph: Avulsion of the distal phalanx of the thumb, 653
Scottish and English skulls (leading article), 824. *See also* Skulls
Scottish Veterans' Garden City Association, 569
Scottish Women's Hospital. *See* Hospital
SCRIBNER, Staff Surgeon Robert Bernard, Croix de Guerre conferred upon, 535
SCRIMGER, Captain F. A. C., V.C. conferred upon, 704
SCUDDER, C. L.: *Treatment of Fractures, with Notes upon a Few Common Dislocations*, rev., 91
SEARANCE, Lieut. Cyril Niccoll, killed in H.M.S. *Russell*, 702
SECOMBE, Captain Philip J. A., Serbian Order of St. Sava conferred upon, 735
SECRETAN, Henri, obituary notice of, 708
SECRETAN, W. Bernard: Case of typhoid perforation, recovery, 128
Self-mutilation (A. V. Hauer), 41
Sentence for pretending to be a qualified practitioner (G. B. Farquhar), 774
Sepsis, dental and gingival, prophylaxis of, 332
Septicaemia treated by "fixation abscess" (J. D. Speid Sinclair), 653
SEQUEIRA, G. W.: Pruritus of face, 676
Serbia, medical units in (parliamentary question), 26
SERGI, Giuseppe, 75th birthday of: publication of volume of original memoirs, 576
Serum treatment of bacillary dysentery (leading article), 136
Serums and vaccines, review of books on, 887
Serums supplied free (Ontario), 71
SETTLE, Dr.: Appreciation of Archibald Carmichael, 434
SEWELL, Lieut.-Col. E. P.: D.S.O. conferred upon, 833
Sex, influence of on disease and mortality, 459

Sex, what determines? 472
SEXTON, Helen: Ichthyol in erysipelas, 201
SEXTON, Colonel M. J., C.B. conferred upon, 146
Shakespeare and medicine (Sir St. Clair Thomson), 654
Shakespeare tercentenary celebrations, 461
Shakespeare's English in Ulster, 627
SHARP, Lieut.-Col. A. D., C.M.G. conferred upon, 146
SHATTOCK, S. G.: Mechanical causation of appendicitis, 690
SHEARS, George P., death of, 399
Shell concussion, peripheral lesions of (James Evans), 721
SHERA, A. Geoffrey: Bronchopneumonia with secondary haemorrhagic meningitis and recovery, 198
SHERLOCK, Captain H. B., Military Cross conferred upon, 146
SHERRINGTON, C. S., elected a foreign member of the Imperial Academy of Science, Petrograd, 223
Shiga. *See* Dysentery
SHIPLEY, A. E.: Plates for one-armed men, 133—(and E. W. MacBride): *Zoology: An Elementary Textbook*, rev., 240—*More Minor Horrors*, rev., 854
SHIPWAY, F. E. (and M. S. PEMBREY): Influence of anaesthetics on the body temperature, 655
SHIRLAND, J. Thomson: Physics of a surgical dressing, 290
Shock, nervous (parliamentary question), 353, 463
Shock, nervous and mental (Lieut.-Col. William Aldren Turner), 830
Shock, peripheral, and its central effects (J. Lynn Thomas), 44. (O)
SHORE, Captain L. B., Military Cross conferred upon, 833
SHORLAND, Surgeon George, killed in action, 832
SHORT, A. Rendle (editor): *An Index of Prognosis and End-results of Treatment*, rev., 310
SICHEL, Gerald: Case of sudden heart failure under anaesthesia: direct massage of heart: recovery, 201
Sickness in training camps (parliamentary question), 106
"Sight" for the blind (leading article), 424
SIMMONDS, B. Sangster: Method of treating gunshot fractures by an external fixation apparatus, 481
SIMON, Th. (and A. RINET): *Mentally Defective Children*, rev., 377
SIMONDS, J. P.: Welch's bacillus, 102
Simples and tianees, 316
SIMPSON, Sir Alexander Russell: Appreciation of Sir William Turner, 330—Obituary notice of, 572—Votes of sympathy, 605
SIMPSON, Lieut. F. T., Military Cross conferred upon, 605
SIMPSON, T. Young, appointed chirurgien chef to the Hôpital Anglais, Rhône, France, 770
SINCLAIR, Deputy Surgeon-General Edward Malcolm, obituary notice of, 903
SINCLAIR, J. D. Speid: Treatment of septicaemia by "fixation abscess," 653
SINCLAIR, Major M.: Splint for compound fracture of ankle, 197
SINCLAIR, Upton: *Sylvia's Marriage*, rev., 53
SINGER, C.: War nephritis, 64
SINGER, B. P. and B. M., lost in the *Persia*, 288
SINTON, Captain John Alexander, awarded the V.C., 896
Sinus, superior longitudinal, gunshot wound of (A. W. Nuthall), 12. (O)
SKARDON, Charles Chapman, obituary notice of, 775
SKEEN, Major Oliver St. John, killed in action, 216
Skeleton splinting. *See* Splinting
SKELTON, Major D. S., D.S.O. conferred upon, 216
Skin lesions and infections, local treatment of suppurating (George Horne), 14. (O)
SKINNER, Colonel B. M., C.M.G. conferred upon, 146
Skull, Piltown. *See* Piltown
Skulls, Scottish and English (leading article), 824
SLADEN, Dr.: Venous thrombosis in myocardial failure, 459
SLAYTER, Lieut.-Col. E. W., C.M.G. conferred upon, 833
Sleeping-sickness in Principe, 285
SLOGGETT, Surgeon-General Sir A. T., Order of Leopold of Belgium conferred upon, 357—Grand Officer Legion of Honour conferred upon, 535
Slovenly scheme, 889
SMALES, Captain W. C., D.S.O. conferred upon, 833
SMALLMAN, Major A. B., D.S.O. conferred upon, 146
Small-pox in County Fermanagh, 70—In Salford, 358—Danger of in Dublin, 431—In Persia, 608—And vaccination (parliamentary question), 829
SMILLIE, Wilson G., awarded Boylston Medical Prize, 608
SMITH, A.: *Textbook of Elementary Chemistry*, rev., 658—*Laboratory Outline of Elementary Chemistry*, rev., 658

SMITH, A. Alexander, death of, 399
SMITH, A. Laphorn: Notes from the battle front in Northern France, 581
SMITH, Lieut. A. C. S., Military Cross conferred upon, 146
SMITH, Captain Bryce McC., Serbian Order of St. Sava conferred upon, 735
SMITH, Captain Charles E. H., Serbian Order of St. Sava conferred upon, 735
SMITH, Enid: Prevention, symptoms, and treatment of tetral dermatitis, 617
SMITH, Colonel F., C.M.G. conferred upon, 146
SMITH, F. Battinson (and others): Acute gangrenous cholecystitis with spreading peritonitis, 444
SMITH, Lieut. Gilbert Keppel, killed in action, 503
SMITH, H. Lyon: "Soldier's heart," 837
SMITH, J. F.: Bacteria of gangrenous wounds, 184
SMITH, J. Lorrain: Amount of free hypochlorous acid in esulol, 740
SMITH, Joseph William, obituary notice of, 707
SMITH, J. S. Kellett: "Soldier's heart" and its relation to thyrotoxicism, 672—*The Cure of Obesity and Obese Heart*, rev., 822
SMITH, Mitchell: Alimentary hygiene in children, 90
SMITH, Captain Neville, killed in action, 216
SMITH, Robert Wallace Bruce, obituary notice of, 743
SMITH, S. (and Gordon HOLMES): Bilateral motor apraxia with disturbance of visual orientation, 437
SMITH, Captain S. H., Military Cross conferred upon, 146
SMITH, Walter: Soya bean and its uses in physiology and medicine, 486
SMITHIES, W.: *Cancer of the Stomach*, rev., 554
SMYTH, Colonel J., appointed honorary physician to the King, 804
SMYTH, Major Robertson Stewart, dies on service, 568
SNELL, Lieut. Philip Sidney, killed in action, 68
Snoring, 36
SONNATA, J.: *Anatomie der Bauchspeicheldrüse (Pankreas)*, rev., 204
Société Suisse de Gynécologie, 287
Sociétés, Gynaecological and Obstetrical, of Latin and German Switzerland, combined meeting of, 287
Society, American Gynaecological, 540
Society, American Protocologic, 655
Society, British Red Cross: Annual meeting of County of London Branch, 605 Work of in the county of London, 897—Scottish Branch, 898. *See also* Red Cross
Society, Charity Organization, winter conference, 217
Society, Coroners', 871
Society, Harveian, discussion on gunshot wounds, 416
Society, Hunterian:—W. Langdon Brown: Treatment of diabetes by fasting, 452
Society, Illuminating Engineering: Discussion on industrial lighting, 139—Illumination problems, 698
Society, Infant Aid (Dublin), 30
Society, London and Counties Medical Protection, annual meeting, 693
Society, Medical, of London: Discussion on gunshot wounds of the chest, 129—Discussion on gunshot wounds of the spine, 451—Sir St. Clair Thomson: Shakespeare and medicine, 654—Election of officers, 730
Society, Medical Sickness and Accident, 75, 223, 363, 463, 872
Society, Medical Sickness, Annuity and Life Assurance, annual meeting, 488
Society, National for Prevention of Cruelty to Children, Scottish, annual report of, 671
Society of Old Students of the Val-de-Grâce Military Hospital, Paris, 631
Society, Ophthalmological, of the United Kingdom: Annual congress, 601, 691—Walter H. Jessop: Some ophthalmic lessons of the war, 691—Herbert Fisher: Hereditary optic atrophy (Lever's disease), 691—Foster Moore: Retinal circulation in arterio-sclerosis, 691—Discussion on foreign bodies in the eye and orbit, with special reference to prognosis and treatment, 720—Discussion on treatment of syphilitic eye affections by the newer methods, 720—Leslie Paton: Cures following detachment of the retina, 721—Captain Ormond: Treatment of large traumatic haemorrhages in the vitreous, 721—Jameson Evans: Peripheral lesions of shell concussion, 721—Specimens, 692—Clinical meeting, 721—Museum, 721
Society, Pharmaceutical: Restrictions on the sale of laudanum, 286
Society, Pirogoff: Report on drink suppression and diminution of sickness, 363
Society for the Propagation of Gospel Medical Missions, 775
Society of Public Analysts: Skilled chemists on active service (A. Chaston Chaplin), 260
Society, Red Cross. *See* Red Cross
Society, Research Defence: Leaflet re anti-phosphorus inoculation, 147—Annual meeting of Dublin branch, 395
Society, Röntgen: Protection of the x-ray operator, 248—Tungsten as a source of ultra-violet rays, 564—Tungsten arc lamp (Major Robert Wilson), 708

Society, the Royal: Part played by surface forces in osmosis (Sir Oliver Lodge), 271.—Cobra venom (A. R. Cushny and S. Yagi), 316.—Candidates for election, 352.—Antiseptic action of the chloramine group (J. B. Cohen, H. D. Dakin, M. Danfresne, and J. Kenyon), 388.—Pathometry (Sir Ronald Ross), 766.

Society, Royal, of Edinburgh: Election of Fellows, 431.

SOCIETY, ROYAL, OF MEDICINE:

Anaesthetics Section.—Annual meeting, 655. M. S. Pembrey and F. E. Shipway: Influence of anaesthetics on the body temperature, 655.

Dermatological Section.—Mr. J. E. R. McDonagh and Dr W. Spence: Di-ortho-amino-thio-benzene ("intramine") in treatment of syphilis, 202.—Mr J. E. R. McDonagh: Researches on syphilis, 591.—Discussion on chemotherapy, 591, 820.

Odontological Section.—W. Courtney Lynne: Does the Piltown canine tooth belong to the Piltown skull? 202.—Discussion on war injuries of the jaws and face, 363, 375.

Ophthalmological Section.—Colonel Vister and Lieut.-Col. Gordon Holmes: Visual disturbances from cerebral lesions, 485.

Pathological Section.—F. W. Andrewes: Bacteriology of cerebro-spinal fever, 689.—J. A. Murray: Transplantable liposarcoma in the guinea-pig, 689.—B. H. Spilsbury: Specimens illustrating toxic hepatitis, 689.—Treatment of wound infections (W. Parry Morgan), 685.—Discussion, 689.—G. Shatlock: Mechanical causation of appendicitis, 690.

Section of Pharmacology and Therapeutics.—Discussion on the soldier's heart, 130.

Sections of Medicine and Pharmacology and Therapeutics.—Discussion on trench nephritis, 278.

Society, Royal Meteorological:—Major H. G. Ligon: Winter climate of the Mediterranean, 177.—And "Summer Time" Act, 775.

Society, Royal Microscopical: Progress and development of vision and definition under the microscope, 284.

Society, Royal Statistical: Effects of war on population, 728.

Society, Third Corps Medical:—Lieut. A. Cowe: Divisional baths, 630.—Captain N. A. Dore: Lice, 630.

Society, Ulster Medical:—Colonel Andrew Fullerton: The work of a consulting surgeon with the British force in France, 50.—Exhibition of cases, 110.—Captain W. J. Wilson: Cerebro-spinal meningitis, 359.—Annual meeting, 835.—Election of officers, 835.

Society, Zoological: Poison apparatus of the sting ray (Major H. M. Evans), 827.

Sodium hypochlorite in treatment of septic wounds (Fleet Surgeon Frederick J. A. Dalton), 126. (O). See also Hypochlorite.

Sodium sulphate in dysentery and infantile diarrhoea (W. J. J. Arnold), 49.

Soldier, sick, a plea for, 23.

Soldier, wounded, psychology of the, 563.

Soldiers and alcoholism (Sydney), 182.

Soldiers, blinded (parliamentary question), 353. See also Blind.

Soldiers and sailors, crippled, care of: In Germany, 29, 567.—In Italy, 29, 720.—Instruction in in new trades (Ireland), 110.—Provision for in Scotland, 111, 395, 503, 536.—Board of Agriculture's Departmental Committee, 187.—In Paris, 318, 319.—"Welsh" day for, 350.—Treatment and education of (leading article), 387.—In Ireland, 110, 395.—In Austria, 567.—At Chailley, 605.—Brighton Hospital for, 667.—Training schools for (in various countries), 668.—Trade education of in France (Bordeaux), 825.—Physical clinic for, 897. See also Artificial limbs.

Soldiers, dental cases among (Samuel A. Hopkins), 268. (O).

Soldiers, discharged, pensions for (parliamentary question), 354.

Soldiers, continued treatment of after discharge from hospital (parliamentary question), 700.

Soldiers, employment for wounded and discharged (parliamentary question), 106.

Soldier's foot. See Foot.

Soldier's heart. See Heart.

Soldiers, maimed. See Soldiers and sailors, crippled.

Soldiers, medically unfit (parliamentary question), 106, 483, 768. See also Recruits.

Soldiers and recruits, medical examination of (parliamentary question), 700. See also Recruits.

Soldiers and sailors, sanatorium grants (parliamentary question), 565.

Soldiers, spectacled (parliamentary question), 463.

Soldiers, tuberculous, 292, 391, 497, 534, 629. See also Tuberculous.

Soldiers, wounded discharged (parliamentary question), 534.

Soldiers, wounded, selection of hospitals (parliamentary question), 213.

Soltau, Lieut.-Col. A. B. C.M.G. conferred upon, 146.

SOMERVILLE, Captain T. V., Military Cross conferred upon, 146.

Southall's *Organic Materia Medica*, rev., 593.

South Wales. See Wales.

SOUTTAR, H. S.: Glove for paralysis of the hand and fingers, 594.

Soya bean, its uses in physiology and medicine (Walter Smith), 486.

SPARKES, Major W. M. B., D.S.O. conferred upon, 833.

SPARKS, Captain C. W., Military Cross conferred upon, 146.

Spectacled soldiers. See Soldiers.

Spectrum, from the visible to the gamma ray (Sidney Russ), 124. (O).

Speculum, Ferguson's, 76.—Fergus(s)on's, 397.

Spelling of "neurone" and "axone," 774.

SPENCE, H.: "Intramine" in syphilis, 202.

SPENCER, Walter G.: Appreciation of Charles Stotham, 258.

SPENDER, John Kent, obituary notice of, 606.

Sphagnum moss as a surgical dressing, 893.

SPICERS-ALEXANDER, Captain Alister Ralph, dies of wounds, 321.

SPILSBURY, B. H.: Specimens illustrating toxic hepatitis, 689.

Spine, gunshot wounds of (Captain James Collier), 451.—Discussion, 452.—(Alfred J. Hull), 577. (O).

Spirochaeta eurygyrata as found in human faeces (H. B. Fantham), 815. (O).

Spirochaeta of Well's disease, 627, 861.

Spirochaetes and their granule phase (H. B. Fantham), 409. (O).

SPITTAL, Captain Robert H., Serbian Order of St. Sava conferred upon, 735.

Spleen, probable spontaneous rupture of (Lieut.-Col. W. B. Ogilvie), 200. (O).

Spleen, traumatic rupture of (Captain E. H. Jones), 200. (O).

Spleen, traumatic rupture of, splenectomy, recovery (Walter H. Cam), 199. (O).

Splenectomy case of (under the care of Sir Clifford Allbutt, L. Humphry F. Deighton, and Dorothy C. Hare), 365. (O).

Splenectomy for Banti's disease (Mr. Cholmeley), 819.

Splint, "cage," for compound fractures of humerus (Captain R. M. Cowell), 849. (O).

Splint for compound fracture of ankle (Major M. Sinclair), 197. (O).

Splinting, skeleton, simple system of (C. Max Page), 845. (O).

SPRATLING, W. P., death of, 399.

SPRIGGS, E. I.: Fasting treatment of diabetes, 841.

SPURGIN, W. H.: Adrenalin in asthma, 36.

SQUIRE, E. W.: Potassium chlorate poisoning in an infant, 450.

STAPELMANN: Neurasthenia among soldiers, 464.

STAMMERS, Lieut.-Col. George E. F., Serbian Order of St. Sava conferred upon, 735.

Standard of vision. See Vision.

Star and Garter Home for Helpless Men, 536, 834.—Annexe opened, 834.

STARKE, Joseph: Foreign bodies in rectum, 15.

STARR, L.: *The Adolescent Period: Its Features and Management*, rev., 623.

State and the care of the children (leading article), 348.

State and profession, reciprocal duties of (leading article), 858.

STEEL, Major Edwin, memorial to, 69.

STEEL, Captain O. W. D., Military Cross conferred upon, 146.

Steel helmets (parliamentary question), 497, 601, 629, 733, 803.

STEEVES, G. W., sale of library of, 808.

STENGEL, A. (and H. Fox): *Textbook of Pathology*, rev., 240.

STEPHAN, Richard: Fever with meningismus, 861.

STEPHENS, G. Arbour: Leprosy and fish eating, 508.—"Soldier's heart" and its relation to thyroidism, 673.

STEPHENSON, Thomas: Incompatibility, 260.

Sterilization of degenerates in Wisconsin, 700.

Sterilization of water by ultra-violet rays, 111. See also Water.

STEVEN, Lieut. J. F., D.S.O. conferred upon, 146.

STEVENS, A. A.: *Manual of the Practice of Medicine, prepared especially for Students*, rev., 205.

STEWART, Hunter: Appreciation of John Wyllie, 221.

STEWART, Captain J. Lennox, Military Cross conferred upon, 735.

STEWART, Purves, C.B. conferred upon, 670.

STEWART, Lance-Corporal Robert Gordon Caldwell, dies of wounds, 669.

STILES, P. G.: *Nutritional Physiology*, rev., 591.

Sting ray, poison apparatus of, 827.

STOCKER, Lieut. C. J., Military Cross conferred upon, 833.

Stockport Grammar School, new buildings, 331.

STODDART, W. H. B.: *The New Psychiatry*, rev., 205.

STÖHR, P. (and F. T. LEWIS): *Textbook of Histology arranged upon an Embryological Basis*, rev., 91.

STOKES, Lieut.-Col. E. S., appointed P.M.O. for the New South Wales Military District, 183.

STOKES, Lieut.-Col. John Wilfred, dies of wounds, 321.

STOKOE, Lieut. J. C., killed in action, 28.

Stomatitis, ulceromembranous, and gingivitis among troops on active service (F. B. Bowman), 373. (O).

Stone dusts, inhalation of, 138.

Stone in the prostate (James MacMunn), 89.

STONE, Florence A.: "Soldier's heart" and its relation to thyroidism, 706.

STONHAM, Charles, death of, 212.—Obituary notice of, 258.—Estate of, 507.

STORY, John B., appointed honorary surgeon-oculist to the King in Ireland, 862.

STRASSER: War nephritis, 64.

Stretchers, 499.

STRICKLAND, Charles, obituary notice of, 538.

STRITCH, Captain George Seymour, killed in action, 288.

Studebaker cars, 116.

STURGE, Mary D. (and Sir Victor Horsley): *Alcohol and the Human Body*, rev., 759.

STURRIDGE, Lieut. Ernest Arthur Leland, killed in action, 108.

Suicide statistics in America, 400.

Sumatra, kedani fever in, 316.

"Summer time," 700, 744, 775.

SURESH PRASAD BHABHAKARY, C.B. conferred upon, 53.

Surgery, electrical methods in (Sir J. M. Davidson), 698.

Surgery, hypochlorous acid in. See Hypochlorous.

Surgery, military, importance of general principles in (G. Grey Turner), 401. (O).

Surgery, review of books on, 486, 526, 656.

Surgery, time in (M. P. Rowlands), 549. (O).—Correspondence on, 633, 671.

Surgery, use of some simple things in (James MacMunn), 720.

Surgery war, old and new, 563.

Surgical dressing, physics of (Lieut.-Col. A. Primrose), 238. (O).—Correspondence on, 290, 324, 361, 468, 504.—Sphagnum moss as, 893.

Syring corda (leading article), 491.

SUTHERLAND, Halliday: Etiology of cerebro-spinal fever, 291.

SUTHERLAND, Lieut.-Col. W. D.: Report on blood stains, 283.

SUTTON, Captain E. A., Military Cross conferred upon, 146.

Suvia and Anzac, 109.

Suvia landing, medical arrangements, 468.

SUZUKI: Appendicitis oxyurica, 223.

SWAN, Captain M. A., Military Cross conferred upon, 833.

SWANBERG, R.: *The Intervertebral Foramina in Man*, rev., 204.

Sweeney's Handbook of Diseases of the Eye and their Treatment, rev., 592.

Swedish war hospital. See Hospital.

Swinford guardians and appointment of a medical officer, 431, 605.

Switzerland, wounded prisoners in (parliamentary question), 391, 565, 666, 732, 767.—Arrival of British and German prisoners, 834.

SYDNEY:

Crematorium for, 507.

Department of Public Instruction and the New South Wales Branch, British Medical Association, 898.

German drugs, 182.

Malaria, control of, 563.

National Association for the Prevention and Cure of Consumption, 467.

New principal medical officer for the New South Wales Military District, 183.

Profession and the Department of Public Instruction, 466, 898.

Royal Prince Alfred Hospital and the war, 899.

Soldiers and alcoholism, 182.

Universities and the war, 898.

Vital statistics, 899.

See also New South Wales.

SYME, W. S.: The tonsils, 33, 112.

SYMINGTON, Johnson, appointed representative of Queen's University, Belfast, on General Medical Council, 640.

SYMINGTON, Professor: Monograph on endocranial cysts and brain form, 317.

SYMONDS, Charters J., C.B. conferred upon, 670.

Synthetic drugs, imported, 828, 868. See also Drugs.

Syphilis, influence of on the chances of progeny (N. Bishop Harman), 196. (O).

Syphilis, intramine in, 202, 593.

Syphilis, researches on (J. E. R. McDonagh), 591, 820.

Syphilis, treatment of: Discussion at Association of Registered Medical Women, 16.

Syphilis treated by di-ortho-amino-thio-benzene—"intramine" (J. E. R. McDonagh and H. Spence), 202, 593.

Syphilitic eye affections. See Eye.

T.

- Tabard Street area, Southwark, 696, 804—
(Parliamentary question), 700
- TACQUIN, Arthur: Germans in Belgium, 151
- TANDY, Colonel Edward Ord, obituary notice
of, 639
- TANNER, Lieut.-Col. A. W., dies of wounds,
864
- TARASSEVITCH: Antityphoid vaccination in
the Russian army, 775
- Tarter emetic in kala-azar. *See* Kala-azar
- TAYLOR, A. E.: White paper in the food at
Ruhleben, 857
- TAYLOR, Captain D. C., Military Cross con-
ferred upon, 833
- TAYLOR, Frederick: Appreciation of Sir J. F.
Goodhart, 806
- TAYLOR, Lieut. H. C. N., killed in action,
803
- Telescopic sights for rifles, 765
- TELFORD, E. D.: Two cases of removal of a
bullet from the upper surface of the
diaphragm, 549
- Telluric acid combined with brilliant green in
isolation of pathogenic organisms of typhoid
group (C. H. Browning and L. H. D. Thor-
nton), 682. (O)
- Temperature of the body, influence of anaes-
thetics on (M. S. Pembrey and F. E. Ship-
way), 655
- Territorial medical officers, 564. *See also*
Army, British
- Tetanus, acute, complicated by mental sym-
ptoms during treatment by carbolic in-
jections (John Everidge), 443. (O)—W. F. Law,
589
- Tetanus, delayed (Gilbert Barling), 337. (O)—
Correspondence on, 433
- Tetanus, iodine in (A. T. MacConkey and S. B.
Zilva), 411. (O)
- Tetanus, severe case of, successfully treated
by antitoxin (T. P. Kilner), 46. (O)—Corre-
spondence on, 296
- Tetanus treated successfully by subdural in-
jections of antitetanic serum (N. W. Mack-
worth), 620
- Tetanus, treatment of (R. G. Abercrombie),
339. (O)
- Tetrachlorethane poisoning, treatment of
toxic jaundice due to (W. H. Wilcox), 300.
(O)
- "Tetravaccine" (G. A. Lurie), 45. (O)
- Tetryl dermatitis, prevention, symptoms, and
treatment of (Enid Smith), 617. (O)
- Teuton, what is a? 528
- THACKER, W. S.: Control of "diphtheria
bacillus carrying," 374
- Theological and medical students (parlia-
mentary question), 353
- Thigh cases, 392
- THODAY, D.: *Botany: A Textbook for Senior
Students*, rev., 419
- THOMAS, B. G. (and R. H. IVY): *Applied
Immunology*, rev., 887
- THOMAS, J. Lewis: Strange wounds caused by
high explosives, 89—Segregation of tuber-
culous soldiers and others, 292
- THOMAS, J. Lynn: Peripheral shock and its
central effects, 44—Alleged waste of army
medical officers, 325—Appointed consulting
surgeon to the Western Command, 735
- THOMPSON, Lieut. Arnold Bosanquet, killed
in action, 68
- THOMPSON, Captain C. W., Military Cross con-
ferred upon, 216
- THOMPSON, E. C., appointed Deputy Lieu-
tenant for county Tyrone, 570—Experiences
of the Belgian Field Hospital, 630
- THOMPSON, G. S.: Prophylaxis of dental and
gingival sepsis, 332—Nephritis and adrenalin
poisoning, 818
- THOMPSON, Colonel H. N., C.M.G. conferred
upon, 833
- THOMPSON, Major B. J. C., D.S.O. conferred
upon, 146
- THOMPSON, Lieut. William Frank, killed in
action, 68
- THOMPSON, W. H.: Daily food ration of Great
Britain, 239
- THOMSON, Arthur: Appreciation of Sir
William Turner, 328
- THOMSON, Major C. P., D.S.O. conferred upon,
833
- THOMSON, D. (and J. Gordon Thomson): Pre-
vention of amoebic dysentery, 881
- THOMSON, Colonel H. Alexis, C.M.G. conferred
upon, 146
- THOMSON, H. Campbell: *Diseases of the
Nervous System*, rev., 133
- THOMSON, J. D.: Attempts to produce a safe
and effective *Bacillus dysenteriae* (Shiga)
vaccine for prophylactic purposes, 303. (O)
- THOMSON, J. Gordon (and D. Thomson): Pre-
vention of amoebic dysentery, 881
- THOMSON, Sir St. Clair: The tonsils, 149—
*Diseases of the Nose and Throat, comprising
Affections of the Trachea and Oesophagus:
A Textbook for Students and Practitioners*,
rev., 554—Shakespeare and medicine, 654
- THOMSON, Theodore, obituary notice of, 469
- THORBURN, William, C.B. conferred upon, 670
- THORN, Lieut.-Col. G. S., C.M.G. conferred
upon, 833
- THORNE, C. A., appointed J.P. for Derbyshire,
116
- THORNE, W. Bezly: The soldier's heart, 292—
Education of nurses, 325
- THORNLEY, Lieut. A. L., dies on service, 669
- THORNTON, L. H. D. (and C. H. Browning):
Importance of method in the isolation of
pathogenic organisms of the typhoid group
from faeces, 682
- THORPE, Matron C. E. A., Royal Red Cross
conferred upon, 395
- Throat, review of books on, 554, 820
- THUILLE, Dr., death of, 399
- Thumb, avulsion of the distal phalanx of
(Robert Scott), 653
- Thymol, Indian, 593
- Thyroidism and "soldier's heart." *See* Heart
- Time saving in operations, some hints on
(Edward Harrison), 645. (O)
- Time in surgery (R. P. Rowlands), 549. (O)—
Correspondence on, 633, 671
- TIBARD, Nestor, knighthood conferred upon,
823
- TISSOT and NAPOLEON, 862
- TODD, Dr.: Training in ophthalmology and
oto-laryngology, 664
- Tolamine, 289. *See also* Chloramine-T
- Tonsils, correspondence on, 33, 71, 111, 149
- Tonsils, enlarged, in a singer, 640
- TOOMEY, Lieut. Archibald Roche, killed in
action, 68
- TOPLEY, William W. C., Serbian Order of
St. Sava conferred upon, 735
- Torquay, new medical baths at, 663
- Toxaemia, acute, secondary to gas gangrene
treated by intravenous injection of hypo-
chlorous acid (Captain John Fraser and
Captain H. J. Bates), 83. (O)
- Toxaemia in mucous colitis, treatment of,
808
- Toxaemia, review of books on, 204
- Toxic causes of idiocy and imbecility (Dr.
Orr and Major Rows), 757
- Trade education of maimed soldiers, 825
- Train, "safety first," 774
- Training schools for maimed soldiers. *See*
Soldiers and Sailors, crippled
- TRAQUAIR, H. M.: Army standards of vision,
537
- Traumatic gastric ulcers. *See* Ulcers
- Treatment and education of disabled men,
387. *See also* Soldiers
- Treatment, principles of, and their applica-
tion to wounds (Charles F. M. Saint), 367.
(O)
- Trench fever. *See* Fever
- Trench foot, causes and treatment of (Basil
Hughes), 712. (O)
- Trench foot (J. G. Blackman), 818
- Trench foot at home (David A. Alexander),
374. *See also* Foot
- "Trench Journal," *Entre les Brancards*, 32
- Trench nephritis. *See* Nephritis
- TRESSIDER, Captain Charles Tolmie, killed
in action, 670
- TREVES Sir F.: *The Other Side of the Lantern*,
rev., 855
- Tropical anaemia. *See* Uncinariasis
- Tropical diseases in the British Expeditionary
Force, 701
- Tropical diseases, review of books on, 417
- Tropical medicine, Calcutta School of, founda-
tion stone laid, 459, 466
- Tropical Medicine, Liverpool School of:
Yellow Fever Bureau Bulletin—report of
Yellow Fever Commission, 419
- Tropical Medicine, London School of: Pass
lists, 34, 571—Sir Havelock Charles to be
the Dean, 662
- Tropical sanitation, 627
- True Temperance Annual*, 764
- TUBBY, A. H., C.M.G. conferred upon, 670
- Tuberculin treatment, value of, 840, 904
- Tuberculosis: In London (model scheme), 358;
in Salford, 358
- Tuberculosis, American National Association
for the Study and Prevention of: Statistics,
265
- Tuberculosis, Association for Prevention and
Cure of, incorporated in New York, 647
- Tuberculosis, bovine, in man (A. Eastwood
and F. Griffiths), 248
- Tuberculosis, deaths from in Japan, 819
- Tuberculosis matters in Edinburgh, 29
- Tuberculosis, nascent iodine in, 332
- Tuberculosis, National Association for Pre-
vention and Cure of (Sydney branch), 467—
Bequest to, 840
- Tuberculosis notification, 697, 738
- Tuberculosis (parliamentary question), 463
- Tuberculosis, pulmonary, domiciliary treat-
ment of (G. H. Dart), 48. (O)
- Tuberculosis order (parliamentary question),
391
- Tuberculosis, pulmonary (parliamentary
question), 629
- Tuberculosis, residential treatment of, 738
- Tuberculosis, review of books on, 170
- Tuberculosis Schemes, Handbook of*, 626
- Tuberculosis, school for graduate study of,
founded in America, 289
- Tuberculosis, verandahs for (parliamentary
question), 602
- Tuberculosis in war time; control of, 212
- Tuberculosis, graduated work for the, 892
- Tuberculous soldiers and others, segregation
of, 292—Parliamentary questions on, 391, 497,
534, 629
- Tumour, cranial (? dermoid by implantation)
(W. Ledingham Christie), 416
- Tumours, review of books on, 821
- Tungsten, 600—As a source of ultra-violet
rays, 564
- Tungsten arc lamp, 708
- TUNSTALL, A. C. (and F. J. WARWICK): *First
Aid to the Injured and Sick: An Advanced
Ambulance Handbook*, rev., 170
- Turkey, British prisoners in (parliamentary
question), 180, 802
- TURNER, Major C. H., D.S.O. conferred upon,
146
- TURNER, Captain F. T., Military Cross con-
ferred upon, 146
- TURNER, G. Grey: Importance of general
principles in military surgery, 401
- TURNER, G. R.: Appreciation of Sir F. W.
Hewitt, 113
- TURNER, John Andrew, C.B. conferred upon,
53
- TURNER, J. G.: The "soldier's heart," 868
- TURNER, Percival: The demand for locum-
tenents, 72—Fees of locumtenents, 868
- TURNER, P. (and R. P. ROWLANDS): *The
Operations of Surgery (Jacobson)*, rev., 656
- TURNER, Lieut.-Col. William Aldren: Nervous
and mental shock, 830
- TURNER, Sir William, death of, 287—Leading
article on, 312—Obituary notice of, 326, 352—
Funeral of, 352—Votes of sympathy, 395—
Estate of, 651
- TURTON, Lieut. Cecil William, killed in
action, 288
- TURTON, W. H., appointed J.P. for Derby-
shire, 116
- TWEEDY, Sir John: Use of solutions of
quinine as a dressing for infected wounds,
11
- Two score and five to three score and ten
(leading article), 135
- Typhoid fever. *See* Fever, enteric
- Typhoid group, importance of method in
the isolation of pathogenic organisms of
from faeces (C. H. Browning and L. H. D.
Thornton), 682. (O)
- Typhoid perforation, recovery (W. Bernard
Secretan), 128
- Typhoid diseases, nomenclature of, 570
- Tyrone: Amalgamation of union workhouses,
570

U.

- UHLENHUTH: Well's disease, 861
- UHTHOFF, W.: Eye injuries and blindness in
the German army, 603
- Ulcers new and old, jejunal for duodenal
ulcers (Sir John Bland-Sutton), 272. (O)—
Correspondence on, 324—(G. Gore Gillon),
343
- Ulcers, "traumatic gastric" (T. R. Elliott
and Herbert Henry), 523. (O)
- Ultra-violet rays in sterilization of water, 111
- Ultra-violet rays, tungsten as a source of,
564
- Uncinariasis, National Department of estab-
lished in Panama, 708
- Under forty-one and unenrolled (leadin
article), 824
- UNDERHILL, Charles Bertram, killed in
action, 568
- UNDERHILL, Thomas, obituary notice of, 506
- Union workhouses. *See* Workhouses

- UNITED STATES OF AMERICA:
American Climatological Association *Trans-
actions for 1915*, rev., 623
- American Gynaecological Society, 540
- American Medical Mission, 766
- American National Association for Study
and Prevention of Tuberculosis: Statistics,
265
- American Journal of Orthopedic Surgery*
to be published monthly, 183
- American Proctological Society, 655
- Association of Anaesthetists, 634
- Boston medical library receives fewer
books and journals owing to the war, 342
- Cancer, monograph on deaths from, 522—
Statistics of, 706
- Census bureau and suicide statistics, 400
and deaths from cancer, 522
- Chicago, *Medical Clinics of*, rev., 241
- College of Surgeons, Fellows' fund, 187
- Columbia University, *Studies from the
Department of Pathology of the College of
Physicians and Surgeons*, 168
- Compulsory health insurance in Massa-
chusetts, 219
- Cornell University Medical College re-
organizing its surgical service, 36
- Cremation in, 176
- Criminal, pauper, and defective classes,
proposed establishment for the study of,
570
- Death-rate for 1914, 207
- Deaths in the medical profession in 1915, 239
- Deaths, summary of statistics of causes of,
711
- Dental department organized at the Angell
Memorial Hospital, Massachusetts, 507
- Dental hygienists, women being trained as
in New York, 775
- Dental research and dental nursing, 664

UNITED STATES OF AMERICA (*continued*)
 Drainage works to reclaim swampy land, fund for, 345
 Educational menu card of New York Public Health Department, 596
Eugenic News, 172
 First aid equipments, standardization of, 471
 Gorgas, Surgeon-General William C., gold medal of the Geographical Society of Chicago presented to, 223
 Harvard Medical School issues a series of questions to practitioners, 116—Report of librarian, 126
 Harvard University, course of military medicine at, 400
 Health experiment and research laboratory in Kansas, proposed, 899
 Heredity, prize offered for best evidence of, 776
 Hospital consultations and the private practitioner (Massachusetts General Hospital), 139
 Index Catalogue of the Surgeon-General's Library, 527
 Industrial diseases clinic at hospital of University of Pennsylvania, 894
 Insanity, campaign for prevention of by education, 234
 Insurance, compulsory health, in Massachusetts, 219
 Jefferson Medical College, Philadelphia, 883
 Johns Hopkins Hospital, gift of books, etc., to, 72
 Larva migrans, 596
 Leprosarium, proposed national, 271
 Leprosy statistics, 456
 Malaria, control of, 563
 Massachusetts: The General Hospital to open a consultation clinic for people of limited means, 139—Experiment in school hygiene at Winchester, Mass., 484
 Medals relating to medicine in the Army Medical Museum, 643
 Medical books, decrease in publication of, 223, 342
 Medical department of the army, deputation to President Wilson for new legislation, 354
 Medical libraries and a uniform method of preparing statistics of their contents, 450
 Medical needs of the army in a few years, 872
 Navy, report for 1915, 267
 New York Academy of Sciences, centenary of, 673
 Nises, prevention of unnecessary, in New York, 151
 Open-air schools for tuberculous and anemic children, number of, 716
 Ophthalmology and otolaryngology, training in, 664
 Ott chair of physiology to be founded at Pennsylvania University, 526
 Pan-American Congress on Childhood, 708
 Pan-American Medical Congress, 507
 Pellagra and typhoid fever to be checked by rural sanitation, 444
 Philadelphia College of Physicians Library report on decrease of medical publications, 472
 Pneumonia problem, commission appointed to study the, 237
 Psychopathic laboratory for examination of prisoners in respect of mental deficiency in New York, 303, 775
 Public health magazine, 347
 Red Cross, proposed amalgamation of all "safety first" train, 774
 School children, medical inspection of in Boston, 848
 School children with tonsils and adenoids, clinics for in New York, 242
 School of Dental Surgery for Columbia University, 420
 School for graduate study of tuberculosis founded in memory of Edward L. Trudeau, 128
 Sickness in the army, report on, 546
 Sing-sing Prison, proposal to reorganize the hospital department of, 575
 Sterilization of degenerates in Wisconsin, 700
 Trachoma in, 508
 Tropical sanitation, 627
 Tuberculosis, Association for Prevention and Cure of, incorporated in New York, 647
 Typhoid fever, control of, 626
 Uncinariasis Department established at Panama, 708
 University of California, chair of clinical preventive medicine and hygiene founded, 744
 University of Pennsylvania, 150th anniversary of the foundation of the medical school, 507
 University of Rochester, request to, for establishment of a department of dietetics, 543
 War pensions, 498
 Women students to be admitted to Columbia University, 489
 Yellow fever, study of methods of eradicating, 814
 Zones of silence in the neighbourhood of hospitals in Boston, 783

Universities of Germany, falling off in numbers of foreign students, 295—Number of foreign students in 1914, 651
 Universities and university colleges, grants to (Board of Education report), 138
 Universities and the war (Australian), 898
 University of Aberdeen: Appointments, 294—Lectureship in pathology, 294—War service, 538—Accepts an offer of a painting of Marischal College, 898
 University of Belfast, Queen's: Degrees and pass lists, 540
 University of Birmingham: *Studies in Anatomy from the Anatomical Department*, rev., 658
 University of Bombay: *Calendar*, 115
 University of Bristol: Degrees and pass lists, 219, 362, 435
 University of California, chair of clinical preventive medicine and hygiene established in, 744
 University of Cambridge: Degrees and pass lists, 34, 706—Medical degrees, 435
 University of Columbia: *Studies from the Department of Pathology of the College of Physicians and Surgeons*, 168—Scheme for school of dental surgery, 420—Women to be admitted as students, 489—Gift to for surgical research, 694
 University of Dublin: Degrees and pass lists, 34, 540, 635
 University of Durham: Degrees and pass lists, 468, 505, 538
 University of Edinburgh: Annual report, 72—Appointments, 902—Bequests, 902—Degrees and pass lists, 34, 505, 539—Examiners, 185—General Council, 706—Prize for women students, 185—Students and military service, 185—University Court, 185, 675, 902—Women students, 675, 866
 University of Glasgow: Bellahouston gold medal, 635—Degrees and pass lists, 539, 571, 635—War work statistics, 294—Women graduates, 294—Women students, 866
 University, Harvard: Course of military medicine to be established, 400
 University of Ireland, National: *Calendar*, 115—Degrees and pass lists, 635—Special medical examinations, 399
 University of Kiel: Inaugural dissertations, 670
 UNIVERSITY OF LONDON:
 Anatomical nomenclature, 294
 Clinical clerks and surgical dressers during the war, 294
 Degrees and pass lists, 34, 115, 538, 839
 Dental schools, 902
 Dixon Fund, 571
 Gilchrist studentship for women, 72
 Lindley studentships, 294
 Meeting of Senate, 72, 294, 435, 571, 902
 Military Education Committee's report, 471
 Physiological laboratory, 902
 Presentation day, 571
 Recognition of teachers, 435, 571, 902
 Rogers prize, 294
 Special war regulations for medical students, 435
 Staff examiners for medical degrees, 902
 University College, 219
 University medal, 72, 294
 University and the war, 902
 Withdrawal of scholarships, 902
 University of Manchester: Degrees and pass lists, 538
 University of Oxford: Degrees and pass lists, 34, 219, 571, 839—Radcliffe travelling fellowship, 435—"Welch scholarships," 19
 University of Pennsylvania: 150th anniversary of foundation of medical school, 507—Ott chair of physiology in, 526—Clinic for study of industrial and occupational diseases, 894
 University of Rochester, U.S.A., bequest to, 543
 University of St. Andrews: Degrees and pass lists, 34, 505—University court, 185—Honorary degree, 902
 University of Sheffield: Appointments, 259—Degrees and pass lists, 72, 538—Latin in the medical curriculum, 259
 University of Warsaw, 116
 Unwarrantable criticism, 429, 460. *See also* Army, British, army medical organization
 URBANT, L.: Wassermann's reaction in chronic liver disease, 286
 Urgent demand for medical officers, 661. *See also* War emergency
 Urinary infection, acute, with paratyphoid B bacillus (C. Worster-Drought and Alex. Mills Kennedy), 649. (O)
 Urine, passage of true hairs in, 598. *See also* Filimietion
 Urine test glass, clinical values of, 364
 "Urodonal," 364
 Uterine suction and drainage in treatment of puerperal sepsis (Norman Porritt), 716. (O)
 Uterus, absence of, and imperforate hymen (Leslie J. Milne), 15
 Uterus, complete inversion of (C. L. Fraser), 128
 Uterus, treatment of backward displacements of (Frederick J. McCann), 883. (O)

V.
 Vaccination defaulters (Enniscorthy Union), 30—Queen's County, 431
 Vaccination for dysentery. *See* Dysentery
 Vaccination, parliamentary questions on: Prosecutions in Dublin, 26—In Ireland, 106—Various questions, 141, 180, 700—Of soldiers, 700
 Vaccine, non-toxic dysentery, method for preparation of (H. R. Dean and R. S. Adamson), 611 (O)
 Vaccine therapy in enteric fever (A. Faginoli), 61
 Vaccines, sensitized Shiga and Flexner, in the treatment of chronic bacillary dysentery (Sir Leonard Rogers), 7. (O)
 Vagotomy, review of books on, 309
 VAILLANT, Dr., death of, 399
 VALENTINE, George, obituary notice of, 399
 Vallauri prize, 904
 VANCE, A. Morgan, death of, 435
 VARDON, Lieut. Evelyn F. Claude, killed in action, 770
 VASSIE, A. H., case of, 176
 Veins, improved technique for intravenous injections and removal of blood from (C. O. Hawthorne), 168
 VELLACOTT, Captain: Silver wire drainage tube, 823
 Venereal diseases, campaign against in Germany, 600; in Italy, 744
 Venereal diseases (parliamentary question), 463, 566—Examination of prisoners, 566
 Venereal diseases, control of (leading article), 497—Correspondence on, 672, 740, 837—Discussion on, 721
 Venereal diseases, Royal Commission on: Report of, 345, 360; leading article on, 385—Parliamentary question, 700—Most of the members join the National Council for Combating Venereal Diseases, 390—National Council organizes lectures and conferences, 463
 VENEZIA, Pietro Da, death of, 435
 Venous thrombosis in myocardial failure, 459
 Verandahs for consumption. *See* Tuberculosis
 VERDOZZI, C.: Wassermann's reaction in chronic liver disease, 286
 Verdun, French wounded from, 503—British Red Cross convoys at, 667
 VESALIUS, Andreas, 296
 VICHY, review of books on, 204
 VIDAL, Captain Alan Cunliffe, D.S.O. conferred upon, 604
 Vienna, medical education problems, 107—Report of M.O.H. on the health of, 380—Shortage of vehicles in, 400—Institute for study of proper food, 436. *See also* Austria
 VILLE, Dr., death of, 36
 VINCENTI, Camille, death of, 36
 VINTER, Lieut. S. G.: Appreciation of Stanley Boyd, 295
 Visible spectrum. *See* Spectrum
 Vision, army standards of, 537, 697, 730. *See also* Eyes and Rifle shooting
 Vision, standard of (parliamentary question), 354
 Visual disturbances from cerebral lesions (Colonel Lister and Lieut.-Colonel Gordon Holmes), 485
 Visual neuroses. *See* Neuroses
 Vital statistics in England and Wales, 1915, 185—Of Sydney, 899
 Vitreous, treatment of large traumatic haemorrhages of (Captain Ormond), 721
 Volunteers, National, medicine and, 840, 872
 Vomiting, faecal and intestinal, and jejunostomy (Victor Bonney), 583. (O)

W
 WADD, Frederick John, obituary notice of, 903
 Waitecoat, life-saving, 534
 WAITE, Lieut. J. Thorp, killed in action, 322, 356
 WARELEY, C. P. G.: Foreign body in the rectum, 224—Reports cases of hiatal oesophagismus in a man of 36, 589
 WALCOTT, Allen: Beri-beri in the Amazon basin, 447
 WALDO, Dr., on the Tabard Street area, Southwark, 696
 Wales, Cardiff Hospital and Medical School, 322—Medical education of women in, 358—Medicine in South Wales, 147—National Medical School, 736—Royal Commission on University Education in, 569, 897
 WALKER, J. T. Ainslie: A new intestinal antiseptic, 311
 WALKER, Captain Lewis A., Serbian Order of St. Sava conferred upon, 735
 WALKER, Surgeon-Probationer Robert, killed in action, 833, 865
 WALKER, T. J., presentation to, 106
 WALLACE, Colonel C. S., C.M.G. conferred upon, 146
 WALLACE, Captain Q. V. B., Military Cross conferred upon, 146
 Wallasey, report of M.O.H.: Domestic destruction of refuse, 704
 WALLS, Captain Edward S., Serbian Order of St. Sava conferred upon, 735

WALTON, Nurse E. A., Royal Red Cross conferred upon, 466
WALZEL, P. R. von: Land mine wounds, 631

War:

Abdominal injuries, 863
Africa, East, the campaign in, 101, 145
Alcohol and the soldier (Paris Academy of Medicine's appeal), 247
American surgeons and dentists appeal for another hospital in France for treatment of wounds of face and jaw, 770
Amputation, institutions for (Albrecht), 355
Amputations and amputation stumps, 534
Anglo-Russian Hospital, 252
Antityphoid inoculation: French army results (Jules Courmont), 27—Parliamentary question on, 107, 533—Value of, 147
Anzac Medical Association, 630
Armlets and attestation, 313
Armour, 603
Army Council and medical recruiting, 102
Army Medical Service, the attack on: Leading article, 560—Parliamentary question, 564—Correspondence, 567
Artificial abscess, 768
Artificial limbs, factory for in Italy, 400
Austro-German experiences: Obscure five-day fever (H. Werner), 769—Gaiter-pain fever (A. Gratzner and Dr. Zanks), 769
Beds and stretchers, 499
Birth-rate and war, 769
Boots and gaiters, 108
Brain wounds, treatment of (R. Bárány), 567
British Red Cross Commission in France, 535
British Red Cross convoys at Verdun, 667
British Red Cross manuals, 770
British Red Cross Society, 896
Canada and the war emergency, 252
Casualties, Austro-Hungarian, 503
Casualties, Canadian, 704
Casualties: German army, 26, 180, 770—Among German doctors, 670
Casualties in the medical services of the navy and army, 28, 67, 108, 147, 181, 215, 252, 288, 321, 356, 394, 430, 465, 502, 533, 568, 604, 631, 669, 701, 734, 770, 803, 832, 864, 895
Casualties in the medical services of the navy and army in 1915, 93
Casualties and recoveries, 25
Casualties, total (parliamentary question), 26, 213, 391
Chemical work, 464
Colonial medical services, 147
Convalescent officers' arrangements for, 181
Corfu, British doctors and nurses go to relief of wounded Serbian soldiers at, 708
Corrections, 735
Crippled soldiers. *See* Soldiers
Disinfection by hot air, 734
Disinfectant, a giant, 355
Dispatches from the Cameroons, 834—Names of medical men mentioned, 834
Dispatch from Lord French, 66, 109, 216—Names of medical men mentioned, 66, 216
Dispatch from Sir Douglas Haig, 896—Names of medical men mentioned, 896
Dispatch from Sir Ian Hamilton, 109, 216, 252—Names of medical men mentioned, 216, 252
Dispatches from Mesopotamia, 568, 735—Names of medical men mentioned, 568, 735
Dispatches from Tsingtau: Names of medical men mentioned, 803
Dysentery, acute, treatment of, discussion at Alexandria, 142
Emergency surgical aid corps in London, 217
Emoluments of medical officers, Territorial or with temporary commissions, 69
Emotional in them, case of, 769
Experiences of a Norwegian doctor in Austria (Einar Aaser): Faulty ambulance organization, 65—Feeding the wounded at railway stations, 65—Dysentery, 65—Cholera, 65—Quarantine arrangements, 66
Eye injuries and blindness in the German army (W. Ulthoff), 603
Footwear of the Austrian soldiers, 108
Franco-American ambulance, work at, 318
French and Russian prisoners in German camps, 865
French wounded from Verdun, 503
French hôpital dépôt, organization of, 251
"Gaiter pain," 108
German Army Medical Service, 670, 702
German and Austrian medical men, losses among, 109
German experiences, 464, 501
German New Guinea, operations in, 147
German Red Cross and new hospitals, 109
German Surgical War Congress, the second, 895
Grand Palais, Paris, a hospital for wounded soldiers, 75
Gunshot wounds. *See* General Index
Head and brain, wounds of (W. v. Brunn), 287
Honours, 28, 146, 181, 216, 252, 322, 357, 395, 431, 466, 535, 568, 605, 670, 702, 704, 735, 833, 896

HOSPITALS:

3rd Western General Hospital, 317
No. 7 Overseas Stationary Hospital (Canada), 111

War (continued)

Anglo-Russian Hospital, 252, 431
Austrian Hospital: Discussion on thigh cases, 392
Base hospital, work at (W. Rankin), 371. (O)
Belgian field hospital, 630
Birmingham Territorial General Hospital: The "Southern" Cross, 363
Brighton hospital for patients who have lost limbs, 667, 702, 770
Canadian hospitals, 670
Canadian Military Hospital Commission, 183, 537
Federated Malay States Hospital, 365, 897
French hôpital dépôt, organization of, 251
Fulham Military Hospital: Cases, 89
General and stationary hospitals, 141
Hospital ship, *St. Margaret of Scotland*, 431
Hospital ships, electrolytic hypochlorite for, 455
Hospital Supply Dépôt, Irish, 110, 289
Liverpool Merchants' Mobile Hospital, 702
Military hospitals and asylums, 105
Red Cross hospitals: Dublin Castle, 323, 536
St. John Hospital, Southport, 668
Scottish Women's Hospital, 288
Swedish war hospital in London, 322
Temple Hill Auxiliary Hospital, annual meeting, 217
Withington Hospital, 357

Indian Soldiers' Fund, 147, 252
Indian Subordinate Medical Service, 216
Irish Automobile Club and, 359
Irish War Hospital Supply Dépôt, 110
Jaundice at Alexandria, 320
Kut Garrison, 770
Land mine wounds, 631
Lice, 734
Malingering in the French army, 64
Massage school for blinded soldiers at Reuilly, 455
Medical Advisory Board in France, 830
Medical diseases in the Mediterranean war area, 500
Medical education in Austria and Germany, problems of, 107
Medical work in Paris: Crippled soldiers (Robert Jones), 318—Physical treatment for disabled soldiers (R. Fortescue Fox and J. Campbell McClure), 319
Mesopotamia, 735
Military medical services in 1915, 92
Munition workers, welfare of, 102
Nephritis, war (A. Klein and Pulay), 64—Note on from a correspondent in Northern France, 251
Nervous mental shock (Lieut.-Col. William Aldren Turner), 830
Neurological notes (Hermann Oppenheim), 393
Orthopaedics, war (Robert Jones), 315, 318
Parliamentary questions on, 26, 63, 105, 140, 178, 213, 317, 353, 391, 427, 463, 496, 533, 564, 601, 629, 665, 699, 731, 767, 802, 829
Pensions and allowances on disablement by disease (leading article), 312
Pensions, war, 497—N.C.O.'s and men, 497—Nurses, 498—United States, 498
Personal hygiene, 639
Physical clinic for wounded and disabled soldiers, 897
Plates for one-armed men, 133
Prison camps, German: Langensalz, 420—Wittenberg, 562
Prisoners, German treatment of British, 601
Prisoners in Switzerland, British and German, 834
Prisoners, tuberculous, convoys of French and German arrive in Switzerland, 250
Prisoners in Turkey, British, 180, 803
Prisoners of war, 216, 864, 896. *See also* Prisoners in General Index
Pseudo-Darwinism and war, 562
Psychology of the wounded soldier, 563
R.A.M.C. at work in Northern France, 500
Railways in war, 63
Recoveries among the wounded, proportion of, 356
Recruiting and discharge, 33
Recruits, medical students and the inspection of, 33
Recruits. *See also* General Index
Red Cross. *See* Red Cross in General Index
Sanitary section in the field, duties of (Major Charles E. Goddard), 215
Scientific meetings, 701
Scientific papers, publication of, 27
Scottish Women's Hospital, 288
Self-mutilation (A. V. Hauer), 41
Society of Old Students of the Val-de-Grâce, annual meeting, 631
Soldier, sick, a plea for, 23
Soldiers and alcoholism (Sydney), 182
Soldiers and sailors, blinded, provision for in Scotland, 395, 536
Soldiers, crippled, care of in Italy, 29, 720—In Germany, 29, 567—In Paris, 318—"Welsh day" for, 350—In Scotland, 503—In Austria, 567
Soldiers (and sailors), disabled: Provision for in Scotland, 111, 395, 503, 536—Board of Agriculture's Departmental Committee, 187—Physical treatment for in Paris, 319—

War (continued)

Treatment and education of (leading article), 387—Industrial training for in Ireland, 395—Brighton hospital for, 667—Training schools for, 668—Physical clinic for, 897. *See also* General Index
Soldiers in the field, hygienic care of Italian, 151
Star and Garter Home at Richmond, 536
Stretchers, 499
Suvia and Anzac, 109
Thigh cases, 392
Third Corps Medical Society, 630
"Trench journal," *Entre les Brancards*, 32
Trench nephritis. *See* Nephritis in General Index
Tropical diseases, 701
War and the birth-rate, 769
War, disease and a museum, 214
Wounds. *See* General Index

War and the birth-rate, 769
War Committee, Central Medical (parliamentary question), 140
War, disease, and a museum, 214

WAR EMERGENCY:

Armlets and attestation, 313
Army Council and medical recruiting, 102
Attested medical man, 211
Attested men found physically unfit (parliamentary question), 317
Central Medical War Committee approved by Council of British Medical Association, 177—Parliamentary questions on, 140, 178, 353, 428—Recognition of under the Military Service Act, 860. *See also* Supplement Index
Commissions for men between 45 and 55 (leading article), 860—Note on, 891
Compulsion and enrolment (leading article), 891
Conferences of Local Medical War Committees (leading article), 491
Conscientious objectors, 503
Enrolment: Object and purpose of (leading article), 57, 385, 423—An urgent national need (leading article), 423—And the Military Service Act (leading article), 761, 798—Under 41 and unenrolled (leading article), 824—A duty for men between 41 and 45 (leading article), 859—Commissions for men between 45 and 55 (leading article), 860—Compulsion and (leading article), 891
Enrolment form a certificate of eligibility for home military posts, 390
Faculty of Physicians and Surgeons of Glasgow and, 259
Insurance Commissioners and medical recruiting (leading article), 174—Note on, 212
Medical enrolment, 25, 57, 385, 432—(Leading article), 57, 385
Medical examination of recruits (*Sunday Chronicle*), 139
Medical recruiting, 102, 208, 432—(Leading article), 208—Correspondence on, 432
Official registration of the enrolment scheme, 531
Recognition of Professional Committees under the Military Service Act, 860
Recruitment of doctors in England and Wales (leading article), 348
Scottish Medical Service Emergency Committee, recognition of, 860
Sursum corda (leading article), 491
Two score and five to three score and ten (leading article), 135
Under 41 and unenrolled (leading article), 824
Urgent demand for medical officers, statement by the War Office (leading article), 661

War funds, gifts from India, 835

War injuries of the jaws, 886

War and insanity, 148

War nephritis. *See* Nephritis

War neurology, 456

War Office: Communication re Army Council and medical recruiting, 102—Recruitment of doctors in England and Wales, 348—Memoranda on Some Medical Diseases in the Mediterranean War Area, 500—Memorandum on Amputation and Amputation Stumps, 534: correspondence on, 836—On the urgent demand for medical officers (leading article), 661—Commissions for men between 45 and 55 (leading article), 860

War orthopaedics. *See* Orthopaedics

War pensions, 137. *See also* Pensions

War and the population, effects of, 728

War surgery, notes on (A. Mackenzie Forbes), 369. (O)

War surgery, old and new, 563

War taxation and finance, 731, 767

War wastage and the birth-rate (Dr. News-holme's report), 555

War wounds. *See* Wounds

War, a year of, 430, 461

WARBURTON, O. C. (and G. H. F. NUTTALL): *Ticks: a Monograph of the Ixodoidea*, rev., 417

WARD, A. B. (and others): Infectious jaundice, 525

WARD, A. Ogier: Physics of a surgical dressing, 324

WARD, Bernard J.: Physics of a surgical dressing, 290
 WARD, Captain Charles Francis, killed in action, 28
 WARD, Espine: *Beri-beri: its Etiology, Symptoms, and Treatment; with a Detailed Clinical Account of Thirty-two Cases Occurring in Sierra Leone*, rev., 418
 WARRINGTON, W. B., appreciation of Thomas Bushby, 114
 War-time sanitation, 865
 WARRICK, F. J. (and A. C. TUNSTALL): *First Aid to the Injured and Sick: an Advanced Ambulance Handbook*, rev., 170
 Wassermann's reaction in chronic liver disease (Verdozzi and Urbani), 286
 Wassermann's reaction in milk, 564
 Wasteage (parliamentary question), 179
 Water, charges for washing cars, 35
 Water, sterilization of by ultra-violet rays, 111
 WATERSTON, Captain D., killed in action, 803, 833
 WATSON, Lieut.-Col. C. Gordon, C.M.G., conferred upon, 146—Amputations at base hospitals in France, 479
 WATSON, James Russell, receives permission to wear the Order of the Excellent Crop of China, 903
 WATSON, M.: *Rural Sanitation in the Tropics: being Notes and Observations in the Malay Archipelago, Panama, and Other Lands*, rev., 417
 WATSON, Captain William Norman, dies of wounds, 833
 WATSON, Lieut. W. N., Military Cross conferred upon, 146
 WEAKLEY, Lieut. A. Leonard: Metastatic endophthalmitis in a case of cerebro-spinal meningitis, 47
 WEBB, Lieut. George Tudor, killed in action, 670
 WEBB-JOHNSON, Captain A. E., D.S.O. conferred upon, 833
 WEBER, F. Parkes: Pernicious anaemia and erythraemia, 606—Internal use of potassium chlorate, 704
 WEBSTER, John (and W. H. WILCOX): *Toxicology of salvarsan*, 473, 540
Week:
 Acetonuria and acidosis, 315
 Actinomycosis and actinobacillosis in oxen, 104
 Alcohol and the soldier, 247
 American Medical Mission, 766
 Anaesthetics administered by unqualified persons, 425
 Antiseptic action of the chloramine group, 588
 Apparent death and premature burial in infants, 698
 Armlets and attestation, 313
 Army Council and medical recruiting, 102
 Army Medical Service, direction of, 458
 Arsenical nephritis, 628
 Artificial limbs, making and fitting of, 826
 Attested medical man, 211
 Barker, Arthur E. J., death of, 564
 Baths extension at Bath, 351
 Battle of the clubs in New Zealand, 860
 Battlefields of East Prussia, 827
 Belgian atrocities, 827
 Benevolent societies for families of officers and other ranks of the R.A.M.C., 460, 628, 699, 730, 765, 828
 Birth-rate in war time, 105
 Births, voluntary restriction of, 697
 Blane, Sir Gilbert, 426
 Bomb fires, extinction of, 765
 Bovine tuberculosis in man, 248
 Boyd, Stanley, death of, 212
British Dental Journal, War Supplement, 828
 Bronchospirchaetosis, 315
 Brown-Séquard epilepsy, 494
 Calcutta School of Tropical Medicine, 459
 Campaign for clean milk, 799
 Casualties and recoveries, 25
 Catgut, 800
 Central Medical War Committee approved by Council of British Medical Association, 177
 Central Pension Committee, 210
 Cerebro-spinal fever, 250
 Cerebro-spinal fever in 1915 (report of committee), 313
 Cerebro-spinal meningitis, chemical treatment of, 763
 Chemotherapy, rationale and practice of, 826
 Cholesterol as a cause of atheroma, 352
 Cinchona trees, introduction of into India, 247
 Civil hospital staffs of military age, 249
 Cobra venom, 316
 Coloriðgen "amenities of debate," 426
 Commissions for men between 45 and 55, 891
 Crimes in the United States, 176
 "Crimes of the German army" (*Field*), 176
 Crippled soldiers, 350
 Death from paratyphoid fever, 425
 Deaths caused by alcohol, estimate of the number of, 533
 Dental research and dental nursing, 664
 Drug shortage in Austria, 590

Week (continued)
 Drugs, price of, 460
 Economy in paper, 496
 Educational unrest, 250
 Electrical methods in surgery, 698
 Enrolment form a certificate of eligibility for home military posts, 390
 Enrolment scheme, official registration of, 531
 Enteric fever in children, the full diet for, 103
 Effects of a war on population, 728
 Ether anaesthesia, 61
 Eugenics and the war, 314
 Ewing, Sir James Alfred, appointed Principal of Edinburgh University, 766
 Fever with meningismus, 861
 Fifth arm, 730
 Food and drink, 764
 German East Africa, health of, 600
 German Emperor, health of, 177
 German prison camps, horrors of, 562, 598—Plans of new, 892
 German treatment of prisoners of war, 892
 Graduated work for the tuberculous, 892
 Gunshot fractures of the jaws, 287
 Haemolytic splenomegalic jaundice cured by the α rays, 495
 Health of the German child, 893
 Horrors of a German prison camp, 562, 598, 664
 Hospital consultations and the private practitioner, 139
 Illumination problems, 698
 Indexes, half-yearly, for 1916, 893
 Industrial lighting, 139
 Infant and maternal welfare, 599
 Infants, apparent death and premature burial in, 698
 Infectious diseases in schools, 286
 Infectious diseases and tuberculosis, notification of, 697
 Influence of sex on disease and mortality, 459
 Injuries and diseases of aviation, 389
 Insanity, alleged increase of, 105
 Insurance Act, expert committee on simplification and finance of, 177
 Insurance Commissioners and medical recruiting, 212
 International Medical Congress Transactions: Volumes presented to the Library of the British Medical Association, 665
 Intravenous injection of hypochlorous acid in treatment of toxæmia, 175
 Imperial College of Science, 800
 Italian medical service, 284
 Jaundice, epidemic, due to *B. paratyphosus* B. 800
 Kedant fever in Sumatra, 316
 Keogh, Sir Alfred, elected honorary freeman of the Society of Apothecaries, 893
 Laudanum, restrictions on the sale of, 286
 Leeuwenhoek medal, 25
 Lighting restrictions, the new, 175
 Liquor restrictions, 729
 Lister Institute, 728
 Localization of bullets, 862
 London School of Tropical Medicine, 662
 Malaria, control of, 563
 Malaria on shipboard, 389
 Many names for the same thing, 532
 Measles notification, 24
 Medical baths at Torquay, new, 664
 Medical enrolment, 25
 Medical examination of enrolled medical men, 313
 Medical examination of recruits, 139
 Medical heraldry, 24
 Medical officer vindicated, 62
 Medical practitioners up to the age of 46 called up for military service in Italy, 829
 Medical Register, number of names added in 1915, 105
 Medical students and the Military Service Act, 313
 Medical terms in the *New English Dictionary*, 62, 764
 Medical topography of Persia in 1873, 103
 Medical work of the Local Government Board, 249
 Medicine in the *Encyclopaedia of Religion and Ethics*, 862
 Metchnikoff on death, 60
 Military hospitals' journals, 250, 828
 Military Service Act, 211
 Milk, the campaign for clean, 799
 Mind of a profession, 23
 Montenegrin army in the first Balkan war, 389
 Munition workers, welfare of, 102
 Myeloid leukaemia as an infectious disease, 23
 Napoleon and Tisot, 862
 Nerve deafness and mumps, 62
 Nightingale, Florence, memorial to in St. Paul's Cathedral, 287
 Notification of infectious diseases and tuberculosis, 697
 Nursing, proposed college of, 60
 Ophthalmological Society's annual congress, 601
 Ophthalmology and oto-laryngology, training in, 664
 "F. nteutomania," 495
 Passport declarations, 176
 Pathometry, 766
 Pavlov, Professor, 283—Alive and well, 665

Week (continued)
 Pension Committee, the Central, 210
 Pensions, war, 137
 Petrol for doctors, 388
 Petrol, rise in the price of, 352
 Petrol supplies, control of, 628
 Physiological tests for aviators, 531
 Plea for the sick soldier, 23
 Poison apparatus of the sting ray, 827
 Portrait painting and pathology, 494
 Problem of instinct, 763
 Pseudo-Darwinism and war, 562
 Psychology of the wounded soldier, 563
 Quackery in the German army, suppression of, 698
 R.A.M.C. comforts fund, 352
 Radium, therapeutics of, 247
 Railways in war, 63
 Rat-bite fever, 285
 Recognition of professional committees under the Military Service Act, 860
 Relation of the eyes to rifle shooting, 493
 Reports on the condition of patients, 665
 Royal Academy, 663
 Royal Commission on Venereal Diseases, 390
 Royal Medical Benevolent Fund Guild, 287, 460
 Royal Microscopical Society, 284
 Royal Society, candidates for election, 352
 Rural sanitation, 862
 Russian Red Cross, with the, 531
 Sanatorium treatment, results of, 763
 Sanitary conference of representatives of the Allied Powers, 496
 School books and eyesight, 424
 School clinics for Liverpool, 628
 Science and advertising, 63
 Science, industry, and medicine, 730
 Shakespeare's English in Ulster, 627
 Shakespeare tercentenary celebrations, 461
 Simples and tisanes, 316
 Sleeping sickness in Principe, 285
 Spaghnum moss as a surgical dressing, 893
 Spirochaete of Weil's disease, 627
 Standard of vision in the army, 697
 Stone dusts, inhalation of, 138
 Stonham, Charles, death of, 212
 Story, John R., appointed honorary surgeon-oculist to the King in Ireland, 862
 Synthetic drugs, imported, 828
 Telescopic sights for rifles, 765
 Trade education of maimed soldiers, 825
 Traumatic glaucoma, 665
 Trench nephritis, 351
 Tropical sanitation, 627
 Tuberculosis in war time, control of, 212
 Tuberculosis schemes, 626
 Tuberculous, graduated work for, 892
 Tungsten, 600; as a source of ultra-violet rays, 564
 Turner, Sir William, death of, 287; funeral of, 352
 Typhoid fever, control of, 626
 Universities and university colleges, grants to, 138
 Unwarrantable criticisms, 460
 Vaccine therapy in enteric fever, 61
 Venereal disease in Germany, campaign against, 600
 Venous thrombosis in myocardial failure, 459
 Vision in the army, standard of, 697
 Voluntary restriction of births, 697
 War orthopaedics, 315
 War pensions, 137
 War surgery, old and new, 563
 War wounds, secondary closing of, 211
 Wassermann reaction in milk, 564
 Wassermann's reaction in chronic diseases of the liver, 286
 Weil's disease, 861
 Welch's bacillus, 102
 Winter climate of the Eastern Mediterranean, 177
 Wittenberg: a German denial, 664
 Worthy memorial (W. G. C. Gladstone), 601
 Wylie, John, death of, 177
 X-ray intensifying screens, 104
 X-ray operator, protection of, 248, 427
 Well's disease, the spirochaete of, 627, 861
 WELCH, W. H., Third Order of the Rising Sun conferred upon by Emperor of Japan 116
 Welch's bacillus, 102
 Wellcome Historical Medical Museum, 675
 WELLS, Staff Surgeon H. V.: Injuries and diseases of aviation, 389
 Welsh See Wales
 WELATED, Sergeant Harold Wilfrid, killed in action, 631
 WERNER, H.: Obscure five-day fever, 769
 WERNER, L. (editor): *Swanzy's Handbook of Diseases of the Eye and their Treatment*, rev., 592
 WEST, C. E. (and others): *Injuries of the Eyes, Nose, Throat, and Ears*, rev., 821
 WEST, Assistant Surgeon George Cyril, killed in action, 568
 WEST, Major J. W., Legion of Honour conferred upon, 357
 WEST, Lionel F.: Cause of the divulsive effect of projectiles, 148
 WESTLAND, Albert, obituary notice of, 74
 Westmeath and the Motor Ambulance Fund, 111
 Wexford county, National Insurance, 431

- WHALE, H. LAWSON: Injury to internal ear presenting some unusual features, 587—(and others): *Injuries of the Eyes, Nose, Throat, and Ears*, rev., 821
- What is a Teuton? (leading article), 528
- WHEATLEY, James: Economies in health departments, 865
- WHIGHAM, Captain J. B. M., Military Cross conferred upon, 146
- Whitaker's Almanack, rev., 170
- White gangrene. See Gangrene
- WHITE, Major Frederick N., C.I.E. conferred upon, 833
- WHITE, Captain Harry Vere, Military Cross conferred upon, 535
- WHITE, James Clarke, obituary notice of, 223
- WHITE, James William, obituary notice of, 743—Disposal of his brain, 775
- WHITE, Lieut. Leonard Hale, killed on the *Natal*, 109
- WHITE, S. E.: Cheer for the nerve-shaken, 436
- WHITE, Lieut.-Col. Thomas Henry, obituary notice of, 399
- WHITE, Lieut.-Col. W. Hale: Gunshot wounds of chest, 130
- WHITE, Lieut.-Col. William Westropp, O.B. conferred upon, 53
- WHITEHEAD, A. L.: Foreign bodies in eye and orbit, 720
- WHITEHEAD, R. H., death of, 775
- WHITFIELD, Arthur: Appreciation of T. Colcott Fox, 674
- WHITTINGTON, Captain Gerald, Serbian Order of St. Sava conferred upon, 735
- WHITTINGTON, T. H. (and Sir Bertrand Dawson): Death from paratyphoid fever, 425
- WHITTON, Lieut. N. S., Military Cross conferred upon, 833
- Whooping-cough, early diagnosis of (H. W. Jacob), 589—(J. F. Crombie), 688
- Whooping-cough and kinkhoof, 76, 188
- WICHERKIEWICZ, Boleslaw, death of, 506
- Wick drains (G. H. Colt), 14. (O)
- Widal's reaction for typhoid, easy and rapid method of doing (Alfred C. Coles), 684. (O)—Correspondence on, 744
- Wigan Borough, coroner's remarks at inquest on illegitimate child, 471
- WIGHT, Colonel Ernest Octavius, killed in action, 28, 150
- WIGHT, Ronald Toynbee, dies on service, 68
- WILKINS, Captain H. F., Military Cross conferred upon, 833
- WILL, Captain William M., Serbian Order of St. Sava conferred upon, 735
- WILLAN, Staff Surgeon Robert Joseph, M.V.O. conferred upon, 53
- WILCOX, William Henry: Epidemic jaundice of campaigns, 297—Treatment of toxic jaundice due to tetrachlorethane poisoning, 300—Appointed consulting physician to the Mesopotamia Expeditionary Force, 481—(and John Webster): Toxicology of salvarsan, 473—O.M.G. conferred upon, 670, 833
- WILLIAMS, A. Winkelried: Treatment of pruritus ani, 472
- WILLIAMS, C.: *Death and Hereafter*, rev., 378
- WILLIAMS, D. Owen: Pain at root of neck and cardiac irregularity, 576
- WILLIAMS, G. B.: Sanitation in Bengal, 630
- WILLIAMS, Herbert, obituary notice of, 150—Estate of, 634
- WILLIAMS, Fleet Surgeon Penny Garnons, lost with H.M.S. *Hampshire*, 864
- WILLIAMS, Samuel White Duckworth, obituary notice of, 186
- WILLIAMS, Surgeon-General W. D. C., K.C.M.G. conferred upon, 833
- WILLIAMSON, Captain John S., Serbian Order of St. Sava conferred upon, 735
- WILLS, Staff Surgeon W. Kenneth: Appreciation of Lieut. Bernard B. Gough, 434
- WILSON, Nurse Christina Murdoch, dies on service, 394
- WILSON, Helen: Control of venereal diseases, 672
- WILSON, J. A.: Visual neuroses of miners, 397
- WILSON, Colonel J. B., C.M.G. conferred upon, 833
- WILSON, Captain John, killed in action, 465, 502
- WILSON, J. C.: *Handbook of Medical Diagnosis*, rev., 758
- WILSON, Captain John Dykes, dies on service, 356
- WILSON, Nurse M. E., dies on service, 68
- WILSON, Major Robert: Tungsten arc lamp, 708
- WILSON, R. McN.: Irritable heart of soldiers, 119
- WILSON, Captain W. J.: Cerebro-spinal meningitis, 359
- Winter climate of the Mediterranean (Major H. G. Lyon), 177
- WINTERITZ: Venous thrombosis in myocardial failure, 459
- Wisconsin, sterilization of degenerates in, 700
- Wise, Robert: Appreciation of Sir A. R. Simpson, 574
- WITTEHAUS, R. A., death of, 435
- Wittenberg: In memory of the three brave doctors who died at, 773
- Wittenberg prison camp, a German denial, 564. See also Prison
- Women doctors. See Medical women
- WOOD, Captain C. A., Military Cross conferred upon, 146
- WOOD, Lieut. Eric A. W., killed in action, 394
- WOODCOCK, H. M. (and W. J. PENFOLD): Protozoan infections occurring at the King George Hospital, 407—The excystation of *Entamoeba histolytica* (tetragena) as an indication of the vitality of the cysts, 714
- WOODFORD-FINDEN, Lieut.-Col. Woodforde, obituary notice of, 707
- WOODHOUSE, Captain Philip Randal, Military Cross conferred upon, 833
- WOODHOUSE, Surgeon-General T. P., Commander of the Legion of Honour conferred upon, 357
- WOODMAN, A. G.: *Food Analysis, Typical Methods and the Interpretation of Results*, rev., 419
- WOOD-ROBINSON, Surgeon Thomas M., killed in action, 833, 864
- WOODRUFF, C. E.: *Medical Ethnology*, rev., 854
- Work of a consulting surgeon with the British force in France (Colonel Andrew Fullerton), 50
- Workhouse amalgamations (Cork), 183—(County Tyrone), 570
- Workmen's compensation for rheumatism (Glasgow Coal Company, Ltd. v. Welsh), 470
- WORSTER-DROUGHT, Cecil: Case of chronic non-tuberculous peritonitis in a child, 449—(and Alex. Mills KENNEDY): Acute urinary infection with paratyphoid B bacillus, 649—(and D. D. ROSEWARNE): Amoebic dysentery in a man who had never left England, 715
- WORTHINGTON, Captain F., D.S.O. conferred upon, 146
- Worthy memorial (W. G. C. Gladstone), 601
- Wound dressing: patty pans (D. W. Samways), 49
- Wound, gunshot, of superior longitudinal sinus (A. W. Nuthall), 12. (O)
- Wound, gunshot, traumatic implantation of epidermis in track of (Lieut.-Col. G. H. Edington), 12. (O)
- Wound of heart, penetrating (R. Garside Dixon and P. McEwan), 755 (O)
- Wound infections, treatment of (W. Parry Morgan), 685. (O)—Discussion on, 689
- Wounded Allies Relief Committee receives a letter of thanks from French War Minister, 295—Sends another detachment of doctors and nurses to Corfu, 708
- Wounded in Austria, feeding of at railway stations (Einar Aaser), 65
- Wounded in Italy, committee for the re-education of, 187
- Wounded soldier, psychology of, 563
- Wounds of abdomen, penetrating (Captain John Fraser and Captain H. T. Bates), 509. (O)—Leading article, 530—(H. H. Sampson), 547. (O)
- Wounds of brain and nerves (v. Eiselsberg), 895
- Wounds of chest, perforating and penetrating, with severe haemorrhage (A. Don), 816. (O)
- Wounds of the brain, treatment of (R. Bárány), 567
- Wounds caused by high explosives, strange (J. Lewis Thomas), 89—Correspondence on, 184
- Wounds, gangrenous, the bacteria of (Major H. R. Dean and Captain T. B. Mouat), 77. (O)—Correspondence on, 184
- Wounds, gunshot (Bereznegowsky), 422
- Wounds, gunshot, of chest, discussion at Medical Society of London, 129
- Wounds, gunshot, of head (Colonel H. M. W. Gray), 261. (O)—Correspondence on, 432
- Wounds, gunshot, of knee-joint, treatment of (Captain A. L. Lockwood), 153. (O)
- Wounds, gunshot, of spine (Captain James Collier), 451—Discussion, 452—(Alfred J. Hull), 477. (O)
- Wounds, gunshot, general treatment of infected (Colonel H. M. W. Gray), 1. (O)
- Wounds, gunshot, treatment of (Sir Berkeley Moynihan), 333. (O)—Discussion, 416
- Wounds of head and brain (W. v. Brunn), 287
- Wounds, influence of antiseptics on the activities of leucocytes and on the healing of (C. J. Bond), 777. (O)
- Wounds of jaw and face (leading article), 457—Correspondence on, 673
- Wounds, land mine (P. R. von Walzel), 631
- Wounds of limbs, abdomen, and chest (Payr), 895
- Wounds of mouth and jaws, chloramine in the treatment of (Staff Surgeon A. R. Fisher), 87. (O)
- Wounds, principles of treatment and their application to (Charles F. M. Saint), 367. (O)
- Wounds, quinine solutions as a dressing for infected (Sir John Tweedy), 11. (O)
- Wounds, septic. See Surgical dressing
- Wounds, septic, sodium hypochlorite in the treatment of (Fleet Surgeon Frederick J. A. Dalton), 126. (O)
- Wounds, treatment of infected, by physiological methods (Colonel Sir Almoth Wright), 793. (O)
- Wounds, war, secondary closing of (Carrel, Dehelly, and Dumas), 211
- WRIGHT, Sir Almoth, awarded Le Conté prize by Paris Académie des Sciences, 36—Elected a Foreign Associate of the Paris Académie de Médecine, 576—Treatment of infected wounds by physiological methods, 793
- WRIGHT, Lieut. A. F., Military Cross conferred upon, 146
- WRIGHT, Frederick William, obituary notice of, 399
- WYAND, Captain Edward Herbert, killed in action, 252
- WYATT, Lieut. William Herbert, killed in action, 735
- WYLLIE, Lieut. Hamilton MacLaren, killed in action, 181
- WYLLIE, Captain T. W., Military Cross conferred upon, 146
- WYLLIE, Lieut.-Col. J. A., translates a book on sleeping sickness in Principe, 285
- WYLLIE, John, death of, 177—Obituary notice of, 220—Estate of, 675

X.

- X-ray intensifying screens, 104
- X-ray localization of bullets, 862
- X-ray operator, protection of, 248, 427
- X rays causing haemolytic splenomegalic jaundice, 495
- X rays in removal of intracranial foreign body (John Robert Lee), 447. (O)
- X rays, review of books on, 132, 854

Y.

- YAGI, S.: Cobra venom, 316
- YATES, Lieut.-Col. Henry Bridges, dies on service, 215
- Yearbook of the Scientific and Learned Societies of Great Britain and Ireland, rev., 487
- Yellow fever. See Fever
- YELLOWLEES, Captain N. J. L., dies on service, 734
- YORKE, W. (and others): Examination of fifty dysentery convalescents for carriers, 683
- YOUNG, Colonel C. A., C.M.G. conferred upon, 146
- YOUNG, E. E.: Case of intracranial new growth simulating miner's nystagmus, 90
- YORNA, Matthew: *Contribution to the Study of the Scottish Skull*, 824
- YOUNG, Captain R. F., Military Cross conferred upon, 146
- YOUNG, W. J.: Control of venereal diseases, 740

Z.

- ZANKO: Gaiter-pain fever, 769
- ZIESSSEL: Venereal disease in Germany, 600
- Zenith carburetter, 566
- ZILVA, S. S. (and A. T. MACCONKEY) Iodine in tetanus, 411
- Zoology, review of books on, 240

LIST OF ILLUSTRATIONS.

SPECIAL PLATES.		PAGE		PAGE
From the Visible to the Gamma Ray Spectrum (Sidney Russ)	facing	124	Jaw Deformities Resulting from Operation or Injury (Percival P. Cole and Charles Henry Bubb)	269
TURNER, Sir William	facing	328	Leper House at Taunton, Somerset	54
Abdominal Growths Presenting very Unusual Characteristics (Charles A. Morton)		413	Lifting Patients on to Hospital Ships from Barges and Boats (Colonel A. W. Mayo Robson)	10
After-treatment of Amputation Stumps (C. W. G. Bryan)		481	Louse Problem at the Western Front (Lance-Sergeant A. D. Peacock)	746
Ankylosis following Gunshot Injuries of Joints (Lieut.-Col. Robert Jones)		609	Maxillary Fractures, Treatment of (V. H. D. Kazanjian)	266
Antimeningococcal Action of Salines (Lieut.-Col. M. H. Gordon)		850	Military Surgery, Importance of General Principles in (G. Grey Turner)	402
Antiquity of Man (Arthur Keith)		16	Penetrating Wounds of Abdomen (Captain John Fraser and Captain H. T. Bates)	510
Antiseptics, Influence of on the Activities of Leucocytes and on the Healing of Wounds (C. J. Bond)		777	Penetrating Wound of Heart (R. Garside Dixon and P. McEwan)	755
Arms of Abbot Beere		54	Peritonitis with Obstruction, Method of Treating (W. Sampson Handley)	520
Arterio-venous Aneurysm of the Subclavian Artery and Vein (Comyns Berkeley and Victor Bonney)		754	Plates for One-armed Men (A. E. Shipley)	133
Artificial Arm		92	Plating Dishes for the Cultivation of Bacteria, New Form of (S. Delépine)	588
Axis Tractor adaptable to any Obstetric Forceps		455	Portable Refrigerating Box and its Use as a Temporary Incubator (S. Delépine)	718
Bacterial Fermentation Tests, New Apparatus for (S. Delépine)		620	Protozoan Infections Occurring at the King George Hospital (H. M. Woodcock and W. J. Penfold)	408
Bradford Frame		499	Puerperal Sepsis Treated by Uterine Suction and Drainage (Norman Porritt)	716
Bryan Bed		499	Silver Wire Drainage Tube	823
"Cage" Splint for Fractures of the Humerus (Captain E. M. Cowell)		849	Skeleton Splints, Simple System of (C. Max Page)	845
Cerebro-spinal Meningitis, Diagnosis of Abortive (M. Culpin)		307	Soldiers' Foot and Treatment of Common Deformities of the Foot (Lieut.-Col. Robert Jones)	709, 749, 782, 809
Claw-foot (Lieut.-Col. Robert Jones)		749	<i>Spirochaeta euryspirata</i> (H. B. Fantham)	815
Clothing against Cold (W. T. Grenfell)		■	Spleen: Traumatic Rupture of: Splenectomy: Recovery (Walter H. Cam)	199
Congenital Atresia of Duodenum Successfully Treated by Operation (N. P. Ernst)		644	Splenectomy (Sir Clifford Allbutt, L. Humphry, F. Deighton, and Dorothy C. Hare)	366
Duodenal and Jejunal Ulcers (J. Gore Gillon)		343	Splint for Compound Fracture of Ankle (Major M. Sinclair)	197
Eusol Injection: Simple Method (James M. Graham)		652	Suction or Vacuum Bougie for Treatment of Chronic Gonorrhoea (Captain A. Campbell)	818
Excystation of <i>Entamoeba histolytica</i> (W. J. Penfold, H. M. Woodcock, and A. H. Drew)		714	Suture of Nerves, and Alternative Methods of Treatment by Transplantation of Tendon (Lieut.-Col. Robert Jones)	642, 679
Fasting Treatment of Diabetes (E. I. Spriggs)		841	Syphilis: Influence of on the Chances of Progeny (N. Bishop Harman)	197
Fermentation Bulbs (S. Delépine)		620	Systolic Pressure in Acute Nephritis (Rodolph G. Abercrombie)	878
FITZGERALD, Charles Edward		869	Tetanus, Delayed (Gilbert Barling)	338
Fractures, Malunited and Ununited (Lieut.-Col. Robert Jones)		■	Toxaemia, Acute, Secondary to Gas Gangrene, Treatment of (Captain John Fraser and Captain H. J. Bates)	83
Gunshot Fractures Treated by an External Fixation Apparatus (S. Sangster Simmonds)		481	Toxic Effects of Ethylhydrocuprein on the Eye (George H. Oliver)	581
Gunshot Wounds, General Treatment of Infected (Colonel H. M. W. Gray)		4	"Traumatic Gastric Ulcers" (T. R. Elliott and Herbert Henry)	523
Gunshot Wounds of Knee-joint, Treatment of (Captain A. L. Lockwood)		154	"Trench Fever" (Captain J. W. McNee, Lieut. Arnold Renshaw, Captain E. H. Brunt, with a Note by Colonel Sir Wilmot Herringham)	226
Haemorrhoids and Prolapsus Ani, Bloodless Operation for (Major F. McKelvey Bell)		415	Trench Foot, Causes and Prevention of (Basil Hughes)	712
Heart-block in Jaundice (B. D. Rudolf)		552	Ulcers Old and New: Jejunal for Duodenal Ulcers (Sir John Bland-Sutton)	272
Heart, Right Side of, and its Relation to Overstrain (William Russell)		875	Vascular Phenomena of Cardiac Disease (Basil Parsons-Smith)	122
Heart's Action in Jaundice (J. Davenport Windle)		123	Wick Drains (G. H. Cole)	14
Hiatal Oesophagismus in a Man of 36 (reported by C. P. G. Wakeley)		589	Wound Infections, Treatment of (W. Parry Morgan)	686
Hypochlorites, Behaviour of on Intravenous Injection, and their Action on Blood Serum (H. D. Dakin)		853		

THE British Medical Journal.

THE JOURNAL OF THE BRITISH MEDICAL ASSOCIATION.

LONDON: SATURDAY, JANUARY 1st, 1916.

Remarks

ON THE

GENERAL TREATMENT OF INFECTED "GUNSHOT WOUNDS"

FROM A CLINICAL POINT OF VIEW.*

BY

COLONEL H. M. W. GRAY, A.M.S.(T.),

CONSULTING SURGEON, BRITISH EXPEDITIONARY FORCE, FRANCE.

WE have been compelled, since this war began, to acknowledge the inefficiency of antiseptics when used as preventive or disinfecting agents in badly infected, lacerated wounds. Until applications were employed which stimulated a concentration of the general defensive forces of the body in and around the wound, no real advance in treatment was made. It mattered not what kind or what strength of antiseptic, pure and simple, was used, the infection ran a fairly definite course of fairly definite duration, which varied merely according to the patient's power of resistance. While the importance of free drainage was very speedily acknowledged, quite a long time passed before there was any satisfactory recognition of the fact that the resisting agencies of the patient's own body are far more effective in dealing with a local infection than any purely antiseptic solution, powder, or paste introduced into it from without.

Too great credit cannot be given to Colonel Sir Almroth Wright for his work in connexion with this matter. It must be gratifying to him that his laboratory experiments have now been so fully confirmed by clinical experience. There is no need to discuss the merit of his work; it suffices to say that the principles of treatment which he has laid down govern, very largely, the methods now in use in the British hospitals at Rouen.

The tissues implicated in a severe wound are more or less devitalized by the severity of the trauma, and are thus rendered more vulnerable to the onslaught of microbes. This is seen in the slow healing of insignificant skin wounds caused by a bullet, even though they are only very mildly infected. The temporary functional inhibition induced by the injury is probably aggravated and prolonged when ordinary antiseptics are used in large wounds. Organisms which have invaded the tissues are not killed by the action of antiseptics as such unless they are in a layer of tissue directly affected by an antiseptic sufficiently strong to destroy it. Antiseptic applications can affect practically only those organisms which are actually in the cavity of the wound, but they can prevent fresh infection and the spread of infection from one case to another; their use for these purposes should never be omitted. What has to be aimed at, however, is to support and stimulate the forces of defence which the patient himself can bring to bear on the invading organisms, by both local and general means. There is ample evidence, obtainable daily in the wards of a large hospital, that the new principle which guides the treatment of seriously infected wounds is of far greater importance than that involved in the use of antiseptics as hitherto applied. All

successful treatments of infected wounds depend on calling forth these physiological forces, these protective elements of the body, whether fluid or cellular, or both. It has been proved to the satisfaction of the large number of surgeons working in my area that the use of salt solutions, applied in various ways, fulfils all the striking claims made for it by Sir Almroth Wright.

The addition of antiseptics to the salt solution is not yet proved to be of any advantage to the wound once it has become seriously infected. Cases treated by hypertonic salines alone compare most favourably with similar cases treated even by those antiseptic solutions most recently advocated, as, for example, those cases of gas gangrene recorded by Captain John Fraser¹ treated by hypochlorous acid, or eusol solution. A few of our surgeons add eusol to the salt solution, as they consider that it removes the bad odour of wounds more quickly and hastens the separation of sloughs. After observing a very large number of cases, I am inclined to agree with others who are not convinced regarding these effects. Their attitude towards eusol is expressed in the remark—"It does no harm." In virtue of its having hypertonic and deodorizing effects, eusol acts well when used for continuous irrigation or baths. It seems to do well also in some cases of *pyocyaneus* infection. But it does not deserve to supplant salt treatment.

Judging from what has been written about the hypochlorite treatment, especially by Dr. Alexis Carrel, it is not unlikely that it may be adopted widely before the possible drawbacks to its general use are appreciated. It may prove eminently successful in aborting infection in wounds which can be treated early, before micro-organisms have penetrated into the tissues, but its use for such a purpose apparently demands great attention to detail, both at the primary operation and during the succeeding days, before the wound can be pronounced free from microbes. It thus calls for the expenditure of more time and for a greater number of attendants than are usually available, even if the patients could be put under the treatment early enough. The treatment cannot be carried out during transport of a large number of cases, and is, on that account especially, unsuitable during a "rush." After the recent severe fighting (September 25th and following days), when the hypochlorite treatment was being used at many of the casualty clearing stations, the condition of severe deep wounds arriving in Rouen was no better than had been that of those arriving from fights earlier in the campaign—for example, from Neuve Chapelle or Hill 60.

For routine and general use under such conditions as exist on the British front and lines of communication in France it is requisite that some dressing should be available which is effective in preventing severe sepsis, easy to carry, simple in application, economical of material and time, and so continuous in action that little attention is necessary during transport. Hypertonic saline dressing, especially in the form now known as the "tablet and gauze pack," fulfils these desiderata better than any other yet applied. As Colonel C. B. Lawson has said, "many wounds treated in this way arrive in such excellent condition that during a rush the men can be transferred directly to England, without more interference than adjusting the superficial dressings. The patients' temperatures are normal and the wounds are free from surrounding inflammation." The method of using the "tablet and gauze pack" will be described later, but it may here be pointed out that the slow dissolution of the tablets in the

* Read before the Rouen Medical Society (B.A.M.C. Officers) on November 27th, 1915.

folds of gauze, which sometimes occupies many days, provides a continuous supply of hypertonic solution until they are completely dissolved.

SOME GENERAL CONSIDERATIONS GOVERNING THE USE OF SALT SOLUTIONS.

Attention must be drawn to certain important factors which have a very direct bearing on the successful application of simple solutions of salt.

1. The solution must be brought into contact with every infected part of the wound.

2. Hypertonic solutions stimulate a more or less profuse flow of lymph containing antibodies, and thus bring about what has been called "lymph lavage" of the tissues lining the wound.

3. Isotonic or physiological salt solution stimulates diapedesis—that is to say, it brings about a concentration of leucocytes in these tissues. These phagocytes are in large measure shed into the wound cavity and form pus corpuscles.

4. The micro-organisms causing the infection make their way into the tissues lining the wound in a few hours. The rapidity and depth of penetration vary according to the kind of organism, the amount of devitalization of the tissues, and the method of treatment.

5. The infective material is carried by the missile into the depths of the wound; any superficial treatment is therefore of no practical benefit, except in preventing fresh infection.

6. The presence of effused fluids, whether blood or lymph, of foreign bodies, and of badly lacerated or necrotic tissues, favours the rapid growth of organisms in the wound and hinders their expulsion from it.

7. Wounds deteriorate in condition, inflammation may become rampant, especially during transport; if the wounded part be not properly fixed and supported, even although no fracture be present.

8. A patient whose vitality is very low owing to the severity both of the wound and of the sepsis is unlikely to fight serious infection successfully and to survive a conservative operation and the strain which after-treatment involves. The question of amputation must therefore occupy a far more prominent place in the mind of the surgeon than it does in civil practice.

9. The method of treatment must therefore vary according to the nature of the chief infecting organisms, the physical character of the wound, the general condition of the patient, and according to whether he is to be transported or not within a short time.

Bacteriological Indications.

Although the clinical characters of the wounded part often give quite reliable indications of the important bacteriological contents, yet a report from the laboratory on the kind of organisms present may be of the greatest service. For example, the streptococcus thrives in lymph, but finds in the phagocyte a very deadly enemy. Therefore, when it is found that streptococci are making headway in a wound, or are found in pure culture in a joint, isotonic solutions should be used for treatment of the wound or washing out the joint.

In ordinary deep wounds, however, and especially in the early stages when multiple infection is likely to be present, hypertonic applications are best.

OPERATIVE TREATMENT.

Free incision or excision of the superficial parts of the wound, including especially the deep fascia, is practically essential to success, in order to make it possible to cleanse and drain thoroughly and to insert the "tablet and gauze pack" properly. Exposed aponeurotic structures are certain to slough, hence they should be cut away. At the beginning of the war there existed a great antipathy in many quarters to making fresh incisions in the presence of acute and even of chronic sepsis, because it was thought that such incisions, by laying bare fresh tissue, entailed a greater risk from the spread of infection than the simple insertion of a large drainage tube through a smaller opening. When suitable saline treatment is used it is found that there is no such increase of danger; quite the reverse. The success of the open method of treating amputation stumps amply demonstrates the truth of this.

Transverse or oblique incisions admirably fulfil their purpose and are sometimes compulsory, yet one must remember that only rarely can a muscle which has been cut completely across be united again satisfactorily. Transverse incisions, therefore, are apt to be mutilating and harmful to function afterwards. A smaller cone-shaped excision, in which part only of the muscle is sacrificed, sometimes gives even more efficient drainage. It must be remembered that occasionally the whole belly of a muscle is virulently infected. When that happens the muscle will necrose, and it is far quicker and safer to excise the whole muscle at once—for example, the rectus femoris or gluteus maximus. In any case it is best to insert a finger in the wound and examine its extent and arrangement before deciding what form of incision or excision is to be employed.

Counter-openings at the most dependent parts of the cavity are of great importance in certain cases.

Cleansing of the Wound.—Extraordinary divergence of opinion exists as to what constitutes thorough cleansing of the wound. Mere blind twisting of a swab inside a wound cavity may do as much harm as good. Simple flushing through with a solution is very ineffectual, and if hydrogen peroxide be used infective particles may be carried into recesses of the wound which were previously clean. A lacerated deep wound should be thoroughly opened up and every pocket of it examined and enlarged if necessary. Meticulous care should be exercised in removing foreign bodies and blood clot by forceps, fingers, or swab, and clipping away all necrotic or badly lacerated muscle or fibrous tissue. Irrigation is rarely necessary or desirable. Each pocket must then be carefully packed in the manner described later. If any recess be left untreated, there is great risk that the wound will not do well.

Fixation of the wounded part must be secured, in mild cases by proper bandaging, in severe cases by splints, even although the soft parts only are affected. Efficient fixation will limit effusion and consequent swelling, as well as the amount of pain which the patient will suffer.

Support.—The soft parts must be prevented from sagging, especially when deep lacerated wounds accompany fractures of such a bone as the femur. Support is best provided in such a case by suitably shaped "gutters" of sterilized perforated zinc, which are placed under the limb. The edges of the gutter are bent over the bars of the modified Thomas's splint which is now almost universally used for such cases. Holes are cut in the zinc, if necessary, to allow the passage of the drainage tubing. When the zinc covers the wound, not more than a couple of layers of gauze should be placed between the two. The external dressings are applied over the zinc; any sharp edges which might cut into the skin are rounded off and padded. The apparatus may require removal and thorough cleaning about once a week.

DRAINAGE AND THE KIND OF DRAIN.

The primary object of drainage is, of course, to prevent accumulation in dead spaces of fluids which will form favourable media for the growth of pathogenic micro-organisms, and which, on physical grounds alone, will prevent or delay healing by keeping the tissues from adhering. All the same, if the dead space is not large and can be obliterated by suitable bandaging, if the effusion is likely to be small in amount, and if the wounded part has been rendered aseptic—as, for example, after excision—then there is really no necessity for drainage. In certain cases—for example, when slight infection of the knee-joint or of the brain exists—the presence of a foreign body such as a rubber drain, and still more a glass or metal one, in the affected part will probably allow the sepsis to gain a firm hold, especially in the parts bruised by the drain—the very thing the drain is meant to prevent.

"Down to but not into."

The more delicate or highly organized a tissue is the more damage is likely to be caused by the introduction of a drain, especially a rigid one. Experience has shown that the principle of introducing such drains "down to but not into" the important structure or cavity which has to be drained is sound. It matters not whether brain, shattered bone, pleural or synovial cavity has to be drained—this principle holds

good. This refers to the preventive function of the drain that is in use when the infection has not yet obtained a firm hold.

When infection is really well established, and is already causing suppurative encephalitis, osteomyelitis, or synovitis, the matter is more difficult and requires much judgement. The presence of decomposing blood-clot, loose purulent lymph-clot, or even of offensive pus in a joint, although the synovial membrane be swollen and injected, does not mean that the joint is inevitably doomed to destruction. Many brilliant results have been obtained, even in the knee-joint, which was thought to be particularly vulnerable, when the cavity has been cleansed thoroughly of foreign bodies and purulent contents, washed out with saline solution of appropriate strength, and then drained by a tube which led down to but not actually into the hole in the synovial cavity. In some cases—and this depends on the character of the wound left after operation—leaving the wound open, no drainage being inserted, and protecting it from secondary infection seems to be an equally efficient method. Absolute fixation of the joint afterwards is indispensable to success.

Drainage of the brain, when abscess has formed round imbedded bone or foreign body, is a very difficult matter; rigid drains are particularly harmful to the brain. This is especially true if holes be cut, for the intracranial pressure forces even normal brain through the holes or the end of the tube; moreover, the constant friction of the pulsating brain against the hard foreign body must have a bad effect. The most satisfactory drain seems, on the whole, to be a piece of jaconet, batiste, or similar substance, folded concertina-wise, with small pieces of salt tablet imbedded in its folds. As the salt dissolves it exerts a hypertonic effect on the surrounding inflamed brain. If, however, the pus be particularly thick or profuse, it may be necessary to insert, in addition, a tube for a short distance and for a short time.

A drainage tube thrust amongst the fragments of a shattered bone will tend to carry infection, and in any case to cause necrosis of the fragments in contact with it. A drain on each side, down to but not into the shattered mass, will do all that is required.

Rigid drains in contact with pulsating vessels predispose to secondary haemorrhage. In a septic wound they are practically as efficient in causing this as are displaced fragments of bone or pieces of missile. When drainage of wounds which expose large vessels is required, the advantage of transverse incision of muscle or cone-shaped excision is obvious, together with, possibly, the use of the absorbent bandage drain.²

It is not, as a rule, good practice to draw a non-collapsible drain through the whole length of a wound, unless the track is superficial. Even if it is, it is in most cases quicker and safer either to excise and suture the wound entirely or to lay it open and make secondary suture as soon as it is healthy. It is especially dangerous to draw tubes through between the bones of the forearm or leg. The tube is likely to cause, from its pressure, sloughing of the interosseous membrane, secondary haemorrhage from the vessels which lie close to the membrane, and paralysis from destruction of the nerves which accompany these vessels.

Removal of Drains.

When the wounds are healthy, and if there be no necrotic tissue in the depth, it is desirable to remove drains altogether, provided the surfaces of the wound are forced in contact, but it is probably safer practice to shorten them gradually. Rigid drains should give place to soft drains (jaconet, batiste, torn glove, or absorbent bandage) as soon as the discharge ceases comparatively to be profuse. This is usually when necrotic tissue has been cast off or absorbed.

Tension.

Tension in a wounded part militates against successful treatment. It interferes with the efficient circulation essential for the combating of infection; parts which are best supplied with blood—for example, the scalp or face—heal most quickly. Therefore, another great principle is established—that the tension must be relieved, whether in a joint, in the thigh, in the chest, or in the brain. The extensive incisions which are advocated in many cases probably do as much good by relieving tension as by providing free drainage.

REMOVAL OF FOREIGN BODIES.

Whether foreign bodies should be removed depends, firstly, on their size, shape, character, and position, which determine the amount of infective material carried in to the wound; and secondly, on the mobility of the part in which they are lodged and the probable effect on its function. The more important the function the greater is the necessity for early removal.

The amount of infection carried into a wound depends chiefly on the shape and roughness of the missile, and whether it has traversed the patient's clothing. An undistorted rifle bullet carries in a negligible quantity. Shrapnel balls, distorted rifle bullets, and fragments of shell practically always carry in sufficient to cause inflammation. But shrapnel balls and fairly smooth pieces of shell may be quickly wiped so clean during transit through the tissues that they do not cause infection where they lodge. It may quite often be observed that while sepsis becomes established around the entrance wound, the deeper parts of the track remain or become sterile, and no inflammation occurs around the missile itself, so that it can often be removed aseptically through a fresh incision.

All are agreed that irregular fragments of shell, distorted rifle bullets, and superficial shrapnel bullets should be removed as soon as possible. Difference of opinion exists concerning the necessity for and proper time of removal of undistorted rifle or shrapnel bullets or small pieces of shell which are not causing trouble or which are difficult to reach. The decision should really be governed by the importance of the structures in or near which they are imbedded, and the amount of movement which ordinarily takes place. Thus, if buried in bone—in the condyles of the femur, for instance—a rifle bullet almost always, and a shrapnel bullet very frequently, heals in, and may remain permanently without causing irritation. If in the belly of an important muscle any foreign body, unless comparatively minute, will sooner or later have to be removed. It is dangerous to leave any kind of foreign body in close proximity to a large pulsating vessel. Ultimately it will cause secondary haemorrhage or aneurysm. The more irregular it is in shape the sooner will trouble occur.

The structures forming a joint lie, ordinarily, in such close proximity during movement that there is no room for any extraneous material. While an aseptic foreign body, lying free in a joint, may cause no irritation so long as the joint is kept at rest, very rarely can the joint be moved to any extent without lighting up trouble, so that removal as early as possible is indicated. Much more is this the case when sepsis is present.

It is remarkable and somewhat inexplicable that in some quarters it is apparently the practice to treat the brain—possibly of all organs the most important, the most delicate and the most susceptible to continued irritation—on a different principle. I need only say at present that it seems very unjust to the patient that his brain should be selected as an exception to a principle whose application is attended with such success in other parts of the body.

X RAYS.

The importance of accurate localization has been borne in on us all in various ways from time to time. When a special localizer or stereoscopic apparatus is not available the part should always be skiagraphed in two planes, preferably at right angles to each other.

ANTITETANIC SERUM.

No matter how insignificant the wound, every patient should receive a prophylactic dose of antitetanic serum if there be a chance of soil having been implanted. If doubt exists as to whether a dose has been given at the front, the surgeon at the base had better make certain by giving one. The fear of anaphylaxis is an insufficient excuse for not giving the serum, but in the case of a man wounded for the second or third time it is probably safer to give it in "fractional" doses, especially if he reports having shown any of the manifestations of serum sickness after previous injections.

AFTER-DRESSING.

The tendency is to dress wounds presenting raw areas far too frequently. Experience has shown that frequent

dressing may, be very detrimental. Speaking generally, a dressing is used: (a) To protect the wound from deleterious influences; (b) to keep it at rest so that healing may proceed rapidly; (c) to soak up and thereby remove discharges which may accumulate on the raw surfaces; and (d) to act as a vehicle for substances which, by their direct or indirect action, are antagonistic to infecting organisms. A further—very important—attribute of the perfect dressing for the severely wounded man, whose nervous system is so often in a very precarious condition, is that it should be painless, at least very soon after it has been applied.

The following statements apply chiefly to large, deep, irregular wounds, which are the most complicated, but with slight modification are applicable to other types.

The superficial dressings only should require frequent changing, and they ought to be changed whenever they become soaked with discharge. They, as well as the skin, should be treated with some antiseptic application. For deep dressings, absorbent gauze is in general use. This usually adheres rapidly, and later becomes incorporated more or less with the layer of granulation tissue which appears very early. It performs an important function in preventing excessive absorption of poisonous material from the wound. It covers and nourishes the numerous small pieces of aponeurotic tissue which are exposed after such a wound is cleaned up. The gauze must be packed into a wound fairly firmly, so that the granulations will not penetrate far into its meshes. It must not be packed too firmly into the recesses, otherwise the tissues lining the wound are rendered anæmic, and the healing process is interfered with, indeed localized necrosis may occur. Good circulation predisposes to rapid healing. It is also obvious that the gauze must not be laid in too loosely, at all events during the early stages when the infecting agents may be in the ascendancy, otherwise it will act as a deleterious foreign body. The exudation absorbed by loose gauze provides abundance of foodstuffs for these microbes, and such a gauze dressing forms very soon a veritable "pus poultice" which ought to be removed as soon as possible.

The Tablet and Gauze Pack.

The gauze pack should contain in its folds some material antagonistic to the development of these microbes, and the supply thereof should be as constant as possible. This can be achieved by putting into the wound a system of tubes which carry fluid to all parts, but experience has shown that the salt "tablet and gauze pack" procures the desired result at least equally well, and with much less trouble to all concerned. When properly used it entails the least possible disturbance and pain to the patient during the early days of convalescence. A little practice teaches the operator the degree of pressure proper to be used for wounds in the different regions of the body. Such a dressing, if adherent, should not be removed unless for some very definite reason. When it is pulled off bleeding occurs, the protective barrier is broken down, the process

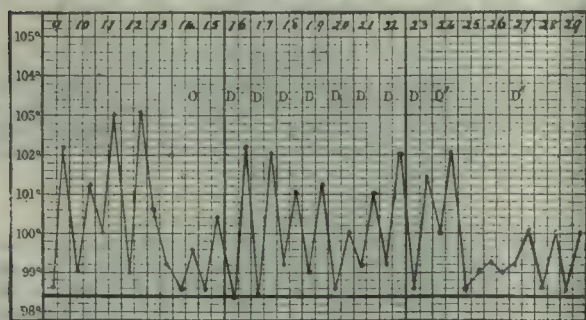


CHART A.—Case of amputation (O) through upper part of thigh. Several other septic wounds present. The high swing of the temperature (D, D—) ceased when the daily dressings were stopped. Observe the slight rise after the "permanent" dressing was changed (D¹).

of healing is interfered with, extensive sloughing of aponeuroses takes place, and the patient suffers excruciating pain unless an anaesthetic is given. Often the high temperature taken as an indication for changing dressings is not reduced; in fact, it may go higher still,

and it is easy to see why this should be. The patient's general condition deteriorates for a similar reason, poisons being absorbed from the wound more easily through the reopened portals. His general resisting and recuperative powers are weakened, especially on account of the strain on his nervous system entailed by the repeated painful dressings. It may be also that the tearing down of this protective barrier predisposes to the occurrence of septicaemia.

On the other hand, if the wound is properly cleaned up, if a "perfect" dressing has been applied, and if the wounded part has been efficiently fixed and supported, it will be found that in a few days the temperature is normal, the wound and surrounding parts are healthy, the patient is happy and his general condition immensely improved. If the dressing is torn off before the temperature is normal, or even within a couple of days of its having become so, the fever will probably return within a few hours. The temperature will probably descend gradually if the dressings are again left undisturbed, and will as probably continue to be remittent so long as the dressings are changed frequently. Similar phenomena are observed after secondary suture or when, after complete arthrotomy of the knee, the granulation covered articular surfaces are fixed in their normal positions (Chart B). A continued high temperature should, however, always make us search for some other adequate explanation which may not be directly connected with the wound. Metastatic abscesses are often very insidious in their development.

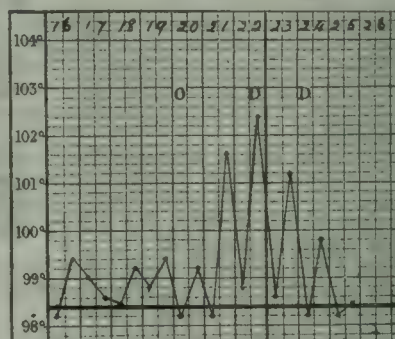


CHART B.—Case of severe shell wound of the knee. Arthrotomy by transverse incision. Other lateral incisions radiating from this laid abscess cavities open. Fixation in acute flexion till wounds were covered by healthy granulations. This chart indicates the general disturbance which occurred when the knee was straightened on September 20th (O). The last dressing (D) was made on September 24th.

The indications for changing such a dressing are: (a) When it is evident from the condition of the parts surrounding the wound that there is retention of pus in a pocket or that extension of the inflammation is taking place; (b) if deterioration of the patient's general condition is occurring when there is no complication present to explain it; and (c) when the deep dressing becomes so offensive that it is annoying to the patient. In the last case, however, the dressing is usually loose and ought to be removed, as it then forms an irritating foreign body.

Ordinarily, however, this "tablet and gauze pack" can be left in for many days—in test cases it has been left even for fourteen days. After the first twenty-four hours or so it often keeps wonderfully dry. Apparently this happens when the necessity for lymph lavage has passed, but no satisfactory explanation of this phenomenon has yet been afforded. There is no advantage in leaving the pack *in situ* after the temperature has been normal for three days or so. Usually in six to eight days the pack is removed, preferably under an anaesthetic. The second packing should be slightly less in extent than the first, and the bandage should be applied again fairly firmly so as to obliterate any potential dead spaces in the depth of the wound. Each successive packing should be diminished in this way. The wound, by the time it is covered by healthy granulations and ready for secondary suture, will probably be greatly reduced in size. In a case of this kind, where a huge wound situated in the upper arm was associated with severe fracture of the humerus, the dressings were changed only five times during a month; at the end of that time the wound could

be practically obliterated by properly applied strapping (Chart C).

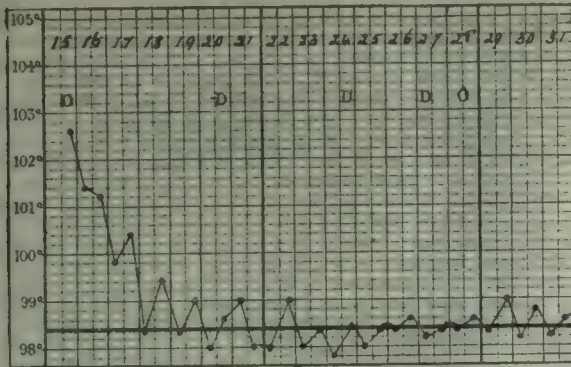


CHART C.—Case of severe lacerated wound of arm with comminuted fracture of humerus—lodgement of fragment of shell and clothing. O. Operation for removal of dead bone. Dressed for first time on fifth day (D) after operation and packed with "tablets and gauze."

A dressing of this kind is not suitable to every case of deep lacerated wound. The extent to which the infection has progressed amongst the fragments of a splintered bone may make the use of any sort of pack dangerous. Such considerations force us to rely on other forms of treatment by simple drainage, by continuous irrigation, by baths, and so forth. It may, however, be said that practically if this form of dressing be not successful in combating the inflammation in a deep wound of the extremities the chances of saving the limb are not great, but if such wounds come under treatment fairly early its use may be recommended with every confidence. Further, seeing that this dressing acts so satisfactorily in some types of complicated wounds, it should not be impossible to find one which will be equally satisfactory in other types.

EXCISION OF WOUNDS.

As I have pointed out,³ many "gutter" or even "punched-out" wounds, some of them of large extent, can be excised and sutured at once, with great advantage to the patient and to the military service. It is unnecessary to discuss this procedure again. The results obtained afford ample justification for a wider employment of the method.

SECONDARY CLOSURE OF WOUNDS.

When the surface of the wound is covered with healthy granulations, and bacteriological examination shows that no specially dangerous organisms are present, many wounds can be closed with safety, provided no dead spaces in the depth are left undrained. When the granulations are flabby and the discharge profuse, it is necessary to prepare the surface for a few days beforehand. When a wound is thus unhealthy, a change to some kind of dressing other than that previously employed is indicated. Changing the strength of the salt solution, "spirit" dressing, the employment of astringent antiseptics such as acetate of alum, red lotion, picric acid, or in some cases glycerine, will be found efficacious in improving the condition of the wound.

Much can be done to reduce the size of the wound before suturing by drawing the edges together with strapping or by compressing the part by suitable bandaging. The strapping should extend far beyond the area of the wound, and great care must be taken that retention of discharge in the depth does not occur. The sutures should be inserted in the same way as "relaxation sutures," or those used frequently in the repair of a ruptured perineum—that is, they should, if possible, under-run the whole surface of the wound. Suturing in layers is practically never possible. When the sutures cannot be made to catch up the deepest part of the wound, a tube of suitable size or folded jaconet or "batiste" must be inserted to drain that part. The sutures should be prevented from cutting the skin by threading them through lengths of rubber tubing ($\frac{1}{8}$ in. or $\frac{1}{4}$ in.) which, when the sutures are tied, reach from one stitch hole to the other. The sutures should be removed early and the wound held together by narrow strips of adhesive plaster or mastic varnish dressing, applied before the stitches are removed.

GENERAL CONDITION OF THE PATIENT.

I do not propose to make any remarks about vaccine treatment, but it remains for me to say that the general condition of the seriously wounded man is deserving of more attention. It must be remembered that he has probably been subjected to severe physical and mental strain for days, if not for weeks, in the fighting line. Patients who are brought in looking cheery and fit may in a few days be physical wrecks, and extraordinarily nervous and apprehensive. Owing to loss of nerve tone and the effects of sepsis everything seems to go wrong. Sleep fails. Appetite fails. Metabolism fails. Fats and proteins already in the system are used up, but oxidation is apt to be incomplete, and the patient has no desire for foods which contain them in large quantity. The great strain on the organs connected with metabolism and elimination, owing to the imperfect oxidation and sepsis, is apt to lead to their break down. The use of sedatives and general anaesthetics does not improve matters, but we cannot escape from using them, since the depressing effect of pain is to be feared even more. Sedatives have to be used freely, but those which are least harmful should be chosen. Omnopon is to be recommended instead of morphine for this reason. Similarly, ether should be used whenever possible instead of chloroform. In a large number of cases local anaesthetics, whether by spinal injection or peripheral blocking of nerves, can be used with the greatest advantage. The addition of potassium sulphate 0.25 to 0.5 per cent. to the solution enhances and prolongs the effect of local anaesthesia. Definite symptoms of "acidosis" have not often been observed, but in many of these cases the chief predisposing causes thereof are present, and we should take measures to counteract them. Thus, during the critical period, we should give alkalis in ample doses, and foods (especially carbohydrates and sugars) which are very easily assimilated, and which do not produce many complex by-products during their metabolism. The administration of these substances, and also of fluids, by the rectum should not be forgotten.

RESULTS OF A SPECIAL INQUIRY.

In the experience of the surgical workers in the Rouen hospitals, the saline treatment of septic wounds has stood the test of time, while other methods have, after trial, been found wanting. At present it is used almost exclusively, all other treatments being looked upon as auxiliary. For example, as noted above, use is made of hypochlorite solution in some special cases.

Seeing that the claims of saline treatment had been urged chiefly by laboratory workers, it was thought advisable to collect evidence from clinical workers who had obtained sufficient experience. Accordingly, in July, 1915, a list of questions was sent to twenty-two hospitals in the area, and replies were received from all. These questions and an epitome of the replies are now submitted. It can be said with justice that the experience of the last five months has strengthened the faith in saline treatment.

For hypertonic treatment, solutions of 5 per cent. sodium chloride and 0.5 per cent. sodium citrate have ordinarily been used to begin with. As has been pointed out, the varying physical conditions and infecting agents of the wounds require variations in the strength and nature of the application if the best results are to be obtained. Sodium citrate is not absolutely necessary. Plain table salt has been found perfectly satisfactory for bath treatment when large quantities have to be used. Plain glycerine, glycerine with salt or glucose, or the now old-fashioned ichthyol and glycerine, have been used in certain stages in certain infections when it is found that the simple salt solutions are not quite satisfactory. Hypertonic solutions of glucose or other sugars have not obtained favour to any extent.

Treatment by isotonic solutions can be carried out continuously only by baths, continuous irrigation, or by very frequent changing of fomentations.

Methods of Application.

Baths.—Great ingenuity has been displayed in supplementing the ordinary body, foot, hand, or forearm baths supplied. Some of the contrivances deserving special mention are: (1) Captain Donaldson's bath⁴ for wounds below the middle of the thigh, but especially for the leg or

foot. The rubber collar causes a certain amount of passive congestion, which can be increased if thought desirable. (2) Captain R. S. S. Statham's adaptation of a curved earthenware road drain, closed by mackintosh sheeting at one end, for wounds below the shoulder. (3) The arrangement of mackintosh sheeting slung to a bed cradle, depicted by Major Adye-Curran, which can be adapted to practically any part of the body.

Continuous irrigation is carried out either by the "drop method" on to gauze which is laid loosely on or into the wound, or by small tubes leading to the recesses of the wound. The overflow is conducted into a receptacle at the side of the bed by suitably arranged mackintoshes. The absorbent bandage drains recommended by Colonel Sir A. Wright are, on the whole, preferable to ordinary gauze for this method.⁶

In using either of these methods it may be advisable to smear the skin which is immersed with vaseline or some other ointment. The use of "irrigation flanges" for preventing soaking of the clothing or bedclothes will prove of use in many cases.⁷

Simple soaks or fomentations—that is, gauze or lint wrung out of varying strengths of solution—are used in the same way as an ordinary fomentation, or are simply moistened at intervals without being removed. Their action is enhanced when they are applied warm.

Tablet and Gauze Packs.—After the wound has been cleaned by operation, all the recesses of the wound—these recesses should be sought out by the finger—are filled, fairly firmly, with gauze wrung out of 5 to 10 per cent. salt solution, in the folds of which are placed numerous tablets of salt. Blood clot which may form during the packing should be wiped away. The gauze should be packed in concertina-wise, a tablet being placed between every third or fourth fold. A fairly large, fenestrated rubber tube is placed so as to reach to the deepest part of the main cavity, which is then filled with gauze and tablets. The dressing is made flush with the skin and the tube projects slightly from its midst. The surrounding skin is painted with solution of iodine or other antiseptic application. Two or three layers of gauze are then used to cover the wound and surrounding skin. A suitable amount of absorbent cotton-wool is applied and a bandage wound on smoothly and firmly.

Should pus collect in any isolated part of the wound, it is not necessary always to remove the whole of the pack, and thus to cause the patient unnecessary pain, and to jeopardize the healing of the rest of the wound. Irrigation and drainage of the affected part may be instituted. The rest of the "pack" will probably become loose in a few days. If it is suspected that any part of the wound will give trouble in this way, a drain down to that part should always be inserted.

Questions regarding Saline Treatment, sent to Twenty-two Hospitals, in July, 1915.

1. Do you find "hypertonic" treatment of wounds (by salt, glycerine, or other solution) satisfactory when compared with other methods?
2. What method of applying it (bath, continuous irrigation, simple soaks, gauze and tablet packs, etc.) do you find most satisfactory? Can you differentiate types of cases in which one method is likely to be superior to another? Do you alter the strength of the solution for different cases?
3. Is the addition of "antiseptics" to the applications of any advantage?
4. What are the indications for discontinuing the treatment?
5. Do you find that patients complain of severe pain? If so, is this pain usually long-continued? Has it any relationship to the age or condition of the wound? Do you employ any remedy to allay the pain if complained of?
6. For how long periods at a time do you apply continuous bath or irrigation?
7. Are there any special points regarding this treatment not touched upon in these questions which you wish to be brought to notice?
8. Do you still use hydrogen peroxide to the same extent? For what purpose or class of case do you find it useful?

Summary of Replies.

The following statement represents, I think fairly, the general opinion expressed in the replies to these questions:

1. The average opinion was voiced in the reply, "Yes. In the opinion of all the surgical workers of this hospital, distinctly superior to other methods." Several replies were most enthusiastic. One surgeon, however, stated

that in his experience the value of the treatment was still *sub judice*, and he was "not convinced that it fulfils the claims made for it."

2. The answers bring out clearly that the method of application must vary with the type and situation of the wound, with the condition of the wound, and the length of time since it was inflicted.

(a) *Baths* were probably most popular at that time. Practically always used in wounds of distal parts of the extremities, especially when these were multiple; where purulent discharge was very profuse, and "when heat was found to relieve pain." Warm 5 per cent. solution of ordinary table salt was most frequently used. Tablets are too expensive for making up large quantities of solution. If solutions stronger than 5 per cent. are used at first, pain is often caused. By adding a handful of salt every fifteen to thirty minutes to a big bath, the strength can gradually be increased, if thought necessary. No more salt is added after the patient begins to complain of pain. Sometimes the 5 per cent. solution must be reduced in strength by adding more water.

(b) *Continuous irrigation* was mostly used after flapless amputations: for joints which had been laid freely open and in some deep open wounds which could not be placed in a bath because movement was painful and undesirable (for example, in some compound fractures).

(c) *Simple soaks* for lacerated, shallow wounds, especially when they have begun to clean. Hot fomentations of 5 to 10 per cent. saline were strongly recommended by some for the relief of pain and to hasten the separation of sloughs.

(d) *Tablet and gauze packs* were judged to be best for deep and fairly recent wounds.

(e) *Drainage tubes containing salt tablets or suppositories* were recommended for long tracks and recesses. Colonel C. B. Lawson initiated this method. The discharge dissolves the tablets slowly, and a hypertonic action is exerted on the neighbouring tissues by the salt solution which diffuses from the tube. The good effects noted in some cases treated by this method stimulated the invention of the "tablet and gauze pack," which is now, as already indicated, most frequently used.

It is interesting to observe that in July, while some preferred to use continuous baths for cleaning deep wounds in the early stages, and then to change to packing with simple soaks or tablets and gauze, the majority preferred to use tablet and gauze packs at the beginning and after the first dressing to use baths or continuous irrigation. As faith in saline treatment became more firmly established it was almost natural that the method should be evolved of changing the packs at long intervals and reducing the size of the pack at each dressing until the wound could be closed or the pack dispensed with. This development has been attended by great success. Pain, time, trouble, material, and expense are saved.

3. The general opinion was that the hypertonic treatment had been so satisfactory that it was unnecessary to add antiseptics. One surgeon thought that antiseptics retarded the action of the salt. One added "a little carbolic or lysol if the wounds have a markedly offensive odour." Of course, all used antiseptics for cleansing the skin around the wound. (The attitude at present towards "eusol" or hypochlorite solution is neutral, in some cases "benevolently neutral"!)

4. The general opinion was that the treatment by salines may be discontinued when the wound is clean and covered by healthy granulations. Some added, "when the temperature is normal," "when there is a tendency for the wound to bleed," and "when granulations become exuberant and flabby." One surgeon replied, "On cessation of the acute discharge and anaemia." It was pointed out that in some cases the profuse lymph flow, provoked especially by baths and continuous irrigation, "drained" the patient's strength and tended to make him anaemic. The continuous gauze pack does not have this effect.

5. Extraordinary variety of opinion was expressed in the replies. Some stated that little or no pain or only transitory pain was complained of. Others said that pain was often severe, and lasted for fifteen to thirty minutes. A general opinion seemed to be that it depended more on the type of patient than on the type of wound. Direct application of tablets to raw surfaces seemed to be productive of most pain; occasionally it caused sloughing, especially of granulations. It was suggested that manipulation might be the cause of pain after packing had been used. It was rare to have patients complain of pain if general anaesthesia had been employed for the packing. (An anaesthetic should always be used to ensure proper packing of a large wound.)

Regarding the relation of the age or condition of the wound to the amount of pain produced, some regarded the

early "tissue shock" as rendering the patient less liable to pain; others said that if the wound was recent and "clean," the pain was greater than if the wound was a couple of days old and in a sloughy condition. The general opinion seemed to be that when sloughs began to separate and granulations to appear salt or glycerine dressings were apt to be painful, and that this was an indication to reduce the strength of solutions, or to change to some other kind of dressing.

The use of salt dressings had not provoked a larger use of such remedies as aspirin or morphine to relieve pain. It was pointed out that it is especially important to cut nerves short in amputation stumps when hypertonic saline dressings are to be applied to the raw surface. The suggestion was made that sulphates (magnesium or sodium) instead of ordinary salt might be used. (They have apparently a good effect in reducing pain, but have not been tried extensively. The necessity for their use is not great, and less is now heard about pain.)

6. Some used baths only for two hours at a time—two to four or more applications in twenty-four hours. Some gave only one bath a day; others used baths continuously for as long as forty-eight to seventy-two hours, or even longer, with good results, and without complaint from the patient, except on account of the irksomeness. One disadvantage of these methods is that they are "more troublesome to the patient and to everybody else." The general rule seemed to be to use baths and irrigation during the day and soaks or irrigation by night. They were discontinued when the sloughs had separated.

7. Any recommendations elicited in replies to this question have already been incorporated in the paper. Colonel C. B. Lawson pointed out that "warming the dressing, as with a hot-water bottle, greatly increases the lymph flow." Several surgeons drew attention to the fact that the salt tablets are "opaque to α rays, the density being midway between that of bone and metal."

8. The majority of replies stated that hydrogen peroxide was used very occasionally. Practically all used it only for its mechanical effects, especially in loosening dressings. (It is used less than ever now.)

December, 1915.

REFERENCES.

- ¹ BRITISH MEDICAL JOURNAL, October 9th, 1915, p. 525. ² Colonel Sir A. E. Wright, BRITISH MEDICAL JOURNAL, October 16th, 1915. ³ BRITISH MEDICAL JOURNAL, August 28th, 1915, p. 317. ⁴ BRITISH MEDICAL JOURNAL, August 22nd, 1914, p. 349. ⁵ *Lancet*, May 8th, 1915, p. 956. ⁶ BRITISH MEDICAL JOURNAL, October 16th, 1915, p. 564. ⁷ BRITISH MEDICAL JOURNAL, October 16th, 1915.

SENSITIZED SHIGA AND FLEXNER VACCINES IN THE TREATMENT OF CHRONIC BACILLARY DYSENTERY.

BY

SIR LEONARD ROGERS, C.I.E., M.D., F.R.C.P., I.M.S.,
PROFESSOR OF PATHOLOGY, CALCUTTA.

At the present time chronic bacillary dysentery is the most difficult and unsatisfactory of the more common bowel diseases in warm climates to treat, causing much misery and invaliding, while in the native population, among whom neglected cases are commonly met with in civil hospitals, the mortality is very high.

The introduction of dysentery vaccines some years ago, especially by Forster of Lahore, was an important advance, and a number of good results have been recorded from its use, chiefly in Indian gaols, although it failed in some of them. Unfortunately its use is not without serious drawbacks. In one case in Calcutta fatal gangrene of the bowel closely followed the repetition of the same dose which had previously been given without ill effect, while I have several times seen serious recrudescences of the disease produced by vaccines prepared in Forster's own laboratory, leaving the patients worse than before its use. Moreover, R. T. Rodgers¹ reports from the Raipur Gaol, Central Provinces, two cases treated with Forster's vaccine in which a severe negative phase, characterized by an increase in the symptoms lasting three to six days, followed its use, and ended fatally on the fourth and fifth days respectively. In one of these perforation of the large bowel with acute inflammation and congestion throughout was found *post mortem*. These unfortunate results are clearly due to the great amount of intracellular toxins in dead Shiga bacilli, for it is well known that an injection of the dead organisms into rabbits produces

necrosis of the mucous membrane of the large intestine, with all the pathological changes associated with acute bacillary dysentery, showing that these toxins have a selective action on the large bowel mucosa.

The foregoing considerations led me a year ago to apply Bedeska's principles to the preparation of a sensitized dysentery vaccine, in the hope of being able to prevent severe and dangerous reactions, and at the same time retain the beneficial action of the remedy. During the past year my opportunities for testing the sensitized vaccines I have prepared have been almost entirely limited to patients seen in consulting practice, still the severe reactions have been so entirely absent and the results sufficiently favourable to make it advisable to place them on record, especially now that many cases of dysentery are being reported from the Eastern theatres of war, which are likely to be partly at least bacillary in nature. I had hoped by this time to have been able to report the results of a carefully controlled test of my sensitized dysentery vaccines in the Assam gaols, which is being carried out, thanks to the kindness of Colonel H. E. Banatvala, I.M.S., but during the recent rainy season the dysentery cases were unusually few, so sufficient data are not yet available. In a few Indian patients treated by me in the isolation ward of the Medical College Hospital the results have also been favourable, but they remained such a short time under observation that it would not be safe to draw any conclusions from them.

The Lister Institute antidysenteric serum was used for sensitized stock cultures of Shiga and Flexner bacilli in the preparation of the vaccines.

The following are brief notes of a consecutive series of cases treated with my sensitized vaccines during the past year. In order to avoid the danger of conveying an unduly favourable impression I will begin with the failures.

I. Cases in which the Treatment Failed.

1. An Indian gentleman came down from Bihar to consult me for chronic amoebic dysentery, which yielded to emetine injections. He returned six months later, when the stools presented the characters of bacillary dysentery, although at first I failed to isolate the organisms. He improved for a time under injections of sensitized Shiga vaccine, but still occasionally passed thick mucus without blood, and I now isolated dysentery bacilli from his stools and wished to try an autogenous vaccine, but by the time it was ready he had passed into other hands, having been told he was suffering from "mucous colitis."

2. An Indian lady brought from the extreme South of India by her husband, who is a medical man. She had suffered from griping pains with the passage of mucus for several years, and had tried all kinds of treatment in various places. I found Flexner bacilli in her stools, and treated her for nearly two months with both sensitized Shiga and Flexner vaccines, with only temporary good effect. She is now having an autogenous Flexner vaccine, but has left Calcutta and I have not heard the result.

In these two cases only temporary benefit was obtained. The maximum doses given did not exceed 100 million, so possibly greater benefit might have resulted if more prolonged treatment with larger doses had been possible.

II. Cases Much Benefited, but which Relapsed Later.

3. A young adult European in Government service came to consult me from the Central Provinces for very chronic dysentery of long standing, accompanied by severe griping pain which greatly interfered with his work, and had led him to decide to retire from India if not better soon. I cultivated Flexner bacilli from his stools, and treated him with sensitized Shiga and Flexner vaccines, as I have more than once seen greater benefit follow a Shiga vaccine in cases showing Flexner bacilli in the stools than from a Flexner one—an observation which is easily understood in view of Dopter's work, showing that the bacteriolytic sensitizing substances produced by every one of the different varieties of dysentery bacilli are identical. The injections were continued after he left Calcutta by Major Fleming, I.M.S. After two doses of 50 million and one of 100 million at weekly intervals, he wrote that it had certainly done him a lot of good, as he had had no relapse, but still had a little pain in the left hypochondriac region at times, but his bowels were quite regular. Two months later Major Fleming kindly reported that the patient was

"enormously better, and in fact at times seems to be all right." Soon after Major Fleming was transferred, but on inquiry he recently informed me that he had heard that the patient had another attack of colic and had gone to England. In this case the benefit lasted several months, while particulars of his apparent relapse are not available. Here, again, larger doses and longer treatment would probably have produced more lasting benefit.

4. A European lady was sent down from up-country to consult me for chronic dysentery of four months' duration, with the passage of large quantities of mucus, described by her doctor as "regular sheets of mucous-like sloughs." Finding the disease to be bacillary in nature, I supplied some doses of 50 and 100 million sensitized Shiga vaccine, but the immediate effect of the first doses was reported as being slight. Four months later the patient wrote from England that the injections of vaccine had done her a lot of good, but she was then suffering from a relapse of a much milder form. Her statement was confirmed by her medical man, who asked for some more of the vaccine. This was sent, but there has not been time to hear again regarding her progress.

III. Cases Greatly Benefited by the Vaccines.

5. An Indian gentleman from the United Provinces consulted me for dysentery of eighteen months' standing, complicated by fistula, which had been freely opened up into the rectum. Large quantities of mucus were being passed, from which I isolated Flexner's bacillus and made an autogenous vaccine. After one dose of 50 million, which had little effect, a second dose was not taken until after two months, when much benefit resulted. Three more doses of sensitized Flexner vaccine of 50 and 100 million were injected, and two months later the patient reported that except for a little mucus on one day only he had kept quite free from his old trouble, very marked benefit having resulted from the vaccines.

6. A European male, sent to me from the Central Provinces by Lieutenant-Colonel Chapman, I.M.S., with a history of chronic dysentery for eight months. Among other forms of treatment, he had received two courses of emetine (one in Bombay), albugin enemata, which did good for a time, a course of coli vaccines, and a mixed dysentery vaccine from Kasauli, but without any lasting benefit. I cultivated dysentery bacilli from his stools and supplied him with doses of 50 and 100 million sensitized Shiga vaccine, which Major Chapman injected. Two months later the patient wrote that the results were quite satisfactory, the symptoms having been greatly reduced and his general condition improved. He went to Europe on ordinary leave soon after, with a supply of vaccine, to enable the treatment to be continued if necessary, and I have not heard of him since.

7. An Indian male, seen in consultation with Dr. S. C. Mallik. He had been suffering from chronic dysentery for about eighteen months, and was in an extremely emaciated and enfeebled condition, being unable to sit up in bed without help. All kinds of remedies had been tried without avail. I injected 50 million sensitized Shiga vaccine, and repeated the dose after a week, as the first injection had produced a marked improvement in the bowel condition. The dysentery now finally ceased, but a third dose was given later as a precautionary measure. He remained in a very weak condition for over a month with great nervous prostration, but eventually made a good recovery. I have no doubt that the vaccine treatment saved his life.

8. An Indian female, seen in consultation with Dr. Tarak Nath Sur, to whom I am indebted for reports on the progress of the case. She had been suffering from chronic dysentery for several months, was reported to be passing about forty small stools a day, with mucus and a little blood, evidently due to ulceration in the lower part of the large gut. No amoebae were present in the stools, while the microscopical characters were those of bacillary dysentery, although I did not succeed in isolating the dysentery bacillus. Emetine and numerous other forms of treatment had been tried without avail. Sensitized Shiga vaccine in doses of 50 and 100 million were injected weekly, and rapid improvement resulted. A slight relapse occurred several months later, but quickly yielded to the same line of treatment, the good effect having been very remarkable in this case.

9. A European male had been treated with emetine and salines for an attack of dysentery, but was still passing much mucus, which was increasing in amount. His stools presented the characters of chronic bacillary dysentery, and I injected him with one 50 million and four 100 million doses of sensitized Shiga vaccine at weekly intervals, with the result that the trouble completely disappeared. This was not a severe case, but the patient was greatly worried over his condition.

10. A European male, who had been attacked with dysentery eleven months previously, and had received twenty-three injections of emetine without any marked effect. After a change of climate he gradually got better, and six months after the attack commenced was practically well. A month later, with the onset of the rainy season, the trouble returned and continued for three months, emetine, Dover's powders, etc., failing to do any good; so it was decided to send him home. At this stage I was called in consultation, and examined a stool microscopically, which presented the characters of chronic bacillary dysentery, and showed no amoebae. I arranged for him to have one 50 and two 100 million doses of sensitized Shiga vaccine. He greatly improved after the first dose, and after the second he remained free from all symptoms for several weeks. He then passed a little mucus on one day only, and received an injection of 200 million of the same vaccine, after which he had no more trouble up to the time he went on his ordinary leave a few weeks later. He himself described the effects of the injections as being marvellous. It is, however, too early to say if the effect will be lasting.

11. An Indian male, who had suffered from occasional attacks of griping pain in the region of the hepatic flexure and descending colon for several years, while during the last six months the trouble had been present almost daily, the pain waking him up in the early morning hours, and mucus being passed on rising. He had been injected with emetine without benefit. There was tenderness over the descending colon, which felt thickened. The microscopical characters of the mucus were those of bacillary dysentery, and I isolated dysentery bacilli, which proved later to be Shiga's bacillus. Mixed sensitized Shiga and Flexner bacilli were injected in increasing doses up to 125 million. In the night following the first dose there was no disturbance and no mucus was passed in the morning, and two weeks later, when I last heard, he still remained free from all symptoms. All his stools were seen by his Indian medical attendant, and a number of them by me, so there is no doubt about the facts. This case is too recent to judge if the effects will be lasting, but the immediate result of the vaccine was most remarkable.

CONCLUSIONS.

In none of the above cases was anything beyond a moderate degree of reaction at the seat of the injection of the vaccine observed, while there was never any increase in the bowel symptoms or other toxic signs for a single day. The sensitization of the vaccines appears therefore to have fulfilled the expectation which led me to prepare them. Considering that the majority of the patients were sent from various parts of India to consult me after the failure of prolonged treatment of different kinds, and that the doses used were always small—probably much less than might be used with advantage in cases which resist the treatment—I think the results recorded in this paper may be considered as affording good grounds for hoping that, with further experience, this line of treatment will prove to be an important advance in dealing with intractable cases of chronic bacillary dysentery. Sensitized vaccines also appear worthy of cautious trial in quite small doses, but with shorter intervals, even in the more acute stages of the disease.

REFERENCE.

¹ *Indian Medical Gazette*, November 19th, 1913, p. 434.

THE General Council of the Seine and the prefect of police of the department have placed a bust of the late Dr. Emile Reymond in the operating theatre of the hospital at Nanterre, to which he was surgeon. It may be remembered that Dr. Reymond, who was a member of the French Senate and an enthusiastic airman, died from wounds received during a reconnaissance in the early part of the war.

A CASE OF CHOLO-HAEMOTHORAX.

BY
T. R. ELLIOTT, F.R.S., F.R.C.P.,
TEMPORARY CAPTAIN R.A.M.C.,
AND
HERBERT G. M. HENRY, M.D.,
TEMPORARY CAPTAIN R.A.M.C.

THE main interest of the case described in this note is that the patient made a relatively straightforward recovery, despite the unusual nature of his wound, and that it never became necessary to open the chest. The history of the injury was briefly this: A bullet fired by a sniper at short range went horizontally through the man's body, drilling a hole through each arm above the elbow, and passing through the chest behind the sternum at the level of the sixth costal cartilages close to the base of the heart. Its track through the left chest must have been fairly near to the surface, perhaps just grazing the heart, but in passing out through the right side the missile had gone deeper, injuring both liver and lung.

On the eleventh day the right pleural cavity was found to be full of fluid, the percussion note being dull almost to the clavicle. By an incomplete aspiration 40 oz. of dark brown fluid were withdrawn, and this appeared to be the usual fluid from a haemothorax. Dry pericarditis developed and a dry pleurisy on the left side. The physical signs soon indicated a reaccumulation of fluid on the right side, and on the sixteenth day a second aspiration obtained 60 oz. of fluid that was dark brown in tint, but yielded a yellowish-brown deposit containing bile. Ten days later 80 oz. were withdrawn, and this was now greenish-brown in colour and almost free from blood. The operation had to be repeated, and in all the patient's chest was aspirated five times on the right side, and 15 pints of fluid in the aggregate were withdrawn. This fluid was at first serum from clotted blood, but later it consisted only of pure thin bile. The last aspiration was on the forty-ninth day after the wound. In the ninth week he was well enough to walk freely about the ward, and he was then transferred to England. At the end of the fourth month he had almost completely recovered.

The pericarditis and dry pleurisy on the left side were accompanied by fever and a good deal of pain, so it may be inferred that they were due to a smouldering infection in the serous membranes close to the septic wound of entrance. When a haemothorax is infected with streptococci, it is often found that a dry pleurisy can be detected on the side opposite to the effusion. It is difficult to believe that a pleurisy developing under such conditions has any other cause than that by a direct spread of the streptococci from the infected collection of blood; yet such a dry pleurisy will ultimately vanish, and it is very rare for it to develop into an effusion and empyema. We may therefore assume that the entry wound in the left chest of this case had admitted a slight infection into the left pleural cavity. The rest of its track was clean. The repeated aspirations introduced no infection at a later date, nor did organisms escape with the bile that was so freely poured out from the wounded liver. This absence of infection by the latter route deserves notice, for it is certain that the bile must have been leaking directly from some large bile duct.

Wounds of the liver appear at autopsy as tracks through necrosed tissue, which is stained a bright chrome yellow by the effused bile; but this secretion rapidly comes to an end, for the dead cells are soon walled off by a barrier of fibrous scar tissue. A persistent leak of bile can only come from a hole in a duct, which is fed by the secretion of live cells further up the stream and away from the patch of injury. It is generally believed that microbes appear from time to time in the larger bile ducts, either in process of their excretion from the blood or by direct ascent from the duodenum. However, it is obvious that in the case here described the bile must have remained practically sterile, for bacteriological examination of the aspirated fluids never revealed the organisms whose inroad was feared. There was another reason which, as Sir George Makins pointed out to us, might have necessitated resection of a rib. The biliary fistula lay through a tear in the diaphragm, and so long as this opening led freely into the pleural cavity, and away from contact with any

granulating surface, it seemed unlikely that the fistula would soon be closed. Resection of a rib might have been expected to bring the diaphragm into contact with the pleural wall, and ensure a rapid closure. As a matter of fact this was never needed, for the fistula closed spontaneously at about the sixth or seventh week.

Before recounting the full clinical details of the case, we may quote in this connexion some other examples of liver injury associated with wounds of the chest, which were observed by one of us in a large series of the latter wounds. The liver is often perforated by gunshot wounds without any obvious result. Since there is only the track of the bullet to suggest that the liver has been injured, and since one can never be sure in any individual case what was the position of the diaphragm at the moment when the wound was received, it is of little value to tabulate the number of men in whom the liver was supposed to have been wounded without ill results. A wound of the liver is either rapidly fatal from haemorrhage, or in itself is of little importance, for, thanks to the double blood supply, the breach in its tissue is soon healed, while biliary fistulae are neither common nor permanent.

In four men who died with a haemothorax infected by gas-producing anaërobic bacilli it was found that the liver as well as the lung had been wounded, and that the lacerated track through it was infected. But the probability is that the infection in all these four cases was carried in from outside by the entering missile, and that it did not originate with intestinal bacilli liberated from the debris of the torn liver. No facts have been observed which would suggest that a wound of the liver is peculiarly liable to be septic.

Two cases of external biliary fistulae were observed in the total series—roughly, 500 in number—of all chest wounds; and there were also two internal fistulae, of which one was the case detailed in this paper, while the second was a fistula into a bronchus.

CASE I.—External Fistula. (Under Captain W. B. Oliver.)

A sterile haemothorax on the right side caused by a bullet traversing both sides of a man's chest from left to right. From the exit wound in the fifth space, below and external to the right nipple, yellow bile began to leak on the tenth day. On the thirtieth day this ceased, and the sinus closed. There was no infection of the haemothorax, nor any alteration in its size. Three months after the wound the patient was reported by Mr. A. R. Anderson of Nottingham to have made a good recovery, with a practically normal chest.

CASE II.—External Fistula. (Under Lieutenant G. R. Colquhoun.)

A septic haemothorax caused by a bullet traversing the right base of the chest. About the seventh day there was a rapid increase in the displacement of the heart, and an exploration of the chest found offensive gas and pink pus with gas-producing bacilli. A rib was resected on the ninth day. No jaundice. On the thirteenth day bile began to leak from the empyema tube, which was a very short one, since the lung had expanded well at the operation. On the twenty-eighth day the leakage of bile had ceased, and the sinus was closed by the thirtieth day. The patient was transferred to England in good condition.

CASE III.—Internal Fistula. (Under Captain St. J. D. Buxton.)

Into the bronchus, closing about the tenth week. A septic haemothorax of the left side, caused by a shrapnel ball which traversed both sides of the chest. At some time after the wound the patient began to expectorate sputum mixed with yellow bile, but the precise date of this could not be ascertained because the symptom had caused a psychical obsession which made all the patient's statements on the question unreliable.

On the twenty-sixth day the empyema on the left side was drained; it contained streptococci and gas bacilli. Frothy sputum, with patches of bright yellow bile, and once or twice with fleshy masses of necrosed liver (proved by microscopic section), continued to be coughed up. Lieutenant-Colonel H. P. Hawkins reported from England that the expectoration of bile ceased in the tenth week. The empyema sinus was practically closed at the fourteenth week, and the patient then was rapidly becoming fit again.

CASE IV.—Internal Fistula. (Under Captain Hector Smith.)

Into the pleural cavity. This closed about the seventh week. The patient, while bending over to lift up a sandbag, was shot at short range by a sniper. He felt winded, and was carried away at once on a stretcher. No haemoptysis, either then or subsequently. The bullet passed through the flesh of the left upper arm, entered the left chest over the sixth rib in the nipple line, escaped at the same level on the right side, but an inch or more external to the nipple line, and then traversed the muscles of the right upper arm. Its track ran behind the sternum, and was at a much deeper level in the right chest than in the left.

3rd day.—Says that he felt sick, and then vomited a little blood. Otherwise no evidence of injury to stomach.

12th day.—At base hospital. No pain with food, and no sickness. Slight icterus in conjunctivæ. The entrance wound on the left side was septic. Right chest dull up to first space in front, and heart's apex beat displaced two inches to left.

Aspirated in axilla. Intrapleural pressure = 0. The volume removed was 40 oz.; final pressure = -6 cm. water. Clots of fibrin blocked the cannula and prevented complete removal of the fluid, which was of a dark brown coffee tint and sterile; it contained a few endothelial cells and lymphocytes and yielded a moderate secondary clot.

17th day.—Pericardial friction all over cardiac area and dry friction also in left axilla. Temperature upheld at 101°. Pulse 110. Aspirated in fourth space just below nipple. Initial pressure = 0, volume = 60 oz. Oxygen 500 c.cm. introduced, so that final pressure fell from -18 to -5 cm. water. Dark brown fluid, with yellowish-brown deposit containing fat globules and crystals (? tyrosin). Few old red corpuscles, and fairly numerous polymorphonuclear cells. Sterile.

26th day.—No icterus. No pericardial friction. Slightly tender and rigid in right hypochondrium. Temperature oscillating about 100°. Looks thin and ill. Heart apex beat displaced to mid-axilla. Aspirated 80 oz. greenish-brown fluid. Oxygen 1,100 c.cm. introduced so as to enable complete aspiration, and final pressure = -12 cm. Bright yellow deposit of bile; fairly numerous polymorphonuclear cells.

30th day.—Attack of pain in left axilla, and fresh signs of coarse pleurisy. Temperature 103°.

32nd day.—Aspirated. Initial pressure = -8 cm. Volume = 60 oz. Oxygen 500 c.cm., and final pressure = -20 cm. Green fluid, with greenish-yellow deposit; few polymorphonuclear cells. No secondary clot, and no coagulable protein on boiling.

35th day.—Heart apex beat still 1 in. to left. Coarse pleuro-pericardial friction.

40th day.—Aspirated. Initial pressure = -7 cm. Volume = 60 oz. A little oxygen used, and final pressure = -22 cm. Green fluid, as before. Thenceforward the temperature remained normal, after forty days of irregular pyrexia.

54th day.—Up and walking about. Heart apex beat almost normal. By x ray, only a little fluid at right base. Chest moving fairly well, but somewhat collapsed.

57th day.—Putting on flesh rapidly; transferred to England.

72nd day.—Irregular fever, lasting for eight days, reported by Dr. Ormerod; cause unknown.

120th day.—Discharged to convalescent home. Heart apex beat just internal to nipple. No sign of fluid at right base, but friction heard and movement impaired. Not yet actually fit for service.

Two or three subsidiary points deserve attention in respect of these cases. In the last example quoted the patient was not jaundiced, and he exhibited only the slight icterus of the conjunctivæ that is frequently seen in the second week of an ordinary hæmothorax; yet his pleural cavity was full of thin bile. The absence of jaundice was due to the relatively slow absorption from the pleural surfaces, when coated with a layer of blood clot. Indeed, this explanation applies equally to its absence in a hæmothorax, as well as to this case of biliary fistula. Hæmorrhage into the abdominal cavity leads at the end of the first week to a jaundice of far deeper tint, for absorption from the peritoneal surfaces is much more rapid than in the chest.

The colour of the biliary fluid in the effusion into the pleural cavity was green. Yet the deposit was yellow, and this was also the colour of the bile discharged in the bronchial fistula and in the two internal fistulae—a yellow almost as bright as that which is seen around a lacerated missile track through the liver. Bilirubin seems to have been changed into biliverdin by some process akin to that by which dissolved hæmoglobin in the fluid of a hæmothorax is often converted into a darker pigment resembling methæmoglobin.

The biliary effusion remained sterile. It is uncertain to what extent the properties of the bile itself acted as a check on the development of infection by other than organisms of the *Bacillus coli* group. But it deserves note that the bile did not cause much irritation of the pleural membrane. The polymorphonuclear cells which were found in the aspirated fluid were not more numerous than those that are often seen in an ordinary sterile hæmothorax fluid, and they disappeared before the leak of bile had ceased. The biliary effusion yielded no secondary clot, either when allowed to stand after aspiration or after the addition of fibrin ferment to it; and it contained practically no coagulable protein. Therefore it had not been augmented by the addition of an inflammatory pleural exudate.

DR. W. G. GRACE, the famous cricketer, left estate of the value of £7,278, with net personalty £6,590.

AN IMPROVED METHOD OF LIFTING PATIENTS ON TO HOSPITAL SHIPS FROM BARGES AND BOATS.

BY

COLONEL A. W. MAYO-ROBSON, C.V.O.,

CONSULTING SURGEON TO THE MEDITERRANEAN EXPEDITIONARY
FORCE.

In the war that is now being carried on at the Dardanelles it is practically impossible to deal with the sick and wounded ashore. It has therefore been found necessary to institute a fleet of hospital ships to which these patients may be transported at the earliest possible moment.

From the shore the seriously wounded, lying on stretchers, are brought out on barges or boats, from which they are hoisted on to the ships, which stand high out of the water.

In calm weather large wooden trays have been used, which are raised by cranes and deposited on the ship's decks, but in rough weather these heavy trays are a source of danger both to patients and attendants, and in any case are somewhat slow in operation, so that it takes a considerable time to unload a barge full of stretcher cases.

The new sling invented by Lieutenant-Colonel P. H. Falkner, R.A.M.C., officer commanding troops, hospital ship *Salta*, is an invention that is as simple as it is efficient. It can be used in stormy as well as in calm weather, and it accomplishes the work in a quarter the time taken up by the wooden trays.

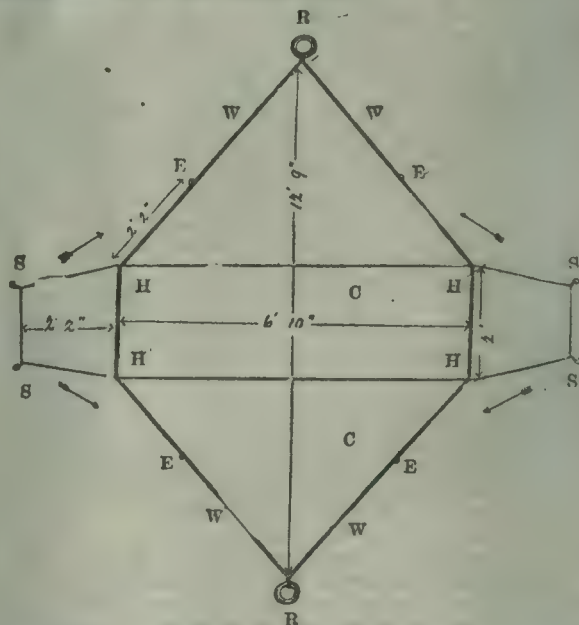


FIG. 1.—Lieutenant-Colonel Falkner's sling. Working diagram. C, "O" canvas (but any stout canvas will do). EEEE, Metal eyes to take spring hooks. HHHH, Holes in canvas sling (diameter 8 in.) for legs of service stretcher. RRR, Metal rings (diameter 5 in.). SSSS, Spring hooks. WWWW, Wire rope (1 in. in circumference).

I have seen many hundreds of patients lifted on to the different ships, so that I speak from considerable personal experience. Unknown to those who were working the slings, I timed the transfer of stretcher cases from a trawler by one crane on to the *Salta*, and I made out that 16 cases were transferred and carried off to the wards in nine and a half minutes. We were then at Cape Helles, Dardanelles, and there was a north-east gale blowing.

So far as I am able to judge, this sling solves the question of our being able to remove wounded during the stormy weather likely to prevail during the winter if the cases can be loaded on to the barges and brought off to the hospital ships. It also solves another problem—that of delay in loading—which means great discomfort and danger to patients seriously ill or wounded, since not only can the work be done quickly, but the load to be lifted is so little that hand derricks can be rigged up in parts of the ship where there is no crane, and so the patients may be brought on at more than one place if necessary.

SUGGESTIONS FOR OPERATING THE CANVAS LOADING SLING.

By Lieutenant-Colonel P. H. Falkner, R.A.M.C.

For the rapid and efficient loading of wounded from boats and barges into hospital ships and temporary hospital ships, etc., it is most important that the working party should understand its duties. Each man in the team has only one duty to perform, and care is taken that he understands this, and does nothing else during the admission of patients.

The best results are obtained by detailing a team of four men for each barge or trawler; likewise we give four slings to each winch; the ship's crew attend to the deck above, and are not interfered with by our men until the patient is taken over. The procedure is as follows:

1. Two team "stretcher men" spread out the sling over the deck of the barge.

Bearers who come from the shore, etc., with patients, carry the stretcher and place it in position so that its legs will take the holes in the canvas sling provided to receive them. The canvas I used was a quality called "O" canvas, but any stout canvas will do.

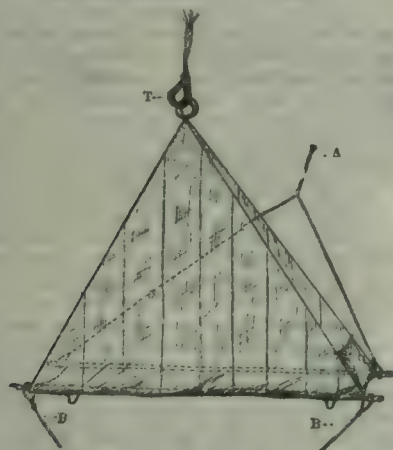


FIG. 2.—Winch hook. A, Hauling line to ship. B.B., Hauling line to barge.

The team "ringman" lifts and approximates the two metal rings, R.R., holding the wings of the sling well up, so that the two "stretcher men" may conveniently adjust the flaps by fixing the hooks S.S.S.S. into the rings E.E.E.E., and ensure the stretcher legs being in their appointed positions (H.H.H.H.).



FIG. 3.—Removing stretcher from sling.

The "ringman" now seizes the winch hook, T, and attaches his rings, R.R. He then signals to the deck that all is safe to hoist away. As the stretcher leaves the barge the "stretcher men" rapidly spread another canvas ready to receive another patient, who is already close by in the hands of the bearers. If the bearers are not yet in position the "stretcher men" may with advantage spread more than one sling over the offloading position—one over another.

The fourth man of our team receives the rolled up slings as they are rapidly passed downwards from the deck above by means of a hauling line.

D

2. When the winch swings the patient inwards over the ship's deck, two ward bearers, both facing forwards, seize the stretcher handles, taking the entire weight of stretcher as the winch rope slackens off. In this manner the wounded man entirely escapes the inevitable jar of a wooden cradle landing on the deck.

The ward bearers now remain in position, holding the stretcher at arm's length, until the rings are removed from the winch hook and the canvas sling is dropped to the deck—to enable them to advance across it.

The loading is very smooth and rapid; therefore every man of the team is, or should be if he is properly trained, working at full pressure. During rough weather the hauling lines shown in the diagram are always used. This means an extra trained man with the team below while the ship's crew control the inboard hauling line.

If for any reason there is little or no deck room on the barge, roll up the sling, with its metal rings thrown inwards towards the centre of the cloth, from one end flap to the other. By lifting one end of the stretcher the canvas may now be readily adjusted.

Or, again, it may be more convenient for the two "stretcher men" to simply lift the stretcher from the deck while the "ringman" spreads the sling.

To prevent any possibility of accident the condition of the canvas and wire should be closely inspected from time to time.

ON THE USE OF SOLUTIONS OF QUININE AS A DRESSING FOR INFECTED WOUNDS.

By SIR JOHN TWEEDY, F.R.C.S.

EMERITUS PROFESSOR OF OPHTHALMIC MEDICINE AND SURGERY,
UNIVERSITY COLLEGE, LONDON.

I HAVE read with great interest the communication of Dr. Kenneth Taylor, Pathologist to the American Ambulance, Neuilly, published in the BRITISH MEDICAL JOURNAL of December 25th last, on "The use of quinine hydrochloride solution as a dressing for infected wounds." Dr. Taylor maintains that quinine solution (1) has high bactericidal properties, ten times as effective as carbolic acid in the case of *B. abortus capsulatus*; (2) is a strong antiferment, preventing the digestion of proteins and the consequent production of a medium favourable to bacterial growth; (3) forms no stable chemical combination with proteins, so that its activity is not greatly reduced by the presence of serum or pus; (4) is non-irritating and non-toxic.

Some years ago I published a paper on the treatment of diphtheritic ophthalmia by local application of solution of quinine.¹ The reasons which led me to employ quinine in some cases which I believed to be true diphtheritic ophthalmia were as follows: Cohnheim, Recklinghausen, and Stricker had shown that the principal changes which occur in traumatic inflammation of the cornea consist of the germination of the protoplasm of the stellate corpuscles and of the immigration of leucocytes from the adjacent capillary vessels; Binz and others had proved that quinine, whether given internally or injected subcutaneously, exerts a specific influence on the processes of inflammation by hindering or retarding the germination of protoplasm or by checking the vital amoeboid movements and consequent migration of leucocytes.² Binz's experiments also confirmed the statements of many independent observers that quinine possesses in a high degree the power of arresting putrefaction and fermentation.

Cases of true diphtheritic conjunctivitis are very rare in this country, and since the time I wrote the introduction of diphtheritic antitoxin has profoundly changed the treatment of diphtheria in all its manifestations. Antitoxin is of paramount importance, but I still believe the local application of quinine to be of the greatest service; and not only in diphtheria, but in all cases of infective and sloughing ulcers of the cornea, and in many, if not all, forms of infective conjunctivitis.

Dr. Taylor's experiments and observations supply an answer to a question which has often engaged my thoughts ever since Metchnikoff promulgated the doctrine of phagocytosis. In employing, on hypothetical grounds, quinine in diphtheritic ophthalmia I was largely influenced

by Binz's observation that quinine checks the migration of leucocytes in inflammation. Hence the important question, Does it also interfere with phagocytosis? Dr. Taylor has, I think, proved that it does not.

I may add that at first I used slightly acid solutions of quinine sulphate, but for many years I have used the sulphate and hydrochloride indifferently, and have not observed any difference in their action or efficacy.

REFERENCES.

¹ *Lancet*, 1880, i, pp. 125 and 282. ² *Loc. cit.*, p. 282 et seq.

TRAUMATIC IMPLANTATION OF EPIDERMIS IN TRACK OF GUNSHOT WOUND.

BY

LIEUTENANT-COLONEL G. H. EDINGTON, D.Sc.,
M.D., F.R.F.P.S.

AN example of traumatic implantation of epidermis in the track of a gunshot wound having lately come under my notice, I venture to record it, in the hope that, attention being drawn to the occurrence, other surgeons may be induced to keep a look-out for it in cases where a healed wound opens again and to record their experience.

Private —, aged 20, sustained on July 12th, 1915, a gunshot wound through the left shoulder. He was helping to carry a wounded man out of the trench, and was stooping slightly, when a rifle bullet struck him in the back of the shoulder, and, passing forwards, emerged above the clavicle.

He rejoined his battalion for duty on August 8th. Two days later the wound "broke down," and he was attended by the regimental medical officer. On October 21st he again paraded sick, complaining of pain in the wound. Captain Pirie Watson, at this time in medical charge of the battalion, found both scars "very weak and bulging." He incised them and removed some "sebaceous material." Similar material has since been removed at intervals. On November 1st Captain Watson sent him for radical treatment to the field ambulance.

Condition on Admission.

The wound of entrance was situated over the supraspinous fossa, and about 2 in. (5 cm.) in from the point of the shoulder; the wound of exit was represented by a small scar, circular in outline, situated in the supraclavicular region, directly in front of the wound of entrance. The wound of entrance was open and granulating, and had the appearance of having recently been incised; there was scanty sero-purulent discharge. There was no visible swelling in the course of the bullet track; but on palpation hardness was distinctly felt in the anterior part of the track. There were no signs of acute inflammation.

On November 4th chloroform was administered. A probe introduced into the wound of entrance passed forwards and pointed in the scar of the exit wound. A curette passed alongside the probe removed some pale granulations, and more deeply (about halfway along the track) struck pomade-like material. The track, which was between 2 and 3 in. long, was laid open from end to end, and was found to pass under the outer fibres of the trapezius, necessitating their division. There was a very considerable amount of scar tissue, irregularly nodular and firmly adherent to the surrounding muscle fibres. During manipulation there appeared in the wound, not apparently from any particular spot, masses and flakes of dead-white material, exactly resembling desquamated epithelium mixed with sebaceous matter. The scar tissue was dissected out, a drainage-tube inserted and the wound sutured.

On cutting, after removal, into the masses of scar-tissue, one showed a small cystic cavity from which the contents had escaped. In two or three others the cut surface of scar-tissue showed pinhead areas of sebaceous-like material, which could be picked out, leaving a clean cavity.

In the absence of facilities for microscopical examination, it seemed desirable to ascertain if possible whether the wound had at first been treated with paste; but, in answer to my inquiry, the patient was positive that nothing had been injected into the wound, and that external dressings had alone been used. I was therefore confirmed in my original opinion that the case was one of implantation of epidermis with subsequent proliferation. Theoretically, there is no reason why the carrying in of one or more fragments of living epidermis should not occur in a certain percentage of gunshot wounds. It is very likely, however, that in the majority of gunshot wounds the degree of trauma is sufficient to kill the epidermal cells.

It would appear that in civil life such implantation followed by the formation of a "dermoid" is usually the result of a trifling injury, so trifling that not only may there be no history of such forthcoming, but the scar be only seen after minute examination of the skin over the

swelling. It would also be expected that the thicker the epidermis the greater would be the likelihood of its being carried into the deeper tissues. This condition obtains in the palmar surfaces of the hand and fingers, and every one knows that there is no part of the body more subject to trifling and unheeded injuries, and at the same time more likely to be the seat of "implantation dermoids." It is therefore interesting to note the occurrence of implantation in the case just recorded. The part struck was the back, a situation where the epidermis is much thinner than in the palm, and the injury, while perhaps slight as gunshot wounds go, was by no means either trifling or unheeded.

GUNSHOT WOUND OF THE SUPERIOR LONGITUDINAL SINUS.

A REPORT OF THREE CASES.

BY

A. W. NUTHALL, F.R.C.S., CAPTAIN R.A.M.C.(T.),
CASUALTY CLEARING STATION.

THE observations of Lieutenant-Colonels Gordon Holmes and Percy Sargent on injuries of the superior longitudinal sinus, recently published,¹ are so striking as to arrest the attention of all who are concerned—as neurologists, clinicians, or surgeons—with the care of cases of gunshot wounds of the skull. They have demonstrated that injuries of the superior longitudinal sinus give rise to a peculiar set of symptoms which constitute a definite clinical picture—briefly, paralysis with rigidity of the voluntary muscles, with a tendency to progressive recovery without contractures or other permanent nervous defects.

I venture to report three instances of this particular injury which have come under my notice during the past month. I was puzzling over the curious and anomalous symptoms presented by my first case when I received the *BRITISH MEDICAL JOURNAL* on October 4th (in France), and read therein their account of "the typical case," which might almost have been written of my patient. The coincidence was as remarkable as the paper was opportune and illuminating. My second and third cases died and *post-mortem* examinations were made. No. 2 was moribund on admission and died from haemorrhage; No. 3 succumbed after operation, there being extensive destruction of the brain as well as the injury to the sinus.

CASE I.

Private W. G. H. was shot in the head during the night of September 30th–October 1st. He lost consciousness at once, alarming haemorrhage occurred, and subsequently persistent vomiting. He was admitted to our casualty clearing station at 5.30 p.m. on October 1st, conscious, but in a very grave condition of collapse from loss of blood, blanched, restless, and with a rapid, feeble pulse. He said he was paralysed, and was found to be almost universally rigid. There was retention of urine, requiring the use of a catheter. There were two wounds on the top of the head, about 2½ in. apart, and on either side of the median line, the entry wound on the left side, the exit wound on the right of the mid-line and nearly an inch behind the former; they led to a perforation in the subjacent skull, situated just in front of the mid-point of the mid-line.

His mind was clear and his speech unaffected. There was no ocular paralysis; the pupils were equal and active. There was left facial paralysis of cerebral type. No other cranial nerves were affected. An examination of the fundi was not made. The arms were held tightly clasped to the body, elbows adducted to the sides and forearms flexed across the chest, hands clenched. Fingers, wrists, elbows, and shoulders were all rigid, increasingly so up the limb. He had no voluntary control over the arms. No reflexes could be elicited in the biceps or triceps. The abdominal muscles were fixed and took no part in respiratory movements; the umbilical and epigastric reflexes were absent. His legs were stretched out rigidly to their fullest extent, rotated in so that the patellae touched each other, and the feet were crossed; the feet were extended almost in a straight line with the legs, and turned inwards. He had no control over the legs. The knee-jerks were excessive; there was an extensor Babinski reflex; it was impossible to test the ankle-jerk.

Operation.

On October 2nd both wounds were excised, a flap made, and the perforating tangential fracture cleared of depressed fragments and bone debris. On picking out a sharp fragment impacted in the dura, it was found to have penetrated and to lie in the longitudinal sinus just under the edge of the bony defect. A flooding haemorrhage from an extensive ragged wound of the sinus, and of large venous trunks on both sides, was only arrested by plugging with gauze; no other method was suitable under the conditions. The flap was sutured, and drainage established through the excised posterior wound. A subcutaneous saline infusion, containing adrenalin 1 in 40,000, was given at once. Although almost *in extremis* from loss of blood, he rallied well, and was soon out of danger. The gauze was gradually removed, and finally extracted at the end of a week. The flap healed at once, but some suppuration, finding issue through the posterior wound, persisted up to the time of his transfer from my charge.

After-History.

Shortly after the operation urine was passed into the bed; in the evening the catheter was required. During the next fortnight he frequently wetted his bed; he explained that he could not wait once he felt the desire to empty the bladder. In the latter part of his stay here he had satisfactory bladder control.

On the third day after being wounded it was noted that "at times the muscles of the thighs relax, so that the knees can be flexed passively." The fingers and wrists were also much less rigid, especially the left.

On the fourth day his general condition was undoubtedly improving. There was some power of voluntary movement of the right hand and fingers (similar to athetosis), and he could move the right arm away from the body, but rigidity was present all the time and impeded these efforts; all passive movements were effected against resistance, the extensor muscles—for example, the triceps—increasing their tonic contraction against movements. Traction on any group of muscles appeared to stimulate them to a slow, vigorous contraction. The right shoulder was more rigid than the elbow, and the elbow than the wrist. The left arm was more definitely paralysed than the right in that there was no voluntary control at all over it. The rigidity was much less marked in this arm, except in the shoulder, which was as much, or even more, fixed than the right. The abdominal muscles were firmly contracted. No abdominal reflexes were present. The legs showed very little improvement. He complained of pain, "cramp," in the adductors of the thighs. The degree of rigidity of the joints diminished according to their nearness to the trunk, the ankles being quite fixed, the knees and hips progressively less so. It was now possible to flex the knees and hips forcibly and so allow him to lie comfortably on one side or the other alternately.

On October 5th, the fifth day, flaccid paralysis of the left arm was present, except in the shoulder, the pectoral muscles being very rigid. This flaccidity of the left arm became more obvious, as it persisted throughout and showed no signs of improvement, while progressive improvement occurred elsewhere. In conjunction with the left facial paralysis it remained as a partial hemiplegia.

The rigidity of the right arm cleared off rapidly, there being none present on the seventh day. Voluntary power over the right arm was only slowly regained, and only to a partial degree, the movements of the limb being markedly ataxic on the twenty-first day, coarsely inco-ordinate excursions of the arm occurring on attempts to touch any object with the index finger. He was able, however, to hold a cigarette on the seventh day, and to feed himself on the twenty-first.

The rigidity of the legs diminished much more slowly; the hips became relaxed the earliest, the knees about a week later, but some stiffness of the ankles persisted throughout. A very limited amount of voluntary control over the legs was regained. The knee-jerks were excessive, and an extensor Babinski always present. Ankle clonus was first noted on the seventh day; it became very much less marked subsequently.

Sensory changes were noticed to correspond to, and appeared to depend on the degree of, the paralysis and hypertonus of the muscles; they cleared up *pari passu* with the recovery of voluntary control and the disappearance of the rigidity. The sense of position was lost, nor was there appreciation of passive movements of the joints; thus, he could not tell whether the legs were crossed or the knees were being flexed; when his eyes were closed he could not say what was being done to the fingers, wrists, or elbows. The sensibility of the skin to light

contact was present throughout, but touch stimuli were delayed or not correctly localized. Heat and cold were not tested. The value of subjective information of this nature is to be discounted by the very desperate condition of the patient at the time; later, when he was out of danger and well on the road to recovery, the sensory changes were confined to loss of sense of position and appreciation of movement about the ankles and legs, and there was a marked improvement in this respect when he left us.

On the twenty-first day he was evacuated to the base; I have no further information about his progress. He then had left hemiplegia (face and arm), and considerable muscular wasting. There was a certain amount of control over the right arm, but its movements were feeble and very ataxic. He was still almost helpless, although there remained only slight rigidity of the legs and ankles. The wound of exit was suppurating, as if there were still a foreign body (? gauze) beneath the scalp.

CASE II.

Private F. H. was shot in the head on October 16th. He was received by us on the 17th, comatose and moribund, dying two hours after admission. He was not noticed to have any rigidity by the receiving officer.

Necropsy.

Post-mortem examination showed a wound 3 in. long transversely across the mid-line of the vertex. There was a depressed gutter (tangential) fracture, with very little loss of bone, situated exactly over the sagittal suture; a fissured fracture extended from it downwards and outwards nearly to the left external angular process of the frontal bone. A fragment of the inner table, about 1 in. square, was separated and depressed on to the sinus, and a small, sharp piece of bone had been driven into the sinus. There was a slit-like tear in the dura, about an inch in length, at right angles to the mid-line on the left side and extending across the longitudinal sinus as a laceration of its roof. The wound was situated at the junction of the middle and anterior thirds of the sagittal suture. There was no blood clot in the sinus. The margins of the precentral and superior frontal convolutions of both hemispheres were severely bruised—that is, discoloured by haemorrhagic exudation. The frontal and precentral venous trunks showed up prominently on both hemispheres as purple, thrombosed, engorged vessels, with congestion of the convolutions bounding the sulci.

In this case the brain showed a localized contusion which might easily have been recovered from. Death was probably due to haemorrhage from the longitudinal sinus, or to shock.

CASE III.

Sergeant H. E. H. was shot in the head on October 24th. He was received by us on the 25th quite unconscious. The pupils were equal and active; there was no ocular paralysis. There was general rigidity of the limbs; the arms extended by the sides of the body and rotated in; the right was less rigid than the left, allowing the passive movements without much resistance. The legs were extended and rigid, the feet turned in (but the legs were not rotated in). The knee-jerks were excessive; an extensor Babinski and marked ankle clonus were present. Urine was passed into the bed. A wound 3 in. long, through which brain matter was extruding, was present at the junction of the anterior and middle thirds of the mid-line of the head; it was transverse in direction and mainly on the left side. An operation was carried out within two hours of admission. A tangential perforating fracture, with considerable loss of bone, was exposed; there was extensive destruction of the underlying brain by deeply indriven fragments of the inner table. There was blood clot in the mesial angle of the bony defect; in clearing this out, free haemorrhage from the longitudinal sinus occurred. A crown of bone was removed from in front, and a perforation from which the blood poured, was closed by a suture. A drainage tube was placed in the cavity and the wound closed. He did not rally after the operation, but quickly became worse, and died four hours later.

Post-mortem Examination.

The lacerated wound of the dura mater was situated over the left superior frontal convolution, in which there was a large ragged cavity. The superior longitudinal sinus was torn completely across: *ante-mortem* blood clot filled the sinus for three inches behind the wound. The four main venous trunks—frontal, pre-central, post-central, and occipital—stood out prominently on both hemispheres as purple, swollen, thrombosed vessels, giving an appear-

ance of intense congestion to the greater part of the upper portion of the brain. The left prefrontal venous trunk had been destroyed.

Holmes and Sargent emphasize the favourable prognosis of injuries of the superior longitudinal sinus, but their "experience has shown that the results of surgical interference have been extremely unsatisfactory." I believe that in my two cases it would have been better to have confined the interference to strictly conservative measures. My first case very nearly died after operation; the end of the second was probably hastened by the operative interference. In dealing with a case presenting symptoms of "the longitudinal sinus syndrome" I am inclined to think that the surgeon should hold his hand until and unless the arrest of haemorrhage or the relief of definite compression is called for; in other words, there should be no interference.

REFERENCE.

¹ BRITISH MEDICAL JOURNAL, October 2nd, 1915.

A NOTE ON WICK DRAINS.

BY

G. H. COLT, F.R.C.S.,

ASSISTANT SURGEON, ABERDEEN ROYAL INFIRMARY.

The ordinary drain or "plugging" of folded gauze takes a certain period of time to make. When the gauze is at all hard or its fibre coarse, partially glazed or mercerized, as is notably the case with some of the American gauzes, the difficulty of folding is increased. Machine-made plugging is expensive, and the sizes to hand are not always those required. It occurred to me that at this time, when large quantities of plugging are required for use with hypertonic or other treatment, or for stopping a secondary haemorrhage, it would be advisable to use

some form of cheap lamp-wick, but the woven varieties are rather closely knit, and the twisted varieties are apt to be unmanageable with a probe. Some of the wicks sold do not absorb water.

A simple solution of the problem, apart from constructing a machine for the purpose or adapting a knitting machine, is to utilize a child's knitting reel with which reins or "cats' tails" are made. Three pins to the reel seems to be better than a larger number, but if a more truly circular and tubular wick is desired a larger number may be used. In this case the product is either closer in texture or unduly large. The illustration shows a reel of convenient size, the drain being $\frac{1}{2}$ in. in diameter; other useful sizes are $\frac{3}{8}$ in. and $\frac{1}{4}$ in. in diameter respectively. These three sizes are

made by employing reels of the following sizes in inch measure.

Size of Reel.	Diameter of Wick.		
	$\frac{1}{2}$ in.	$\frac{3}{8}$ in.	$\frac{1}{4}$ in.
Height ...	1	1 $\frac{1}{2}$	1 $\frac{1}{2}$
Outside diameter ...	2	1 $\frac{1}{2}$	1 $\frac{1}{2}$
Diameter of hole ...	1 $\frac{1}{2}$	1	$\frac{3}{4}$
Side of triangle ...	1 $\frac{1}{2}$	1	1
Size of cotton ...	2	4	10

In this table the only important measure is the distance between the feet of the (equilateral) triangle formed by the pins, because on this depends the size of the stitch in the tail. The other measurements merely indicate the sizes of reels convenient to work with. Any reel large enough to take the triangle, and having a hole large enough not to compress the tail will do. Any kind of pin or tack will answer the purpose, but a convenient thing to use is a full gauge, $\frac{3}{8}$ in., brass escutcheon pin, sold by most ironmongers.

The cotton used is Alexander's four-thread knitting cotton (bleached), and the sizes to correspond with reels of the above-mentioned measurements are No. 2 (thick), No. 4 (medium), and No. 10 (thin), the approximate diameters of these threads being $\frac{1}{2}$ in., $\frac{3}{8}$ in., and $\frac{1}{4}$ in. (the latter one *plus*). This cotton is a smooth, loose twist of four strands, which does not tend to fray out, and is lissome and absorbent. Any soft fibred cotton will do, but for each size there is a corresponding size for the sides of the triangle, if one is to obtain a tail of the right body and tension—namely, one in which the mesh is open and the strands do not fall and cling together. The cost at retail price of the cotton mentioned is 1s. 2d. the $\frac{1}{2}$ -lb. hank, for all sizes. Each hank makes:

Of No. 10 (thin), 130 yards of wick; time 36 hours.

Of No. 4 (medium), 42 yards of wick; time 9 hours.

Of No. 2 (thick), 22 yards of wick; time 5 hours.

The thick size is cut into lengths of 6 in. and 10 in., the medium into lengths of 4 in. and 7 in., and the small into lengths of 3 in. and 6 in., the loose clippings removed and the ends caught up into a single knot, or this may be done in the process of knitting, and adds about four hours to the total time for the above-mentioned quantities. The thick variety is more suitable for use as plugging than as a drain, and for drainage one should use two or more strands of the medium instead of one of the thick size.

Convalescent patients or children can readily make large quantities of these drains and thereby save a good deal of the nurses' time at present taken up in folding gauze. There are no raw edges, the mesh is open, and the absorbing power great, partly owing to the choice of material and partly to the size of the stitches. The twist in the cotton produces a high degree of capillarity, and the attraction between the films in the meshes is considerable.

LOCAL TREATMENT OF SUPPURATING SKIN LESIONS AND INFECTIONS.

BY

GEORGE HOME, M.D. EDIN., MAJOR N.Z.M.C.,

SINCE entering upon active service I have been confronted with the treatment of a considerable variety and a large total number of suppurating abrasions, ulcers, boils, and localized infections of the skin. In addition to other unfavourable conditions (for example, heat and dust) my subjects have been mostly unable or unwilling to give mechanical rest to the injured part; these sores have frequently, therefore, been very obdurate.

After several months' trial of permutations and combinations of dressings—wet and dry dressings, with antiseptics and without, antiseptics without dressings, open air, and direct sunlight—with ultimate, but, to my mind, unreasonably slow healing, the following method was arrived at, and for the last three months has continued to prove the most rapidly successful and satisfactory of any. Its only requirements are 3 per cent. cyanide gauze and adhesive plaster, occasionally a pair of scissors, and (for boils) a scalpel. No solution or other antiseptic is used. The suppurating surface is gently wiped dry with a clean piece of cyanide gauze; another piece, only slightly larger than the actual sore and about 6 to 8 ply in thickness, is laid on dry and fixed with strips of zinc oxide or other adhesive plaster, imbricated so as to make a watertight dressing. It is very important to cover the gauze completely, and the thickness of the gauze dressing varies with the amount of probable discharge. This dressing may be left untouched for one, two, three, or four days, according to indications. If comfortable, with no lymphatic evidence of absorption, the less often it is disturbed the better. Subsequent dressings are done exactly in the same way as the original.

A corporal came to me with a suppurating sore, 2 inches square, on the back of the left wrist, which had refused to heal for three weeks. I wiped it clean with cyanide gauze, making it bleed slightly. There being no water or solution handy I put a piece of dry gauze on it, covered it carefully with adhesive plaster, and told the man to report

next morning. He did not return until four days afterwards. The dressing, which had not been disturbed, came off easily, the sore was perfectly covered with a soft bluish-white skin, and there was no further trouble.

Reflection on this result led me to the conclusion that this form of dressing (1) gave the best surface protection to the damaged part, (2) contained sufficient mild antiseptic to inhibit further bacterial growth on the skin surface, (3) allowed of the production and maintenance of bactericidal and healing serum locally in the sore, and (4) that for this last reason it was important neither to wash the part nor to put the gauze on wet. Such procedure would have spoilt the biological properties of the serum, and would have interfered with the nourishment of the healing cells, especially if any stronger antiseptic had also been used.

It is important to cover the gauze completely with the adhesive plaster—firstly, to give accurate fixation and mechanical protection, and secondly, to retain in the gauze moisture sufficient to keep the serum at normal consistence and to prevent the dressing sticking to the raw surface.

It is, of course, necessary to get the whole infected area completely exposed for the dressing—that is, to remove all crusts and scabs and overhanging cuticle, as in suppurating blisters. At first I felt impelled to use a touch of surface antiseptic (iodine tincture), but a parallel series of tests of similar cases convinced me that it was better not to annoy the sore. I also have a conviction (perhaps begotten of theoretical considerations) that a covering film of fresh blood on the sore is an initial advantage.

Applying a similar principle to boils, I open each, whatever its stage, with a Paget's knife, taking care to cut into the induration also; gentle pressure is applied to get out only what pus will come easily; the surface is dry-wiped and then dry-dressed exactly as already explained, preferably with a film of fresh blood over the boil. At first the gauze pad is made fairly thick and, if there is much pus, renewed twice a day. There is very little pain after the initial dressing and the core usually comes out on the third or fourth day. Before the first and after the last dressing I paint the skin for some distance around the boil with iodine tincture to diminish the chances of spread of local infection.

My subjects are vigorous young New Zealanders on active military service, whose blood and tissues are therefore very capable in the production of antibodies. But I consider that the idea might be applied to chronic ulcers, to so-called "eczemas," and to other suppurative and exudative skin lesions met with in ordinary practice.

It is therapeutically sound to let bacteria "stew in their own juice" when conditions permit, and it is quite easy for a small wrong detail in treatment to upset the quality or quantity of the "juice" and to spoil its capacities both for devitalizing the infecting agents and for vitalizing the repairing agents. This spoiling may be done by diluting it or by desiccating it.

The middle course is Nature's own. She puts a dry hard scab on a healing sore that just sufficient fluid may collect under it to nourish the healing cells, and give it a tight hold that cannot be disturbed without disaster before healing is complete.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

COMPRESSION OF AORTA IN POST-PARTUM HAEMORRHAGE.

On the night of October 28th I was called to a 2-para, aged 28, who had been three or four hours in labour. Her first labour, three years before, had been terminated with forceps under chloroform. The os was completely dilated and retracted, and the head about half through the brim. The pains were strong and frequent, but little, if any, progress was made during half an hour.

I put her under chloroform, using Duncan and Flockhart's, by the open method, but not to the surgical degree, applied Simpson's long forceps, and delivered, with comparatively little difficulty, a living baby. The uterus

contracted well under manual pressure, but as I failed to express the placenta by the Dublin method, and as distinct pulsation in the cord indicated adherent placenta, I introduced my left hand—well asepticized—and found a small surface adherent right up at the fundus. This I separated easily, and brought away the placenta in front of my hand. I compressed the uterus manually for some fifteen minutes until firm contraction resulted, and then proceeded to wash my forceps and hands. In ten or fifteen minutes the nurse called to me and I found the uterus much distended; I expressed a regular torrent of blood, and massaged the uterus till firm contraction resulted. I made the nurse keep up the manual pressure while I gave a hypodermic injection of ergotinine citrate (1-200 gr.), and then proceeded to compress the abdominal aorta against a lumbar vertebra in the "crutch" formed by the flexed index and second fingers of my left hand, the arm being fully extended, and made the pressure absolute by the tips of the two corresponding left fingers against a lumbar vertebra close to and in front of the right. The aortic pulse was feeble, irregular, and intermittent, the patient lying in a faint with lips and surface white and exsanguine. I had sent for Dr. Hutchinson to give normal saline, and he instilled about 8 or 10 oz. into the areolar tissue beneath each breast. I kept up pressure till the patient rallied, and in about half an hour gave her some warm milk; I stayed another half-hour, but there was no return of haemorrhage.

The patient recovered without a single bad symptom, suckled her baby, and resumed her household duties in twelve days, but I am morally certain that the compression of the aorta was the chief factor in saving her life.

East Ham.

C. STENNETT REDMOND, M.D.

FOREIGN BODIES IN RECTUM.

THE following case is of interest, owing to the fact that it was the second occasion on which the patient had swallowed the foreign bodies, and, in my opinion, they had not been introduced from below. The patient, a female aged 19 years, not pregnant, informed me that she was suffering from constipation and had taken purgatives, but with no definite result, chiefly due to pain in the rectum during the act of defaecation. I gave her calomel gr. v, and directed her, if it had not the desired result, to remain in bed and send for me. The next day I was called to her house, and, before examining her, I elicited the following history. The bowels had not moved for fourteen days; she had swallowed during a day and night, about fourteen days before, two full boxes of wooden matches (safety). I was amazed to be told by her that I would require to give her chloroform and remove them from the rectum, as a doctor had had to remove them in that way before. On examining the rectum with the finger I found it full of matches lying in all directions as far as my finger could reach; the finger when withdrawn was covered with blood due to the excoriations of the mucous membrane by the sharp end of the matches. I removed the matches—of which there must have been at least two boxes—after consideration, without an anaesthetic, as a moral lesson to the patient not to swallow highly indigestible substances in future.

Winchburgh.

JOSEPH STARK.

IMPERFORATE HYMEN AND ABSENCE OF UTERUS.

I PUBLISHED a "case of complete atresia vaginae and absence of uterus" in the BRITISH MEDICAL JOURNAL of October 5th, 1901, and as such conditions are extremely rare, it is a singular coincidence that I should have met with another somewhat similar condition.

A girl, aged 18, was brought to me by her mother because she had never menstruated. She is a perfectly healthy, strong, and well-developed girl. I found an imperforate hymen. Examination under chloroform at the hospital revealed a strong thickened hymen, but the uterus was completely absent, although a thin whipcord extended from side to side of the pelvis.

Mirfield, Yorks.

LESLIE J. MILNE, A.M., M.D. Aberd.

Reports of Societies.

TREATMENT OF SYPHILIS.

At a meeting of the Association of Registered Medical Women on December 14th, 1915, Dr. HELEN BOYLE in the chair, Dr. MARY SCHARLIEB, in opening a discussion on venereal disease with special reference to syphilis, said that the difficulty in obtaining treatment in the early and hopeful stages was due to a twofold plea—(1) that it tended to encourage vice; (2) that funds intended for the relief of the innocent sick were used. Many sufferers, especially women and children, however, were entirely innocent; the expense of treatment and maintenance in the later stages was infinitely greater, and untreated syphilis might spread the infection. The recognition and treatment of syphilis were now assured facts since the introduction of the Wassermann test and of salvarsan, so that the excuse of prolonged and uncertain treatment no longer held good. Since salvarsan could no longer be obtained, kharsivan made in this country, and galyi, manufactured in France, had been found reliable. With regard to infantile mortality, investigation showed the number of cases of syphilitic infection—pre-natal and post-natal—to be great. As many children died in the six months before birth as in the first twelve months after birth, and the great majority of intrauterine deaths from the third month onwards were due to the *Spirochaeta pallida*. From evidence given before the Royal Commission on Venereal Diseases the most satisfactory form of treatment appeared to be as follows: The diagnosis having been established, either by finding the spirochaete or by the Wassermann test, salvarsan or one of its substitutes was injected intravenously; this was followed by inunction of a mercurial cream for ten weeks. A second intravenous injection of the arseno-benzol compound was then given, followed again by inunction for ten weeks; and both were repeated a third time. After this the Wassermann test should be repeated at intervals for two years. Dr. MARY JOHNSTONE said that in asylums the treatment of cerebro-spinal syphilis, if diagnosed early, was successful, that of general paralysis of the insane and tabes difficult, though injection of salvarsan relieved the lightning pains and gastric crises. It had to be remembered, however, that remissions occurred in general paralysis of the insane even without specific treatment; some patients were discharged as cured, but all died suddenly within a few months. Dr. KATE ADDISON said that statistics collected in skin departments showed that from 1.5 to 2 per cent. of the cases coming for treatment were syphilitic. Among 500 cases at the skin department of a children's hospital she had found no case of syphilis. Dr. HAZEL CUTHBERT described a case of possible delayed congenital syphilis in a boy aged 9. There was oedema of legs and face and intense ascites without albuminuria. The Wassermann test was positive. Dr. ELEANOR LOWRY, in speaking of syphilis of the throat, nose, and ear, said that syphilis, unlike tuberculosis, usually commenced in the epiglottis. Atrophic rhinitis was not as a rule syphilitic in children between 7 and 12. Secondary labyrinthine deafness with nystagmus and vertigo cleared up with antisyphilitic treatment, but congenital nerve deafness was generally incurable. Dr. HELEN WILSON said that the system of registration, which had been in vogue for 100 years, was unjust, unscientific, and unsuccessful. Early and efficient treatment was essential. Notification, though theoretically good, was not practicable. The Danish system of free and compulsory treatment had not diminished the incidence of the disease. Rather than apply compulsion to the unwilling it would be better to provide fully and helpfully for willing patients. Dr. ELIZABETH COURTAULD said that at the Lock Hospital three intravenous injections of salvarsan or its substitute were given at a fortnight's interval, and mercury was given by intramuscular injection and not by inunction. Mercury caused a remarkable increase in weight; one patient gained 7 lb. in a week. Mercurial treatment was continued for seven years. Kharsivan had been considered poisonous, but out of 96 cases treated, 84 had shown no reaction, 11 a slight reaction, and one a reaction up to 102°.

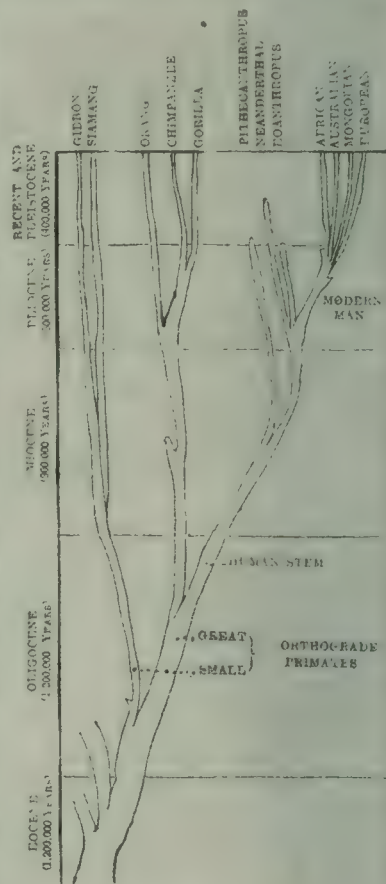
Rebels.

THE ANTIQUITY OF MAN.

THE purpose and scope of Professor ARTHUR KEITH's new book are well indicated in its title, *The Antiquity of Man*.¹ In it the evidence which tends to put back the time of man's first appearance to a period much earlier than was until recently by any one supposed possible is examined and pronounced valid, but the contention which gives its special character to the book is that modern man, or at any rate, man with a brain case as capacious as the average of to-day, or even larger, existed in the middle pleistocene epoch, probably earlier. This may be said to be the purpose of the book. Its scope is very wide, for in the process of examining the evidence every specimen is described, in most instances very fully, and the conditions under which it was found discussed. This involves the study, first, of the evidence as to the authenticity of each specimen—some, owing to lack of accurate and trustworthy records, are under grave suspicion, or have to be rejected; secondly, of the geological evidence as to the probable age of the stratum in which the specimen was found; and thirdly, of the evidence afforded by the remains of animals found with the specimen, and of the character, whether less or more primitive, of the stone implements believed to be of the same epoch. A fourth line of evidence is afforded by the more or less primitive anatomical characters of the specimen, but the nature of Professor Keith's thesis in, roughly, the first half of his book, to some extent shuts him out from using it as evidence of antiquity.

This thesis is that modern man, modern in the form and capacity of his cranium, existed as early as the Neanderthal type, from which it has been assumed that he was evolved. Professor Keith does not now hold the view that Neanderthal man is in the ancestral line of modern man. He agrees with Dr. W. H. Duckworth that the race (or species) became extinct, and believes that it branched off at some early period from the stem from which modern man evolved; it took the wrong road and failed.

The general plan of the book is to recount the circumstances in which each specimen was found and its geological relations, to describe very fully its anatomical characters with the help of diagrams of the skull set within a framework of lines which bound the chief diameters of a modern skull of mean size, and finally to sum up the evidence, as to authenticity, antiquity, and anatomical characters. In this way we are taken through the stories of the long series of discoveries from those of



¹ *The Antiquity of Man*. By A. Keith, M.D., A.B.D., F.R.C.S. Eng., F.R.S. London: Williams and Norgate. 1915. (Demy 8vo, pp. 529; 169 figures. 10s. 6d. net.)

Neolithic men in this country, probably the contemporary of the pre-dynastic Egyptians, to Piltown man (*Eoanthropus Dawsoni*), who lived either in the early Pleistocene period as Dr. Smith Woodward believes, or, as Professor Keith thinks, even earlier—that is to say, in the Pliocene period. As to the actual date, it may be a quarter of a million years ago or half a million, but probably nearer the latter than the former, perhaps a million. This is a very wide margin, but the date, and even whether *Eoanthropus* was Pleistocene or Pliocene becomes of less importance if we accept the view which has the support of Sir E. Ray Lankester, that the subcrag flints of East Anglia and the eoliths of Kent are man-made, for then the beginnings of man must be put back to a geological period antecedent even to the Pliocene.

It seems that the school of thought which maintains that the modern type of man and the Neanderthal type existed on the earth together have proved their case, and have made it probable that the former expelled the latter from Europe, supplanting him so completely that the beetle-browed man became extinct. If it be admitted that the two types were contemporaries the consequences, as Professor Keith points out in a concluding chapter, are very far-reaching. He illustrates them by a genealogical tree from which we have made the accompanying simplified sketch. If, somewhere in the middle Pleistocene two types of men existed as different as Modern man and Neanderthal man, the fact argues a long antecedent period of evolution, long enough for the human stem to have branched into at least these two divergent types, and perhaps a third—*Eoanthropus*. Parity of reasoning puts back very much further the period, perhaps two million years ago, when the human stem separated from that which in the process of evolution has yielded the anthropoid apes and the gibbons. We are, in fact, confronted with another question—namely, when, if we ever have a complete tree, should it be said that the creatures in the human stem become endowed with brains which entitled them to be called man? For we must assume that the bigger brain preceded the skeletal changes.

Professor Keith has written a book of extraordinary interest which makes its appeal to the already large and, we believe, rapidly growing section of the public, who want to know how science is moving and to what ends, and is not satisfied to take its information at second hand, but wishes to learn from the expert. The book is one which only an accomplished anatomist could have written; it is full of anatomical facts and discussion. So far, therefore, the medical reader is in a better position to follow the argument than others, and it is very much to be commended to medical readers for several other reasons. One is that the enthusiasm of the author infects the reader, who at the same time has the conviction that the facts are recorded with scientific conscientiousness, even though the hypotheses founded on them may not always carry complete conviction. That this is the case Professor Keith freely admits when he says in his preface that he is convinced that the true solution cannot differ materially from that presented in the diagram here given, but that it "is only one of many [solutions]; time will show which is right." Another reason is that some of the most important finds have been due to the vigilance of amateurs who have closely watched excavations, even in such unlikely places as the small pit used by the farmer at Piltown to get gravel to mend his cart road. How many other fragments of fossil man have been used to mend the roads elsewhere no one knows, but the medical reader of Professor Keith's book will learn to look on gravel pits with a more discerning eye than heretofore. A final reason is that the book lifts its reader out of the obsession of the war, and may help those inclined to despair of humanity to take a longer and, let us hope, a truer view.

The book is very well illustrated, by which we do not mean only that the number of illustrations is large—the list enumerates 189, many of them consisting of more than one drawing—but that each really elucidates the statements or arguments in the text, and all appear to have been specially drawn for the book by Dr. Stanley Beale and Mr. William Finerty. The publishers deserve a word of praise for the pains taken to get each drawing in or very near the place where it is discussed and described, but they ought to have supplied a better index and may, we hope, yet do so in another edition.

PUBLIC HEALTH.

*English Public Health Administration*² is one of the series of studies in economics and political science issued under the direction of the London School of Economics. In his preface the author, Mr. BANNINGTON, states that the aim of the work is to provide a survey of the methods of public health administration, and thereby fill a gap which has heretofore existed, since public health literature has concerned itself only with either purely formal statements of Acts of Parliament supplemented by annotations and comments, or with the practical application of technical knowledge. In this he has been successful. The work is an exceedingly useful addition to the literature of public health, and will be most helpful to those who, having entered the public service possessed of a general knowledge of the statutes, are admittedly ignorant of the application of legal powers to local and special conditions. The lucidity with which the author has treated an intricate subject is very creditable, and certain criticisms and strictures will be heartily endorsed by those who have experience of the use of an imperfect machine, complicated by additions and crippled by gaps. The desire of the author to have a great consolidating and simplifying Act, which would abolish the riot of Acts of general application, adoptive Acts, private Acts, orders, by-laws and regulations, is one common to all concerned in the administration of public health departments. Difficulties are, however, put in the way of such consolidation by the fact that health problems are largely governed by scientific and social investigations which are still incomplete, and that experience concerning the proper functions of county councils as opposed to borough and district councils is still immature. Few, if any, public health officials will disagree with the author's strictures on private slaughter-houses. It can be positively asserted that the loose way in which the public meat supplies are supervised is a menace to national health, owing to the defective legislative control of premises where nefarious acts can be conducted with little risk of detection. The chapter on finance is to be especially commended. It is a clear exposition of a subject still for many public health officials shrouded in mystery. We thoroughly agree with the passage in the work devoted to security of tenure of sanitary officers. The capricious attitude of some local authorities towards their officials is well known, and existing so-called security of tenure may mean little. In that part of the work devoted to a discussion of the staff, the reactionary suggestion is made that the administration should be duplicated, the one department being that of the medical officer of health, and the other that of the sanitary inspector. Efficiency in any municipal department can be obtained only where there is one chief official—the chief of the public health department must be the medical officer of health. The work of the sanitary inspector is concerned with the control of conditions inimical to health, and that statement, which none can dispute, is sufficient to convince any impartial person that the final departmental consideration of such conditions must lie with the medical officer.

THE CANCER PROBLEM.

INTO his book on *The Cancer Problem*³ Dr. W. S. BAINBRIDGE has collected notes on practically every piece of work on cancer published within the last ten or fifteen years. He has been a studious reader of everything connected with cancer, and he has travelled much in Europe, visiting most of the clinics and laboratories where cancer research of any description has been done, gaining opinions from individual workers of their own work, and undoubtedly criticisms of the works of others. Much of the work and many of the opinions are of ephemeral value, some, perhaps, may be landmarks in the history of the research, but whatever has been done or said—good, bad, and indifferent—finds a place in the pages of the book. There is very little discrimination attempted by the author, and no one not conversant with the subject would be able to winnow the wheat from the chaff, but the book

² *English Public Health Administration*. By B. G. Bannington. Introduction by G. Wallas, M.A. Studies in Economics and Political Science, edited by the Hon. W. Pember Reeves, Ph.D., No. 46. London: P. and S. King and Son, Ltd. 1915. (Demy 8vo, pp. 349. 7s. 6d. net.)

³ *The Cancer Problem*. By W. S. Bainbridge, A.M., Sc.D., M.D. New York: The Macmillan Co. 1914. (Med. 8vo, pp. 552; 28 plates, 12 figures. 17s. net.)

serves as a fairly orderly summary of the main papers that have been published down to the time of its publication, and the student may find it a convenient place in which to look for an account of researches that otherwise would be difficult to unearth from bibliographies.

NOTES ON BOOKS.

THE tenth edition of Mr. T. W. SANDERS'S *Roses and Their Cultivation*¹ is well illustrated by pictures in colours and in the text. By the inexperienced it will, perhaps, be most appreciated for its directions for pruning, which are well illustrated by very clear diagrams. The chapter on the diagnosis and treatment of diseases of roses is also very practical, but the book suffers for want of a better index. There is a very copious and useful table of varieties, giving the date of their introduction and short notes on their character and peculiarities, but without more knowledge than an amateur newly taking up rose-growing can be expected to possess he may have some difficulty in finding what he wants.

In the collection of papers by the late Canon BARNETT and Mrs. BARNETT, under the title *Practicable Socialism*,² we have brought before us the chief points of the work begun in St. Jude's parish during the years that Canon and Mrs. Barnett laboured there. We are familiar with their desire to give education—that is, a wider use of eyes and ears, and a wider capacity for enjoyment—and cordially agree in the need for hobbies. Many of the suggestions made years ago have become realities now, such as vacation schools, travelling parties of schoolboys and schoolgirls; but many suggestions, notably in connexion with the welfare of the children of the State, need further development. The book should be read by those interested in the lives of their poorer neighbours.

A liberal selection from the works of British poets, from Chaucer to Thomas Hardy, has been made by Mr. BEAUMONT, and published at a wonderfully cheap price by Messrs. Jack.³ It contains, we are told, nearly 60,000 lines; it embraces both lyrical and non-lyrical poetry, excluding only the dramatic. Great care has been taken to employ trustworthy texts; a glossary for Chaucer and the Scottish poets has been provided. Poetasters as well as poets are represented in the selection; the paper and printing are excellent. The book may be cordially recommended to the patronage of the general reader.

MOTOR AMBULANCE DEVELOPMENT.

By H. MASSAC BUIST.

WHILE the French persevere continue to use all manner of vehicles for motor ambulance work, mostly of varieties quite unsuitable for it, as far as our endeavour at the front is concerned, the British Red Cross organization has settled down to the use of thoroughly standardized types of ambulances; therefore we are getting what are really remarkably satisfactory results now that the variety of types and makes has been reduced to the minimum, and that the chassis, as well as the ambulance bodies, are modern in design.

While it has not been eliminated, nevertheless overhang has been enormously reduced, and suspension vastly improved. When wounded may have to be dealt with by the thousand, and in a race against time, the motor ambulance must of course continue to be a machine of the compromise sort.

It is rather in those varieties which are being acquired for service at home that one sees new ideas tried out nowadays when we have other things to do than experiment at the front. For example, one of the latest additions to the Hampshire Automobile Club's fleet of ambulances is equipped with a body designed by Captain R. W. D. Leslie and Captain G. A. Child, both of the R.A.M.C., as the result of their experiences in removing the wounded. The coachwork has been carried out by the Southampton coachbuilding firm of Andrews Brothers. The body is fashioned of three-ply wood, and is canvas topped, there being four hopper windows on each side, such as are often used in hospitals, which when opened allow air to enter

only in an upward direction. The driver is completely protected by a canvas cowl and side curtains, to which hopper windows are also furnished. The communicating door folds back over the driver's seat, and is furnished to enable orderlies to pass through into the interior of the car. This door has a ventilator and a window. In hot weather it can be left open. A padded collapsible seat is provided in the gangway for the orderly in attendance, and he has ample room to attend to the patients occupying each of the four cots. The locker containing medical requisites is ingeniously accommodated over the driver's head, the entrance to it being in the interior of the ambulance.

In thirty seconds both sides of the interior can be converted from accommodating lying down to sitting cases, for which latter ample leg room is provided. An ingenious use of levers, whereby the seats are automatically raised into position as the lower stretcher trays are folded back, eliminates the fault of low seats for this service. This and the excellent padding arrangements are features of design too generally overlooked in a war in which the majority of the wounded to be transported are sitting cases. One ingenious weight-saving contrivance, which besides ensures the step being up when the car is loaded, is that whereby the tailboard, when lowered, forms the step at the rear of the ambulance. The back doors are detachable and can be folded against the sides of the ambulance, so that in hot weather the whole of the back is open.

An interesting contribution to the trailer-ambulance problem is brought forward in the ambulance-caravan trailer designed by the Steel Trucks Company, of 18, College Street, Lambeth, designed to be capable of being run up to thirty miles an hour with comfort to the passengers as a trailer to any motor vehicle, and to be produced at a cost of £150. Tubular steel is largely used in the construction, the aim being lightness combined with rigidity. It accommodates four stretcher cases and can be converted to take sitting cases. The top end of the vehicle is furnished with a tank for water. Arrangements are also made for fitting, as an extra, an acetylene cooking apparatus with all facilities for cooking for twelve persons. The standard equipment also provides space for rifle lockers and for men's kits. When the four Government regulation stretchers are in position there remains a 17-in. gangway for the orderlies.

Good work has been done lately by the Scottish branch of the Red Cross Society in providing a number of motor ambulance boats for service in the East.

MEDICAL CARE OF SCHOOL CHILDREN.

THE annual report for 1914 of the Chief Medical Officer of the Board of Education¹ surveys the whole field of the preservation of child life and the care of the health of school children.

THE SCHOOL MEDICAL SERVICE.

The work of the service has been seriously affected by the war. Doctors and nurses have been taken away from the service of the children to that of the fighting men. The report states that so soon as the requirements of the army were known, the board gave every facility for the arrangement of the work that would facilitate the freeing of as many of the medical staff as possible. The board issued a circular intimating what part of the school work was in its opinion essential and should be regarded as a first charge on the time of the school medical staff, and stating that the board would continue to pay grants at the present rate in relation to expenditure in all cases where the arrangements made were in the board's opinion reasonably satisfactory, regard being had to all the circumstances. The intimation of the Local Government Board that all fresh expenditure was to be curtailed has checked the progress of new work; various proposals for the establishment of school clinics, for example, have been stopped on this account.

What loss the school medical staff has sustained owing to war conditions the report does not state. But at a recent meeting of the Central Medical War Committee

¹ *Roses and Their Cultivation*. By T. W. Sanders, F.L.S., F.R.H.S., etc. Tenth edition. London: W. H. and L. Collingridge. 1915. (Post 8vo, pp. 213; 39 plates, 54 figures. 3s. 6d. net.)

² *Practicable Socialism*. By (the late) Canon S. A. Barnett and Mrs. S. A. Barnett. New series. London: Longmans, Green and Co. 1915. (Post 8vo, pp. 352; 1 illustration. 6s. net.)

³ *A Book of English Poetry*. Chosen and edited by G. Beaumont, M.A. London: T. C. and E. C. Jack. 1915. (Med. 8vo, pp. 583. 3s. 6d. net.)

¹ The Annual Report for 1914 of the Chief Medical Officer of the Board of Education. London: Eyre and Spottiswoode, and Wiman and Sons. 1915. (1p. 309, price 1s. 3d.) [Cd. 8055.]

information was given that out of a total medical staff of 1,234 doctors in England and Wales, a total that includes men over military age and women, no fewer than 304 were on military service. That is a goodly number, but it is probable that at the present moment it is larger. The value of the work of the school medical service in times of peace is undoubted, and its influence on the national well-being incalculable. To this must now be added the value of this staff as a reserve of doctors who may be called upon for national service in an emergency.

The institution of special researches by the school doctors has been urged on many occasions. For this year Sir George Newman suggests that the subject for inquiry should be "Malnutrition." The subject is well chosen, for it would appear that there is more money in the hands of the working class population at this time than ever before; under these conditions it will be of particular interest to observe the effects of this increase of income, and we should hope of better feeding. Certainly the demand for school feeding has diminished. Certain points in the production of malnutrition are of special importance, for example, antenatal conditions; social conditions, such as housing, and the non-domestic employment of the mother; and the employment of children out of school hours. During last year no fewer than forty-two investigations were made by various school doctors on special conditions relating to the schools or of particular sections of the children; a list of these researches is given on page 8 of the report.

Certain points in the working of the medical arrangements are considered. "Following-up" of cases reported for treatment is one of special importance. It is noted that nurses are now required to visit the home of the child to advocate home care and medical treatment; these visits are of particular value in the crusade against uncleanness. The value of Care Committees, of the work of the teachers, and of school attendance officers is noted in this connexion. In London alone there are 1,000 Care Committees; their work is spoken of with much appreciation. The teachers' influence on the side of health is remarkably efficient. There was a time when the entry of the school doctor was resented as a general nuisance, one more unnecessary inspection, and in particular an infringement on the complete and indivisible authority of the pedagogue. Those ideas have gone, and with a surprising rapidity, for the teacher speedily learned that the work of the school doctor was all to his or her advantage. We must look to this interest of the teacher to carry on the work of school medical inspection in some part during these troublous times. The work of the doctor must be of necessity limited to matters of strict urgency, and this must needs demand the cessation of much of the routine medical inspection. The modern teacher can to some extent fill the gap; he has learned that dullness on the part of the child is not to be regarded as a natural folly bound up in the heart of the child, needing only to be driven forth with the rod of correction; he now knows that these difficulties commonly spring from physical disabilities which are frequently remediable by medical art; and we may look to the intelligent teacher to report these cases when they can no longer be sorted out by the regular use of the normal machinery.

Note is made of the increasing tendency to provide medical inspections in the secondary schools. There is no statutory requirement that this should be undertaken, but its manifest advantages cause the system to spread.

Note is also made of the duties arising out of the Mental Deficiency Act of 1913, the necessity for ascertaining what children are defective within the meaning of the Act, and the possibility of their mental improvement under education. Excluding imbeciles and idiots, it is considered that the number of educable mentally deficient children does not materially exceed 25,000. The number of certified schools for these children is 184, providing accommodation for 14,555 children, and having a total average roll of 13,563 children. Of these, 11 schools are residential, accommodating 902 children. The figures of the estimated number of children to be provided for and the available places indicate that increase in the number of these schools will be necessary in the future. It is undesirable, both in their own interest and in that of the normal children, that these children should drift on in the elementary schools. When there is doubt as to the educability of the child there is power to refer the case to the Board of Education medical authority. It will be of

interest to have some report on the working of this provision. At present it does not seem to have been used to any great extent, but from evidence at our disposal it would appear that with the increasing difficulty in getting cases certified as ineducable there is a tendency to let all cases, save those of the manifestly imbecile, go in default. This would not be a satisfactory conclusion of the policy of check and counter-check in certification.

EDUCATION AND INFANT WELFARE.

"The Board of Education are responsible for bringing educational influence on the problem of nurture." The education of the child needs a healthy child; medical inspection, care, and treatment are natural corollaries, and there follows the inevitable necessity to bring influence to bear on the beginnings of the child, and particularly as those are affected by external surroundings and conditions. "The environment of the infant is its mother." In that saying is the justification of the recent extensions of the work of the education authority.

In 1914 no fewer than 93,166 children died in England and Wales under 1 year of age; the infant mortality rate was 105 per 1,000. That is the lowest rate for the last ten years with one exception. The chief post-natal causes of infant mortality are three: (1) Epidemic diarrhoea and enteritis—due mainly to bad feeding. (2) Immaturity and congenital defects—due it is thought in part to poor maternal physique or disease. (3) Respiratory disease—attributed to exposure, cold, and infection. Comparing the incidence of death in town and country it is manifest that with all our modern improvements the town is a bad place for the child. In ninety-seven great towns including London the death-rate was 114 per 1,000, in 145 smaller towns 104, in the rest of England and Wales 93. Even in great cities similar differences can be found. In Shoreditch the rate was 141, and in Bethnal Green 137, whilst in Chelsea it was 67, and in Hampstead 80. "It is obvious, therefore, that urbanization, with all its means of overcrowding, tenement housing, employment of women, domestic insanitation, etc., is exerting indirectly a profound effect on the health of young children." Sir George Newman concludes by stating that "the principal operating influence is the ignorance of the mother, and the remedy is the education of the mother."

The health of the child on entry to school, between the age of 3 and 6 years, points the same moral. For the most part the incidence of defects is much more heavy in the town children. Uncleanliness of body sometimes reaches the high figure of 12 to 15 per cent., and in certain districts still higher (Brighton 23 per cent., Bilston 37). Uncleanliness of the head varies from 15 to 20 per cent., but some districts are very bad (Mansfield 44). Rickets is found in from 1 to 3 per cent.; in some urban areas it is as high as 5 to 8 per cent. Eye diseases such as conjunctivitis and blepharitis run up to 10 to 12 per cent. in some large towns and at certain times. Diseases of the nose and throat vary widely, and are by no means always most prevalent in town children. Malnutrition in the counties varies in percentage between 5 and 20; the figures given for eight large north country towns vary from 16 to 30 per cent. It is held that these high rates are in many cases the effects of the same conditions that take such heavy toll in death. So that both the death-rate and the state of the infants when first brought to school point to the necessity for the education of the mother.

Four educational methods exist to this end—schools for mothers, day nurseries, nursery schools, and the training of elder girls.

(To be continued.)

MR. CHRISTOPHER WELCH has left his real estate in the county of Somerset to the University of Oxford for the endowment of scholarships for the study of biology, to be known as the "Welch" scholarships. They are to be tenable for four years and their total value is to be £400 a year, any surplus income to be paid into a reserve fund formed by the residue of his estate, to be used for the upkeep of the estate and for furthering the study of biology. If the university does not accept the conditions attached to the bequests, then the amount goes to six London hospitals, one of which shall be St. George's Hospital; but no hospital where vivisection is disallowed or discountenanced is to benefit; "antivivisectionists being enemies of the human race."

British Medical Journal.

SATURDAY, JANUARY 1st, 1916.

THE BRITISH MEDICAL ASSOCIATION IN 1915.

THE WAR.

IN time of stress, such as that through which we are now passing, it behoves all societies, associations, or other bodies of men, no less than individuals, to ask themselves the question, "What help can we give to our country?" The issues involved in this war are so many and serious that no one can be excused from rendering assistance in accordance with the means at his disposal. Thus it came about that quite early in the conflict the question thrust itself insistently on the minds of those responsible for the conduct of affairs in the British Medical Association, and led to action. At first this action was tentative in character, as might be expected when men had not yet recovered from the stunning blow caused by the sudden onset of the war. It consisted of little more than an offer to the War Office of all the assistance in the Association's power, the lending of some clerks to the overwrought British Red Cross Society, and the practice of certain economies in the domestic management of the Association itself. Committee meetings, for example, were reduced in number, and the meeting of the Council in October was abandoned. Early in August the Chairman of the Scottish Committee of the British Medical Association (Dr. Hamilton of Hawick) summoned a meeting to consider what steps should be taken to meet the medical difficulties arising from the war. At that meeting it was arranged to invite the presidents of the medical corporations of Scotland, the deans of the faculties of medicine in the four Scottish universities, the Scottish members of the General Medical Council, and the members of the Scottish Committee of the British Medical Association, to hold a meeting to consider further action. As a consequence of this meeting a committee was appointed representative of the various bodies mentioned, which issued a memorandum, and later on a detailed statement giving advice on the general principles which should be followed in making arrangements for the carrying on of the practices of those members of the profession who are serving with the King's forces. In this country also schemes were drawn up locally, the earliest of which was that adopted at Southampton on August 4th, 1914, and other Divisions of the Association followed suit, the purpose of the schemes being to put into force means of safeguarding, as far as possible, the practices of Territorial medical officers called up for service, or of those civilian practitioners who took temporary commissions. It was not long, however, before the possibilities of further work by the Association began to be discussed, and in September, 1914, the Army Medical Department was approached with a suggestion that, inasmuch as the majority of those who volunteered for service would be unacquainted with the details of medical military routine, some form of elementary instruction in their future duties might be organized. From this suggestion arose naturally the idea of grouping men in various classes according to

the likelihood of need for their services. But at that time, when nothing more than an army of a million was in contemplation, the War Office was content with the position as regards the supply of medical officers, and considered that the 4,000 or 5,000 offers of service which it had received would amply meet all demands.

In January, 1915, the Council of the Association met for the first time since the outbreak of war. It was then recognized that the continued drain upon civil practitioners in England and Wales would need more careful watching than it had previously received. Consequently the work of dealing with problems arising out of the war was delegated to a committee, already in existence for other purposes, consisting of the Chairmen of the Standing Committees of the Association. To this Committee came the first definitely large demand made by the Director-General in consequence of the magnitude of the requirements resulting from the Dardanelles expedition. At the end of March the profession was asked to supply 2,000 more medical officers to the army; and thus began the co-operation between the Army Medical Department and the British Medical Association, which has since developed into close association. By July considerably more than half the required number had been obtained, and in many localities special steps were being taken. The Council of the Metropolitan Counties Branch, for example, having become impressed by the necessity for better organization of the medical profession in order to meet the requirements of an army infinitely larger than ever thought of in the earlier stages of the war, and recognizing that in the area of the Branch there must exist quite a large reserve of men who could be spared for military service, appointed a special Committee to organize the profession in London and the surrounding areas. Hence arose the first attempt at a register of men of military age fit for service, and the formation of local committees to supply information to the Committee of the Branch.

It was felt, however, that something more than a purely British Medical Association organization was required. Accordingly, it was proposed at the Representative Meeting in July that a special committee more national in character should be formed, including men who could represent the views of universities and other teaching or controlling bodies, no less than those of various types of practitioner. Thus was formed the Committee at first known as the "War Emergency Committee," and now entitled the "Central Medical War Committee." The reference to this Committee was "To organize the medical profession in such a way as will enable the Government to use every medical practitioner fit to serve the country in such a manner as to turn his qualifications to the best possible use; to deal with all matters affecting the medical profession arising in connexion with the war; and to report to the Council."

At his first interview with the Central Medical War Committee the Director-General put forward a request for 2,500 more medical officers, to be obtained before the middle of January, 1916. Possibly in making this request the Director-General had in mind the developments which have since taken place in the Balkans. The request was a large one, and called for strenuous effort; so that from the outset the first duty of the new committee was that of recruiting officers for the R.A.M.C. In furtherance of this work the War Register was completed for the whole of England and Wales; communication was established with the Scottish Medical Emergency Committee, which had already done much valuable work; and

every assistance was given towards the establishment of a similar committee in Ireland. With a view to close co-operation a representative has been nominated by both the Scottish and the Irish committees to serve on the Central Medical War Committee, which meets and has its offices in the house of the British Medical Association in London. Local Medical War Committees have been appointed by the practitioners of all but two or three areas throughout the country through the agency of the Association. To these committees any medical man can refer in his difficulties, while from them the Central Medical War Committee draws its information as to local needs and the ability of a district to supply more officers to the R.A.M.C.

In order to ensure rapidity of action and due preparation of every question for discussion by the full committee an executive subcommittee has been appointed, which meets at very frequent intervals, and confers with representatives of Government departments and other interested bodies. Thus close relations are being maintained not only with the War Office, but also with the Local Government Board, the Insurance Commissioners, the Board of Control, representatives of hospitals, and panel committees, as well as with the local Medical War Committees. When Lord Derby's recruiting campaign was started, it was recognized at once that the medical profession was not suitable ground for such efforts at voluntary enlistment. The Director-General and Lord Derby were approached, with the result that a statement was issued to the press whereby the recruiting of officers for the R.A.M.C. was left entirely in the hands of the Medical War Committees. Information has been given to all local committees describing the manner in which this recruiting problem should be dealt with. Quite recently the Committee for Scotland has issued a memorandum, reproduced in the SUPPLEMENT for this week, in which the details of the machinery are very clearly described.

As the result of interviews with certain Government departments, much has been done in the way of curtailing clerical work and setting free as many medical officers as possible for service. Valuable information has been received from the Insurance Commissioners with regard to areas in which there may be a possibility of undue depletion of doctors in consequence of the demands of the army. Innumerable doubts and difficulties have been settled for men seeking advice, and regulations based on recommendations of the Central Medical War Committee have been issued by the Army Medical Department.

Thus the efforts of the three committees have kept the army supplied with the medical officers required; but in order that there may be no falling off in the supply when further demands are made by the army, while at the same time keeping in view the needs of the civilian community, it has become essential that the whole profession should be organized so that every man may feel that he is doing his duty in connexion with the war. Hence the system of classification, grouping, and registration which was published in the SUPPLEMENT to the BRITISH MEDICAL JOURNAL of December 11th, 1915, a system the development of which will form the larger part of the future work of the Central Medical War Committee.

From this historical summary it will be seen that the British Medical Association has not been behindhand in its efforts to do what lies in its power for the good of the country. It has placed its resources and organization unreservedly at the disposal of special committees on which all interests are represented. It has sunk its own identity, and endeavoured to give its utmost

support to national bodies fully representative of the whole profession. Its office has worked its hardest to make the work of the committees a success. Its JOURNAL, working in harmony with the *Lancet*, has done everything in its power to give publicity to the objects of the committees. The sacrifices made have already borne fruit. It rests with practitioners of all classes to see that the further work of the committees is even more successful, so that the medical profession may contribute to the fullest limit of its capacity to the attainment of victory.

Recently one of the great London daily papers has lent its columns to the publication of letters from critics of the present administration and organization of the Army Medical Service. Criticism is ever of the greatest value to those who are wise in the conduct of affairs; and there is ample evidence to show that both the Army Medical Department and the Central Medical War Committee have been duly receptive whenever valid argument has been advanced. The advocates of greater economy may be surprised to learn that within the last few weeks the use of some thousands of military hospital beds has been suspended; while retrenchment has been effected of some hundreds of medical officers in various capacities at the front. At the same time, the expansion of the army to some four million men will surely suggest to the least imaginative that further sacrifices are needed on the part of the medical profession no less than on the part of the lay community. As organization improves the need will become proportionately less great, but does any one suppose that an army of sixteen times its original strength can be built up in eighteen months without difficulties and without waste? Can any one point to any man or body of men whose hands and head are so free from occupation at the present time as to be able to produce perfect order in this enormous and hastily assembled machine? Are any of the critics, whose letters have been published broadcast, able to indicate with certainty the direction in which the economies they preach can be made immediately without loss of efficiency? A search through these letters reveals mountains of destructive criticism, but very little that is valuable for purposes of construction. Here and there a Government commission is hinted at; but does not history suggest that even this war may be over before such a commission makes its report? Do the writers of these letters suppose that the Medical War Committees have not gone deeply into the question of economy of medical officers from the fighting line to the base? Progress in reform must, of necessity, be slow; but all suggestions for improvement are welcomed, discussed, and, whenever they seem capable of adoption, urged in the proper quarter. It will be recognized that at the present time there must be an intermediary body between the civil practitioner and the Army Medical Department. Equally clear is it that there is no other body at all comparable to the Medical War Committees for dealing with the difficulties on both sides. Setting aside the demands of their own professional work, and being representative of all interests, while unfettered by lay control, the members of these committees have devoted much time to the problems that have come before them. Guided by the principle that this war must be speedily finished, and finished victoriously, the committees have endeavoured to set before the medical profession a lofty conception of duty. They aim at aiding the war authorities to appreciate civilian difficulties, to smooth the paths of those called upon to make sacrifices, to put to the best use the material

so freely offered. They endeavour to preserve to the civilian community as adequate a medical service as the military preparations against the gravest of perils allow. To all medical men they tender advice and assistance based on sympathetic understanding of the needs of the profession. If doubt is thrown upon the capacity of the three committees to carry out the work which they have set before them, the least that can be expected is that critics should offer alternative workable plans. Until such plans are forthcoming, capable of meeting the needs of the army no less than the medical requirements of the civil population, it would seem that the Medical War Committees are entitled to respect for honest and thoughtful work, and the British Medical Association to credit for the expenditure of its means and organization in furtherance of the requirements of the country.

MATERNITY AND CHILD WELFARE CENTRES.

Though the absorption of the nation in the prosecution of the war has necessarily diverted most of the energies of the Association towards the organization of the profession to meet the strain upon it, other matters of great importance have presented themselves for attention, of which we can only deal here with a few. The chief is undoubtedly the new movement by the Government and local authorities concerning maternity and child welfare schemes. To those who have given this matter serious attention it would appear that it may have a most vital influence on the future status of the general practitioner and on his relations with the public. Whether it is destined to lead to a further socialization of medical practice and a large development of medical officialism, or to a recognition on the part of the public that it would be a fatally short-sighted policy to weaken the position and undermine the usefulness of the general practitioner, is at present on the knees of the gods. But the decision is largely in the hands of the medical profession itself; the Representative Meeting of 1915 laid down the main lines of its policy, which is to utilize the opportunity for increasing the usefulness of the general practitioner to the community and thereby enhance his status. It is certain that in spite of preoccupation with the war this is a matter which demands constant watchfulness.

THE SELECT COMMITTEE ON PATENT MEDICINES.

Another matter of great interest was the consideration of the report of the Select Committee of the House of Commons on Patent Medicines. This report was a very significant and most satisfactory recognition of the principles for which the Association has contended for years, and was in effect a complete justification of the arduous campaign carried on for so many years in the columns of the JOURNAL, including the publication of a long series of articles embodying analyses of a large number of preparations. This material was afterwards collected into two books, *Secret Remedies* and *More Secret Remedies*,¹ which attained a very large circulation among the public. It was obvious to the Council that it is at the present time impossible for the Association to gather the fruits of its victory by pressing Parliament to put into the form of an enactment the recommendations of its Committee, but the opportunity was taken to secure from the Chairman of that Committee his promise that when the appropriate time came the report would be pressed on the attention of Parliament.

¹ *Secret Remedies: What they Cost and What they Contain*; and *More Secret Remedies: What they Cost and What they Contain*. London: British Medical Association, 429, Strand, W.C. (Price 1s. each; postage, 3d. each.)

LEGAL RESPONSIBILITY FOR CRIME.

The report of the Association on the present state of the law with regard to legal responsibility for crime, prepared in conjunction with the Medico-Legal Society, the Medico-Psychological Association, the Bar Council, and the Incorporated Law Society, has won much praise from those who understand how unsatisfactory the present law and practice in regard to this matter are, and in addition has, it is believed laid the foundation for future good work in medico-legal matters in co-operation with bodies whose interests in such matters are great, and whose influence is wide-reaching.

ASSISTANT ASYLUM MEDICAL OFFICERS.

A good example of co-operation with bodies representing sections of the profession which has for so long been the practice of the Association was the determination of a policy as regards the conditions of employment and remuneration of assistant asylum medical officers, reached in consultation with the Association of Assistant Asylum Medical Officers of England and Wales.

INSURANCE ACTS.

In the ordinary course of events the end of the year would have seen the revision of the terms under which medical practitioners are engaged in working the Insurance Acts, but this matter has perforce been postponed until a more favourable opportunity. The year has been characterized by a steadily increasing closeness of co-operation between the Association and those committees which specially represent panel practitioners. During the campaign which preceded the passing of the Act of 1911 the Association strongly emphasized the necessity of the establishment of such committees; since then its fixed policy has been to help them as much as possible by advice and such assistance as can best be given by a central organization. For the third year in succession a conference of representatives of Local Medical and Panel Committees was held, and that of 1915 was undoubtedly the most representative and business-like of all. The conference marked its sense of the usefulness of the Association to panel practitioners by definitely recognizing it as the central mouthpiece of the local committees in dealing with the Government and the Commissioners, and the latter body has recognized this relationship by consulting the Panel Committees on matters of general importance through the Insurance Acts Committee of the Association, which has now been strengthened by the addition of members nominated by the Conference to represent the Local Medical and Panel Committees of the country. Such a relationship augurs well for the future, for it must be clear to all that when the war is over matters of the greatest importance to the profession in general and to panel practitioners in particular will present themselves for consideration and decision; it will be well that when the occasion arises it should be found that so far as the great majority of the Panel Committees are concerned they are prepared to present their case through an experienced central body with the influence, organization, and financial backing of the British Medical Association. It is not necessary to attempt any more detailed examination of this branch of the Association's work, for the facts are well known to members, but a passing reference may be made to the recent success of the Association in claiming and securing what the great majority of Panel Committees demanded in connexion with the recent changes in the finance of the Drug Fund

brought about by the report of the Departmental Committee on the Drug Tariff—namely, an assurance from the Government that until a general revision of terms takes place the 7s. a head set aside for medical attendance on insured persons shall not be touched for the purpose of making up any deficiencies in the Drug Fund. This one result of the Association's work for 1915 in this department is a good augury for the success of its future efforts.

THE MIND OF A PROFESSION.

MR. COPE CORNFORD's little book about the navy—*With the Grand Fleet*—is valuable for two reasons: First, because it does not boast of numbers of ships or weight of armament, but describes the mind of the fleet. As Lord Charles Beresford says in his introduction: "The many generations of seamen, who strove through their lives to make the service what it ought to be, have created a body of thought, of tradition, and of aspiration, which is the inheritance of the navy of to-day, and which may be called the Greater Mind. . . . It is the Greater Mind in the navy which has gained the mastery of the sea." It is valuable, secondly, because by showing the mind at work it affords to the landsman an example of the absolute subordination of every action to the one idea of duty—duty to the nation, irrespective of what politicians at Westminster or officials at Whitehall may do or leave undone. There is no set of men in whom the professional spirit is so strong, and it pervades all ranks. The politicians come and go, and the tendency of permanent officials of all departments to mistake the means for the end, machinery for output, is so strong that few escape it. But the mind of the navy has gone on and grown. In the end the collective mind of the men who know, the men of thought and of action, wears away the obstructions put in its way by long-tailed officials, whose horizon is bounded by returns and memorandums, and minutes, and "what the country will stand," and the other shibboleths. "The Navy," again to quote Lord Charles Beresford, "desires nothing but to be left to do its own work in its own way, governed and guided by naval authority." It is a right for which every profession has to fight. The bar fought and won its battle long ago, and is to-day a remarkable piece of human organization very admirably adjusted to its purpose; it is the palladium of the liberty of the individual. The Navy, the palladium of our national liberty, has had to fight the dark powers of politics and officialdom generation after generation. In quiet times it has lost the right to do its own work in its own way, but the mind of the navy has lived on: you cannot strangle a mind even with red tape, or do more than hamper it by political foolishness, and in times of stress the navy has regained its right. The Church long ago sold its freedom for a mess of pottage, and the lovers of freedom at both extremes revolted. Medicine has only recently come into contact with the deadening influence of the official, and hardly yet realizes the narrowness of his outlook and the mischief he is capable of doing to the nation should he be allowed to prevail. Therefore, it is worth the while of every medical man and woman to read Mr. Cornford's book to see what peril the nation has escaped and how it escaped, and also for the lifting up of his or her soul at this season when the elements seem to conspire with the newspapers to enwrap us in an atmosphere of gloom.

MYELOID LEUKAEMIA AS AN INFECTIOUS DISEASE.

MYELOID LEUKAEMIA is a disease that appears spontaneously in barnyard fowls from time to time. Dr. H. C. Schmeisser¹ has recently come across a case, in a

Plymouth Rock hen, and has succeeded in transmitting the disease to other fowls and to chickens up to the fifth generation. The transmission was effected by the intravenous or intraperitoneal injection of fragments of liver or spleen, thoroughly macerated in normal saline solution and roughly filtered through cotton or linen, or through filter paper if the injection was given intravenously. Out of 105 animals used in the different experiments, 22 developed the leukaemia, and a similar diagnosis suggested itself in 4 more. The incubation period was usually five or six weeks, with a maximum of sixteen; the onset of the disease was sudden, with pallor and rapid emaciation, weakness, but no fever. The illness lasted a week or two; only one case recovered. The character of the blood count changed rapidly. Whereas the normal hen has 3 or 4 million red cells and from 20,000 to 80,000 white cells per cubic millimetre of blood, with from 60 to 70 per cent. of haemoglobin, as estimated by Sahli's instrument, the hen with myeloid leukaemia will have less than a million red cells and perhaps 200,000 white cells per cubic millimetre, and the haemoglobin may fall to 10 or 15 per cent. The differential leucocyte count also shows great changes. Normally, the hen may have 42 per cent. of lymphocytes, 34 per cent. of eosinophile polymorphonuclears, and 20 per cent. of large mononuclear cells of myeloid origin. In the form of leukaemia studied by Dr. Schmeisser the large mononuclear cells may form 86 per cent. of the leucocytes. The liver and spleen are both greatly or even enormously enlarged, being packed with aggregations of myeloid leucocytes; the kidneys are enlarged, and the bone marrow shows a characteristic loss of fat with increase of marrow cells. The blood picture and the *post-mortem* changes in the organs were the same in the original case as in those produced by the injection of tissue emulsions into healthy fowls. Dr. Schmeisser notes that infectious leukaemia in fowls was first properly recognized by Butterfield in 1905, and that the disease was first transmitted to other healthy fowls by Ellerman and Bang in 1908; Ellerman recently found that the infection could be conveyed by Berkeley filtrates, and observed that the transmitted leukaemia might be of either the myeloid or the lymphatic type. Dr. Schmeisser has not yet published his study of the nature of the infecting agent in his case of spontaneous myeloid leukaemia in the fowl. It should prove to be of great interest, for the reason that the disease as it occurs in these animals has obvious analogies with the lymphatic and myeloid leukaemias in man; here the disorder has all the appearances of an acute or subacute infectious process, yet its infectivity is unproved, and the virus producing it is at present wholly unknown.

A PLEA FOR THE SICK SOLDIER.

WHILE in these days the wounded soldier is much in evidence, and is naturally and rightly an object of sympathetic interest to us all, there is perhaps some danger that the man who has been invalided on account of sickness may be a little neglected. But while he makes less appeal to sentiment, his suffering is not less real, while his incapacity may be worse than that of his wounded brother in arms. M. Bachimont, deputy for the Aube, proposed in his interest to amend a bill as to the award of decorations for war service in which the military medal was reserved for wounded men. In support of this Professor Landouzy, Dean of the Paris Faculty of Medicine, addressed a letter to M. Bachimont, in which he asked with pardonable warmth whether the sick—on whom typhoid, diphtheria, scarlatina, dysentery, cerebro-spinal meningitis, or tuberculosis had left their mark in permanent damage of the nervous system, the heart, the liver, or the kidneys—were not as deserving of respect and pity as if they had lost an arm, a leg, or an eye by shell fire. A man disabled by functional trouble of an

¹ *Journ. Exp. Med.*, vol. xxii, p. 820.

internal organ is often left in a worse state than one who has lost a limb. Soldiers invalided out of the service on account of sickness have before them, M. Landouzy pointed out, the prospect of dragging out a precarious, difficult, and painful existence; and to those who have a keen sense of the duty they owe to society life may be further darkened by the knowledge that if they marry with constitutions undermined at an early age, they are likely to beget feeble and unsatisfactory offspring. M. Landouzy, while pleading the cause of the man disabled by sickness, makes him the text for a vindication of the place of the physician in war. In their inmost hearts, he says, people in general think they owe a greater debt of gratitude to surgery than to medicine; he, on the other hand, maintains that medicine, which has now at its disposal in vaccines and serums powerful means of preventing and curing the infections that threaten soldiers, is as beneficial as the conservative surgery of mutilated limbs. Even now it is not fully realized that until the other day armies in the field paid a heavier tribute to disease than to wounds. In proof of this M. Landouzy points to the fact that of the 100,000 Frenchmen who died in the Crimea 80,000 fell victims to typhoid, typhus, dysentery, cholera, scurvy, and other diseases.

NOTIFICATION OF MEASLES.

THE general order of the Local Government Board for the compulsory notification of measles and German measles comes into force on January 1st, 1916, throughout England and Wales. The order is addressed, among others, to medical practitioners. Every medical practitioner is required, so soon as he becomes aware that a person upon whom he is in professional attendance is suffering from measles or German measles, forthwith to make a notification on the proper form and send it to the M.O.H., unless he has reasonable ground for supposing that it has already been notified, or unless a case of the disease has to his knowledge occurred in the same household or institution, and has been notified within the period of two months immediately preceding the date on which he first became aware of the disease. If, however, the case is being treated in a hospital for infectious diseases, the practitioner is not required to notify it. There is every reason to suppose that about 55 per cent. of the cases of measles occurring are never seen by a doctor; some help in overcoming the difficulty thus created has been given by school notifications, but the majority of cases occur at the age of 4 years or under, and it is at these ages that the largest number of deaths are recorded. The Order also requires every parent or guardian, or other person, who becomes aware of or who has reasonable grounds for supposing that any person in his charge is suffering from measles or German measles to notify the M.O.H., unless he knows it has already been notified by a medical practitioner. The Order further authorizes all public health authorities throughout the country to provide nursing assistance for necessitous cases of measles. Hitherto a special order from the Board has been necessary to give a local authority this power. It may now provide or contract for the provision of medical and nursing assistance for the poorer inhabitants of the district when suffering from either measles or German measles, and instruct the M.O.H. to take steps to investigate the source of infection, to prevent its spread, to remove conditions favourable to it, and, if a medical practitioner is not in attendance, to ascertain the nature of the case. It is believed that the symptoms of measles are sufficiently pronounced and well known to enable the parent or the health visitor to entertain at least a suspicion of the nature of the disorder, but this is, of course, a weak point in the scheme. The power given to all sanitary authorities to provide nursing assistance under the Order is most important. It is the first instance, apart from tuberculosis, in which this power has been given generally to sanitary authorities. There is reason to hope that by its

judicious use a large saving of life will be effected by diminishing the toll of deaths now due to measles among impoverished children under school age

MEDICAL HERALDRY.

PROBABLY the great majority of medical men would, if called upon for a declaration of faith on the subject, have to make the confession with which Francis Osbaldistone shocked Di Vernon when he said, "The mysteries couched under the grim hieroglyphics of heraldry are to me as unintelligible as those of the pyramids of Egypt." Yet medicine has a heraldry of its own, and much ingenuity has been shown in devising armorial bearings for doctors whom the King for good and sufficient reason delights to honour. In an interesting article published in the November and December numbers of the *Antiquary* Dr. S. D. Clippingdale gives the fruits of a laborious research in this obscure field of historical lore. He describes, in many cases with illustrations, the coats of arms granted to medical corporations and to individual members of the profession. He says that probably the first medical man in this country to receive a grant of arms was John Leche, surgeon to Edward III, who was thus honoured because he had taken upon himself the costly duty of entertaining in his house at one time three sovereigns—the Kings of England, Scotland, and France. This would seem to suggest that in the fourteenth century surgery was a very lucrative profession. In devising arms for doctors the heralds have sought inspiration from traditional symbolism, from what may be called the weapons of the craft, and from the personal achievements of the individual honoured. In the first of these categories are the rough staff of Aesculapius with the serpent entwined about it, and the Mercury's wand or caduceus, a slender metal rod with two serpents coiled round it, and two expanded wings attached to the upper end. The appropriateness of the staff of Aesculapius is of course obvious; it figures in the arms of Sir Henry Halford, Sir Joseph Fayrer, Lord Lister, Sir James Young Simpson, Sir William Savory, Sir Henry Thompson, and Sir Thomas Barlow, and it forms the badge of the Royal Army Medical Corps. Serpents have a place in the arms of Sir Samuel Wilks, Sir Gilbert Blane, Sir William Gull, Sir Prescott Hewett, Sir William Jenner, Sir Trevor Lawrence, and Sir Thomas Crosby, late Lord Mayor of London. The earliest appearance of the caduceus in English medical heraldry is, according to Dr. Clippingdale, on the crest of Sir William Butts, physician to Henry VIII. Modern instances are seen in the arms of Sir William Broadbent, Sir George Burrows, Sir Lauder Brunton, Sir Rickman Godlee, and Lord Ilkerton. The precise meaning of the caduceus as a symbol of the art of healing is not apparent. Mercury was in the old Roman mythology the patron of tradesmen and thieves, but we cannot admit that in this character he can be regarded as having any connexion with medicine. Mercury was also venerated as the messenger of the gods, a function expressed by the wings in the caduceus; in this capacity he may perhaps be accepted as symbolical of medicine. Lamps and other means of illumination, denoting the light of science, figure in medical heraldry. Flaming torches are seen in the arms of Sir John Williams, Sir James Reid, Sir Henry Thompson, and Sir Thomas Barlow. The lamp has a place in the arms of Sir William Jenner and Sir William MacCormac. The eagle, which occurs as the crest of the Royal Colleges of Surgeons of England and Edinburgh, is also found in the arms of many medical men. The anchor, emblem of hope, is of frequent occurrence. Of the weapons of the craft, the most common, as it is the earliest, is the fleam or lancet, which is found in the coat of arms granted to the Surgeons' Company of London in 1451; supported by the Ophiuchus, a fabulous animal credited with healing powers, it forms the crest of Sir Frederick Treves. The spatula is seen in the arms of the

Barber-Surgeons' Company, and knives, saws, forceps, and other instruments form the border of those of the Edinburgh College of Surgeons. Among the medicinal plants which figure in heraldry may be mentioned the pomegranate in the arms of the Royal College of Physicians, and digitalis in those of Lord Ilkeston. In this case the plant was chosen as symbolizing the work on the heart, on which the reputation of the physician who in his practising days was known as Balthazar Foster was mainly founded. Other plant emblems are the iris flower in Sir Anderson Critchett's crest, which is probably an allusion to that eminent surgeon's operations on the eye; and the daisies in Sir Richard Quain's arms, which, according to Dr. Clippingdale, are understood to have been inserted because that was his favourite flower.

CASUALTIES AND RECOVERIES.

IN a short note in our last issue on some statistics circulated in Germany as to the number of wounded who, during the first year of the war, had died, had been discharged as unfit, or had been returned to duty, it was pointed out that the figures conveyed no information on the point of real importance, namely, the percentage of men wounded in the firing line who recovered so completely as to be able to return to it. The object with which such figures were circulated was no doubt mainly to convey the impression that the percentage reported to be discharged from hospital were effectives who returned to the firing line, and in this way to encourage the German people and throw dust in the eyes of neutral countries by discrediting the calculations as to the wastage of the German armies. It was also, no doubt, intended to glorify German surgical methods as compared with those of the surgeons of the allied nations, for it was boasted that the armies of no other nation could show like favourable results. As a matter of fact, the comparable statistics of the British army are rather better, and though the French figures given on the authority of M. J. Bertillon, the well-known medical statistician, were not quite so good, it is not clear that they are comparable, as they appear to include all wounded men who reached a hospital in France, whereas the German and British referred only to men who reached a hospital in Germany or the United Kingdom. We said then that the figures given were fallacious so far as they purported to indicate the amount of wastage; and it is interesting to find this view more than confirmed in a recent article by the Swiss military writer, Colonel Feyler. The article is in the main a warning to the Allies not to let themselves be misled into supposing that Germany has yet reached the end of its man power, although he thinks this point may be reached next spring. He says, however, that in a particular army corps for which statistics were available to him, the proportion of the men who have remained at the front since the beginning of the war represent 12 per cent. of the effectives sent there at the beginning, and that a somewhat large proportion—about 20 per cent.—are men who, after being evacuated, have recovered and returned to the front after an average interval of four months. In this corps, therefore, 68 per cent. of the men who belonged to it at the beginning of the war have been replaced. According to the figures given in the House of Commons by Mr. Tennant on December 21st, the total casualties of the German army as published in the official casualty lists for Prussia, Saxony, Bavaria, and Wurtemberg down to November 30th, 1915, numbered over 2 millions and a half. About half of these were accounted for under the heads of killed or died of wounds (nearly half a million), severely wounded, died of disease, or missing. This leaves about a million and a quarter casualties unaccounted for, and it is on the proportion of wounded among them that any calculation as to the number of men who return to the fighting line can alone be founded.

According to the statistics given in a written answer by the Prime Minister on December 23rd, the total casualties in the British force in Flanders and France, the Dardanelles, and other theatres of war, amounted to rather over half a million, of whom nearly 120,000 were killed. These figures do not include the sick, of whom there were nearly 100,000 admitted to hospital from the Dardanelles operations alone between April 25th and December 11th. The proportion of missing, which no doubt includes a majority of killed, is about one-seventh in the armies of both countries, but is a fraction higher in the British than in the German.

MEDICAL ENROLMENT.

THE decision to adopt the principle of compulsory military service need not affect the position of members of the medical profession, inasmuch as the arrangements made in advance by the Medical War Committees will, there is every reason to expect, suffice to meet all the demands of the medical service of the army. The history of these committees is given above (p. 20 et seq.), and the general character of the scheme worked out is there very fully set forth. Full details of the plan of the Scottish Medical Service Emergency Committee are given in the SUPPLEMENT this week (p. 1), and the details of the method of procedure in England and Wales, which it is hoped to announce finally next week, will, no doubt, be on the same lines as have been arranged in Scotland. Medical men in England and Wales who have not yet enrolled should at once do so through the Medical War Committee for the area in which they reside. All these local committees are in direct communication with the Central Medical War Committee for England and Wales, which will give to each applicant a certificate of enrolment. It has made arrangements for the grouping of members of the profession in the manner stated in its circular letter to the local Medical War Committees published in the SUPPLEMENT of December 11th, 1915, p. 214. With regard to the order in which individuals should be called on for service, the Central Medical War Committee will consider, in co-operation with the local Medical War Committees, the special difficulties of any individual practitioner, with a view to meeting them, or, if necessary, relegating him to a later group. The present position, therefore, is that medical men should not attest under Lord Derby's schemes, but should enrol with one of the national Medical War Committees. On any point of personal difficulty medical men in England and Wales are invited to communicate direct with the secretaries of the Central Medical War Committee, 429, Strand, London, W.C.

THE Leeuwenhoek medal of the Netherlands Academy of Sciences, awarded to Surgeon-General Sir David Bruce, F.R.S., A.M.S., was presented to him on December 24th by the Netherlands Minister in this country. Leeuwenhoek was a Fellow of the Royal Society, and the majority of his discoveries were published in the *Philosophical Transactions*. The medal was founded in 1875, on the occasion of the Leeuwenhoek celebration in Delft, and is presented every ten years. It was awarded to Ehrenberg in 1875, to Ferdinand Cohn in 1885, to Louis Pasteur in 1895, and to Beyerinck in 1905.

A MEMORIAL of Eustachius was recently unveiled in the great quadrangle of the University of Rome in the presence of the Prime Minister, the Minister of Public Instruction, the Mayor of Rome, and the rector and members of the Senate of the University. The memorial, which is a bronze tablet attached to one of the pillars of the upper portico, near a marble memorial of Victor Emanuel II, represents Eustachius in his professor's robes in the act of lecturing; he holds in his left hand a human skull and the right arm rests on tables showing the structure of the ear. The inscription by Professor Giacomo Gori is as follows: *Bartholomaeo Eustachio, Picenti, Artis anatomicae lumini, Senatus Academicus, quartis feris secularibus, Anno MDCCCXIV.*

Medical Notes in Parliament.

War.

Total Casualties.—In a written reply to Mr. Molteno, on December 23rd, the Prime Minister supplied the following statistics of the total casualties in all fields of operations down to December 9th, 1915:

Flanders and France.

	Officers.	Other Ranks.
Killed...	4,829	77,473
Wounded ...	9,943	241,359
Missing ...	1,699	52,685
Total ...	16,471	371,517

387,988

Dardanelles.

Killed...	1,667	24,535
Wounded ...	3,028	72,781
Missing ...	350	12,194
Total ...	5,045	109,510

114,555

Other Theatres.

Killed...	871	10,548
Wounded ...	694	10,953
Missing ...	100	2,518
Total ...	1,665	24,019

25,684

Grand Total All Theatres.

Killed...	119,923
Wounded ...	338,758
Missing ...	69,546

528,227

Mediterranean Casualties.—In reply to Mr. Joynson-Hicks, Mr. Tennant stated on December 23rd, 1915, that the total casualties in the Dardanelles to December 11th, 1915, including the Naval Division, were:

	Officers.	Other Ranks.
Killed (including died from wounds and died) ...	1,609	23,670
Wounded ...	2,969	72,222
Missing ...	337	12,114
Totals ...	4,915	108,006

Grand total ... 112,921

Sick admitted to hospital April 25th to December 11th, 1915 ... 96,683

In reply to a further question, Mr. Tennant said that there was every reason to hope that sickness would be a decreasing quantity. In regard to the time allowed before men returned as missing could be counted as killed, it was necessary to allow a long time, but in many cases unofficial reports came from comrades, and in such cases from four to five months would be about the time taken to give a certificate of death. In regard to the returns of casualties from France, those invalided home sick were not included among the wounded.

German Army Casualties.—Mr. Tennant stated, on December 21st, in reply to the Earl of Kerry, that the total casualties as published in the official casualty lists for Prussia, Saxony, Bavaria, and Wurtemberg up to November 30th, 1915, amounted to 2,524,460. Of these there were, according to the official lists:

484,218 killed and died of wounds.
384,198 severely wounded.
27,674 died of disease.
381,149 missing.

Men Discharged as Medically Unfit.—On December 23rd Mr. Tennant informed Sir E. Cornwall that statistics of the number of enlisted men discharged from the army as medically unfit after less than six months' training were not available, and could not be compiled without throwing an undue strain on an already overworked department.

Hospitals for Officers.—On December 23rd Mr. Newdegate asked whether the grants allowed to hospitals for officers, which received no other form of assistance, were varied in amount; what was the maximum and minimum grant; and why there was inequality. The Financial Secretary to the War Office said that many sick and wounded officers received care and treatment in private hospitals provided by the praiseworthy generosity of

people of sympathy and wealth. Other officers were on occasion accommodated in nursing homes. Where payment or assistance from public funds was asked for, each case was considered on its merits.

Pensions and Grants.—The Financial Secretary to the War Office undertook, on December 23rd, to inquire into any cases in which there was reason to suppose that right had not been done with regard to grants to dependent soldiers in accordance with the recommendations of the Select Committee.

Leprous German Prisoner.—In reply to Mr. Butler Lloyd, Mr. Tennant said that a German prisoner of war suffering from leprosy, who had been for some months within a few paces of the sentry and guardroom at Handsforth, near Manchester, was being removed to a hospital at Dartford, where special accommodation had been prepared for him. He did not think it would be well to send this prisoner back to his own country with the next party of exchange prisoners.

Medical Units in Serbia.—In reply to Mr. Mills, Sir Edward Grey said, on December 22nd, that no list of the doctors and nurses who have left Serbia had been received; the latest information was that Sir Ralph Paget arrived at Brindisi on December 18th with 120 members of the medical missions to Serbia.

Female Nurses in Asylums.—In reply to Mr. Jowett, who asked whether steps would be taken to prevent any further appointments by asylum committees of female nurses in place of male attendants, the Home Secretary said that the Board of Control was watching the matter carefully. The employment of female nurses to release men for enlistment was allowed in suitable cases and under proper safeguards.

Vaccination Prosecutions in Dublin.—In reply to Mr. Nugent, on December 22nd, Mr. Birrell said that legal proceedings had recently been instituted in Dublin against defaulters under the Vaccination Acts. The papers did not show whether the persons in default were civilians or whether any of them belonged to the army. There were no exemptions from vaccination, and it would be most unfair if children were not protected from the danger of small-pox while their fathers were at the war.

Chlorine Gas for Living Animals.

The following appears in the *Official Report of Parliamentary Debates in the House of Commons*, December 21st, 1915:

Mr. Greenwood asked the Home Secretary whether he has granted a certificate under the Cruelty to Animals Act, 1876, to Mr. Leonard Hill, under which Mr. Hill performed a number of experiments upon living animals with chlorine gas, as reported in the *BRITISH MEDICAL JOURNAL* of December 4th, 1915; if such experiments were performed in the United Kingdom, where were they performed, what were the terms of such certificate, and who was the person who signed the same as required by the said Act; what were the animals used by Mr. Leonard Hill in these experiments, and how many of such animals were so used; and, if more than one kind of animal was used, how many of each kind.

Sir John Simon: I have made inquiry, and find that the research described in the article referred to was conducted jointly by Dr. Hill and Dr. Flack, but that all the experiments referred to were performed by Dr. Flack. They were performed in the laboratory of the Medical Research Committee at the London Hospital Medical College, and six were done under licence alone and twelve under Certificate A. Under licence alone six animals were used (five cats and one rabbit), and under Certificate A twelve guinea-pigs. Dr. Flack's certificate A was given by the President of the Royal Society and the Professor of Physiology, London University.

At a meeting held recently at New York it was stated that the America Red Cross aims at getting an endowment fund of £20,000, and a membership comprising every man, woman, and child in the United States. The wish was also expressed that all the American war relief societies should be amalgamated in its organization. Ex-President William H. Taft, recently appointed Chairman of the Central Committee of the Red Cross, was among the speakers.

RESULTS OF ANTITYPHOID VACCINATION IN THE FRENCH ARMY.

DR. JULES COURMONT, who is in charge of the isolation hospitals of the XIV District (French military administration), has issued an interesting report on the results of antityphoid vaccination from August 2nd, 1914, to July 1st, 1915. Haemoculture was employed for diagnostic purposes wherever possible, as it was recognized to be the only really trustworthy guide to the nature of the infection. The cases observed, in fact, included a large proportion of infections by paratyphoid organisms.

The total number of admissions of patients diagnosed to be suffering from typhoid fever was 1,347; of this number 891 had not been vaccinated, and 256 had been inoculated from one to four times with Vincent's non-polyvalent vaccine; of the 891 unvaccinated, 506 came from the front and 385 from the XIV District; of the 256 vaccinated, 96 came from the front and 160 from the XIV District.

The number of deaths among the 891 unvaccinated was 155 (17.4 per cent.); of these, 80 were from the front and 75 from the district. There were only 8 deaths among the 256 vaccinated (6 from the front and 2 from the district). If the subjects who received the regulation four inoculations were accepted as vaccinated the percentage of deaths would only be 1.9. The following is the complete table:

Admissions.	Total.	Front.	XIV District.	Slight Fever.	Medium Fever.	Grave Fever.	Deaths
1 injection ...	51	19	32	35	12	4	3
2 injections ...	■	■	25	36	10	4	■
3 injections ...	39	20	19	24	13	2	1
4 injections ...	116	32	84	■	77	2	2
Total ...	256	96	160	■	64	11	8

This gives:

	Non-vaccinated	Vaccinated:	Deaths.
1 injection	17.4 per cent.
2 injections	6.0 per cent.
3 injections	4.0 "
4 injections	2.5 "
			1.9 "

From the bacteriological point of view the proportion of paratyphoids was high. Haemoculture was used in 100 cases of the vaccinated, and proved negative in 25 and positive in 75. Of the 75 positive cases, 3 yielded Eberth's bacillus (2 of these had only had a single injection, and of these 1 died, the third had 2 injections); 71 yielded paratyphoid B and 1 paratyphoid A. Of the 116 infected patients who had received the four injections 63 showed paratyphoid B.

Antityphoid vaccination is thus shown to be unquestionably active and efficacious, but these figures point to the desirability of making use of a polyvalent vaccine (Eberth, paratyphoid A and B).

PUBLICATION OF SCIENTIFIC PAPERS.

(From a Correspondent in Northern France).

A FEW weeks ago there was circulated for general information a memorandum by the D.G.M.S. in regard to articles submitted for publication in professional journals. To this it is worth while to direct specific attention since its purport has in many quarters been misunderstood. The memorandum ran as follows:

The following resolution was passed at a meeting of R.A.M.C. Library and Journal Committee held in London on October 22nd, 1915:

"That it be represented to all officers of the R.A.M.C. and to those holding temporary commissions in the R.A.M.C. both at home and overseas, that the *Journal of the R.A.M.C.* should be considered the first in which military medical articles of permanent interest should be published.

"Articles intended for publication in journals such as the *BRITISH MEDICAL JOURNAL* and *Lancet* should at the same time be offered to the *Journal of the R.A.M.C.*

"The Director-General, British Army in the Field, and the Principal Director of Medical Services Mediterranean Force, to be informed accordingly."

All administrative medical officers and officers in command of medical units are requested to encourage officers to send in articles in accordance with the terms of this resolution.

This circular, though not obscurely worded, was interpreted by some as an intimation that medical officers serving with the Royal Army Medical Corps and desirous of recording their views or experiences in professional connexions must give their preference to the *Journal of the Royal Army Medical Corps* itself, and that unless they did so permission to publish their articles at all was not likely to be forthcoming.

I am in a position to state that any such view is not only erroneous in itself but is quite opposed to the aims of the medical authorities out here. They desire not only to encourage medical officers to study their cases carefully, but also to assist them as far as possible in interchanging any views they may form. Obviously such interchange of views would be handicapped if medical officers had to limit their search for publication of any articles they may write to one particular journal, and more particularly if such journal were one which appeared only at monthly intervals.

The object of the medical authorities in France in affording publicity to the resolution of the R.A.M.C. Library and Journal Committee which has been quoted was decidedly not to suggest that the authors of articles should aim at publication in that *Journal* alone. It was to bring home to them the existence of that *Journal*, and to show them that if they pleased they could have a chance of securing publication in two medical periodicals instead of one alone. Between a monthly journal and a weekly journal there is never any rivalry, and the fact that an article is submitted simultaneously to two publications of this order is not likely to lessen the probability of its acceptance by either of them.

Consequently, all that medical officers have to do to secure the chance of double publication is to mark one of the two copies that they must in every case submit as being intended for the consideration of the weekly journal of their choice, and the other as for the consideration of the editor of the *Journal of the Royal Army Medical Corps*.

Two copies of any article for which it is desired to secure publication must be submitted in order to comply with the terms of paragraph 453 of the King's Regulations. As these Regulations constitute the common law of the British Army, whether in times of peace or of war, precise compliance with them is essential on the part of all ranks. As the wording of the Regulation in question does not seem to be well known, it is worth while to quote it here at full length:

An officer or soldier is forbidden to publish in any form whatever, or communicate, either directly or indirectly to the press, any military information or his views on any military subject, without special authority; and an officer or soldier will be held responsible for all statements contained in communications to his friends which may subsequently be published in the press or otherwise. He is not to prejudice questions which are under the consideration of superior military authority by the publication, anonymously or otherwise, of his opinions, and he is not to take part, in public, in a discussion relating to orders, regulations, or instructions issued by his superiors.

Any information of a professional nature which he may acquire while travelling or employed on duty is to be regarded as the property of the War Department, and is not to be published in any form without the previous sanction of the Army Council, or in India of the Commander-in-Chief.

When application is made for permission to publish any article, etc., the document will be either typewritten or in proof form, and will be submitted in duplicate direct to the War Office (or in India to the Commander-in-Chief). A statement will be enclosed from the authority (if any) under whom the applicant is immediately serving that such authority has no objection to permission being applied for. One of the copies will be retained at the War Office or by the Commander-in-Chief in India, as the case may be, for reference. Permission to publish will apply only to the article, etc., as submitted, and no alterations therein, except of a purely editorial nature, and no additions thereto are to be made subsequently without the authority of the Army Council (or in India of the Commander-in-Chief). The permission to publish the article, etc., will not convey any official endorsement of its contents, and no statement tending to imply official approval or endorsement is to be included in any part of the publication, nor is the permission to be referred to in any way.

It may possibly occur to some that as this regulation states that one copy must be retained at the War Office, authors who desire to see their papers published in two

journals ought really to submit three copies. This, however, is not really essential, for the *Journal of the Royal Army Medical Corps* is a semi-official publication, and all papers submitted for the consideration to its editor are handed in to the War Office itself. Consequently they can be duly filed thereat when their fate as to publication has been determined. The only object, of course, in insisting that two copies of any proposed paper should be submitted is to place a check upon any disposition on the part of an author to make other than purely verbal alterations in an article after it has been duly approved.

This approval or censoring is done at head quarters, and unless the contents of the article happen to demand the consideration of more than one department of the Commander-in-Chief's staff, they usually reach home within a few days of their receipt. They arrive, or rather should arrive, at head quarters after passing through the hands of the administrative officers to whom the medical officer concerned is directly subordinate—namely, the O.C. of his unit, the A.D.M.S. of the area or division in which he is serving, and the D.M.S. of the lines of communication or of the army to which the division in question is attached, as the case may be.

The following is a draft of the kind of letter that medical officers should send with their proposed articles:

From Captain John Smith, R.A.M.C.,
To O.C., No. 120 Casualty Clearing Station.

France,
Dec. 19th, 1915.

Sir,

I have the honour to submit herewith in duplicate an article on enteric. If approved, I request that one of the copies may be sent to the Editor of the *BRITISH MEDICAL JOURNAL* and the other to the Editor of the *Journal of the Royal Army Medical Corps* with a view to publication. They are marked accordingly.

I have the honour to be, Sir,

Your obedient Servant,

(Sd.) JOHN SMITH,
Captain R.A.M.C.

In conclusion, it is of interest to be able to record that since the first day of the current year (1915) up to the date on which I am writing—December 19th—the total number of articles submitted to head quarters by medical officers for publication is 141, and with one exception all have been approved and forwarded after verbal alteration, such as the erasure of the names of units the publication of which is, on military grounds, prohibited. How many of them have reached the light of day by appearing in the medical journals it is impossible to ascertain, but making due allowance for such as have been stillborn, owing either to lack of space or other purely editorial cause, the total output can hardly be deemed satisfactory in point of bulk, considering the vast amount of material that medical officers have had at their disposition.

HONOURS.

THE *London Gazette* of December 23rd, 1915, announces the grant of a number of honours, including two V.C.'s, six D.S.O.'s, and thirteen Military Crosses. One of the V.C.'s was an officer of the 25th, or Frontiersmen, Battalion of the Royal Fusiliers, killed in East Africa; four of the new D.S.O.'s were Canadians; while the Military Crosses included one Canadian and one officer of the Newfoundland Contingent. Two of the Military Crosses were conferred upon temporary officers of the R.A.M.C., Captains H. J. Burke and B. J. Hackett, for the following services. Captain Burke's name has twice appeared in the casualty lists as wounded.

Military Cross.

Temporary Captain Henry James Burke, R.A.M.C. (attached 1st 8th Battalion West Yorkshire Regiment, T.F.). For conspicuous gallantry on November 8th, 1915, near Turco Farm. A sergeant in the front line had his leg crushed by the blowing in of a dug-out, and Captain Burke found immediate amputation necessary. In order to save time he called across the open to get his instruments, while the enemy turned a machine-gun on to him. In spite of their fire he returned the same way and coolly performed the operation in the trench while the enemy were shelling it heavily.

Temporary Captain Bartholomew James Hackett, M.B., R.A.M.C. (attached 7th Battalion Suffolk Regiment). For conspicuous gallantry and devotion to duty at Loos on October 2nd, 1915. When the battalion to which he was attached had suffered very heavy casualties and had run out

of dressings, Captain Hackett brought up a fresh supply from the dressing station, crossing over about 1,000 yards in the open. He has frequently attended the wounded under fire, and has shown great bravery.

The Military Cross has also been conferred on Second Lieutenant (temporary) Thomas William Gerald Johnston, 5th Connaught Rangers, then a medical student of Trinity College, Dublin, in his fifth year. The award was made, as stated in the official dispatch, for conspicuous gallantry in Gallipoli on several occasions, notably on August 8th, 1915, during the attack on Lone Pine, when he showed the greatest personal bravery; and on August 21st, during the attack on the well and trenches at Kabak Kuyu, when he led his men in the most daring manner, and, entering the Turkish trenches, bayoneted seven Turks with his own hands. Mr. Johnston came home wounded, and completed his final medical examinations in December, 1915.

CASUALTIES IN THE MEDICAL SERVICES

Killed in Action.

COLONEL ERNEST OCTAVIUS WIGHT, R.A.M.C., was killed by a shell while helping to extricate some motor ambulances from a dangerous position near Ypres on December 19th, 1915. He was born in May, 1858, educated at St. Mary's Hospital, London, and in 1881 took the diplomas of L.R.C.P. Edin. and M.R.C.S.; he took the D.P.H. of the London colleges in 1902. He entered the R.A.M.C., then the Army Medical Department, as surgeon on February 6th, 1882, became surgeon-major on February 6th, 1894, and lieutenant-colonel on February 6th, 1902. He retired on March 6th, 1907, but when the war began he rejoined the army, and in April, 1915, was gazetted to be an Assistant Director of Medical Services, holding that post in the 49th Division when he was killed. He had previously seen service on the north-east frontier of India, in the Lushai campaign of 1892, and received the frontier medal with a clasp. He also held the Royal Humane Society's bronze medal and two vellum testimonials for saving life from drowning on three different occasions. Colonel Wight was the youngest son of the late Robert Wight, F.R.S., of the Madras Medical Service, and of Grazeley Court, Reading, one of the most celebrated botanists of his day.

Wounded.

Captain C. A. Bernard, R.A.M.C. (temporary), France.
Captain J. S. Hall, R.A.M.C. (temporary), Flanders.
Captain A. L. Shearwood, R.A.M.C. (Special Reserve), Mediterranean.
Lieutenant J. Campbell, R.A.M.C. (temporary), Mediterranean.
Lieutenant A. C. Edwards, R.A.M.C. (temporary), Flanders.
Lieutenant F. G. Foster, R.A.M.C. (Special Reserve), Flanders.

DEATHS AMONG SONS OF MEDICAL MEN.

Bath, J. E. W., Lieutenant 5th Battalion Royal Berkshire Regiment, eldest son of Dr. S. Bath, of Newfield, Marlow, killed in France on December 22nd. He was educated at Shrewsbury and at All Souls College, Oxford, and represented Oxford in the inter-university cross-country race in 1915. He joined his regiment as Second Lieutenant on August 29th, 1914.

Hyde, A. C., Major 1st Battalion Oxford and Buckinghamshire Light Infantry, son of the late Lieutenant-Colonel Hyde, I.M.S.

Macdonald, Colin, Captain 1st Attached 2nd Battalion 7th Gurkha Rifles, son of the late Dr. Macdonald, of Dumfries. He was born on May 6th, 1883, entered the army as Second Lieutenant on August 27th, 1902, joined the Indian army on December 18th, 1903, and became Captain on August 27th, 1911.

Stokoe, J. C., Second Lieutenant 12th Battalion Manchester Regiment, attached 6th Battalion Loyal North Lancashire Regiment, eldest son of the late Mr. J. C. Stokoe, M.R.C.S., of Newry. He joined as a Second Lieutenant on March 25th, 1915.

Ward, Charles Francis, Captain Royal Field Artillery, son of Charles Ward, F.R.C.S.I., District Surgeon, of Pietermaritzburg, Natal, killed near Ypres, May 15th, 1915. He was born on January 20th, 1884, joined the army as Second Lieutenant on December 23rd, 1903, became Lieutenant on December 23rd, 1906, and Captain on October 30th, 1914.

MEDICAL STUDENT.

Macrosty, Henry Hugh, Lieutenant Royal Field Artillery, only son of Mr. H. W. Macrosty, of the Board of Trade, killed in France on December 19th, 1915, aged 21. He was educated at Blackheath and at Edinburgh University, where he had completed his second year of medical study. He got his first commission on September 12th, 1914, went to the front in May, and was promoted to Lieutenant in September.

NOTES.

CARE AND EDUCATION OF CRIPPLED SOLDIERS.

In Italy doctors and philanthropists are showing great activity in providing aid for soldiers mutilated in the war. Provincial and local committees are being formed all over the country; these are grouped under a central "National Federation," having its head quarters in Rome. The Government has made large contributions to the funds of the organization, and the Red Cross Society, together with the local authorities and citizens of the various districts, are liberal in help. Committees have been formed at Lucca, Leghorn, and elsewhere for the aid of soldiers mutilated in the war, and in particular for their training in new occupations. At Reggio Emilia a section for blinded soldiers has been established in connexion with the Garibaldi Institute for the Blind. A large factory has been established at Milan for the making of artificial limbs for mutilated men. It is organized on a non-commercial basis.

It appears from a notice published in the *Deutsche medizinische Wochenschrift* for September 16th, 1915, that the Medical Department of the German War Office has issued orders in connexion with the care of war cripples, to prevent overlapping and delays in providing them with the necessary crutches and artificial limbs. It is pointed out that the transfer of the totally unfit to military hospitals in their home districts is often delayed until artificial limbs have been provided. Not only is invaluable time lost in this manner, but when an artificial limb is provided just before the cripple is sent to a hospital in his own district, readjustments of the artificial limb in such a district are rendered difficult by the fact that the cripple is no longer within easy reach of the firm which has supplied the limb in the first place. For these reasons the heads of military hospitals and other officials connected with the medical service are instructed to transfer, whenever possible, soldiers who have lost a limb to military hospitals in their home districts before providing artificial limbs. The difficulties of transporting by train soldiers who have lost their legs must not, it is added, prevent the execution of this plan, which, it is hoped, will not delay the timely care and education of war cripples.

MEDICAL OFFICERS WANTED.

Field Ambulance.

The Officer Commanding a Field Ambulance, who has had ten months' experience at the front in France and Belgium, is fitting out a Territorial London Field Ambulance for service abroad, and has vacancies for five medical officers. Rates of pay, etc., higher than temporary commissions abroad. Gratuity after one year, £96 2s. Address, No. 999, BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C.

22nd South Midland Mounted Brigade Field Ambulance.

Medical officers are urgently wanted for this Field Ambulance. Intending candidates must be willing to sign for foreign service, and should apply to Major A. G. Magrath, Officer Commanding, London Road, Kings Lynn.

Scotland.

THE MIDWIVES (SCOTLAND) ACT.

THE Midwives (Scotland) Act has received the Royal Assent and comes into force to-day (January 1st), although many of its provisions will not take effect until later. Steps will, however, be taken at once to form a Central Midwives Board for Scotland. The composition of the Board was given in full in the JOURNAL for December 4th, 1915, p. 833. Its constitution is briefly as follows: (a) Three persons, two of whom shall be certified midwives practising in Scotland, to be appointed by the Lord President of the Council when the number of midwives so qualified is sufficient; (b) one appointed by the county councils, one by the burghs, one by the Scottish branch of the Jubilee Institute for Nurses, and one by the Society of Medical Officers of Health for Scotland; (c) five be registered medical practitioners, two representing the universities, one the Royal Colleges, and two appointed by the Scottish Committee of the British Medical Association.

The provisions regarding the practice of midwives in Scotland are imposed in two instalments, the first on January 1st, 1917, and the second on January 1st, 1922. They are as follows:

1.—(1) From and after January 1st, 1917, any woman who, not being certified under this Act, shall take or use the name or title of midwife (either alone or in combination with any other word or words), or any name, title, addition, or description implying that she is certified under this Act, or is a person specially qualified to practise midwifery, or is recognized by law as a midwife, shall be liable on summary conviction to a fine not exceeding five pounds.

(2) From and after January 1st, 1922, no woman shall habitually and for gain attend women in childbirth otherwise than under the direction of a registered medical practitioner unless she be certified under this Act; any woman so acting

without being certified under this Act shall be liable on summary conviction to a fine not exceeding ten pounds, provided this section shall not apply to registered medical practitioners or to any one rendering assistance in a case of emergency.

(3) No woman shall be certified under this Act until she has complied with the rules and regulations to be laid down in pursuance of this Act.

(4) No woman certified under this Act shall employ an un-certified person as her substitute.

(5) The certificate under this Act shall not confer upon any woman any right or title to be registered under the Medical Acts or to assume any name, title, or designation implying that she is by law recognized as a medical practitioner, or that she is authorized to grant any medical certificate, or any certificate of death or of stillbirth, or to undertake the charge of cases of abnormality or disease in connexion with parturition, but nothing herein contained shall prevent a midwife granting such certificates as may be required by the rules of approved societies or insurance committees in connexion with maternity benefit under the National Insurance Acts.

For women at present engaged in practice as midwives the Act provides as follows:

Any woman who, within two years from the date of this Act coming into operation, claims to be certified under this Act, shall be so certified, provided she holds a certificate in midwifery from the Royal Maternity Hospital of Edinburgh, the Royal Maternity Hospital, Glasgow, the Maternity Hospital, Aberdeen, the Maternity Hospital, Dundee, the Obstetrical Society of London, the Royal College of Physicians of Ireland, the Coombe Lying-in Hospital, and Guinness's Dispensary, the Rotunda Hospital for the Relief of Poor Lying-in Women of Dublin, the National Maternity Hospital, Dublin, the Central Midwives Board for England, or such other certificate as may be approved by the Central Midwives Board for Scotland; or produces evidence satisfactory to the last-mentioned Board, that at the passing of this Act she had been for at least one year in bona fide practice as a midwife, and that she bears a good character.

The period of two years may be extended by the Central Midwives Board for Scotland in special cases where any woman is able to satisfy them that she had reasonable excuse for having failed to make her claim within the prescribed time.

TUBERCULOSIS MATTERS IN EDINBURGH.

The Chief Veterinary Inspector, Mr. A. Gifton, F.R.C.V.S., has reported to the Edinburgh town council that during October 22 carcasses and 38 portions of carcasses had been surrendered at the abattoirs on account of disease, injury, or decomposition; and that of these 7 carcasses and 34 portions of carcasses had been destroyed on account of tuberculosis. He also reported that 2 cows had been removed from city byres on account of tuberculosis of the udder, that one of them had been slaughtered at the abattoir, but that it was not known what became of the other. In answer to a question, Mr. Young (Chairman of the Public Health Committee) stated that diseased animals were allowed to go out of the city because no local authority had any power to seize a cow suffering from tuberculosis, but could only remove her from a city byre. The council directed that a report on the subject should be prepared for its consideration.

At the annual meeting of the Royal Victoria Hospital Tuberculosis Trust it was pointed out that unfortunately the outbreak of the war had coincided with the rearrangement of the Royal Victoria Hospital scheme, and the committee had not felt justified in embarking on large outlays for the present. Sir Robert Philip mentioned the interesting fact that 24 of the former tuberculosis patients at the Royal Victoria Hospital were serving with the colours; one of them had been badly "gassed," but in spite of his former lung trouble a week in hospital served to send him back to the fighting line. Between 50 and 60 former patients of the Royal Victoria Dispensary were also on war service.

Ireland.

WESTMEATH AND THE MOTOR AMBULANCE FUND.

At the last meeting of the Westmeath Motor Ambulance Fund it was announced that while £1,871 14s. 1d. had been collected, the expenses connected with the working of the fund had only amounted to £8 2s. 1d. After defraying the cost of two Hotchkiss motor ambulances and paying over £400 to the British Red Cross Society for running expenses, there was a balance of £65. Letters were read from the British Red Cross Society thanking the County Westmeath for its great generosity. No. 1 car, which has now been more than six months on the road, has

been taken over by the Government and has been used to carry the wounded from all the recent engagements; it has frequently been under fire. No. 2 car is still at Boulogne, where it is doing good work, and is being driven by a Westmeath man.

VACCINATION DEFAULTERS.

The Local Government Board has called on the guardians of the Enniscorthy Union to enforce the Vaccination Acts against the 5,343 defaulters in the union area. The guardians decided to ascertain from the doctors what effect the notices recently served on defaulters had produced.

FEVER IN TIPPERARY DISTRICT.

Further cases of typhoid fever are reported from Cullen, in the district of Tipperary. Surprise was expressed at a recent meeting of the guardians when it was stated that one of the patients recently admitted to the hospital was a woman aged 86 years. The sanitary subofficer said that many persons "put the fever over them" and were moving amongst the people without knowing that they had had the disease at all.

INFANT AID SOCIETY.

The Infant Aid Society, formerly known as the Dublin Committee for the Prevention of Infantile Mortality, has for some years been doing unostentatiously a very good work amongst the poorest classes in the city. It can safely be said that if it were not for the work of this society the infantile mortality in Dublin, abnormally high as it is, would be considerably higher. There are over 11,000 babies born in Dublin every year, and at least 660 of these die before reaching the age of 1 year. The notification of births is now compulsory in Dublin, and the object of the Infant Aid Society is to secure that as soon as possible after the notification the homes of mothers in the poorer districts shall be visited by one of the trained voluntary workers. There are about 150 of these trained workers, who during the past year paid over 22,500 visits to the mothers and expectant mothers.

England and Wales.

MR. GILBERT BARLING OF BIRMINGHAM.

On his retirement from the office of surgeon to the General Hospital, Birmingham, after a connexion of thirty-six years, Mr. Gilbert Barling was on December 22nd, at a meeting presided over by the Lord Mayor, presented with an illuminated address and his portrait in oils. Mr. J. E. Willcox (Chairman of the Presentation Committee), speaking on behalf of the 153 subscribers, recalled that Mr. Barling's connexion with the hospital staff began when he was appointed pathologist in 1880, and included the tenure of the office of Dean of the Faculty of Medicine at the University of Birmingham, of which he is now Vice-Chancellor. The hospital, among other debts, owed much to him in respect of the establishment of a pathological department in the hospital. The Lord Mayor accepted the portrait, which is by Mr. E. S. Harper, and will be hung in the board room of the hospital. Mr. W. F. Haslam, senior surgeon of the hospital, then read the address, in which acknowledgement was made of Mr. Barling's invaluable services in the conception, planning, and equipment of the building in which the hospital now carries on its work, and in the promotion of the institution as a medical, surgical, and nursing school. The Lord Mayor, in presenting the address to Mr. Barling, said that the influence he had exercised lay in the force of his personal character, his unselfish consideration for others, and his habit of concentration on any business before him. It was the possession of these qualities, coupled with his skill as a surgeon and administrator, which had earned for Mr. Barling universal esteem, respect, and affection.

Mr. Barling, in his reply, recalled that when he first became connected with the hospital it had one operating theatre, used three or four times a week, while now it had four, used practically every day. The work, too, was of a different character; it used to consist mainly of dealing

with accidents, but now it was more concerned with operations for disease. The revolution which had come over surgical methods was based upon the work of two men—a great Frenchman, Pasteur, and a great Englishman, Lister—to whom was due the safety of patients after operation. Another striking difference was that while in 1880, with about 200 beds, the expenditure on alcohol for patients was £350, now, with 340 beds, all constantly occupied, less than half that amount was spent. Speaking of the new pathological department, he said that people were apt to think that the work of a hospital was limited to giving medicine to sick persons or operating for diseases, but a proper scientific basis for its work was essential. With the new department would lie the future development and success of the hospital; it was essential for treatment in the first instance, and next for the investigation of disease. That typhoid fever, which caused over 10,000 deaths during the South African war, had caused so few in this, was not due to the discovery of a new medicine, but to preventive treatment by inoculation. In conclusion, Mr. Barling expressed his thanks to the subscribers.

Sir John Holder then presented Mrs. Barling with a jewel, as a recognition of the encouragement and sympathy she had given her husband in his long and devoted work to the hospital.

LIVERPOOL MEDICAL INSTITUTION.

By invitation of the Council, the Resident Librarian (Mr. William Jones) read a paper at the last meeting on John Evelyn (1620-1706) illustrated by lantern slides and books from the library of the institution. Mr. Jones showed that the same laudable inquisitiveness set forth in the diary of John Evelyn was still as rife among members of the institution as in the days of the great diarist, but remarked facetiously that it was the rooted opinion of many doctors that no work on medicine was worth reading unless the date of publication was 1915! Evelyn presented to the Royal Society, of which he was a Fellow, Malpighi's work on the history of the silkworm, and the Institution Library possessed also a copy of the works of Malpighi on the anatomy of plants. Evelyn visited Padua, and was present for nearly a month at the famous anatomy lectures by Cavaliere Vestlingius. He brought to England "those rare tables of veins, arteries, and nerves," and presented them to the Royal Society. For this gift Evelyn received the public thanks of the society. Mr. Jones threw on the screen several illustrations taken from Vestlingius and his commentator Blasius—books in the possession of the Institution Library. Evelyn mentions a visit to him of Dr. Tyson, author of a work entitled *The anatomy of a Pygmy compared with that of a monkey, an ape, and a man: wherein it will appear that they are all either apes or monkeys and not men as formerly pretended*. Evelyn's account of how he contracted small-pox in Italy and his description of his sufferings were quoted at length. His host received 45 pistoles of gold and his honest doctor 5 only, who, however, thought the fee so generous that, before leaving, Evelyn received at his hands "the regimen of my health written in Latin"! The diarist visited Leyden, and was present at a graduation ceremony in Oxford, and heard early in the morning Dr. Morison discourse learnedly on divers plants in the physic garden. Dr. Morison was physician to Charles II and Regius Professor of Botany at Oxford. He wrote a book, *Praeludium Botanicum*, a copy of which is in the Institution Library. Evelyn was present at a supper at the Royal Society, prepared in one of Monsieur Papin's digesters, and he alludes to its efficiency—"the hardest bones of beef and mutton being made as soft as cheese." He says, "This philosophic supper caused much mirth amongst us and exceedingly pleased all the company."

Evelyn narrates his visit to Tradescant's museum, which was afterwards bequeathed to Elias Ashmole, a very industrious collector of all manner of curiosities. The collection was finally housed in Oxford in a building erected by Sir Christopher Wren, and Mr. Jones was able to show a pamphlet found during a recent cleaning of the Institution Library, which was none other than a catalogue of the exhibits in the Tradescant's Ark; it was printed in 1666, and is an interesting memorial of the origin of the Ashmolean Museum. Of the dodo, "somewhat bigger

than the largest turkey cock, and so legged and footed, but shorter and thicker," there was a stuffed specimen of this in the Tradescantian Museum. It was unfortunately destroyed in 1775, but its head and right foot were preserved. Evelyn was personally acquainted with Sir Thomas Browne, but Sir Kenelm Digby, of the sympathetic powder, he regarded as an arrant mountebank. Sir Kenelm Digby was a distant ancestor of William E. Gladstone, at whose birth Harry Park, a famous Liverpool surgeon, officiated; his daybook, termed *The Book of Genesis*, records the date of the birth of a Gladstone (M.), Rodney Street, December 29th, 1809. The book was exhibited. Lastly, Evelyn recorded that in 1664, during the war with Holland, he was one of the Commissioners appointed to one of the districts of England to take care of sick and wounded and prisoners of war. He was also one of the Commissioners for the building of Greenwich Hospital, and held the office of treasurer.

KING EDWARD'S HOSPITAL FUND FOR LONDON.

At the meeting of the Governors and Council of King Edward's Hospital Fund for London the honorary treasurer, Lord Revelstoke, stated that the amount received for general purposes to December 11th, after payment of expenses, was £124,575, and that the income from investments for 1915 had, in spite of the difficult times, exceeded that for 1914 by about £14,000. Sir William Collins said that the League of Mercy was again in a position to contribute £14,000 to the fund. Sir Savile Crossley announced that Sir Ernest Cassel proposed to give again, as in 1911, the sum of £50,000 to hospitals, £28,000 to be distributed among the institutions receiving grants from the fund this year, and the remaining £22,000 to be given to certain hospitals and kindred institutions in London and the country. Sir William Church, chairman of the Distribution Committee, announced that the amount available for distribution among the London hospitals was £133,500, being the same as in 1914. Mr. Edwin Freshfield, Chairman of the Convalescent Homes Committee, reported that owing to the fact that some of the convalescent homes which had usually received grants in consideration of their treating convalescent patients from London, had, since the beginning of the war, ceased to take such patients, and had been devoted entirely to the treatment of sick and wounded sailors and soldiers; grants to such homes would not be made this year, and in consequence the Committee had been able to reserve a larger number of beds at consumption sanatoriums for the use of patients in London hospitals and to extend the list of hospitals amongst which such beds are allocated.

Canada.

THE REGULAR *versus* THE IRREGULAR PRACTITIONER.

THE inquiry into the practice of medicine in the province of Ontario was commenced by the Honourable Mr. Justice F. E. Hodgins on October 16th, when over 150 representatives of the various organizations concerned were in attendance. In opening the investigation, Mr. Justice Hodgins stated that he had been delegated to inquire into all the different branches of the medical profession which were seeking legislation for recognition. The organizations represented included the Ontario College of Physicians and Surgeons, the Ontario Medical Association, the Provincial Board of Health, the Medical Faculty of the University of Toronto, the Toronto Academy of Medicine, the Ontario College of Dental Surgeons, the Ontario Optometrical Association, the Christian Scientists, the Osteopaths, the Chiropractors, the Homeopaths, the Drugless Physicians, the Mona Therapists, etc.

The case of the Ontario Medical Association was heard some days later, when an extremely able statement was made by Dr. H. B. Anderson, the president. The association was organized in 1880, and is guided by the following principles: Every person before being legally entitled to treat the sick should comply with the same educational conditions; to understand disease and treat it intelligently necessitates a knowledge of the structure and functions of the body in health, as well as the various conditions acting upon the body to produce change or derangement

of those functions; the arbitrary belief in any special dogma, system, or plan of training can no way relieve the individual from the necessity for this training in the fundamentals of intelligent practice; once the would-be practitioner is properly trained and legally qualified, no restriction should be placed on his freedom to obtain further knowledge of any form of treatment or of the right to practise it. Dr. Anderson said that universities had been provided—for instance, the Provincial University at Toronto, and others—to furnish proper education and scientific training, and that it would be an injustice to every one concerned were illiterate, inferiorly educated, or untrained men given the right to practise. He quoted the following passage from the Report of the Carnegie Foundation (1910, pp. 183-6): "The eight osteopathic schools fairly reek with commercialism. Their catalogues are a mass of hysterical exaggerations alike of the earning and curative power of osteopathy." Quotations were also given from Canniff's *The Medical Profession of Upper Canada* to show that in 1812 "the province is (was) over-run with self-made physicians who have no pretensions to knowledge of any kind. . . . They comprehend not the causes or nature of disease, are totally ignorant of anatomy, chemistry, or botany; many know nothing of classical learning or general science."

On behalf of the Provincial Board of Health, evidence was given by Major J. W. S. McCullough, M.D., provincial officer of health, and by Dr. C. J. O. Hastings, medical officer of health, Toronto. The following suggestions were made by Major McCullough: That the standard of medical education should be maintained and keep pace with the advance in scientific knowledge; that those entering upon the study of medicine should have a good preliminary education, equal at least to honour matriculation; that the course of study should embrace seven years of nine months each; that anatomy, physiology, biology, bacteriology, pathology and diagnosis, as well as clinical experience, should be included in the course of study, no matter what form of treatment any physician desired to pursue; and that no unqualified man or woman should be allowed to practise medicine in any form. He referred to the splendid results obtained at the military camp at Niagara; the water of the Niagara River is perhaps more polluted than that of any other river in the Dominion, yet 20,000 men have passed through the camp where this water is used without a single case of typhoid having been traced to infection in the camp, thanks to the inoculation of the men against typhoid and the other precautions taken.

Dr. Falconer, on behalf of the University of Toronto, also insisted upon the necessity for a thorough training in all the branches of medicine before permission was granted to prescribe for or give any treatment to the sick.

A plea for recognition was made by the optometrists on the ground that at the present time eyeglasses were sold as an ordinary commodity regardless of the condition of the wearer's eyes.

The chiropractors demanded equal status with medical practitioners for graduates of their schools, a certain standard of training for all those granted licence to practise chiropractic, a regular chartered chiropractic institution in Ontario, and a chiropractic board of control. They proposed that a certificate of matriculation, or its equivalent, should be demanded of prospective students, that the course of study should embrace at least three years of nine months each, and that the curriculum should include the study of anatomy, pathology, physiology, chemistry, bacteriology, sanitation, prophylaxis, minor surgery, dietetics, the science of chiropractic and adjunctive therapeutics, such as hydrotherapy, anotherapy, electrotherapy, etc. A similar stand was taken by the osteopaths, both claiming that legislation was required to protect graduates of their schools against impostors.

PROHIBITION IN CANADA.

The war has stimulated the temperance movement in every province, but it is in the prairie provinces of the west that the results have been most marked. In Saskatchewan two bills were passed, and on June 30th 405 hotel bars were closed, the licence was taken away from seven clubs and thirty-eight wholesale liquor stores, and twenty-three dispensaries were established under Government control, which are open between the hours

of 9 a.m. and 5 p.m. Hotels in small places will receive financial assistance during the period of readjustment, and municipal assistance will be given so that rest rooms and libraries may be established in hotels. A referendum will be taken at the first December municipal elections after the war, but not before December, 1916, to decide whether the bars shall be reopened, and in December, 1919, a second referendum will decide the fate of the public dispensaries. Under the present Sales of Liquor Act druggists are allowed to sell alcohol or other liquor only on prescription from a physician, and then only in sealed bottles and during the hours when the dispensary, if such exists, is closed. In Alberta a vote of the people was taken, with the result that temperance gained a majority of 20,000 out of a possible vote of 80,000. Prohibition, however, does not come into force until July 1st, 1916. As yet no arrangements have been made to reimburse hotels, but it is probable that this matter will be adjusted later. In Manitoba the Government was petitioned in 1911 by 20,000 electors to take a referendum on the question of abolishing the bars, and the new Liberal Government has promised to take the people's vote on this question next March. If prohibition wins, no licences will be renewed in the province next May.

In Prince Edward Island there has been total prohibition for fifteen years. With the exception of Halifax, the province of Nova Scotia is "dry," as are more than half of the municipalities of New Brunswick, Quebec, and Ontario. In Quebec a movement is on foot to petition the provincial government to close all bars at 7 o'clock in the evening during the war. It is suggested also that "treating" should be prohibited.

STE. AGATHE SANATORIUM.

At the seventh annual meeting of the Laurentian Society for the treatment and control of tuberculosis, it was reported that 129 patients had been treated at the sanatorium during the twelve months, of whom 87 were discharged. An analysis of the 321 patients treated since the opening of the institution showed that 237 were living. Of these, 170, or 53 per cent., are perfectly well; and 67, or 21 per cent., are fairly well if they take care of themselves. A weekly charge of 8 dollars is made to patients who are unable to pay more, and last year a deficit of 6,000 dollars was met by subscriptions and donations. The citizens of Abbotsford have given \$1,000 to the institution; the amount was collected for the purchase of a machine gun, but diverted to the sanatorium when the Government ceased to accept such gifts. The sanatorium has been placed at the service of the Government for the treatment of soldiers suffering from tuberculosis who have returned from the front. At present twenty-three such patients are under treatment there.

ALBERTA COLLEGE OF PHYSICIANS AND SURGEONS.

The annual meeting of the Council of the College of Physicians and Surgeons of Alberta took place at Edmonton on October 15th. The Council was appointed last July for a period of four years, and consists of one member from each of the seven districts of the province as follows: Dr. John Park, of Edmonton; Dr. F. W. Crang, of Edmonton South; Dr. R. G. Duggan, of Killam; Dr. R. G. Brett (now Lieutenant-Governor of the Province), of Banff; Dr. R. D. Sanson, of Calgary; Dr. G. E. Learmonth, of High River; and Dr. W. S. Galbraith, of Lethbridge. The annual meeting, at its first session, was devoted to business; Dr. F. W. Crang was elected president; Dr. W. S. Galbraith vice-president; Dr. C. W. Field, of Edmonton, registrar and treasurer; and various committees were appointed.

THE first Argentine Congress of Medicine will be held at Buenos Aires in June, 1916.

In the December (1915) number of the *Journal de médecine de Bordeaux* M. René Cruchet gives an account of a "trench journal," the title of which, *Entre les Brancards* (Among the Stretchers), shows that it is devoted to medical matters. It is published under the direction of a distinguished medical officer—J. J. Matignon—and comes out "almost" every week. The contents consist of notes on hygiene with items of news relating to the medical services. The austerity of the *utile* is tempered by a considerable infusion of the *dulce* conveyed in light sparkling verse.

Correspondence.

"MEDICAL CLERKS."

SIR.—As one directly concerned, I read your annotation on "Medical Clerks" with a considerable degree of interest. Your exhaustive criticism of the forms issued under the Mental Deficiency Act (1913) really leaves so little to be said that any remarks I have to make are to be regarded rather as corroborative, and as such may, perhaps, have some value. The filling up of the "Medical Particulars" is, of course, one of the routine duties of the examiner under the Act, and is to be performed in each and every case. Whatever satisfaction may be derived from it by the official mind, it will be admitted that, as a clinical record of a particular patient, it is practically worthless. Apart from the fact, which you comment upon, that the space provided under the different headings bears no relation to their respective importance, it is to be noted that the printed matter actually occupies nearly as much area as that allowed for medical particulars. In most cases there is not even room to answer the question in the simplest terms, and one has perforce to resort to abbreviations. It is as well, perhaps, that the voluminous footnotes—which are highly reminiscent of a railway guide—should state explicitly how the particulars are to be filled in, for where space is so valuable it behoves one to be precise. For instance, under the heading "Teeth," a footnote informs us that the information required is the "number bad." One might have imagined, on general grounds, that in the case of mental defect it would have been useful to have known whether the teeth were "gapped," supernumerary, or irregularly erupted. But, not all that is wanted is the "number bad." No space is devoted to the palate, though one may opine that palatal abnormalities are at least as important as, say, "enlargement of the thyroid" or "fissuring of the tongue." It must be evident, moreover, that many of the queries do not admit of this categorical form of reply—that, in fact, each and all of them may require amplification or qualification in order to be of any value whatever; and for this there is no room. The space devoted to "aetiological factors," again, can only be utilized by reference to a further schedule with no less than thirty-seven subdivisions. It is evidently felt that there is not room otherwise for even the briefest form of answer, so resort is had to a system of symbols to which the schedule aforementioned supplies the key.

When one remembers that the form supplied by the Board of Education for a similar purpose and for the identical class of case is conceived in a totally different spirit and with a true appreciation of the object to be attained, the present document seems all the more inexplicable. If the intention is to alienate the sympathy and interest of the medical man concerned, this seems to be the right way to go about it. If, however, the objective be what it purports to be—namely, the collection and tabulation of authentic data relating to mental defect—surely a great opportunity is being missed. In actual practice, one may assume that the case-book and private record will supplement and complete what the official documents lack, and that in this, as in other branches of medical research, the progress of knowledge will be ultimately dependent upon individual initiative rather than official encouragement.—I am, etc.,

J. E. MIDDLEMISS,
Medical Officer to the Leeds Mental
Deficiency Committee.

Leeds, Dec. 19th, 1915.

BROMIDES IN EPILEPSY.

SIR.—I venture to ask you to allow me to briefly describe my experience in relation to this subject, which includes many years of daily observation of from 90 to 100 cases in the Hanwell Asylum.

Prior to holding my appointment there I had been impressed by seeing two cases of epilepsy, in which by the use of large doses of bromide all fits had been suppressed for long periods, terminate fatally by the occurrence of the status epilepticus. On my taking charge at Hanwell I found bromides in use in very large doses and witnessed several similar terminations, and consequently gave up the use of the drug. At first the number of fits considerably increased, but the irritability of the patients, as

shown in the lessened number of casualties from personal encounters, diminished considerably. The records of fits, however, showed a tendency to diminish in frequency and severity, and in a number of cases ceased altogether as years went on. I have not the slightest doubt that the tendency to dementia in this class of cases was greatly diminished.

In consulting practice I have seen a number of cases, in whom the increasing irritability and excitability under the use of bromide threatened the necessity of control in an asylum, improve on the withdrawal of this drug. I have recently heard from one such case in whom the fits have ceased, and who is now able to take a salaried post.

The withdrawal of the drug must be gradual, or, if sudden, should be accompanied by considerable rest in bed and by abstinence from mental work. I have always to regret the insufficient attention to these precautions in one case in which the severe recurrence of the fits led to a return to the drug treatment. The treatment that I adopted was:

1. Rest in the horizontal position after each attack, from a few minutes to two or three days, the rest being continued until all evidence of undue vasomotor irritability had subsided; this was judged by the irritability of the iris, by the irritability of the pulse on variation of the bodily position, and by the emotionality. By this procedure attacks of maniacal excitement and quarrelsomeness were avoided and the harmful effects of the exhaustion produced by the fits was minimized.

2. Avoidance of mental stress or excitement or emotional stresses, and irritation from digestive or sexual causes.

3. Avoidance of toxic conditions. The diet should be adapted to this end rather than to any theoretical scheme of dietetics, most of which I have tried and found wanting.

Epilepsy is certainly not due to a single set of conditions but to several. In this I quite agree with Dr. Mercier.

Muscular exercise in the open air is probably the most important and valuable means of restoration to health in these cases. Attention to general health on general principles, and not specific drug treatment, is most likely, from my experience, to be successful.—I am, etc.,

London, N.W., Dec. 28th, 1915.

HENRY RAYNER.

THE TONSILS.

SIR,—Dr. Henry A. Barnes in his monograph¹ reaches conclusions which are being increasingly arrived at by those specially engaged in throat work, and it seems time that these simple rules should guide us in our attitude towards the tonsils.

1. We should decide, in dealing with a tonsil, whether the changes in it will yield to simple measures or whether surgical interference is necessary.

2. If surgical interference is necessary, tonsillectomy is the only operation applicable.

3. In reference to the operation of tonsillectomy, or enucleation of the tonsil, a method definite in its result should be adopted—that is, a method by which the tonsil in its capsule complete is definitely removed. This can be performed practically as expeditiously and with as little risk to the patient as tonsillotomy.—I am, etc.,

Glasgow, Dec. 27th, 1915.

W. S. SYME, M.D.

RECRUITING AND DISCHARGE.

The Other Side of the Shield.

SIR,—Your leaderette on "The Medical Examination of Recruits" calls attention to a complaint from medical officers of units at home and abroad of the number of physically unfit men who have been passed as fit for active service. Nothing, however, is said about the enormous number of physically fit men who are daily being discharged from the army for minor defects by these medical officers.

It would be interesting to know how many efficient soldiers have been discharged for small varicocoeles, slight degrees of hammer-toe insufficient to cause discomfort in marching, defects of teeth or inability to satisfy the constantly varying standards of eyesight, height, or chest measurement. Last week a man came to see me who had enlisted early in the war. He had a slight amount of

hammer-toe and a cardiac murmur, with no displacement of apex beat and no sign or history of cardiac inefficiency. He rapidly rose to the rank of sergeant, and he stated that he was never sick, and never had to fall out when on duty. He was discharged because of having hammer-toes. On the strength of this discharge I passed him ("unfit for infantry") for the mechanical transport as a learner. He was again discharged on joining his unit. He was a good soldier, as proved by his rank, a good character shown on his certificate of discharge, and proved to be physically fit by his ability to stand the severe training of Kitchener's army. This is only one of scores or hundreds of cases that have been brought to my knowledge since the beginning of the war.

As to the reputed carelessness of medical officers, I do not believe it exists to any great extent. It is not remarkable that early cases of tuberculosis should be missed; it is almost a miracle that any should be discovered considering the conditions under which the work has had to be done during the several periods of rapid enlistment, and particularly in the early days of the war and during the first fortnight of this month.

In this town, although every civil practitioner was asked to help (most of them willingly doing so), and although many fresh centres were opened to cope with the rush of recruits, yet it was not uncommon for a doctor to have to examine from eighty to a hundred men a day in a noisy and crowded room.

Among the cases you mention are the chronic epileptics. Can the R.A.M.C. officer diagnose epilepsy in a man who appears intelligent and who denies having had fits? I do not profess to be able to do so. Deformities of limbs are passed sometimes; after all, the army is not a beauty show, and the appearance of a man on parade is not everything. I remember passing a man who had lost the trigger finger of his right hand. He was a gamekeeper, and a most excellent shot.

You mention also cases of hernia. The medical officers of this town were definitely instructed by the colonel inspecting the district that inguinal hernias could be passed for home service if small and capable of being kept up by means of a truss.

You also particularly mention the standard of fitness in the foot. I passed a man with a slight degree of flat-foot, who was promptly discharged on joining his unit. Up to the time of his enlistment he was a professional football player in an Association team.

If men are passed as fit and prove unfit for their work they should be discharged, but it is nothing less than a grave scandal that good and fit men should be discharged for minor defects without giving them a trial, and in my opinion it is better and cheaper that many unfit men should be passed into the army rather than run the risk of losing even a comparatively small number of good soldiers.—I am, etc.,

December, 1915.

CIVIL EXAMINER OF RECRUITS.

MEDICAL STUDENTS AND THE INSPECTION OF RECRUITS.

SIR,—May I draw the attention of the governing bodies of medical schools in the three kingdoms, and in Australia and Canada, to the desirability of giving medical students, in their fifth year of study, the opportunity of seeing the actual physical examination of recruits for the army being carried out by the trained medical recruiting officers? There are large recruiting centres in the localities where medical schools exist, and if an application were made to the local recruiting officers, no doubt permission could be obtained. Further, it is possible that two or three lectures could be given to the advanced students each session by the official recruit inspector.

The gain would be great to the students, and to the army, navy, and, indeed, all services where a physical test is needed for entrance.

I often wonder why the associated insurance companies of England do not pay a specialist to go round the medical schools and lecture the advanced students on the insurance inspection routine standard of the various companies. It is to be remembered that we train our students on the morbid conditions of the body; why not let them see the human physique in all its varying health conditions?

One would imagine that the first diploma a man should

¹ BRITISH MEDICAL JOURNAL, October 16th, 1915, p. 569.

take would be the public health diploma of perfect health conditions, and other diplomas as to cure should follow in sequence. "The best wealth is health."—I am, etc.,

London, S.W., Dec. 24th, 1915.

G. J. H. EVATT, M.D.

POISONING BY CHLORINE.

SIR,—Advertising to Dr. Hill's paper on the phenomena of chlorine poisoning, it is worthy of note that Sir Charles Cameron of Dublin found chlorine very definitely in the lateral ventricles of the brain in a case of chlorine poisoning which he examined many years ago.

The case in question was that of a man who had been in a small room into which a quantity of chlorinated lime had found its way whilst he was asleep. Cameron's examination took place thirty hours after death, and the odour of chlorine found in the ventricles was quite remarkable.

Dr. Hill's account of the exudation of an albuminous fluid into the alveoli of the lungs, as a usual sequence of the inhalation of chlorine, agrees very closely with the description given by the soldiers who have been "gassed" in Flanders. The sensations are described as like those of a drowning man, and "dryland drowning" was the popular term applied to the symptoms.—I am, etc.,

J. C. MCWATER, M.D.,

F.R.F.P. and S.Glasg., Lieutenant R.A.M.C.(T.).

Dublin, Dec. 18th, 1915.

Universities and Colleges.

UNIVERSITY OF OXFORD.

THE following degree has been conferred:

D.M.—H. T. Evans, Jesus Coll.

The following candidates have satisfied the examiners in the undermentioned examinations:

FIRST B.M., B.Ch.—*Organic Chemistry*: G. Aldred-Brown, P. Boobbyer, W. Boone, T. Brown, R. Emmons, E. Liddell, W. Allan-Row, T. Ryves, N. Smith, H. Toms, E. Watkins. *Anatomy and Physiology*: E. Crook, W. Gover, C. Krige, R. Roberts, G. Stone, E. Woods.

SECOND B.M., B.Ch.—*Pathology*: J. Blamey, E. Creed, L. Davies, W. Dawson, G. Perkins, C. Sells, N. Sprott. *Forensic Medicine and Public Health*: A. Traill, A. Watts, T. Whitcombe. *Materia Medica*: L. Davies, J. Walker. *Medicine, Surgery, and Midwifery*: G. Bowes, L. Davies, A. East, L. Gamson, G. Gimlette, H. Jeffries, M. Lawrence, H. Oddy, C. Sells, A. Traill, T. Whitcombe.

D.P.H.—*Part I*: E. F. Butler, J. T. MacManus, R. H. Vercoe. *Part II*: E. B. Argles, T. R. Bowen, E. G. Brander.

UNIVERSITY OF CAMBRIDGE.

THE following degrees have been conferred:

M.B.—W. F. Bensted-Smith, E. N. Butler, J. D. Clarke, H. G. Hill. B.C.—E. N. Butler, J. D. Clarke.

The following candidates have been approved at the examinations indicated:

M.C.—A. T. Edwards, R. A. Ramsay, L. C. Rivett.

FIRST M.B.—*Part I, Chemistry*: G. F. Abercrombie, F. H. S. Calger, W. R. Carling, H. A. Crowther, N. D. Duncombe, F. R. G. Hief, P. B. Kittel, R. J. Lythgoe, F. Miller, D. G. Sharp, S. D. Sturton, W. S. R. Thomas, H. B. Yates.

Part II, Physics: A. Barker, A. Carling, H. A. Crowther, N. D. Duncombe, G. S. W. Evans, F. R. G. Hief, F. B. Hobbs, E. J. Lythgoe, E. Miller, R. Y. Paton, J. Russell, D. G. Sharp, S. D. Sturton, W. S. R. Thomas, A. D. Whitelaw, H. B. Yates.

Part III, Elementary Biology: G. F. Abercrombie, A. Barker, W. R. Carling, G. S. W. Evans, F. B. G. Hief, P. B. Kittel, R. J. Lythgoe, E. Miller, R. Y. Paton, A. D. Porter, A. E. Roche, J. Russell, D. G. Sharp, J. L. Strain, W. S. R. Thomas, M. H. Webb-People, C. H. Whittle, A. W. Wilson, H. B. Yates.

SECOND M.B.—*Part I, Human Anatomy and Physiology*: W. F. Attwater, H. Barbash, L. H. Bartram, P. F. Bishop, E. P. Brookman, H. B. Bullen, W. M. Casper, S. P. Castell, C. B. Cohen, E. J. Crisp, E. C. Curwen, R. W. M. Dendy, C. C. B. Downing, C. H. Gunasekara, A. C. Halliwell, G. G. Havers, A. T. Hawley, W. M. Heald, T. L. Hillier, S. C. Ho, J. M. Lawrie, J. R. Mitchell, P. M. Neighbour, R. A. Oliphant, F. P. N. Parsons, E. H. Reece, R. H. O. B. Robinson, A. T. Spoor, H. F. Squire, W. S. Sykes, M. S. Thomson, J. P. Wells, D. E. Wijewardene, R. L. Williams, D. W. Winnicott, F. G. Wood, J. M. McC. Wright.

THIRD M.B.—*Part I, Surgery and Midwifery*: G. A. Back, S. L. Bhatl, H. V. Deakin, A. N. Drury, C. Gardiner-Hill, S. H. M. Johns, R. F. Jones, W. N. Leak, F. New, S. E. Pralle, M. K. Robertson, *H. W. Scott, G. E. Spicer, N. S. Tirard, F. H. Young.

* Surgery only.

UNIVERSITY OF LONDON.

THE following candidates have been approved at the examinations indicated:

M.D.—BRANCH I (Medicine): A. S. Erulkar.

BRANCH IV (Midwifery and Diseases of Women): Lillas M. Blackett, Dorothy C. Logan.

SECOND EXAMINATION FOR MEDICAL DEGREES (Part I).—*Marjorie Back, J. Brodetsky, *Kathleen M. Cogan, Doris M. Howard, A. St.G. J. McC. Huggett, Muriel M. Kenworthy, Jessie C. Ritchie, Joan M. Ross, Ethel N. Thomas.

* With distinction.

UNIVERSITY OF EDINBURGH.

THE following candidates have been approved at the examination indicated:

PRACTICAL MATERIA MEDICA.—Catherine J. Anderson, E. Arosemena, G. S. Bainbridge, I. O. C. Barclay, W. T. Benson, E. Obonglop, A. C. Y. Chow, J. A. L. Cook, J. H. Crawford, D. A. Cunningham, A. A. Denham, Kshirendra M. Dey, E. D. D. Dickson, H. J. A. Dingwall, J. K. van O. Duminy, G. W. Dunlop, M. A. P. B. Eaton, B. A., W. Everett, D. Fergusson, G. S. Freeman, B. N. Gibson, H. A. E. Girby, Alice M. Graham, O. Gray, Jeannie J. Harper, T. L. P. Harries, W. H. Herberg, R. A. S. Hoyte, W. G. Hughes, N. W. Johnston, J. H. Kerr, J. I. Kuit, J. L. Lamont, B. A., G. Lange, M. Lipschitz, C. M'Donald, R. B. MacGregor, H. B. Mackenzie, R. N. Mackenzie, A. W. Mackie, J. M'Nab, J. M. Macpherson, W. E. Mathewson, G. H. H. Maxwell, M. Melvin, J. S. Moroka, T. B. Moyes, J. M. S. Nichol, H. J. Parish, E. G. H. Payne, H. S. Percival, F. W. Poole, D. Rankin, J. Rauch, Dorothy A. Robertson, W. G. Robson, M. Sash, C. E. Scott, Mahmoud Z. Sheriff, C. Stimpson, D. W. Sinclair, G. M. S. Smith, Janet S. Smith, Marguerite B. Stirling, E. B. Thounissen, J. L. Timothy, D. L. M. Tod, A. E. P. Vanier, P. F. V. Walsh, J. S. Westwater, J. L. Wilson, W. L. Zeeman.

UNIVERSITY OF ST. ANDREWS.

THE following candidates have been approved at the examinations indicated:

FINAL M.B., Ch.B.—Ram Nath Bhandari, T. P. Buist, Louise E. Fraser, C. W. Morrison, A. A. B. Scott, J. M. Stalker. THIRD PROFESSIONAL.—*Materia Medica and Therapeutics*: F. J. Charlton, J. MacD. Clark, Mary I. S. Cuthbert, Kathleen I. David. *Pathology*: F. J. Charlton. D.P.H.—*First Examination (Chemistry, Physics and Meteorology, and Bacteriology)*: A. O. Craighead. *Second Examination (Sanitary Law and Vital Statistics, and Practical Sanitation and Epidemiology)*: K. M'Leay.

UNIVERSITY OF DUBLIN.

At the Winter Commencements held in Trinity College on December 20th the following degrees were conferred:

M.B., B.Ch., B.A.O.—D. H. Hall, T. W. G. Johnson, G. F. L. Murphy, F. W. O'Connor, R. L. Vance. M.D.—B. D. Crichton; *in absentia*, Rev. E. E. Lavy. M.Ch.—A. Chance. L.M., L.Ch., L.A.O.—*In absentia*, T. E. B. Beatty.

SCHOOL OF PHYSIC, TRINITY COLLEGE.

The following candidates have passed the examinations indicated:

PRELIMINARY SCIENTIFIC.—*Chemistry*: D. H. G. Fishbourne, H. A. Lavelle, J. C. J. Callanan, W. J. Hogan, E. W. Harris, G. R. L. Jordan, J. G. Holmes, Mayo Frances Meade, E. H. Montgomery, J. F. Van Staden, S. J. Laverty. *Physics*: C. W. Parr, T. F. L. Cary, G. R. L. Jordan. *Botany and Zoology*: J. F. Sheppard, V. G. Walker, R. D. Murphy, J. G. Holmes, D. H. G. Fishbourne, Eileen H. Dowse, P. J. Healy, A. V. Foster, H. C. Dundon, E. H. Montgomery, P. J. Duggan.

INTERMEDIATE MEDICAL.—*Part I (Anatomy and Physiology)*: E. J. Lyndon, W. F. McConnell, John B. McGranahan, C. Keller, W. L. Young, P. A. Dornier, K. Greer, J. M. Hill, T. Tabuteau, J. Posner, D. McElwee, F. J. Dymoke, F. W. Godbey, J. A. W. Cullen, J. G. Bird.

Part II (Applied Anatomy and Applied Physiology): C. G. Ambrose, F. C. Parr, Margaret Wolfe, P. Casey, W. J. Hamilton, J. E. Hill, Meta G. Jackson, F. J. Dymoke.

M.D.—B. D. Crichton, Rev. E. E. Lavy.

M.Ch.—A. Chance (high marks).

FINAL MEDICAL.—*Part I (Medical Jurisprudence and Hygiene, Materia Medica and Therapeutics, and Pathology)*: A. H. Davidson, W. F. Wicht, F. A. Hall, W. Garde-Browne, J. G. Bird, R. W. Prichard, J. P. Macnamara, J. B. Taylor, *H. H. Molloy, *M. Hamilton-Johnstone, *M. C. Dipponaar.

Part II (B.A.O., Midwifery and Gynaecology): J. W. Bigger, T. P. Chapman, E. C. B. Ramsay, Clotilda B. Bevis, R. M. B. Gordon, F. W. O'Connor, W. Garde-Browne, P. A. Hall, C. L. McDonogh, W. L. Bates.

* Pathology, Medical Jurisprudence, and Hygiene. † Pathology. ‡ Materia Medica, Medical Jurisprudence, and Hygiene.

FINAL.—*Part II (B.Ch., Surgery)*: T. W. G. Johnson, G. W. Doran, T. E. Beatty, F. W. O'Connor.

Part II (M.B., Medicine): A. F. Grimby, E. Lipman, F. J. Murphy, R. L. Vance, Esther V. Adderley, Marie A. Hadden, D. H. Hall, Violet M. Deale, G. L. Murphy, F. W. O'Connor.

SPECIAL FINAL.—*Part II (B.Ch. Surgery)*: Geraldine Murphy, H. Mitchell, C. McI. West, W. F. Wilson, C. G. Sherowitz, W. B. Walker, G. Bateman, T. W. Sweetman, R. L. Vance, R. H. Graham, J. H. O. Walker, D. H. Hall, G. L. Murphy, W. Hunt, A. G. Fisher.

Part II (M.B., Medicine): T. W. Sweetman, H. Mitchell, Clara B. M. Adderley, C. G. Sherowitz, E. Mannin, T. E. Beatty, B. H. Graham, W. Hunt, A. G. Fisher, M. B. King.

Part II (B.A.O., Midwifery and Gynaecology): J. A. C. Kidd, J. M. Ryan, M. A. Hadden, A. F. Grimby, L. Blumberg, Eileen G. Gwynn, T. G. Roche, E. Boyers, W. Hunt.

D.P.H.—*Parts I and II*: Ratan Edulji Dastur.

LONDON SCHOOL OF TROPICAL MEDICINE.

THE following candidates were approved at the examination held at the close of the forty-ninth session:

*V. A. Goonetilleke, M. de Costa, †T. Ryan, E. J. Rowbotham, R. J. Tata.

* Ceylon Military Service. † West African Medical Service.

SOCIETY OF APOTHECARIES OF LONDON.

The following candidates have been approved in the subjects indicated:

SURGERY.—*A. Z. Abushady, *R. N. Craig, *C. B. De Forest, *W. Fox, *J. Kahau, *I. H. Lloyd, *J. S. Matthews, *A. W. North, *I. H. Pearse, *E. F. Samara-weera, *J. G. T. Thomas, *M. M. M. *W. F. R. Castle, *R. N. Craig, *W. J. May, *G. S. Mitchell, *A. W. North, *I. H. Pearse, *T. C. Russell, *R. H. Yolland.

FORENSIC MEDICINE.—W. F. R. Castle, R. N. Craig, G. S. Mitchell, I. H. Pearse, C. G. Winter, R. H. Yolland.

MIDWIFERY.—R. N. Craig, I. H. Lloyd, I. H. Pearse.

*Section I.

†Section II.

The diploma of the Society was granted to the following candidates, entitling them to practise Medicine, Surgery, and Midwifery: A. Z. Abushady, R. N. Craig, W. Fox, I. H. Pearse, and E. F. Samara-weera.

Medico-Legal.

CHARGES FOR WATER FOR WASHING CARS.

SOME doubts appear to exist among medical men as to their liability to meet special charges which are made in most districts by water companies for the supply of water used for the washing of motor cars and carriages.

The answer as to liability depends upon the powers conferred upon each particular company. Like railways, tramways, and undertakings of a similar nature, a public water supply of any magnitude can only be constructed and worked with the authority of Parliament, which passes a special Act dealing with the powers and liabilities of each undertaking which it is proposed to construct. It therefore follows that the powers of individual water companies, and the charges they are entitled to make, will vary. Under the Waterworks Clauses Act, 1847, the undertakers who seek parliamentary powers must be prepared to provide and keep in their mains a supply of pure and wholesome water sufficient for the domestic use of all the inhabitants of the town or district for which the supply is intended, and although this domestic supply is usually charged upon a fixed basis, a special Act may sometimes provide that even domestic supply water may be charged by meter. Assuming, however, that a particular company charges for water supplied for domestic purposes at a fixed annual sum varying with the rateable value of the premises supplied, the occupier is entitled to the use of the water for the ordinary and reasonable purposes of domestic life, and the company is not entitled in the absence of special provision in its special Act to make further charges for such uses as for baths, waterclosets, the watering of gardens, or the washing of carriages kept for private use. Where, however, water is used for trade purposes, water companies are almost universally empowered to make a special charge.

It was decided in a case brought by the Harrogate Corporation in 1907 that water used for washing a carriage or motor car used by a medical man in connexion with his practice was not used for a trade or business, and the sole question therefore is as to whether in each individual case the water company has parliamentary powers to limit the uses of water supplied for domestic purposes, and to make a special charge in respect of water used for motor cars.

This, as we have pointed out, can be ascertained, and can only be ascertained, from the terms of the Act of Parliament by which any individual water company is governed, and any medical man upon whom this charge is made, and who is in doubt as to his position, will do well to ask his water company for their authority. Until 1907 the Metropolitan Water Board had no power to make such a charge, but in that year they sought and obtained from Parliament additional powers to make it; and, so far, therefore, as the metropolis is concerned, the charge is one which cannot be resisted. No doubt other water authorities and companies have in a large number of cases followed suit.

Obituary.

LIEUTENANT-COLONEL L. F. CHILDE, I.M.S.,

FORMERLY PRINCIPAL OF GRANT MEDICAL COLLEGE, BOMBAY.

We regret to announce the death of Lieutenant-Colonel Letterstedt Frederick Childe, I.M.S., which occurred on December 14th while on a visit at Southsea to his brother, Lieutenant-Colonel C. P. Childe, R.A.M.C.(T.), Senior Surgeon to the Royal Portsmouth Hospital. Lieutenant-Colonel Childe had been in indifferent health for the past three years, the result of long and arduous service as professor at the Grant Medical College, Bombay, and also as physician to the Jamsetjee Jeejeebhoy Hospital in the same city.

Lieutenant-Colonel Childe received his medical education at Guy's Hospital, and graduated M.B.Lond. in 1885. He entered the Indian Medical Service in March, 1887, taking a high place in both the entrance

and the Netley examinations. He arrived in India in November of the same year, and was posted to Poona on general duty. After a short stay at Poona he was appointed to the officiating medical charge of the 12th Bombay Infantry at Ahmedabad, where he remained until the end of 1888. He then proceeded to the medical charge of the 8th Bombay Infantry at Rajput, and shortly after went with this regiment to Pishin, in Baluchistan, on the North-West Frontier. At the end of 1889 he was summoned to Bombay to take up duties as professor of pathology and curator of the museum at the Grant Medical College, as well as those of the second physician at the Jamsetjee Jeejeebhoy Hospital. In this appointment he worked up to the year 1902, when he was promoted to be professor of medicine and first physician of the same institutions.

In March, 1913, he succeeded in addition to the principalship of the Grant Medical College and the senior medical officership of the Jamsetjee Jeejeebhoy Hospital. He put in much arduous service in these institutions with which he was so long connected, and his labours were particularly trying in the early years of the great plague epidemic in Bombay. To him belongs the credit of being the first to recognize and describe the pneumonic form of plague, and his original description of this form of the disease holds good to the present day. Colonel Childe's name will long remain in the memory of the medical profession of Bombay, among whom are many who were his pupils and who owe much to his teaching. He particularly shone as a clinical teacher, and "Dr. Childe's clinics" were greatly appreciated and followed with the keenest attention by his students. As a consultant Lieutenant-Colonel Childe was highly thought of for his deliberate and very sound judgements. He was a man of few words, but when he spoke it was always to the point, and it was certain that his opinions were based on sound logical grounds. The writer of this memoir is a friend of long standing, and he and a host of other old friends deeply mourn the death of one for whom they had a great affection. Lieutenant-Colonel Childe had only recently retired from the Indian Medical Service, and it is very sad that he did not live to enjoy the years of his well-earned rest with his family in England. Colonel Childe was the second son of the late Rev. G. F. Childe, formerly professor of mathematics of the South African College, Cape Town. He was born in South Africa in the year 1859, and received his school and college education in that country, coming to England in the year 1878 and entering as a student at Guy's Hospital.

He married Edith, the daughter of the late Mr. A. Murray, formerly manager of the Bank of Bombay, by whom he leaves two sons and two daughters.

We regret to announce the death of Dr. M. C. MOLONEY, J.P., which took place at his residence, Tulla, on December 4th. Though he had been ailing for some time his death occurred suddenly. Dr. Moloney was a student of the Royal College of Surgeons in Ireland, and became a Licentiate of the College in 1881. After practising for a few years in London he was appointed medical officer to Tulla Workhouse Infirmary and Fever Hospital, which post he held to his death. He was a justice of the peace for co. Clare, where his family had been well known for many years. There were few doctors in Munster who occupied a higher place in the esteem of his professional brethren than Dr. Moloney, and his skill no less than his cheery manner made him beloved by his patients. His death is deeply felt by all the people in his district, rich and poor alike, and a personal loss to many of his profession.

DEATHS IN THE PROFESSION ABROAD.—Among the members of the medical profession in foreign countries who have recently died are Dr. Homer G. Newton, one of the founders of the Brooklyn Eye and Ear Hospital, and an early specialist in diseases of these organs in Brooklyn, New York, aged 79; Dr. William Noyes, formerly superintendent of the Boston Insane Hospital and clinical instructor in Harvard Medical School, aged 58; Dr. Henri Parmentier, president of the French Medical Committee and chief physician to the auxiliary hospital of the National Federation; Dr. Potiquet, of Paris, well known by his psycho-physiological studies of Madame Récamier,

Chateaubriand, and other literary, social, and political celebrities; Dr. Schmidt-Rimpler, sometime professor of ophthalmology in the University of Halle, aged 77; Dr. Ville, professor of medical chemistry and pharmacology in the University of Montpellier, aged 66; and Dr. Camille Vincenti, lecturer on hygiene in the University of Rome, editor of the *Avvenire Sanitario*, aged 52.

The Services.

EXCHANGE DESIRED.

CAPTAIN, Field Ambulance, desires exchange with another officer at Casualty Clearing Station, General or Stationary Hospital, B.E.F. Address No. 6050, BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C.

Medical News.

THE next meeting of the Medical Society of London will be held on Monday, January 17th, when a discussion on gunshot wounds of the chest will be introduced by Colonel Sir John Rose Bradford, F.R.S., and Captain H. Morriston Davies, F.R.C.S.

AT the meeting of the Surgical Section of the Royal Society of Medicine on February 2nd, at 5.30 p.m., Dr. Hernaman-Johnson will give a demonstration of the use of condensers in the treatment of nerve lesions.

THE General Superintendent and Secretary of the Manchester Royal Infirmary asks us to state, for the information of those who have been connected in any way with the infirmary, that it is proposed to raise a fund to commemorate the memory of Sister French, who died on November 20th, after thirty-five years of loyal and devoted service. It is hoped to complete the panelling in the chancel, and to place a tablet in her ward.

THE Cornell University Medical College, New York, has recently reorganized its surgical service at Bellevue Hospital. At the head of it there is now one "visiting surgeon in charge," who has general supervision over the entire work. There are two visiting surgeons, who also have a continuous service limited to some special subdivision of general surgery. Under the visiting surgeon in charge are two associate visiting surgeons, who are full-time salaried officers; each has the care of one-half of the service. They have as assistants four juniors, who are also surgeons to the out-patient department. The organization also includes a laboratory of surgical pathology and a laboratory of experimental surgery, each under a full-time salaried man. These laboratories are available to all members of the staff, who there have the privilege of working on their individual problems.

THE Factory and Workshop Act, 1901, Section 73, required every medical practitioner attending on or called in to visit a patient whom he believed to be suffering from certain conditions, which were enumerated, contracted in any factory or workshop, to send to the Chief Inspector of Factories at the Home Office, London, a notice stating the name and address of the patient and the nature of the disease; the fee for making this service is 2s. 6d. Should he fail to send such notice he becomes liable to a fine not exceeding 40s. The Home Secretary has now made an order, which comes into force this day (January 1st), applying the provisions of the section to all cases of *toxic jaundice* occurring in a factory or workshop—that is, jaundice due to tetrachlorethane or nitro- or amido-derivatives of benzene or other poisonous substance.

THE Paris Académie des Sciences, at a meeting held on November 29th, 1915, awarded the Le Conte prize, of the value of £2,000, to Sir Almroth Wright for the part taken by him in the introduction of antityphoid vaccination into medical practice. Among other prizes awarded at the same sitting were the Jecker prize of £400, given to M. Gabriel Bertrand, of the Pasteur Institute, for his chemical researches; the Lallemand prize of £40, given to Dr. Jules Glover for a treatise on the physiology of the voice applied to art and industry; and the Montyon prize of £30, given to Dr. André Thomas for his researches on cerebellar localizations. The awards of the prizes of the Académie de Médecine were announced at a meeting held on December 16th, 1915. Owing to the war the number of candidates was much below the average, and several of the most important prizes were not awarded, while many of the others were divided.

Letters, Notes, and Answers.

THE telegraphic addresses of the BRITISH MEDICAL ASSOCIATION and JOURNAL are: (1) EDITOR of the BRITISH MEDICAL JOURNAL, *Atiology, Westrand, London*; telephone, 2531, Gerrard. (2) FINANCIAL SECRETARY AND BUSINESS MANAGER (advertisements, etc.), *Atiology, Westrand, London*; telephone, 2630, Gerrard. (3) MEDICAL SECRETARY, *Medisecra, Westrand, London*; telephone, 2634, Gerrard. The address of the Irish office of the British Medical Association is 16, South Frederick Street, Dublin.

ANSWERS.

J. D. writes in reply to a question by "S." regarding snoring, and suggests (1) the thorough examination of the nasal passages and the removal of any obstruction to normal respiration; (2) the correction of any acquired habit by wearing a suitable chin support to prevent mouth-breathing at night.

ADRENALIN IN ASTHMA.

W. M. C. writes, in reply to N. S. C., who asks for particulars of experience of the use of subcutaneous injections of adrenalin in asthma: I have been using adrenalin (Parke, Davis and Co.) 1 in 1,000 solution for subcutaneous injections for asthma for the last four years. I begin with 5 minims and gradually work up to 10 minims. I do not inject until the breathing is pretty bad. I have injected it eight times in twenty-four hours (10 minims each dose), but three and four times a day was about the average. After injection the patient becomes deadly pale and feels faint, and there are slight muscular tremors, or trembling of the hands, for about an hour. The breathing is relieved immediately. Twice my patient suffered badly from symptoms of impending death. Great pallor, faintness, and acute pain at the base of the brain, following immediately after the injection. The administration of a little brandy brought the patient round. I have also found the following powder of great use when I wished to discontinue the adrenalin: Thiobrom. sod. sal., gr. viij, caffeine valer., gr. iv. It is taken in water; it has a very disagreeable smell, but a not unpleasant bitter aromatic taste. The patient gets relief in about an hour, and is again able to lie down. After adrenalin the patient should rest for about an hour. This treatment does not cure, only relieves. At present I have a patient under treatment with a serum made from germs from his nose, throat, and sputum, and after eleven injections—one a week—he is now almost free from asthma.

DR. W. H. SPURGIN (Newcastle-on-Tyne), who writes that he has had considerable experience in the administration of adrenalin, suggests the injection of adrenalin sol. m x, morphine gr. $\frac{1}{2}$ every night, increasing the morphine as required.

LETTERS, NOTES, ETC.

PHYSIOLOGICAL CARDIAC IRREGULARITY.

DR. WILLIAM BRAMWELL (Liverpool) writes: Sir James Mackenzie's amusing account of his difficulty in convincing a medical practitioner that there is such a thing as physiological cardiac irregularity reminds me of a lady aged 89 whom I last saw a year ago and whom I have attended at intervals during the last eighteen years. All her life she has been the subject of the most remarkable cardiac irregularity I have ever examined. A succession of irregular beats, sometimes quick and sometimes slow, would be followed by the most alarming pauses such as would beguile the majority of practitioners not acquainted with her idiosyncrasy into warning her relatives of her approaching dissolution. The only sign, however, of cardiac insufficiency besides that ascertained by auscultation and palpation—there being no indication of murmur or valvular deficiency—was that her cheeks and nose were surcharged with minute venules, which gave a slight appearance of cyanosis. She had, however, eyes of piercing brightness, which seemed to rival the vivacity of youth in clearness and quickness of movement; and without the slightest indication of breathlessness she would talk for long periods in a deliberate and domineering manner, which would brook no interruption, one of her chief delights being the indulgence in a little biting sarcasm at the expense of certain luckless physicians who had ventured to remark that all was not right with her heart. This case, at any rate, will show that it is quite possible for extreme irregularity of heart to last through a long life and be compatible with a healthy and even a vivacious old age.

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

	£	s.	d.
Seven lines and under	0 5 0
Each additional line	0 0 8
A whole column	3 10 0
A page	10 0 0

An average line contains six words.

All remittances by Post Office Orders must be made payable to the British Medical Association at the General Post Office, London. No responsibility will be accepted for any such remittance not so safeguarded.

Advertisements should be delivered, addressed to the Manager, 429, Strand, London, not later than the first post on Wednesday morning preceding publication, and, if not paid for at the time, should be accompanied by a reference.

NOTE.—It is against the rules of the Post Office to receive *poste restante* letters addressed either in initials or numbers.

RESEARCHES ON PHAGOCYTOSIS.

BY

H. J. HAMBURGER, Sc.D., M.D., LL.D., F.R.S.,

PROFESSOR OF PHYSIOLOGY IN THE UNIVERSITY OF GRONINGEN (HOLLAND).

I. INTRODUCTION.

THE investigations on the life of phagocytes, which during recent years have occupied myself and my collaborators, are a continuation of researches begun several years ago (1883) with the object of ascertaining the influence of salt solutions of various concentrations upon the red blood corpuscles, and the significance of these results with regard to the functions of the body. These researches on the red blood corpuscles, which introduced physical chemistry into medical science, were confined to the study of their chemical and volumetrical alterations.

But the influence of the salt solutions on the very life of the cells could not well be tested on those particular objects, although systematically investigated. We have felt this from the beginning, and repeatedly asked ourselves whether the solutions producing the chemical and volumetric changes of the red blood corpuscles had or had not seriously damaged these cells, and thus, whether it was possible to apply the conclusions arrived at to problems regarding life itself. Therefore, wherever it was possible, we examined whether the phagocytes, being submitted to the same agencies, kept their phagocytic power. This was always the case. This conclusion enhances the value of our researches on red corpuscles, the more so because the chemical and volumetric alterations of the white cells corresponded with those of the red. But a systematic study of the life of leucocytes had not, previous to our researches, been undertaken, and this is rather surprising.

The phagocytes are a suitable object for studying life phenomena. In the first place, they are not such complicated organs as the muscles, heart, brain, etc.; they are simple cells, easily isolated. Secondly, it is possible to follow quantitatively the effect on their life of slight alterations of their natural medium.

It is obvious that the phenomena produced by the agency of solutions not dangerous to life are, in fact, nothing else but the effect of reactions which finally will help us to penetrate further into the physical and chemical structure of the living cell.

Yet not only from a theoretical but also from a practical point of view the life of these cells deserves our interest; but until now it has not been, as such, the object of a systematic investigation, a fact Metchnikoff himself regretted in a paper he read some years ago to the students of the University of Amsterdam, on "Réactions Phagocytaires":

Nous ne sommes qu'au début. Lorsqu'on connaîtra mieux la physiologie des phagocytes, on cherchera des méthodes pour augmenter l'activité de ces éléments dans la lutte contre les microbes, et on cherchera d'autres pour préserver contre l'attaque des phagocytes les cellules nobles de notre corps.

Now I must confess that the importance of the phagocytes for the defence of our body against bacteria has not been the first and principal reason of my investigations with regard to these cells: the principal reason was that they were an excellent object for researches of a general biological nature.

I think a physiologist in the first place must practise science for its own sake, not asking whether his work may be of immediate practical use; but should he, however, accidentally stumble upon an idea which may be directly used for the bodily welfare of mankind, this should not prevent him from giving his attention thereto—in fact, it is his duty to do so.

II. METHOD OF INVESTIGATION.

Our method has been very simple. White corpuscles (leucocytes) from the blood of a horse are transferred to various media mixed with very small particles of carbon. After having stood some thirty minutes in an incubator at body temperature a great many of the cells have eaten up carbon. Microscopical preparations are made, and it is ascertained what percentage of the leucocytes has taken up carbon. *This percentage is the measure of the degree*

of phagocytosis, and gives the value of the influence of the various agents used on that function of life.

Suppose in examining 600 leucocytes lying in their natural medium I find that 300 of them have taken up carbon, the percentage of phagocytosis can then be expressed by $\frac{300}{600} \times 100 = 50$ per cent. In order to examine, for instance, the influence of small amounts of acid, I add this substance to the serum and repeat the same experiment under the same conditions. I now find that of the 540 examined leucocytes only 200 have taken up carbon. The phagocytosis is now expressed by $\frac{200}{540} \times 100 = 37$ per cent. Thus the addition of acid to the serum has lowered phagocytosis.

This calculation is based on the principle that the phagocytic power of the individual phagocytes present in a suspension is unequal, a fact which cannot be wondered at when we take into consideration that they are of different ages. The more detrimental the action of the agent the smaller should be the number of phagocytes which take up carbon in the same space of time.

Our selection of an indifferent substance such as carbon instead of bacteria was based upon the fact that we feared our work would otherwise become too complicated. We here refer to the fact established by Sir Almroth Wright and his school that most kinds of bacteria, before they can be taken up by the phagocytes, must undergo a certain amount of sensitization. Hence it follows that the intensity of phagocytosis will not only be influenced by the agent, as such, but also by the degree of "sensitization" the particles have undergone. Another fact which had to be borne in mind was that bacteria sometimes secrete poisons, which have an injurious effect on the phagocytosis. Even dead bacteria contain poisons.

The selection of carbon as an indifferent substance instead of the usual grains of carmine was based upon the greater facility and accuracy with which the taking up of carbon can be ascertained. I shall not give here a detailed description of the method of obtaining the leucocytes or of preparing the carbon, or of the method of determining the percentage of cells which have eaten carbon. I prefer to give some of the more striking results. A glance on the figures in the tables will give an idea of the exactitude of the method, an exactitude which cannot be obtained with bacteria.

III. RESULTS.

1. The Influence of Small Amounts of Calcium.

In examining systematically the influence of the addition of small amounts of various salts (ions) to the blood serum, it was found that very small quantities of calcium increased the phagocytosis to a considerable extent. An addition, for instance, of 0.005 per cent. of calcium chloride (CaCl_2) to the natural medium (serum) caused an increase of about 22 per cent. in the phagocytic power. This favourable effect becomes even more strongly manifest when, instead of being added to the suspension of phagocytes in serum, the calcium is added to a suspension of phagocytes in a solution of sodium chloride (common salt) in which phagocytosis occurs almost to the same extent as in serum.

These investigations have been continued in two directions. In the first place, we asked ourselves whether the influence of calcium would also manifest itself in the living body. All experiments had hitherto been made outside the body. It will be remembered that on placing under the skin (for instance, on the inside of the thigh of a rabbit) small capillary tubes, closed at one end and filled with an extract of bacteria in a solution of sodium chloride, phagocytes enter these tubes. Chemotaxis is based upon the creeping movement of the phagocytes towards the excretions and secretions produced by the bacteria.

After a certain lapse of time the open part of the capillary tube is filled with a white column consisting of phagocytes. If, in fact, calcium promotes the activity of the phagocytes not only in the phagocytic process described above, but also in the living body, we argued it might be expected that by calcium that mobility of the cells, which here finds its expression in chemotaxis, would be accelerated. Therefore we determined the length of the white column formed in the capillary tube

with animals, either treated with calcium or not so treated.

We expected to find that in rabbits treated with calcium the white column would, after the same space of time, be longer than in animals not having been treated with calcium. We have used two methods, which gave the same result. I will mention only one. It consisted in injecting into the rectum of two series of animals a solution of sodium chloride mixed for one series with calcium, and for the other without calcium, and then examining the length of the column of phagocytes penetrating into the capillary tubes.

The difference between the two series was considerable. The calcium rabbits showed the greater degree of chemiotaxis, although the amount of calcium chloride used was very small—namely, 0.06 gram—a quantity corresponding with that given to man in mineral waters rich in calcium. Let us add that a natural mineral water, rich in calcium, used in our experiments gave the same results as the calcium chloride solution.

What can be said of the mechanism of this effect? The calcium, on being absorbed by the mucous membrane of the rectum, enters the blood circulation and by this is carried into the lymph of the tissue spaces, where the glass capillary tubes are placed. The phagocytes which are there will soon undergo the stimulating influence of the calcium thus introduced—that is, their mobility will be increased and chemiotaxis will be promoted.

Even without measuring the length of the phagocyte columns, we may convince ourselves that our conclusion as to calcium promoting the activity of the phagocytes is a correct one. On opening the skin wound it is immediately seen that in the mineral water rabbits a much thicker mass of phagocytes is gathered round the tubes than in the pure sodium chloride rabbits. The same thing we observed invariably in all experiments in which NaCl solution containing calcium chloride was injected.

Taking it for granted that phagocytosis plays a part in the defence against microbes, we may infer from the above that an enrichment of our blood, and through this also of the lymph spaces, with small amounts of calcium, must have a favourable effect on local and other infections.

There are many experiences supporting this view. I will mention only two examples. In the first place, Sir Lauder Brunton has used with great success calcium chloride in pneumonia. Other clinicians have also met with success along the same lines; for instance, Crombie, who some years earlier, in the hospital of Calcutta, saw the mortality decrease from 38.6 to 5 per cent. He was inclined to attribute the influence of calcium to an action on the poison excreted by the pneumonia bacteria. But for this there is no evidence. Sir Lauder Brunton has recommended calcium for getting amelioration of the heart action. In recovery from pneumonia the amelioration of the heart action is of the greatest importance. So it was quite rational that the famous clinician and pharmacologist advised calcium for this purpose—in the first place, because it was pointed out by the work of Sydney Ringer that calcium is absolutely necessary for the heart function, and, on the other hand, Langendorff and Hueck had found that by the injection of calcium into the circulation of a cat the action of the heart was considerably strengthened.

Sometimes it happens that during surgical operations the heart beat is stopped by the inhalation of chloroform. The idea occurred to me that in this case calcium might be able to be of good service. Therefore I tried to improve the heart action by intravenous injection of calcium in animals which had purposely been given too much of the anæsthetic. I had no success, so I began to doubt whether calcium was really capable of stimulating even the normal heart. In a number of experiments I found that injection of calcium had no effect on the heart beat of a normal animal. Studying the original article of Langendorff with renewed attention, I saw that he had performed only one experiment. His great reputation had given his assertion general acceptance, and so it had become a fact in the literature. Obviously the amount of calcium in the normal blood serum provides already just the optimum quantity for the heart function.

Thus this favourable effect of calcium in pneumonia not being explained by the influence of calcium on the heart, we had to look for another reason. It was therefore most

natural to remember the stimulating action of calcium on phagocytes, which in pneumonia play such a preponderant part.

My second argument for the probability that calcium is of importance in infectious diseases is this: Labourers in limekilns do not get tuberculosis; in Holland these workmen cover any wound they receive with lime.

The significance of calcium has for some time past been occupying the special attention of biologists and pathologists in an increasing degree, and I shall speak of it further now, and of the cause of the promotion of the activity of the phagocytes in phagocytosis and chemiotaxis by calcium, only to make one remark. We might be inclined to attribute the increase of the plasticity to a modification in the aggregation of the colloid protoplasm particles as a consequence of the electric charge caused by the entering of a number of bivalent ions into the cells. This explanation, however, can scarcely be the correct one here, for experiment shows that other bivalent cations—namely, barium, strontium, and magnesium—do not augment the amoeboid motion—that is, of phagocytosis and chemiotaxis. It must be assumed, then, that the action of calcium in this case is based upon a hitherto unknown specific biochemical property of this metal.

2. Influence of Iodoform on Phagocytosis.

Every one knows that for the last thirty years iodoform has been successfully applied in the treatment of wounds and chronic inflammations. At first it was thought that this favourable effect was based upon an antiseptic action, but the idea was relinquished when it was found that lower organisms develop fully in a medium containing iodoform. Then other hypotheses were suggested, which need not be dwelt on. They were founded mainly on iodine being split off. None of these suggestions have proved satisfactory. For reasons unnecessary to state here, we have raised the question whether the favourable effect of iodoform on local infections may not be due to the stimulating effect of this substance on phagocytosis. To answer this question, iodoform solutions of different concentrations in a common salt solution of 0.9 per cent. were prepared and mixed with a thick suspension of white blood corpuscles. After having added carbon particles, the mixtures were left to themselves for half an hour in an incubator at 37° C., and then cooled down. Finally, microscopic preparations were made and examined to determine what percentage of the total numbers of white blood corpuscles had taken up carbon particles. The following table contains the results of one of the experiments:

Concentration of Iodoform Solutions in which the Effect on Phagocytosis is still Perceptible.

Fluids.	Percentage of Leucocytes having taken up Carbon.
NaCl 0.9 per cent. (common salt solution of 0.9 per cent.)	$\left(\begin{array}{l} \frac{171}{388} \times 100 = 44.0 \\ \frac{151}{345} \times 100 = 43.7 \end{array} \right) 43.8\%$
1 iodoform to 100,000 NaCl 0.9 per cent.	$\left(\begin{array}{l} \frac{221}{274} \times 100 = 58.6 \\ \frac{226}{277} \times 100 = 59.9 \end{array} \right) 58.2\%$
1 iodoform to 500,000 NaCl 0.9 per cent.	$\left(\frac{228}{371} \times 100 = 61.4 \right) 61.4\%$
1 iodoform to 2,000,000 NaCl 0.9 per cent.	$\left(\begin{array}{l} \frac{208}{398} \times 100 = 52.2 \\ \frac{231}{445} \times 100 = 51.9 \end{array} \right) 52.0\%$
1 iodoform to 5,000,000 NaCl 0.9 per cent.	$\left(\begin{array}{l} \frac{232}{621} \times 100 = 46.9 \\ \frac{176}{372} \times 100 = 47.3 \end{array} \right) 47.0\%$

This table shows that, in the pure salt solution, of the 388 examined leucocytes 171 have taken up carbon—that is, 44 per cent. In a parallel experiment the percentage was 43.7 per cent. Thus the average was 43.8 per cent. In the salt solution containing iodoform in a proportion 1 grain to 100,000 grains NaCl solution, the percentage in two parallel experiments was 58.6 and 59.9, average 59.2 per cent. Evidently the iodoform promoted phagocytosis.

These and other parallel experiments illustrate also the exactitude of the method. As a matter of course, control

experiments have been made in all cases. Further, it appears that a weaker solution of iodoform (1 in 500,000) yields a still higher phagocytosis (61.4 per cent.). The explanation of this phenomenon will afterwards be given. It is seen that in still weaker concentrations the phagocytosis is diminished, but even in a solution of 1 iodoform to 5,000,000 salt solution, the promoting effect of iodoform is still perceptible, for it is 47.1 per cent., whereas in a pure NaCl solution it was $\frac{1}{2}$ ($44 + 43.7$) = 43.9 per cent.

The favouring effect of iodoform is still more evident when the leucocytes are placed for several hours in a pure NaCl solution. Then the phagocytosis falls to a considerable extent. Sometimes the phagocytes are quite paralysed. The addition of iodoform in a concentration of 1 in 5,000,000 then raises the phagocytic power by 30 per cent. or more. Thus there is no doubt that iodoform promotes phagocytosis.

Is it the iodine or the iodoform as such? We have found that iodine is noxious in a high degree. We must conclude, therefore, that iodoform as such causes the increase of the phagocytic power.

The question now suggests itself: How can the favourable effect of the iodoform be explained? It may be accepted from numerous investigations that the outer layer of the cells consists of a fatty substance, a so-called lipid surface. Now, iodoform is soluble in fat, and it is quite obvious that such a surface will grow more soft and more flexible after having absorbed iodoform, and that consequently the plasticity and mobility will be facilitated.

If this interpretation be correct, then other substances soluble in fat, such as chloroform, chloral, alcohol, benzene, camphor, fatty acids (propionic and butyric), should affect phagocytosis in a similar way. This is found to be invariably the case.

3. Effect of Chloroform, Alcohol, Camphor, Benzene, and other Substances Soluble in Fat on Phagocytosis.

I shall not give an account of all our experiments made in this direction. I only give as an example an experiment with chloroform, from which one can at once get an idea as to the exactitude of the method. It was soon found that dilutions 1 in 2,000, 1 in 6,000, and also 1 in 10,000 paralysed the phagocytes. The following table contains some experiments with weaker solutions:

Effect of Chloroform on Phagocytosis.

Fluids.	Percentage of Leucocytes having taken up Carbon.
NaCl 0.9 per cent.	$\left. \begin{array}{l} \frac{174}{428} \times 100 = 40.6 \\ \frac{208}{502} \times 100 = 41.2 \end{array} \right\} 40.9\%$
Chloroform 1 in 20,000	$\left. \begin{array}{l} \frac{244}{486} \times 100 = 50.8 \\ \frac{225}{451} \times 100 = 49.8 \end{array} \right\} 50.3\%$
Chloroform 1 in 100,000	$\left. \begin{array}{l} \frac{254}{519} \times 100 = 60.6 \\ \frac{382}{455} \times 100 = 60.1 \end{array} \right\} 60.3\%$
Chloroform 1 in 500,000	$\left. \begin{array}{l} \frac{332}{582} \times 100 = 57.0 \\ \frac{219}{376} \times 100 = 53.1 \end{array} \right\} 58.0\%$
Chloroform 1 in 5,000,000	$\left. \begin{array}{l} \frac{379}{805} \times 100 = 43.6 \\ \frac{298}{681} \times 100 = 45.0 \end{array} \right\} 44.3\%$

From this table it appears that chloroform 1 in 20,000 raises the phagocytosis power from 40.9 per cent. to 50.3 per cent.; further, that phagocytosis is considerably increased by chloroform 1 in 100,000, in which case it rises to 60.5 per cent. Evidently in the chloroform solution 1 in 20,000 the paralyzing influence also makes itself felt. In a dilution of 1 in 500,000 the favourable effect remains to about the same extent as in 1 in 100,000, and finally in a solution of 1 chloroform to 5,000,000 NaCl solution this favourable effect is still visible, though slight.

Similar results were obtained with benzene, camphor, turpentine, alcohol, chloral, fatty acids (propionic and butyric), and also Peruvian balsam. These all, without exception, promoted phagocytosis. Hence our hypothesis for explaining the effect of iodoform was fully confirmed. Another strong support to our hypothesis was obtained by

comparing the concentrations of the named substances which were able to increase phagocytosis. It appeared that the relation between these concentrations corresponded with that existing between the solubility of these substances in fat.

Further, all the substances applied in very small doses showed a stimulating effect, but paralysed when given in greater quantities. This can be explained by distinguishing two factors: First, slight quantities of the substance by dissolving in the outer layer of the cell weaken it and increase the plasticity. Then, greater quantities having entered the cell, a second factor, the paralyzing effect on the protoplasm, comes into play. As the amount of chloroform is increased the paralyzing effect gets the upper hand, and no carbon at all is taken up.

4. Other Phenomena seen in the Light of the Foregoing Facts.

The effect of fat-dissolving substances on phagocytosis throws a new light on several facts which hitherto have been, for the most part, entirely unexplained. In the first place we may refer to the power of turpentine to cause local exudations, and the favourable effect of a subcutaneous injection of the same substance in the treatment of pneumonia in horses and in the mastitis of cows, which for some time has been practised with great success in France, Denmark, and Holland. Experiments made by us in this direction have shown that there is much reason to attribute this effect to very small quantities of turpentine dissolving in the lymph of tissue spaces, and afterwards entering the blood circulation and promoting the phagocytic power of the phagocytes in lung and udder.

In the same way we can explain the marked effect of camphor treatment in inflammatory processes of the uterus and its adnexa, an effect not understood hitherto. Then there is the great effect of covering wounds with balsam of Peru, the therapeutic value of inhalation of turpentine vapour in tuberculosis and other infectious processes in the respiratory organs.

In all these cases a stimulating action on the phagocytes, and probably also on other cells (granulation cells), which play a part in the healing process, may come into play.

Yet more becomes clear to us from the above researches. It is well known that various narcotics applied in small doses have a stimulating effect and paralyse in greater quantities. Engelmann observed this many years ago on ciliated cells, but he did not try to explain it. Also, as regards the nervous system, we know with regard to chloroform and ether that, when administered, they first cause excitement and afterwards insensibility. So far as we know, this contrast has never been explained, but when viewed in connexion with our experiments, the phenomenon becomes clear. In the beginning of narcosis only small quantities have entered into the nerve cells. The consequence is a softening, in the first place, of the outer layer. This weakened state of the cells produces an increase of activity (amoeboid motion?). Later, when a greater amount of the substance has been taken in, the paralyzing effect gets the upper hand. With alcohol the same experience is well known.

In following this point we are led to think of the remarkable influence of a sojourn in some high mountain regions on metabolism, on sleep, and on the state of the mind. The cause is entirely unknown. It has been proved that these phenomena are not due to the height as such, for in balloons they do not occur, nor are they found in all high mountain regions, but when examining where they are observed, we find that it is in the neighbourhood of coniferous woods. So we are inclined to think that it is due to the stimulating effect of the odour of resin (turpentine, etc.) on the nerve cells.

Professor Sherrington and Miss Sowton, in their studies on the dosage of the mammalian heart by chloroform, found that, especially with greater amounts of the drug, it was usual for the first effect of the administration to be a distinct though slight increase in amplitude of the contractions. After cessation of the administration of the drug in moderate dose, it was not unusual, before the recovery, for the beat of the heart to pass over for a short time into a condition of super-activity. These phenomena suggest an irritative excitatory effect of small doses of the substance on muscle or nerve fibres (or both) of the heart.

These results agree with those previously obtained by Professor A. D. Waller in his experiments with isolated nerve.

There are experiments, also, with other organs which may be considered in the same light. Thus, Professor J. Loeb discovered that substances dissolving fat have the power of rendering possible the parthenogenetic development of eggs. Now we may imagine, with Loeb, that the substance dissolves in a lipid of the outer layer of the egg, thus giving rise to the formation of a fertilizing membrane. We think we may safely go one step further, and assume that it is owing to the weakening of the membrane that the movement of the protoplasm underlying every cell division manifests itself. This view is confirmed by the observation of Professor R. S. Lillie, who saw also that by a short transitory raising of the temperature in the eggs of starfishes a typical fertilizing membrane may be formed, which formation is followed by the development of part of the eggs into larvae. J. Loeb was able to confirm this for *Medusae*.

After consideration of the foregoing facts and suggestions we were inclined to think that the stimulating effect of traces of substances which dissolve fat on the activity of cells is a widespread phenomenon. Hence we have investigated whether this influence might also be seen in *plant cells*. To do so we chose the germination of seeds, a process in which a considerable division and growth of cells manifests itself. The seeds we chose were grains of wheat, and for the fat-solvent we took chloroform. With chloroform, 1 part in 100,000, an important acceleration in the germination was observed; chloroform 1 in 1,000, on the contrary, impaired the germination, evidently because a second factor made itself felt—namely, paralysis of the protoplasm. Later I heard that in practice the growth of snowdrops is promoted by ether. In recent times Chiari succeeded in forcing blossoms to a considerable extent by ether vapour, and Mansfeld the germination of pumpkin seeds by vapour of alcohol and ether.

Hence it is clear that the observations on phagocytosis deserve our attention on general grounds as well as special. We do not at all mean to say that all substances dissolving fat have the same effect on cells of all kinds; far from it. I would emphasize that in order to be brief and to avoid complexity of detail, I have here presented the matter as somewhat simpler than it really is. Nor have all the suggestions here made towards explaining facts regarding other cells than phagocytes been actually proved. Without hypothesis science cannot progress. Fortunately we need not stay in error for long, for we can always appeal to the supreme judge—experiment.

5. Effect of Oxygen and Carbonic Acid on Phagocytosis. Resemblance between Phagocytes and Respiratory Centre.

In continuing these researches we asked ourselves, for a reason we shall not dwell upon here, to what extent phagocytosis depends on the oxygen percentage of the medium.

For these investigations no carbon was used, because, as we know, this substance possesses the property of absorbing gases to a considerable extent. Instead of it we made use of rice-flour. The principle for determining the degree of phagocytosis was the same as for the taking up of carbon. It was determined what percentage of the leucocytes counted had taken up starch grains after a certain time.

By this method we compared the degree of phagocytosis in a common salt solution, treated with air, with oxygen and with nitrogen. The result of these experiments was quite unexpected; it appeared that the phagocytosis is greatest where the slightest amount of oxygen was present.

Repeated repetition of the experiment when only the NaCl solutions were compared which were not treated at all and treated with nitrogen, yielded similar results.

Effect of Treatment with Nitrogen on Phagocytosis. Degree of Phagocytosis.

The fluid not treated :	The fluid treated with nitrogen :
22.9 per cent.	26.1 per cent.
23.8 "	33.0 "
23.2 "	27.8 "
20.5 "	31.2 "

It is obvious that the treatment with nitrogen has caused an increase of phagocytosis.

However, the possibility remained that the nitrogen used contained substances which had accelerated the phagocytosis. This was not very probable, since the nitrogen supplied by the company "Oxygenium" at Schiedam had been prepared by fractionated distillation of liquid air. It still contains 1 per cent. of oxygen and gases of the helium group. At any rate, it seemed desirable to carry out experiments with hydrogen likewise. These experiments all resulted invariably in phagocytosis being promoted by the action of hydrogen. Hence it may be concluded that expulsion of oxygen from the medium causes an increase of phagocytosis.

However, the expulsion of oxygen from the cells in the foregoing experiments could not have been extensive, for their contact with the fluid from which the oxygen previously was removed had lasted only half an hour. So we repeated the experiments, with this difference, that the fluid treated with nitrogen and hydrogen could act for five hours instead of half an hour on the phagocytes. In this way the cells had every opportunity to consume the greatest part of their own oxygen. The results were striking; instead of an increase always a decrease of phagocytosis occurred.*

If we submit the results obtained to a close examination we are struck by the agreement between the effect which withdrawal of oxygen has on the respiratory centre on the one hand and on the phagocytes on the other.

After the many researches on the respiratory centre we may take it for granted that besides the action of CO₂ the respiratory centre is also stimulated by a withdrawal of oxygen. The respiratory centre increases its activity when oxygen is very scarce (dyspnoea) and is paralysed when O₂ continues to be withdrawn (suffocation, asphyxia); whereas by frequent deep respiration, by which the O₂ percentage of the blood is increased, the activity of the respiratory centre is lowered in such a degree that the respiration may be stopped for some time without the animal showing any need of it (apnoea).

In view of the agreement between phagocytes and respiratory centre, the question suggests itself whether other substances have likewise the same effect on both.

Therefore we have in the first place investigated the effect of CO₂ on phagocytosis. The experiments plainly demonstrated that in weak concentrations (for instance, 3½ volumes per cent. of CO₂ and less) carbonic acid increases the phagocytosis, and that in higher concentrations (for instance, 10 per cent.) it has a paralysing effect.

Involuntarily we are inclined to think here of the favourable effect of the therapeutic application of venous congestion in inflammatory processes of microbial nature (Bier). Probably the increasing of the amount of CO₂ accelerates phagocytosis. It is well known that a too energetic use of artificial venous congestion has an unfavourable effect on the inflammatory process, probably because the cells are paralysed.

Another substance having a highly stimulating effect on the respiratory centre before paralysis sets in is, as we know, potassium cyanide; a violent dyspnoea manifests itself. We found that KCN has the same effect on phagocytes—stimulating in slight doses, paralysing in somewhat greater quantities.

Now, it is all but certain that these phenomena must be connected with the property this substance has of obstructing the oxygen consumption of the cells.

6. Explanation of the Excitement Stage in Chloroform Narcosis.

As we have seen under heading 2, there is much evidence to justify the assumption that the stimulating effect of iodoform, chloroform, turpentine, and other fat-dissolving substances on phagocytosis must be connected with a softening of the outer layer of the cells. The present researches on the influence of O₂ withdrawal suggest the existence of a second factor.

The numerous researches of Verworn and his pupils on narcosis have established the fact that narcotics such as chloroform have the property of impeding the O₂ consumption by the cells (spinal centres, nerve fibres, amoebae, etc.). Now, it is obvious that as long as mere traces of

* We shall not give figures here; we only refer to the article in the *Proceedings of the Royal Society of the Netherlands* meeting of Friday, April 23rd, 1915, p. 1325, and also to more extensive articles on the subject which will appear in the *Internationale Zeitschrift für physikalisch-chemische Biologie*, vol. II.

chloroform are acting, only part of the available oxygen will be rendered useless; in other terms, the blockade of the oxygen will be incomplete, and then the phagocytes are in the case of the experiments mentioned under 5, where partial removal of oxygen by nitrogen or hydrogen causes an acceleration of the phagocytosis. This acceleration gradually passes into a retardation in proportion as the store of oxygen of the cell becomes more exhausted—an exhaustion which sets in quickly when, for instance, by the administration of larger amounts of chloroform, the oxygen consumption has fallen to a minimum or has ceased altogether.

The Excitement Stage in Chloroform Narcosis.

If we let the various narcosis theories pass in review, it appears that no one has even attempted to give an explanation of the excitement stage.

In his article "Narkose"¹ Verworn says: Für die Genese des Exzitationsstadiums fehlt bisher jede Analyse.

Our researches on phagocytosis and the agreement in the conduct of the respiratory centre and phagocytes may be useful to lighten the difficulty.

We need only to conceive that in the beginning of the narcosis, owing to a decrease in the amount of available oxygen, the sensibility of the higher nerve centres is heightened.

If the chloroform inhalation is continued, this sensibility will decrease, owing to a further decrease of the potential oxygen percentage, and finally narcosis sets in. Whether the state of complete narcosis is partly due to other factors—for instance, to a semi-coagulation of the protoplasm in the sense of Claude Bernard, or to a decrease of the dispersity of enzymes, etc.—need not be considered here. First, the higher centres, which are, as we know, very sensitive to oxygen withdrawal, are paralysed; then the spinal centres; and, after that, the respiratory centres.

We may add that in the first stage of narcosis not only the higher cortical centres and the spinal centres pass through an excitement stage; but, according to researches of Knoll and of Arloing, the respiratory centre is also in a state of heightened irritability.

Probably the increased sensitiveness as a result of a partial oxygen withdrawal must be looked upon as a general phenomenon. The sensitiveness of the vomiting centre, for instance, decreases, just like that of the respiratory centre and phagocytes, if more oxygen is supplied. Hence the inclination to vomit may be subdued to some extent by frequent and deep breathing, whilst it is stimulated by lack of oxygen.

The question which first suggests itself is the following: How is it that a decrease of the available oxygen percentage heightens the irritability of the phagocytes (and ganglion cells)?

The foregoing accounts of results and views, the fruit of some years' work with several collaborators (Hekma, De Haan, etc.),² being of necessity incomplete, I have attempted to select what may specially interest every medical man.

We are continuing our study of the biology of phagocytes, and each day we become more convinced of their excellence as a simple object for the study of problems of a general biochemical nature, and of some of practical interest as well.

It is a satisfaction to me that other workers have begun to cultivate this field of research and to follow our method of investigation.

REFERENCES.

¹ *Handbuch der Naturwissenschaften*, vol. vii, 1912. ² A full account of the researches down to the year 1912 can be found in my monograph, *Physiologisch-chemische Untersuchungen über Phagozyten. Ihre Bedeutung vom allgemeinen biologischen und pathologischen Gesichtspunkt*. (Wiesbaden: J. F. Bergmann, 1912.) (Cf. also some articles in the *Proceedings of the Royal Society of the Netherlands* (Amsterdam)

MR. CLEMENT LUCAS left property of the value of £33,487, the net personalty being £20,976.

At a meeting of the K.k. Gesellschaft der Aerzte in Vienna, Dr. A. v. Hauer, in giving an account of eight months' experience in the field, discussed the subject of self-mutilation; soldiers with wounds of the left hand were, he said, at once interrogated with this possibility in view. Inoculation against cholera was repeated every three months; active immunization against typhoid fever and small-pox was also undertaken.

An Address

ON THE

ABSENCE OF PROPER FACILITIES FOR THE TREATMENT OF MENTAL DISORDERS IN THEIR EARLY STAGES.

DELIVERED AT A MEETING OF THE YORKSHIRE BRANCH OF THE BRITISH MEDICAL ASSOCIATION.

BY

BEDFORD PIERCE, M.D., F.R.C.P. LOND.,

MEDICAL SUPERINTENDENT, THE RETREAT, YORK;
PRESIDENT OF THE BRANCH.

ONE hundred years ago, whilst the campaign in Belgium which ended at Waterloo was in progress, a Select Committee of the House of Commons was engaged in inquiring into the conditions of madhouses in England. Its report, presented in July, 1815, disclosed a terrible state of things, and did much to awaken the public conscience. Amongst those who gave evidence was William Tuke, the founder of the Retreat, then 83 years of age, and frequent reference is made to the *History of the Retreat*, published in 1812, which, largely owing to an article by Sidney Smith in the *Edinburgh Review*, entitled "Mad Quakers," had much influence in promoting improved treatment of the insane. Among the institutions reported upon were some spoken of in the highest terms, in particular Dr. Fox's house at Brislington near Bristol, and Dr. Finch's, Lavestock House, Salisbury, but in the main the state of affairs disclosed was horrible beyond description. One case investigated became notorious—namely, that of a man named Norris, who was restrained for fifteen years at Bethlem with a triple arrangement of bars and chains.

I do not wish, however, to discuss the abuses that existed at that time, and continued more or less for another thirty years, until the appointment of the Lunacy Commission finally put an end in this country to the era of straw and chains in the treatment of the insane.

My object in referring to the report of 1815 is to point out that, in spite of the grave condition of public affairs caused by Napoleon's escape from Elba and his success in raising an army of 250,000 men in less than three months, a committee of the English House of Commons week after week calmly listened to evidence dealing with the management of madhouses. The nation is again passing through a serious crisis in its history, but unless the British character during the past century has seriously altered, it will not be long before the country will be willing to give attention to social questions. To refer to a subject which involves the expenditure of public money at the present time would seem futile, yet it did not discourage our ancestors, exhausted and almost ruined by the Napoleonic wars. On the Friday before the battle of Waterloo the Select Committee considered designs for the construction of two asylums in London and Yorkshire respectively, estimated to cost together £36,596.

The lull of political controversy would seem to afford a singularly opportune time for considering whether any alteration in the law is required in the interests of persons threatened with mental disease. I therefore do not hesitate in bringing to your notice a subject which I believe to be of great importance—namely, the absence of proper facilities for treatment of nervous and mental disorders in their early stages. Its importance was long ago realized by the British Medical Association, which, with the Medico-Psychological Association and the Medico-Legal Society, repeatedly advocated a change in the law. Immediately before the outbreak of the war the Medico-Psychological Association adopted the report of a special committee advocating the establishment of clinics for the treatment of early cases. In the medical press recently the subject has again been discussed, and general public attention was called to the matter, when it was realized that, apart from certification, there was no legal method of treating soldiers temporarily disordered in mind. It was at once seen that the existing procedure was impossible for men temporarily broken down in the service of their country, yet a bill introduced into Parliament to meet the case failed to pass. Although the difficulty in respect to soldiers has to a large

extent been overcome, I would urge the British Medical Association to consider afresh whether some radical change in our procedure cannot be secured, so that all on the verge of mental collapse, as well as those whose breakdown is recent and may be considered temporary, can receive effective treatment in a properly equipped hospital without the necessity for certificates of insanity.

Let me state in a few words the defects of our present system. At present, broadly speaking, no person unable to pay its cost can receive adequate treatment until he is certified as of unsound mind. This practically means that no special treatment is possible until he has utterly broken down and is so seriously affected as to convince a magistrate that he is decidedly insane. No general hospital will receive such a patient; the public asylums are all closed to any one who begs for protection or treatment, for county asylums cannot receive voluntary boarders even when the cost of their maintenance is forthcoming.

Consequently there is no alternative but to apply to the Poor Law authorities, who, under certain circumstances, provide treatment for a period of two weeks in the workhouse infirmary. The whole system is radically wrong. When the wife of an artisan becomes depressed after confinement, surely it is cruel in the extreme to make her a pauper and send her to the workhouse infirmary, pending a decision as to whether she is insane or no. It is obvious in such a case that this course will not be adopted until the last possible moment, and consequently much valuable time is lost.

Every practitioner will be able to call to mind patients travelling steadily towards insanity in unfavourable surroundings. This question is brought even more prominently before consulting physicians, especially those interested in nervous and mental diseases.

Dr. Henry Maudsley's generous gift of £30,000 to the London County Council to establish a hospital for recent and undeveloped cases shows most plainly how the matter appears to one of the foremost thinkers of the day and a physician who has spent his life in the study of mental disorders. Dr. Maudsley's books are already classics, they are quoted, consciously or unconsciously, by all who have written on the subject of insanity in recent years, and it was a noble act on his part to assist in meeting the crying need of those threatened with or struggling against mental infirmity. As I write the hospital is nearly ready, but owing to the exigencies of the war it is, for the present, I understand, to be used exclusively for soldiers.

If it were possible, instead of a separate hospital it might have been better to establish separate pavilions for nervous and mental diseases in direct association with general hospitals. At La Charité hospital in Berlin the visitor enters a small park, and Dr. Zichen's clinic is but one of many detached buildings devoted to special diseases. It is as easy and simple for the patient suffering in mind to get advice there as for another with eye or with lung trouble. In most cities in England, however, any such arrangement is impossible, for general hospitals cannot be rebuilt or reconstituted in this way.

In order to give some idea of the extremely valuable work done at special hospitals of the kind advocated, I will briefly allude to the Psychopathic Hospital at Boston, Massachusetts. I have before me the notes of the first and the second annual conferences of the medical and social work at this hospital.¹ The hospital was built by the State expressly to deal with recent acute cases. No fewer than 1,523 patients were received in its first year, and of these 590 were received under a temporary care law which provides for a week's detention only; large numbers were also received on a voluntary basis, so that during the year 48 per cent. of all patients escaped the usual lunacy procedure.

On reading the reports of work done, one is struck with the enthusiasm of the medical staff and the vast field of research undertaken. During the two years eighteen medical men describe their work covering almost every department of psychiatry: Juvenile crime, tests for feeble-mindedness, incidence of syphilis, alcoholism, hydropathy in its influence on red blood cells, treatment of delirium, prophylaxis, analysis of genetic factors, salvarsan treatment, tests of cerebro-spinal fluid, errors in diagnosis, and last, but not least, the value of out-patients' departments and after-care. There is a special social service department for the purpose of following up cases in their homes,

and it was found that of every 100 admissions 20 needed supervision on discharge, 24 needed advice, 3 required assistance in arranging their discharge, and 10 showed a need for prophylactic work in their families.

This bald statement of the activities of the Boston State Hospital shows plainly what an important service it renders in providing treatment apart from ordinary asylum associations. It shows how it is possible at such a hospital to organize a medical service which covers all departments of psychiatry; and, further, that when the mental symptoms clear up, a patient need not be thrown back into old associations without help or supervision.

This hospital at Boston is but one of many that have been established in the United States in recent years. Some of the others are due to private munificence; in particular, reference may be made to the Henry Phipps Psychiatric Clinic at Baltimore, the medical staff of which consists of a director, assistant director, a resident physician, two assistants, and five internes. In addition to these are the heads of three research laboratories, dealing (1) with clinical pathology and bio-chemical investigation, (2) with neurological research, and (3) with psycho-pathology.

It would give a wrong impression to conclude that nothing whatever has been done in this country, seeing that the city of Glasgow has provided excellent hospital accommodation for the temporary care of doubtful and recent cases in association with the Poor Law infirmaries; and in London, Liverpool, and elsewhere the hospitals under the control of the guardians are well equipped and very efficient institutions. I think, however, that I am justified in stating that even in these localities the facilities fall far short of what is really needed, whilst the medical staff is relatively very small. Besides this the association with the Poor Law is a serious drawback. In the words of the report of the Medico-Psychological Association:

The present system, which compels all persons, except those able to pay adequately for their maintenance, to apply to the Poor Law authorities in order to secure treatment, is unsatisfactory and unjust. In doubtful and undeveloped cases temporary care can be given only in workhouses or Poor Law infirmaries, which, with very few exceptions, lack proper facilities for treatment.

A system which artificially creates paupers in order to obtain medical treatment necessarily acts as a deterrent, so that too frequently there is serious and even disastrous delay.

There is, however, one hospital specially devoted to the care of mental and nervous diseases free from these objections, though I fear the small financial support it receives greatly limits its usefulness. This pioneer institution is the Lady Chichester Hospital, Hove, Brighton, for cases of nervous breakdown, established chiefly through the efforts of Dr. Helen Boyle. In a small way it represents the ideal, as it is affiliated with a hospital for medical and surgical cases, and it is free from Poor Law associations. From the annual report I extract the following, referring to the patients admitted:

Many such are entirely dependent upon their own exertions, and the knowledge that no refuge existed for them would render them a more easy prey to disease. Others are wives and mothers of families whose circumstances make it impossible for them to get rest or relief so long as they remain in their own homes. The only chance is to take them away from the daily strain and constant succession of unavoidable worries. Failing this they may only too easily cross the narrow line which divides the borderline case from that which is actually certifiable as mental. At present this is the only hospital in the United Kingdom which deals with such cases of early nervous breakdown in poor people; it has therefore the strongest claim possible to the support of those who realize the danger and the expense to the community entailed by failure to give help soon enough. It is needless to say that the 33 beds provided in this hospital are wholly insufficient to meet the demands, patients having to wait months for admission sometimes, and it cannot be too often repeated that treatment of this kind is one of the most pressing requirements of the present time.

The value of special hospitals for nervous and mental disorders has been demonstrated in a remarkable manner by the conversion of the State Hospital, recently equipped by the Board of Control under the superintendence of Dr. Rees Thomas, into a Red Cross hospital for soldiers suffering from shock and other psychoses. It is singularly fitting that the organization and management of this hospital since Dr. Thomas left for active service should fall upon Dr., now Major, Rows, who perhaps more than

any other person has laboured for the establishment of clinics and special hospitals of this kind.

The Moss Side Hospital, Maghull, accommodates some 280 patients housed in six pavilions. They suffer from all kinds of nervous maladies arising in the course of active service. Two-thirds of the patients are nursed entirely by women nurses. As the patients are soldiers, and have been drafted from Netley in the ordinary way, no difficulties arise as to legal status.

It is satisfactory to find that the medical staff is relatively strong, exceeding that of almost any similar institution. For the 280 patients there are seven whole-time medical officers, most of whom are men with great experience in this department of medicine. This is not the place to refer to the enthusiastic work of these gentlemen; no doubt in due course reports will be published. Yet I may be permitted to say that a recent visit to this hospital yielded me great satisfaction in two directions. First, that our soldiers shaken or disturbed in mind in the course of their duty are receiving the best and most skilful treatment that modern psychiatry can provide; and secondly, that a hospital already is in being which illustrates what might and should be done throughout the country for those threatened with mental failure and on the verge of insanity.

When we consider the problem of securing effective treatment for those in a position to pay for it the difficulties are not greatly reduced. No doubt patients whose conduct is not disorderly and who are not actively dangerous to themselves and others can obtain treatment in a number of different ways. Nursing homes, private lodgings, doctors' houses, special arrangements in their own homes, hydropathics, are open to them, as well as foreign travel and health resorts of all kinds. All these are of value in certain cases, but it will be generally admitted that there is a large residuum of cases which cannot be nursed to the best advantage outside a special hospital. Under the existing state of the law only institutions available are the recognized institutions for the insane, and these are not considered until almost everything else has been tried. It is consequently not far wrong to assert that the richer the patient the less likely is treatment in a special hospital to be adopted early in the course of the malady. Two deeply rooted prejudices cannot be ignored. There is, firstly, the dread of asylums and of any association with the insane, and, secondly, the objection to certificates. It is useless to say that these prejudices are due to ignorance, and need not be seriously considered, for they are strongly entrenched in all grades of society, medical practitioners and others with personal knowledge of the subject not exempted. This dread does not seem to arise merely from the thought that insanity brings a stigma upon a family through the disclosure of hereditary weakness, although no doubt the incidence of insanity is feared from this point of view. Nor do I think that it is due to an idea that mental disorder is specially terrible owing to the possibility that the higher and nobler qualities of mankind may be lost. I have met persons otherwise level-headed who cannot be persuaded to enter the grounds of an asylum. Not infrequently all sorts of excuses are made to escape the duty of visiting a relative who is under care, and so real is the danger of neglect that the State has decreed that no order for reception shall be granted without an undertaking that the patient shall be visited at least every six months.

It seems clear to me that these prejudices are independent of any reasoned explanation and are due to traditional beliefs. That our lives are greatly influenced by these is not open to doubt. Superstitious notions are implanted in our minds from our earliest years. Old wives' tales are repeated by servants and casual visitors, and are eagerly listened to by the young, and it takes many years to destroy their influence, and, indeed, in many of us beliefs so acquired form a permanent part of our mental furniture. The origin of many such notions may be lost entirely, but I think in the present case these prejudices about insanity are directly descended from mediæval beliefs about evil spirits and demoniacal possession. The thought that madness is due to a possession is, moreover, strengthened by the way in which Scripture is taught. "He hath a devil and is mad" indicates plainly the current view of insanity at the beginning of the Christian era, which view exists to this

day in the East and has certainly not died out in our own country. I would therefore suggest that the unreasoning prejudice against the insane, the supposed stigma that attaches to insanity, really at bottom depends upon a survival of the superstition that mental disease is due to evil spirits. In other words, there is thought to be something uncanny, mysterious, and supernatural about disorders of the mind, and this gives rise to unreasoning dread of any association with insane persons.

I know of no remedy for these erroneous and cruel views but the gradual enlightenment of the public. I incline to think our asylums and hospitals are too much cut off from the world at large, and that too little is known of their patients and their doings.

Unfortunately the general practitioner is generally not in a position to assist in this enlightenment. Very few of them have lived in asylums, and the teaching of medical students is hardly calculated to give them much knowledge of the insane, though they may learn something of insanity. The situation is aggravated by asylum practice being divorced from general medicine to a large extent, and it is quite common for an experienced medical man to say without apology that he knows nothing whatever about lunacy. When the special hospitals already referred to are established we may confidently assume that they will become centres of education in all matters relating to insanity, and at the same time provide vastly better facilities for the instruction of medical students than exist at present.

Apart from the prejudices in relation to asylums, we must not forget that there is a widespread belief that association with other patients is itself injurious. No doubt there are some patients who do better in single care under domestic surroundings away from doctors and nurses and other patients, and it is quite true that in the best arranged institutions an observant and sensitive patient cannot but see much that is painful; nevertheless, I have never found any real hurt from this, and sometimes it is positively helpful to find that others are suffering in a similar way. Experience shows quite clearly that the association of patients is, broadly speaking, helpful rather than the reverse, so long as the size or the resources of the institution admit of satisfactory classification.

The other prejudice, the objection to certificates, is in many cases not without justification. I do not wish to defend those who resent certificates because they state an unpleasant and unwelcome truth, and who would close their eyes to the facts of the case. Such persons fail to see the immense value of the lunacy laws, and that to conceal the existence of insanity is to deprive persons unable to look after themselves of the protection of the King or the representatives of the Crown.

I therefore admit at once that persons who break down mentally cannot be treated in exactly the same way as those suffering from an ordinary ailment. Indeed, I am not sure that the law is strict enough in reference to established insanity, seeing that so many persons are treated privately without proper supervision. However this may be, it seems to be unjust in the extreme that persons with ill-defined or very temporary attacks of mental disorder should be unable to obtain effective treatment without being certified as of unsound mind.

Voluntary treatment can, it is true, be obtained in hospitals and licensed houses, and this is of the utmost value in many cases, and should be possible in all asylums. Yet experience shows that treatment on this basis is insufficient, for the reason that many patients most needing temporary care are unable to decide for themselves what treatment should be adopted.

Let me briefly illustrate the difficulties. Some years ago the managing director of a flourishing business was attacked by melancholia, and tried to throw himself out of a train. He was certified and sent to a hospital for the insane, but recovered in a week. On his discharge at the end of a month he found that another had been appointed to his post, and to this no exception could be taken, as the articles of association of his company contained the usual clause that a director who becomes insane is at once disqualified. Again, a medical man in large practice suddenly became seriously depressed with delusions of persecution. It was clear that special care was imperative, and he was certified and sent to a licensed house, where he recovered very quickly. In default of

any other procedure nothing else could have been done, and yet I could not but sympathize with his conviction that such a step ought to have been avoided.

Certificates are also objected to on account of the attendant disturbance of business affairs. A professional man holding several appointments suddenly lost his memory of recent events, although retaining his general intelligence. His affairs were managed by his son, who was his partner, to the satisfaction of every one. Unfortunately, as so frequently happens, the old gentleman became restless at night, and care in an institution was advised. He was quite willing to go away voluntarily, but owing to his defective memory he could hardly remain as a voluntary patient, not being able to remember his position. When certificates were proposed it transpired that they would mean a loss of £400 a year, as his appointments would have to be given up; and, moreover, the power of attorney given to his son would become invalid, so that his whole business affairs would be disorganized. In such a case in all probability a receiver would soon become necessary; yet it seems altogether wrong that such a man should at once be exposed to these disabilities when he breaks down mentally, seeing that he might be away from business for six months, and incapacitated in body and mind, by typhoid fever without any difficulties of this kind.

I have not forgotten a favourite legal maxim, "Hard cases make bad law"—an excuse for injustice which is not very convincing. But the difficulties I have mentioned are not exceptional. It is no exaggeration to say that in at least one quarter of the cases I see in consultation the impossibility of securing effective temporary care, apart from certificates, is a serious matter. One of my case-books contains 239 consecutive cases seen in consultation, and of these 79, or 33 per cent., needed the special care referred to. In a recent acute case it is obviously desirable that asylum care should not be hastily undertaken, and indeed it is only fair to the patient that it should be delayed until the real nature of the case can be made out, and yet at present for rich and poor alike there are no properly equipped homes or sanatoriums where treatment can be given temporarily under favourable conditions.

Directly we begin to consider the possibility of establishing any such hospital we are beset with difficulties. The hospital which I picture in my mind is affiliated to the general hospital of the district; it has a large garden, in which are several pavilions. There is both a resident and a non-resident medical staff, which collectively is able to attack mental disease from all sides. The patients would for the most part be received on a voluntary basis, though, if needful, detention for defined periods would be possible, whilst the equipment would include all appliances likely to assist in diagnosis and treatment.

Such public hospitals would usually, as in Boston and Munich, be municipal institutions, and in the long run they would prove to be a good investment of public money, owing to the large amount of insanity they would prevent.

The establishment of similar institutions for paying patients presents even greater difficulties, unless there is some change in the law. In existing circumstances there would be constant risk of prosecution under the 315th Section of the Lunacy Act, as it would be impossible to prevent patients stepping over the border, and the utility of such a home or sanatorium would be lost if such persons could not temporarily be detained. Hitherto proposals to enlarge existing powers of compulsory detention have been viewed with suspicion by a large section of the public, and several bills designed to meet these difficulties have been rejected by Parliament.

The legal profession views with grave concern any interference with the liberty of the subject, although a lawyer friend of mine, in discussing this matter in relation to the present state of public affairs, cynically remarked that "if there are any liberties left in England, now's the time to remove them."

This problem will not be solved until it is clearly recognized that there is no defined line between sanity and insanity, but rather a vague intermediate zone, and that those who enter this region urgently need the best possible treatment. I would therefore plead for legal recognition of this intermediate borderland state, and, as some power of detention in certain cases is required, safeguards must be provided that will disarm criticism.

The greatest of all safeguards is the absence of any concealment, and at once we find that in this matter public and private interests clash. It is only reasonable that families should not wish the state of an afflicted member to be generally known, and patients temporarily suffering from mania, or indeed any form of insanity, are entitled to privacy. Consequently the wards of the psychiatric hospital cannot be open to the public in quite the same way as those of a general hospital.

The suggestion has been made that the law should recognize a new class of patient suffering from undeveloped insanity, who under certain conditions might be detained for a stated period. How long this should be is a matter for discussion; probably a month in the first place would be sufficient, to be extended with the approval of the supervising authority for a further period of not more than five months. The names of all such patients would doubtless be notified to the Board of Control, and they might be styled "notified" patients, as distinct from voluntary boarders on the one hand and certified patients on the other.

Keeping in view the chief safeguard—absence of concealment—I would suggest that periodic reports of every case should be sent to the Board of Control, and that it should be obligatory to keep records for inspection by visiting members of the Board. I see no reason why the correspondence of "notified" patients should be interfered with. Further, no patient should be detained under this provision except in homes or institutions approved by the Board of Control.

All such approved homes should be inspected regularly by visitors nominated by the Board of Control, or possibly by county councils; if these visitors reported unfavourably in any individual case, the patient would have to be discharged or certified.

I see, moreover, no reason why notified patients should not be received in any recognized institution of the insane, or into special departments of such which the Board of Control might consider suitable for the purpose.

This amendment of the law would prevent evasion and the illegal detention of patients in lodgings or in private care that is now notorious. What has been termed the "back-parlour treatment" of the insane would be abandoned as far as recent incipient cases are concerned, and it is these that are of the most consequence. Special hospitals, such as the Maudsley Hospital, and psychiatric clinics generally, would be able to treat to recovery a large number of patients who must now be certified.

These two recommendations—the establishment of special hospitals or sanatoriums for the treatment of medical disorders in their early stages, and the modification of the law required to render such treatment effective—are, in my opinion, matters of the utmost importance. Not only will they do much to prevent declared insanity, but these special hospitals will become centres of enlightenment, and so disperse the unhappy prejudices and errors that surround the subject, whilst the larger clinics associated with universities will afford students opportunities of studying practical psychiatry which they do not now possess.

REFERENCE.

¹ *Boston Medical and Surgical Journal*, September, 1913.

PERIPHERAL SHOCK AND ITS CENTRAL EFFECTS.

By J. LYNN THOMAS, C.B., F.R.C.S.,
SURGEON TO THE KING EDWARD VII HOSPITAL, CARDIFF.

THE admirable paper in the *BRITISH MEDICAL JOURNAL* of December 11th, 1915, by Dr. F. W. Mott, on "The psychic mechanism of the voice in relation to the emotions," reminds me of a remarkable case of deaf-mutism which came under my observation some years ago. This condition existed in a collier for about seven years, consequent upon receiving a "shock" in an underground colliery explosion. He was eventually cured by another shock during a second colliery explosion underground; he regretted that he never recovered the power of singing, as he had belonged to a choir before the first accident, and was incapable of rejoining it on that account, although he still enjoyed listening to music.

After his recovery this patient came to a surgical ward

at the Cardiff Infirmary, and it was through the accident of my going into the ward during visiting hours and seeing him converse with his wife in the deaf-and-dumb language that I obtained his singular history.

He was one of the few survivors in a big colliery explosion. He remembered nothing of the accident, but on recovering consciousness found that he could neither hear a sound nor articulate a word. After remaining in this condition for a considerable time he went to a school for the deaf and dumb, and eventually married a congenital deaf-mute. He lived happily in this state for some years, and resumed work until the occurrence of a second underground explosion, which was followed by his recovery from deaf-mutism; he stated that he distinctly remembered "hearing the ground tremble" before lapsing into unconsciousness which lasted a few days. When he regained consciousness he got very excited upon discovering that his powers of speech and hearing had returned. The late Dr. Naunton Davies, J.P., of Porth, told me that he knew the man well, and that in his opinion there was a strong hysterical strain in him; Dr. Davies said also that there was no evidence of direct injury to the head.

The present war has added to our knowledge of the causation of symptoms which are clinically so well known, and are described in the textbooks in chapters on concussion of the brain. It is no longer necessary to assume that "*commotio cerebri*" must have taken place, due either to a direct force—a "whack" or "crack" on the head—or to indirect force transmitted through the atlantoid articulations with the occiput producing a jarring of the skull and its contents. It can now be easily realized by those who have seen and studied the effect of high explosive shells upon the buildings of a town or village in the vicinity of which explosions have taken place. The damage which *atmospheric disturbances* alone can do to buildings, even at great distances from the site of the explosion, has strikingly illustrated the effect such air currents must have upon human beings, whether standing or lying down, awake or asleep. To me the damage done to buildings carries the conviction that the general shock to the whole surfaces of skin and mucous membrane which protect the exterior of man may be sufficient to disturb the nervous machinery to a degree which may vary from slight symptoms of concussion of the brain by stages which may reach the extremity of sudden death, without showing evidence of any appreciable naked-eye pathological signs.

I have had the opportunity of seeing the effect of air disturbances caused by colliery explosions, and these are in some aspects as powerful as those of "shell concussion." Further, I am of opinion that many of the freaks of lightning can be best explained upon the hypothesis that the tracks of lightning sparks cause sudden violent air currents, in the nature of vortices, ripples, or waves. These air blasts are often of a weirdly powerful intensity; the most striking example that has come under my own observation since I recorded—at the Oxford Meeting of the British Medical Association in 1902—the cases of two men struck by lightning, was one in which a key that had not been turned on the inside of a door was driven right across a room several feet high, marking by its impact the wall against which it struck; at the same time the beading on the exterior of one of the door-boards was stripped off and carried in an opposite direction to that taken by the key. I do not wish to weary the reader by quoting further illustrations of the effects of lightning air-currents in splitting dry wood or in blowing bark off dead trees. I want merely to emphasize the fact that in a large number of cases violent air-currents striking against skin and mucous membranes, whether originating in war by high explosives, or in civil life by colliery explosions, and by lightning, play *per se* the principal part in the etiological factors which cause disturbances of function in the psychic, physiological, and automatic centres situated in the brain itself through impulses conveyed to it. The special intermediate organs existing between the exterior of man and his brain, such as the eyes and ears, are frequently put out of gear by these air-currents or "shell concussion," and Mr. Jameson Evans, in the number of the BRITISH MEDICAL JOURNAL referred to above, gave some striking illustrations of such damage to vision. On the other hand, cases of severe labyrinthine trouble of the ears have been found to exist after patients recover from

the unconsciousness of severe concussion of the brain, as exemplified by the experiences of a young man who was "blown up" at Loos, and discovered that he could not direct himself to getting out of the side of the bed he wanted to, and that when he did get out he found himself staggering and reeling; these symptoms disappeared in two or three days, leaving in the course of a few weeks only partial deafness of one ear.

It will be noticed in the history of the case of deaf-mutism in a collier related above that he suffered from two types of shock—or symptoms of concussion of the brain—the first one occurring suddenly or instantaneously, that is, without consciousness of the accident on his part; whilst the second one had a latent period, that is, consciousness of the action before he lapsed into unconsciousness. I have observed the same two types of shock in cases of lightning stroke.

It is manifest that it is only in the type of "shell shock" in which a latent period occurs before the onset of the state of unconsciousness that the psychic centres can exert any influence upon the nervous machinery of the emotions.

The grim reality of the misnomer, "hysterical manifestations in a neurotic," is dramatically portrayed in the case related above, where the collier, upon recovering his power of speech and hearing, found himself married to a congenital deaf-mute!

OBSERVATIONS ON CASTELLANI'S "TETRAVACCINE" AND "PENTAVACCINE."

BY

G. A. LURIE, M.D. CHICAGO,

ATTACHED TO THE AMERICAN RED CROSS SANITARY COMMISSION IN SERBIA.

To Castellani is due the credit of having first proposed, prepared, and used, combined vaccines. The preparation of such vaccines is based on the experimental work he carried out in 1901-1902, when he was able to demonstrate that an animal (rabbit) inoculated with more than one species of bacteria, within limits, elaborated agglutinins and immune bodies for the various species injected, and that the amount of such protective substances for each species was not distinctly less than in control animals inoculated with one species only.

Castellani's best-known mixed vaccines are the tetravaccine "typhoid + paratyphoid A + paratyphoid B," which he began using in man on a large scale in 1905; the tetravaccine "typhoid + paratyphoid A + paratyphoid B + cholera"; the tetravaccine "typhoid + paratyphoid A + paratyphoid B + Malta fever"; the pentavaccine "typhoid + paratyphoid A + paratyphoid B + cholera + plague."

It may be of interest to put on record the experience I have had in Serbia of two of Castellani's vaccines—namely, the tetravaccine, typhoid + paratyphoid A + paratyphoid B + cholera; and the pentavaccine typhoid + paratyphoid A + paratyphoid B + cholera + Malta fever.

The two vaccines were obtained from Dr. Castellani, who was preparing them in Serbia on a large scale for the American Red Cross Sanitary Commission and for the Serbian army. The details of technique for the preparation of such vaccines may be found in his own publications; I limit myself to stating the results I have had.

Tetravaccine.

The tetravaccine was used by me to inoculate 3,000 persons, most of whom I was able to follow for two months after inoculation. Two injections only were given ($\frac{1}{2}$ c.cm. each) at an interval of five to seven days. The injection was done subcutaneously in the arm, after sterilizing the skin by means of tincture of iodine. The local reaction was generally mild, a few hours after injection a small patch of redness developing, with slight pain, which lasted one to two days. The general reaction was also, as a rule, mild. All the inoculated persons were able to attend to their duties twenty-four to forty-eight hours after the injection. I was able to keep in touch for two months with 2,000 of the inoculated persons; no case of typhoid, paratyphoid A, paratyphoid B, or cholera developed among them. With the kind assistance of Dr. Castellani, I

examined the blood of four of the inoculated persons. I have collected the results in the following table:

Tetravaccine.		Limits of Agglutination. Weeks after First Injection.				
Individuals Inoculated.	Blood tested against	1	2	3	4	5
No. 1.	<i>B. typhosus</i> ...	1/40	1/1200	1/500	—	1/200
	<i>B. paratyphosus</i> A ...	1/20	1/400	1/200	—	1/100
	<i>B. paratyphosus</i> B ...	1/20	1/300	1/200	—	1/100
	<i>V. cholerae</i> ...	1/20	1/100	1/80	—	1/60
No. 2.	<i>B. typhosus</i> ...	1/20	1/1200	1/400	1/300	1/200
	<i>B. paratyphosus</i> A ...	1/20	1/200	1/150	1/150	1/100
	<i>B. paratyphosus</i> B ...	1/20	1/200	1/200	1/150	1/100
	<i>V. cholerae</i> ...	1/20	1/60	1/40	1/40	1/40
No. 3.	<i>B. typhosus</i> ...	1/40	1/600	1/600	1/300	1/200
	<i>B. paratyphosus</i> A ...	1/20	1/500	1/400	1/200	1/150
	<i>B. paratyphosus</i> B ...	1/20	1/500	1/400	1/150	1/150
	<i>V. cholerae</i> ...	1/10	1/60	1/100	1/40	1/40

Comparing the results collected in the above table with the results obtained in control individuals inoculated with monovaccines by Dr. Castellani and Dr. Mendelson, I find that the amount of agglutinins present is not distinctly smaller.

Pentavaccine.

The pentavaccine I used was the typhoid + paratyphoid A + paratyphoid B + cholera + Malta fever. I obtained it from Dr. Castellani. As regards the technical preparation of this vaccine I refer the reader to Dr. Castellani's own publications. I inoculated with this vaccine 2,000 individuals, mostly at the inoculating department attached to the Uskub American Clinic, with no untoward accident of any kind. The injections were given ($\frac{1}{2}$ c.cm. each) at an interval of five to eight days, with the usual technique. The reaction, local and general, was not more severe than in individuals inoculated with the tetravaccine. The blood of two of the inoculated persons was examined with the kind assistance of Mr. D. de Silva.

The results are given in the following table.

Pentavaccine.

Individuals Inoculated.	Blood tested against	Limits of Agglutination. Weeks after First Injection.				
		1	2	3	4	5
No. 1.	<i>B. typhosus</i> ...	1/40	1/800	1/500	1/300	1/150
	<i>B. paratyphosus</i> A ...	1/20	1/400	1/300	1/200	1/150
	<i>B. paratyphosus</i> B ...	1/20	1/400	1/400	1/200	1/200
	<i>V. cholerae</i> ...	1/10	1/60	1/40	1/40	1/40
	<i>M. melitensis</i> ...	—	1/40	1/80	1/80	1/20
No. 2.	<i>B. typhosus</i> ...	1/20	1/1200	1/400	1/250	1/200
	<i>B. paratyphosus</i> A ...	1/20	1/500	1/400	1/300	1/200
	<i>B. paratyphosus</i> B ...	1/20	1/500	1/300	1/300	1/150
	<i>V. cholerae</i> ...	1/20	1/100	1/80	1/40	1/40
	<i>M. melitensis</i> ...	1/10	1/40	1/200	1/150	1/80

CONCLUSIONS.

The use of Castellani's tetravaccine, typhoid + paratyphoid A + paratyphoid B + cholera, is harmless, and the inoculated persons develop protective substances for the four diseases. My results are therefore identical to those obtained by Castellani, Mendelson, and Randon, who have used that vaccine on a very large scale.

The use of the pentavaccine, typhoid + paratyphoid A + paratyphoid B + cholera + Malta fever, is also harmless, and, according to my experiments, the inoculated persons develop protective bodies for the five diseases. In my opinion, these mixed vaccines should be used as a matter of routine in all countries where such diseases exist already or may be easily imported.

BIBLIOGRAPHY.

Castellani: *Zeit. f. Hygiene*, 1902; *Centr. für Bakt.*, 1905; *BRITISH MEDICAL JOURNAL*, 1913, 1914, 1915; *Sperimentale*, 1915.
Castellani and Mendelson: *BRITISH MEDICAL JOURNAL*, November 13th, 1915.

DR. HENRY MACDONALD CHURCH, Demonstrator of Anatomy in the University of Edinburgh, left personal estate in the United Kingdom valued at £17,400.

REPORT OF A CASE OF SEVERE TETANUS SUCCESSFULLY TREATED BY ANTITOXIN.

BY

T. P. KILNER, CAPTAIN R.A.M.C.(T.F.).

THOUGH the following report was written in the earlier months of the war, when tetanus was much more commonly seen than it is now, it still may be justified in its publication in that it may give some little guidance to those who are called upon to treat the cases of a similar type which still occasionally appear.

At the time of writing much discussion was in progress around the whole subject of tetanus and its treatment, but the views and suggestions put forward were so numerous and so extremely varied that it was quite obvious that no very definite "best" line of treatment had been found.

Up to the commencement of the war reported cases in England were comparatively few, and even in America, where statistics of antitoxin treatment are particularly abundant, detailed reports are scarce, so that one is unable to get clear ideas of the severity of a particular case, the doses of antitoxin required, and the precise nature of the effects of the treatment on the patient.

It would seem, however, that insufficient patience and perseverance are exercised in many cases, and that one settles down too easily to the conclusion that all cases with a short incubation period are hopeless from the onset—a statement certainly borne out by a report in the *BRITISH MEDICAL JOURNAL* about the time of writing, which said: "The result (death) seems to agree with what was already fairly generally recognized—namely, that if the disease has an incubation period of less than twelve days it is fatal in spite of treatment, whether by antitoxin or other means."

A private, aged 31 years, was admitted to the Manchester Royal Infirmary in the early morning of October 31st, 1914. He gave a history of having been wounded at Ypres at 8 a.m. on October 27th by the explosion of a shrapnel shell, and on examination was found to have a large suppurating crateriform wound, extremely foul-smelling, occupying a position on the inner side of the right leg immediately below the knee-joint. A small punctured wound was also present on the anterior aspect of the joint, but the two had apparently no connexion, and the joint itself was not opened.

He stated that after receiving his wounds he had to drag himself, his leg trailing along the ground, for a distance of about fifty yards before reaching cover, and that it was not until 3 p.m. that the wound received its first dressing. He had lost large quantities of blood, and was very anaemic and toxicæmic looking when he arrived in hospital, four days after the injury. The wound was dressed with boracic fomentations every four hours, and irrigated frequently with hydrogen peroxide solution. The cavity involved the upper end of the tibia, and from time to time fragments of necrosed cancellous bone were removed.

The wound cleared up somewhat, but the question of amputation was under consideration on account of the bad general condition of the patient and the obvious impossibility of preserving a useful limb, when at 9.30 on the morning of November 5th, nine days after the injury, rigidity of the masseters was first noticed, the patient complaining of a sore throat and being found unable to open his mouth for inspection.

Previous to this, one had been on the outlook for signs of tetanus, for the patient had shown those profuse sweats which are apparently frequently the precursors of the condition, and which had been particularly marked on the previous evening.

The trismus increased rapidly and spread to the muscles of the neck and abdomen. Perspiration was profuse, so that the bed linen was soaked. At noon of the same day the leg was amputated at the middle of the thigh, partly with a view to removing the focus of infection and partly because hopes of preserving the leg were obviously small. At the time of operation about 1,000 units of antitoxin were injected into the spinal theca, and a further 2,000 units given subcutaneously. At 6 p.m. the patient had recovered from the anaesthetic, but was still very rigid about the head and neck.

The abdominal muscles were also tightly contracted, and there had been some clonic contraction of the arm muscles associated with stertorous breathing. A second anaesthetic was administered, and 4,500 units of antitoxin were injected spinally and 9,000 units given subcutaneously in the abdominal wall. Two teeth were extracted at the same time in order to facilitate the anticipated difficulty in feeding. The foot of the bed was raised and the room kept as quiet as possible.

At 1 a.m. of the following day 6 oz. of chloroform in olive oil were administered by the rectum for the continued clonic contractions of the arm muscles. Potassium bromide and chloral (55 gr. xx) were then given by the mouth at intervals of four hours. At 4 p.m. a further 15,000 units of antitoxin was given subcutaneously.

Active treatment was now temporarily suspended. The patient was fed on fluids, of which he managed to take large quantities without resort to tube feeding being necessary. His condition gradually improved, but the inability to open the mouth persisted until November 15th. A little previous to this it had been noted that the spasm relaxed slightly during sleep. On November 16th the patient took solid food for the first time. On November 17th he was given a further 15,000 units of antitoxin, 4,500 being administered spinally, 10,500 subcutaneously.

It should be noted that on each occasion when serum was given the patient's condition became temporarily much worse, there being marked increase in rapidity of the pulse and considerable rise of temperature. During the last spinal injection it is interesting to note that the patient experienced painful numbness and tingling in the amputation stump which by this time was practically healed.

Gradually the patient resumed the normal state of health—there was no return of muscular spasm, and we were able to transfer him to a convalescent hospital very shortly; there, according to later reports, he made an excellent recovery.

The points to which I would draw particular attention are:

1. Recovery in spite of well-marked symptoms and a short incubation period (nine days).
2. The large doses of serum administered, 46,500 units in all.
3. The very slow and gradual relaxation of spasm.

I am indebted to Captain E. D. Telford, F.R.C.S., R.A.M.C.(T.), in whose wards the patient was treated, and to whom I was acting as house-surgeon at the time, for permission to publish these notes.

SEROLOGICAL TESTS IN DYSENTERY CONVALESCENTS.

BY

J. C. G. LEDINGHAM, M.B., D.Sc.,

AND

W. J. PENFOLD, M.B., D.P.H.,

BACTERIOLOGISTS TO THE KING GEORGE HOSPITAL.

In a previous paper¹ we have explained that the subacute cases of dysentery which have been admitted here have all been due to infection by *B. dysenteriae* Shiga, this organism having been recovered from the dysenteric dejecta. Since that paper was published three further subacute cases have been found to be due to *B. dysenteriae* Shiga and two to *B. dysenteriae* Flexner. Only in one case so far has *E. histolytica* been present in the active form. As already mentioned, a large number of convalescent cases were admitted from whose faeces (for the most part not of dysenteric type) no organisms of the typhoid-dysentery group were recovered. There were probably 150 to 200 of these. In a certain proportion of these flagellates were found to be present in the stools, but owing to pressure of work it was impossible to analyse these cases more exhaustively. Recently, however, a fresh batch of these convalescents arrived, and the opportunity was taken to ascertain by agglutination tests with the serums of the cases what proportion of them had suffered from bacillary dysentery. The necessity for this investigation was rendered the more urgent as conflicting evidence had reached us with regard to the relative proportion of bacillary and amoebic dysentery in the Near East. The history given by these convalescents did not point invariably to dysentery, but might have been construed in some cases as typhoid infections. We have now examined the serums of over 100 of these cases, the stools in all (except one) being negative as to *B. dysenteriae*, *E. histolytica*, and typhoid organisms. The technique was that described in the previous paper. Time limit twenty-four hours.

Determination of the Upper Limit of Agglutination of *B. dysenteriae* Shiga by the Serum of Normal Persons.

It has been generally held that agglutination of *B. dysenteriae* Shiga in a dilution of 1 in 50 is significant of infection, and the statement is probably in the main true, but such statements are unfortunately not accompanied by specifications of the time limit, the method employed, and the degree of agglutination at this dilution. We therefore decided to obtain the upper normal limit in a series of serums of normal persons (generally orderlies) who had never been out of the country, and had never

suffered from dysentery. Twenty-three such have been examined under the prescribed conditions, with the following result:

- 14 gave no agglutination whatever at 1 in 50.
- 3 gave a trace of agglutination at 1 in 50.
- 3 gave agglutination amounting only to one + at 1 in 50, but no agglutination at 1 in 100.
- 3 gave agglutination amounting to one + at 1 in 50, and a mere trace of agglutination at 1 in 100.

In no case was complete agglutination at 1 in 50 with normal serum obtained.

It was decided therefore to treat all reactions above "50 (+) 100 (trace)" as significant.

Results in 103 Convalescents, the Great Majority of whom gave a History of Dysentery.

- 24 gave no agglutination in 1 in 50.
- 12 gave a trace of agglutination in 1 in 50.
- 11 gave agglutination (+) in 1 in 50, but no agglutination at 1 in 100.
- 7 gave agglutination (+) in 1 in 50, and a trace of agglutination at 1 in 100.

The above (54) fell within normal limits. Of the remaining 49 cases—

- 15 gave agglutination with end point between 100 and 200. (Illustrative reaction, 50 (+++) 100 (+) 200 (0).)
- 19 gave agglutination with end point between 200 and 400. (Illustrative reaction, 50 (++++) 100 (+++) 200 (++) 400 (0).)
- 15 gave agglutination with end point beyond 400. (Illustrative reaction, 50 (++++) 100 (++++) 200 (++++) 400 (+++), 800 (+).)

We conclude, therefore, that 49 or 47.5 of the convalescents have suffered from bacillary dysentery (type Shiga).

Dr. Woodcock, parasitologist to the hospital, found 41 per cent of these cases showed in the faeces either one or more of the following protozoa—namely, *Lambia intestinalis*, *Trichomonas*, or *Entamoeba coli*. The positive Shiga agglutination cases were not found to be more liable to harbour the above protozoa than the negative Shiga cases.

REFERENCE.

¹ Ledingham, Penfold, and Woodcock, Recent Bacteriological Experiences with Typhoid Disease and Dysentery, BRITISH MEDICAL JOURNAL, November 13th, 1915.

METASTATIC ENDOPHTHALMITIS IN A CASE OF CEREBRO-SPINAL MENINGITIS.

BY

LIEUTENANT A. LEONARD WEAKLEY, R.A.M.C.,

OPHTHALMIC SURGEON TO A GENERAL HOSPITAL, ALEXANDRIA, EGYPT.

I shall the following case worthy of record for two reasons—(1) the way the threatened panophthalmitis was aborted; and the quick resolution of the inflammation, possibly due to the antimeningococcus serum; (2) the cultivation of a pure growth of meningococcus from the interior of the eye.

Private H., aged 19, had pneumonia on the transport during the voyage from Australia. He arrived in Egypt on September 28th, and was sent to a convalescent hospital.

He was well until October 9th, when he had severe headache, diarrhoea, and vomiting, with rise of temperature. On October 10th the headache was worse, he became unconscious, and was admitted to hospital. He then had all the signs of meningitis: head retracted, vomiting frequently, restless, and groaning; temperature 103°. Extensor response present, and also Kernig's sign. The eyes were apparently normal, except that the right pupil was noticed larger than the left; both pupils acted to light; there was no deviation.

On October 11th, lumbar puncture showed cerebro-spinal fluid under pressure, turbid, and clotting rapidly.

Bacteriological Report.—"Fluid frankly purulent, stained films show preponderance of polymorpho-neutrophils with numerous endothelial cells and a small intracellular Gram-negative diplococcus. Culture on Buchanan's medium shows a pure culture of a Gram-negative diplococcus, morphologically indistinguishable from the meningococcus of Weichselbaum."

October 12th. The left eye was noticed to be inflamed, and when I saw the case the same morning the lids were slightly swollen, there was slight ptosis, general injection of conjunctiva, episcleral oedema, cornea hazy, Descemet's membrane covered with thin yellowish film; anterior chamber deep, turbid, and iris covered with thick grey-yellow exudate; pupil contracted, inactive to light, and completely filled with exudate; no fundus reflex obtained; globe tender; tension slightly subnormal; vision bare perception of light. There was no proptosis, and ocular movements were full in all directions. There was no discharge from the conjunctiva, and no dacryocystitis. There was partial left-sided facial paralysis.

I diagnosed metastatic infection, and, deciding that there was

no urgent need for operation, ordered atropine 1 per cent. with cocaine 2 per cent. to be instilled and hot fomentations to be applied every three hours. The right eye was quiet; pupil active to light; fundus normal; vision good.

October 13th. The pupil was still firmly adherent and tension had become raised a little. Under cocaine and adrenalin anaesthesia I washed out the conjunctival sac with sterile mercury perchloride solution 1 in 5,000 and performed a paracentesis of the anterior chamber, removing some of the pus to a culture tube of Buchanan's medium. Treatment was continued as before.

Bacteriological Report.—"Culture on Buchanan's medium shows a pure growth of an organism morphologically identical with the meningococcus."

The next day the pupil started to dilate, and on October 15th had given for three-quarters of the circumference. On October 16th it was quite free and the anterior chamber was clearing; a thick ring of yellow exudate was left on the anterior capsule of the lens. The tension was about normal and vision perception of light. The facial paralysis had practically recovered.

The eye continued to clear under local and general treatment, and on October 20th the pupil was well dilated, episcleral swelling subsided; tension was about equal in both eyes, and both subnormal. Vision=hand movement. No fundus details could be made out, and only a yellow-green reflex obtained. On convergence the left eye already diverged. The local treatment was now dionine 0.0005 gram, atropine 1 per cent. every six hours, and fomentations as before. A culture taken from the conjunctival sac showed a growth of *Staphylococcus albus* and no meningococci.

On October 27th the eye was quieter; the pupil was dilated, with one small adhesion at ten o'clock. The anterior chamber was clear, the lens capsule nearly clear, the vitreous clearing; only greenish-grey reflex and gross floating opacities were made out. Vision was perception of light, and becoming worse. Atropine and dionine now only bare dilatation.

On November 1st the eye was quiet, the iris showed several snail-track-like grey eroded patches scattered around, the anterior chamber was clear and of medium depth, anterior part of vitreous fluid clear, and a large yellow-green mass was seen floating in upper quadrant; neither vessels nor disc could be seen. The tension was -1 and the vision perception of light, and the eye was apparently beginning to shrink. The general treatment has been to draw off 15 to 20 c.cm. of cerebro-spinal fluid from the lumbar region and replace with an equal amount of antimeningococcus serum about every two days, according to symptoms. The patient has steadily improved in general health, and is apparently now on the road to recovery.

THE DOMICILIARY TREATMENT OF PULMONARY TUBERCULOSIS.

BY

G. H. DART, M.D., M.R.C.P. EDIN., D.P.H. CANTAB.,

TUBERCULOSIS OFFICER AND ACTING MEDICAL OFFICER OF HEALTH, METROPOLITAN BOROUGH OF GREENWICH.

IN view of the fact that at the present time there is very little, if any, institutional means in most of the London boroughs for dealing with advanced cases of pulmonary tuberculosis—apart, that is, from the general hospital or infirmary—the question of how to deal with advanced cases in their homes is of the greatest importance.

London boroughs vary very much both in administrative schemes and in the character and variety of local agencies dealing with tuberculosis, but in a few respects at least the facts with regard to Greenwich may have some value for every borough.

It appears from a comparison between the number of deaths and the number of cases nursed in Greenwich that many more than half the patients who died at home did not receive skilled nursing attention.

The deaths from pulmonary tuberculosis numbered 129 during 1914 in Greenwich. Of these deaths, 50 occurred in Poor Law and similar institutions, 17 in hospital, and 62 at home. The number of cases nursed during 1914 was 46, and 24 of these cases died during the year. There are three district nursing associations in the borough, employing in all 12 nurses.

At first sight this return, as far as regards the places where death occurred, appears satisfactory, as more than 50 per cent. of the deaths have taken place in institutions. Also, although there were 62 deaths at home, 46 cases had nursing supervision, with its attendant prevention of the spread of infection. It appears, however, that many of the cases nursed were not among the deaths. Satisfaction with the return is also modified by the fact that many of the patients shown as having died in an institution in reality required nursing—many of them before entering

and many after leaving or before re-entering the institutions.

The leaving notifications (hospital and infirmary) during 1914 numbered 48. There were 24 deaths among these patients. Of these deaths 5 occurred at home, and 3 of the home deaths had the benefit of nursing. The remaining 19 deaths took place in institutions, and 2 of these patients during the period between their discharge and return were nursed.

These 19 returned patients are, of course, included in the 67 patients who died in institutions, and who, therefore, at the first glance, might be considered as not having needed nursing.

A patient who "takes his discharge" from an infirmary or hospital and becomes so rapidly worse that he dies within the year, in all probability requires home nursing, whether he dies at home or enters the infirmary to die. The large majority of institutional deaths take place in the infirmary.

These patients prefer, as a rule, to stay at home until desperately ill and leave the infirmary on the slightest pretext.

The result of this is placed on record in the Final Report of the Departmental Committee on Tuberculosis: "Infection is frequently disseminated by persons suffering from advanced pulmonary tuberculosis who are in the habit of entering and leaving Poor Law institutions, having regard merely to their own convenience, and not to the interests of their family or of the community in which they live."

Considering the advanced character of the disease in most cases treated in these institutions, it would probably, therefore, be nearer the mark if one considered all such cases in need of nursing after discharge. Certainly, if, as in Greenwich in 1914, 50 per cent. of these cases die during the same year, it is probable that the majority of the survivors have been during the year in need of attention.

If the 48 leaving notifications, minus the 5 patients that died at home, are added to the total 62 deaths at home, 81 per cent. of the total deaths will be found to have required nursing during 1914.

The greatest number of visits paid to a patient was 60. The average, obtained from the total numbers of patients and visits, worked out at 20 visits a patient.

The work cannot be carried out by dispensary nurses unless the number attached to the dispensaries is greatly increased. If for the purpose of estimating the number of visits required one takes, not the 81 per cent. mentioned above, but only 66 per cent., or, say, two-thirds of the deaths, at an average rate of 20 visits to each patient, the estimated number of visits would in many instances approach the number of visits actually paid by the nursing staff. As an illustration:

	Deaths.				N.	Visits.	
	Total.	P. L. I.	H.	D.		C. F.	A.
Paddington ...	156	42	35	79	664	2,925	2,080
St. Marylebone ...	149	87	15	47	526	2,219	1,986
Stepney ...	447	198	55	194	2,038	10,016	5,960

Total = Total deaths 1913. P. L. I. = Deaths in Poor Law institutions. H. = Deaths in hospital. D. = Deaths at home. N. = Primary pulmonary notifications. C. F. = Central Fund report visits paid. A. = Estimated visits to advanced cases.

To attempt the nursing from the dispensary of those who died at home, even if such a small number of visits as to average 20 per patient were paid, would in itself be sufficient to cripple the work in connexion with other than advanced cases.

The Greenwich Dispensary had not completed a full year in 1913. Throughout 1914 the nurses did not attempt any home nursing, even of bed-ridden patients who had formerly been dispensary patients.

Greenwich, 1914.	
Deaths ...	129
Primary pulmonary notifications ...	308
Visits paid ...	3,676
Visits estimated to two-thirds of the deaths at above rate ...	1,720

The deaths alone, moreover, give no indication of the

number of patients who survive for a more lengthy period, and who also require nursing during relapses.

If to the 62 home deaths were added the 22 nursed cases who survived the year and the 38 "leaving notifications," after subtracting the deaths at home and the number nursed from the total "leaving notification," the estimated number of visits to 122 cases would be 2,440. Perhaps if this number were doubled it might indicate, as far as regards last year's figures, the amount of work required in endeavouring to prevent the spread of infection by these cases.

At least two additional whole-time nurses would be needed at Greenwich if this work were to be attempted from the dispensary. The Greenwich Dispensary nurses visit all notified patients of every description, and the district nurses are informed of those cases requiring home nursing. The dispensary nurses were formerly Ranyard nurses, and are in close touch with the Ranyard Association.

In spite of this, however, it is evident that a considerable number of cases do not receive adequate attention, and many no attention at all. Some of the patients move out of the district of the particular nurse who has been in attendance. Many patients who receive nursing aid recover to some extent and ask the nurses to cease calling; a later relapse is followed by a call for the doctor, but not for the nurse; and, from the point of view of prevention, careful nursing of these cases is of much greater importance than medical aid. Careful nursing, backed up by medical authority, is essential. Both for the sake of the patient and of the community domiciliary treatment should always include skilled nursing in addition to medical advice. Many other patients refuse help from the nurses, or other members of the family object.

A closer connexion between the nursing associations and the public health administration might obviate some of these difficulties, and arrangements to this end are now under consideration in Greenwich. Perhaps the most desirable arrangement would be that the actual nursing of a patient receiving domiciliary treatment should be carried out by a nurse from the dispensary appointed to deal with advanced cases, and that a health visitor should keep the case under observation when actual nursing was not required, all, of course, under medical supervision.

Since it is generally accepted that "there can be no manner of doubt that the far advanced or dying cases constitute the greatest source of infection," it follows that any scheme for the prevention of tuberculosis which does not deal adequately with these cases will fail in its object.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

WOUND DRESSING.

Should a wound arrive in a very foul condition it should not be covered with a dressing directly applied. A patty pan, having a hole about the size of a shilling punched through its centre, should first be placed over the wound. Patty pans cost 2d. or 3d. a dozen at the ironmonger's, and can be bent by hand to the shape of the part. They have rolled-over edges, and lie smoothly and comfortably on the sound skin remote from the wound. Dressings are applied outside the pans. Nothing, therefore, touches or blocks the wound itself, and discharges freely flow into the hollow of the pan and its covering dressings. When desirable the pan is held in place by one or two strips of strapping passing across its edges. All the discharge will be found in the hollow of the pan and the dressings, and practically none in the burrows of the wound, at the subsequent dressing. The pan can be boiled and used again.

A wound should be syringed out from the bottom if it extends deeply. To this end the ordinary syringe nozzle should be replaced by 6 in. of thin copper tubing, say $\frac{1}{8}$ in. in diameter. For convenience the tube should be bent near its screw attachment through an angle of about 60 degrees and its free end rounded with a little solder.

For syringing, as a general rule, hypochlorous acid, the 2½ per cent. solution of Professor Lorrain Smith and his coadjutors (eusol), should be used, and the wound dressed

by applying a pad of gauze moistened with eusol, and folded to the size of the wound treated. This is covered by a similar pad of wet wool, which holds liquid better. Over this should be placed a piece of waterproof tissue, slightly larger than the dressings beneath. Finally, a good pad of cotton-wool should be applied, extending well beyond the waterproof tissue, especially below it in the line of drainage. The size of the waterproof tissue is not unimportant as it determines that of the wool which has to project beyond it sufficiently far to absorb any discharges escaping from beneath the impervious material. In war especially economy is a virtue, and the effort to attain it encourages attention to detail. Thus treated, a wound should be clean and healthy in two or three days, if free from any foreign body or dead bone.

The best waterproof tissue procurable can be made by any one for 6d. a square yard, about one-fourth the usual price. I buy a length—say 30 yards—of "madapolin" (a thin strong calico) 42 in. wide, at 4½d. a yard. I tear it into yard lengths, and dip a piece at a time into cold boiled linseed oil. This I wring out by hand, and wipe off any surplus oil from the twisted mass and my hands with the yard of dry madapolin next to be treated. The oil-soaked piece is hung up on a horizontal wire by three safety pins, and the following day is hung the reverse way up. A second reverse is generally desirable. The whole dries in a week in an open shed, or in about ten days in a garage in winter.

The hospital of 200 beds with which I am connected uses little else to cover wet dressings or protect splints since I introduced it. The same piece is commonly used repeatedly, as it stands scrubbing well.

D. W. SAMWAYS, M.D., D.Sc., M.R.C.P.

Topsham, Devon.

SODIUM SULPHATE IN DYSENTERY AND INFANTILE DIARRHOEA.

IN the JOURNAL of November 13th Dr. Penfold refers to the discovery of the *B. dysenteriae* (Flexner) in two cases of infantile diarrhoea under his care and to its recognition by others in similar cases. I have for several years regarded infantile diarrhoea as so closely allied to pure bacillary dysentery in children that I have invariably submitted them to the same treatment.

This consists, briefly, in the administration of sodium sulphate in doses, for children under 1 year, of 5 to 15 grains every two or three hours. A preliminary dose of castor oil is valuable in all cases. Milk is generally excluded from the diet for a few days. Under this treatment the mortality from this disease in my own practice has been reduced to an almost negligible percentage.

In the cases of dysentery occurring amongst the Mediterranean Forces, failure to find any one special bacillus as a causative agent appears to have been frequent in laboratories, owing probably to the bacteriological examination being made after the disease has existed for some time, as the dysentery bacilli very quickly are crowded out by other intestinal species. Experience of bacillary dysentery in the tropics has convinced me that the administration of bismuth and opium should be avoided, and that the treatment by 1-drachm doses of sodium sulphate every hour or two is to be preferred to every other. The frequency of dosage is modified as the pain and tenesmus lessen, and the character of the stools, as shown by the disappearance of blood and mucus, improves. The drug should be continued for some time after the stools have become entirely free from a trace of blood or mucus. No harm, but rather good, will result from the patient having three or four loose stools daily.

Both amoebic and bacillary dysentery respond at once to this treatment, but should amoebae be found later in the stools emetine should, of course, be administered. It is unnecessary otherwise. The earlier the treatment is adopted the more quickly and completely patients will recover.

W. J. J. ARNOLD, B.A., M.B., D.P.H.

THE Royal Dental Hospital, Leicester Square, has received a donation of £2,000 from the trustees of the late Miss Harker-Smith. The Chelsea Hospital for Women has received a legacy of £1,000 bequeathed by the late Mr. John Samuel White.

Reports of Societies.

THE WORK OF A CONSULTING SURGEON WITH THE BRITISH FORCE IN FRANCE.

A SPECIAL meeting of the Ulster Medical Society was held on December 21st, 1915, in the Medical Institute, Belfast, under the chairmanship of the President, Dr. GARDNER ROBB, to hear an address by Colonel ANDREW FULLERTON, one of the Consulting Surgeons to the British Expeditionary Force in France, on his experiences of war surgery. Colonel Fullerton received a hearty welcome on rising, and, after a few introductory remarks, proceeded. The work of a consulting surgeon, he said, varied according to whether he was placed in charge of a number of casualty clearing stations or of base hospitals. His own experience was that of a large base with a considerable number of stationary and general hospitals. These hospitals or units were in charge of a commanding officer, usually of the rank of lieutenant-colonel, with a major as second in command. The commanding officer was responsible for everything connected with his unit. There were attached to each hospital one or two surgical specialists, and, generally, several junior surgeons and physicians, as well as x-ray specialists and pathologists, the whole forming a first-class hospital, comparing favourably with some of the best general hospitals at home. The surgical specialists were highly qualified surgeons, and the work done by them was of a high order, and reflected great credit upon the service of which they were temporary members. Most of the regular R.A.M.C. officers were doing administrative work, but several of those who were surgical specialists before the war were retained in their positions. The work of these officers also was of a very high order. The x-ray work was good, and in one or two hospitals was as near perfection as could be. The help given by the pathologists in every case in which it had been sought had been of inestimable value.

It would be readily understood that every day cases cropped up in which a second opinion was desirable or necessary, and Colonel Fullerton said that the system of consultants worked with the utmost smoothness in his area. The more competent the surgeon, the more desirous he was of talking over his difficult and dangerous cases with the consultant. Cases were constantly arising in which it was desirable that the consultant should himself operate, and every facility was placed at his disposal for the discharge of this duty. The consultant was, in fact, responsible for all the surgical work done in his district, and he was usually fortunate in the officers over whom he had supervision.

Colonel Fullerton said that he had had the opportunity of seeing the work of the field ambulances and the casualty clearing stations, and traced the progress of the wounded man from the firing line to the base. He paid a high tribute to the wonderful organization of the R.A.M.C., which had covered itself with glory in its fight with injury and disease. Nothing could exceed the smooth working and efficiency of the organization which transferred the wounded soldier from the trenches to the base or the hospital ship. The wounded soldier himself was loud in his praise of the officers, orderlies, and nurses, who took care of him from the moment he was carried in from the field until he was safely deposited, warm, well fed and clothed, in his hospital bed.

Colonel Fullerton then went on to speak of the surgical work carried on in his own district, and illustrated his remarks by a large series of lantern slides. Some of the x-ray photographs were of a high degree of excellence, and reflected great credit on the x-ray specialists. In connexion with injuries to the head, he stated that the War Office, recognizing that special work in this department would be invaluable to the army, had appointed two distinguished neurologists—physician and surgeon—as consultants in this branch of surgery, with the happiest results. Sepsis in brain surgery—as, indeed, in all branches of war surgery—was the bugbear of the surgeon, and required even more attention than operation. Deep searching for foreign bodies in the brain was discouraged, and a bullet that was causing no symptoms was left alone if not easily accessible. Excision of the septic wound, as far as possible, was carried out with good results.

Persistent hernia cerebri was treated by lumbar puncture or decompression operations.

The knee-joint was one of the greatest trials of the military surgeon. If the patella were shattered it ought to be removed. If the lower end of the femur or the upper end of the tibia were badly comminuted it was probably better to amputate at once above the knee. The question of the removal of foreign bodies from the knee-joint was a difficult point. Rough particles, like shell and bullet casing, had probably carried in bits of soiled clothing with micro-organisms, and were better removed, but each case must be considered on its merits, and the judgement and experience of the surgeon would often be taxed to decide on the proper procedure. Swollen septic knee-joints, with no fracture and no retained foreign body, offered a problem requiring abundant experience, and he had made it a point to see every available case and watch its progress. He had come to the conclusion that indiscriminate draining of knee-joints with tubes was a mistake. Fixation, excision of the wound, aspiration and washing out with saline, aspiration and injection of such substances as ether, formalin, and glycerine, etc., simple incision without the use of a tube, packing of the joint with gauze, laying open the joint by turning back the patella, with, perhaps, full flexion of the joint, were all measures useful in different cases. Failing benefit from these, amputation was the only resource.

In the hip it was occasionally necessary to remove the head of the bone in order to drain the joint, and he described several cases in which life had apparently been saved thereby. In the shoulder and elbow excision had been followed by good results.

The means employed to immobilize fractures, as used in France, were described, and it was said that the main objects the surgeon had to keep in view were fixation, drainage, and sterilization of the wound. The last was the most difficult, and in some cases was impossible.

Finally, slides showing the splints in general use in France were exhibited, including Major Sinclair's apparatus for suspending limbs in splints, and Captain Bryan's segmented suspension bed for the treatment of patients with wounds in the back, buttocks, etc.

Opinion in France was divided as to the best antiseptic. Wright's hypertonic saline was lauded by some, esol by others, while a third set of surgeons had almost lost faith in antiseptics, though they were willing to try anything that might be suggested. While micro-organisms were easily enough killed in a test tube, the problem of their destruction in the tissues was quite another matter.

A very hearty vote of thanks to Colonel Fullerton for his address was suitably proposed by Professor Sir JOHN BYERS, seconded by Dr. J. WALTON BROWNE, supported by Mr. A. B. MITCHELL, F.R.C.S.I., and enthusiastically passed.

Reviews.

FEEBLE-MINDEDNESS.

DR. GODDARD has been for some years Director of the Research Laboratory of the Training School for Feeble-minded Girls and Boys at Vineland, New Jersey. There free from the routine work of administration and from the medical treatment of the patients, he has organized a school of research, and his book on *Feeble-mindedness* is in the nature of a report on the work of the laboratory staff of the first five years in an attempt to discover the causes of feeble-mindedness from an examination of the 327 cases in the institution. It is not claimed that the report is complete, but rather that it is a preliminary statement of results.

As regards the consequences arising from mental defect, the writer opens with a working hypothesis which he states as follows:

There are all grades of responsibility from zero to the highest; and there are all grades of intelligence from practically none up to that of the genius or the most gifted. Responsibility varies according to the intelligence. Responsibility and normality of intelligence are relative to the environmental conditions.

¹ *Feeble-mindedness: Its Causes and Consequences.* By H. H. Goddard, Ph.D. New York: The Macmillan Company. 1914. (Demy 8vo, pp. 611; illustrated. 17s. net.)

Responsibility can be measured by measuring the intelligence, and knowing the degree of responsibility we know how to treat.

The defect of function is due to incapacity, not to a failure of will.

It is, however, in the question of the application of the Mendelian law to the problem of mental deficiency that the interest of the book mainly centres, and to this our principal attention may be devoted here.

The greater part of the book—nearly 400 pages—is occupied with a record of cases; these are admirably described and freely illustrated with photographs of the individuals and examples of things written or drawn by them. Each case record is accompanied by a chart giving the information as to the condition of other members of the family, obtained from relations or the family doctor and supplemented by the personal inquiry of field workers—that is, ladies specially prepared for the work who have gone to the home and personally followed up all available sources of information. These charts are one of the distinguishing features of the book; another is the fact that the cases are not selected but comprise all those residing in the institution; and the third is the mode of classification of this material.

The main grouping is on the basis of probable causation. The causes assigned are: (1) Feeble-minded heredity; (2) neuropathic (as opposed to feeble-minded) family conditions; and (3) accident. There are some cases for which no cause can be discovered and a few which cannot be classified; but a large majority are, on the strength of the evidence supplied by the family history charts, grouped as hereditary or probably so—namely, 198 out of 327. Within the groups the cases are arranged in order of their so called mentality; by this is meant the result obtained by the application of a Binet test, which gives an approximate measure of the intellectual endowment of the individual. The intellectual age of the cases thus estimated ranges from correspondence with that of a child of 12 (of which there is one example), down to the condition of an infant 1 year old. The whole constitutes a storehouse of valuable material, well worked out and conveniently arranged.

Several chapters follow in which the data provided by the charts are tabulated and discussed, mainly from the point of view of causation, and concluding chapters are devoted to eugenics and practical applications. As to the general tendencies of these and the main conclusions reached, we may for the most part agree with the author, especially as in the main they do not differ materially from the conclusions reached by other writers on grounds less fully elaborated. This applies in particular to the predominating influence of heredity in the causation of defect, and similarly in regard to the effects of environment, alcohol, criminality, syphilis, consanguinity, etc., and undoubtedly the facts and figures here arranged give additional strength to the conclusions arrived at.

The author himself admits that the data are incomplete, and asks us not to look for mathematical accuracy in a field like this: "The physician who waited until the facts on which he bases his diagnosis were absolutely proved would often wait until the patient was dead." With this we agree, and for most practical purposes the general conclusions pointed to may be, if they are not already being, acted upon. But when we are asked to formulate precise scientific doctrines as to the working of inheritance we are in no such urgent hurry, and we can afford to wait until the facts on which we build are clearly ascertained.

Dr. Goddard disclaims at the outset any preconceived opinions, though admitting the existence of impressions and feelings that he and his workers would find such and such things. It was therefore highly important that the evidence and the conclusions drawn from the evidence should be kept most rigidly apart. One cannot help regretting, therefore, to find such expressions as the following: "The best evidence of accuracy in the data will be discovered by a study of the charts themselves and the figures that have been compiled from the charts." This seems to betray a confused attitude towards scientific accuracy, and confidence is not restored on reading in one of the introductory chapters: "It is perfectly clear that if both parents are feeble-minded all of the children are feeble-minded. This being true, we had a right to mark all of the children on our first chart

in this case feeble-minded, since both parents are in this condition. But we have never done this." The mere suggestion that in a piece of inductive work such as this aims to be it might be considered right to modify the data in accordance with conclusions deduced from the material under examination is, to say the least, startling. Again, why should the fact that a father was entirely unknown to his wife's family be regarded as laying his mental condition under suspicion? So, too, in an investigation of this kind one has no right to invoke the type of the child as evidence of its hereditary origin. Again, why should a writer who takes a purely intellectual standard of deficiency attach importance in the charts to the fact that an individual was ugly or of a heartless disposition?

In the three chapters devoted to the Mendelian theory in relation to feeble-mindedness, the figures obtained from the data are analysed on the hypothesis that feeble-mindedness is a recessive Mendelian unit-character due to the absence of a determiner for normal mentality. We are practically all agreed that defect is to a very great degree inherited in some way or other; many also are disposed to accept the view that intelligence comprises both a general factor on the one hand and various special factors on the other; but the adoption of the view that mental deficiency can be regarded as a unit-character obedient to Mendelian laws carries with it difficulties and implications which demand for its acceptance full and positive proof.

As an example of implications that flow from the idea of a unit-character, the presence of other characters, which will, *ex hypothesi*, be inherited independently, can have no bearing on the feeble-mindedness unit; thus it would not be fair to count sexuality, ugliness, epilepsy, bad disposition, melancholy, migraine, or alcoholism in an individual as if they had a bearing on the transmission of mental defect. Hence the noting of such facts as that a person in the charts "committed suicide," or "was killed in a railway accident," must not be allowed to affect the consideration of this point however interesting they might be from other aspects.

On turning to the figures, it is found that an examination of the various matings recorded in the charts of the cases which the writer has placed in the hereditary group shows that there were 144 examples of a defective mating with a defective, while the records show that 65 per cent. of the offspring are known to have been defective, and only 0.8 per cent. are known to have been normal; this is sufficiently near to the requirements of the Mendelian law that all such children must be defective, that we may let it pass with the remark that it is the result that would be anticipated by almost any theory of heredity, and whether the defect were a unit-character or no.

When the writer comes to deal with matings of other types he finds 324 out of 1,345 that can be used for his purpose. He then says: "When both parents are duplex all of the children must be normal. Of course we have nothing to do with this type of mating in a defective family." This appears to beg the question at issue. There are numerous matings recorded between normal persons with nothing in the facts to show whether they are duplex or simplex—that is, whether they do not or do carry a latent strain of defect.

The method adopted in dealing with these and other types of mating is "to assume the law, then see if the conditions as we find them can be accounted for on this assumption." "There have been two methods of determining the simplex inheritance of the parents; in some cases it has been the study of the ancestors, in others it has been the condition of the offspring." Here again the writer seems to be unaware that this is simply begging the question and making uncertain data conform to requirements, instead of checking them by further investigation of the facts.

On an examination of sixty-four charts—Nos. 133 to 197—which are included in the Hereditary and Probably Hereditary groups, we find thirty-seven matings in which one of the parents is normal and the other either defective or of undetermined mentality, and to which at least one feeble-minded child has been born. For this to be in accordance with Mendel's law it is necessary that the normal parent should have latent mental defect. For a pure duplex normal would have no patently defective children in the first generation. In none of these cases is there any evidence in the data to show that these normal

parents carried any defective strain. These matings are not all included in those analysed, but wherever it is necessary for the author to assume a latent defect this is done, on the presumption that latent defect may be taken for granted in half the cases. In the same charts there are 10 cases also in which a feeble-minded child is recorded to have normal or probably normal parents, in regard to whom there is no evidence that both are simplex, as required by the law.

The author confesses to being one of those psychologists who find it hard to accept the idea that the intelligence ever acts as a unit-character, but he finds no way to escape the conclusion of the figures. May it be suggested that the best defence against the figures lies in the facts? What is wanted is further "field" work to test the assumptions made. For our part we feel bound to suspend judgement till this is done.

THE PHYSIOLOGY OF THE EMOTIONS.

The eight papers which Professor CRILE has brought together under the title of *The Origin and Nature of the Emotions*,² deal with as many at first sight distinct subjects, but the underlying unity of aim is not far to seek. There is, as was inevitable, a certain amount of overlapping and reiteration, but, inasmuch as each essay reveals a new aspect and a broadened application of the main principles which the author seeks to establish, the book loses nothing of interest on that account. Professor Crile has devoted many experiments and much thought to the problem of shock, which he has come to regard as a state of exhaustion of the brain centres caused by impulses entering the system through the receptors for pain, which Sherrington designates "nociceptors." He finds that the abdomen and chest when traumatized stand first in facility for causing this discharge of energy, that is in shock production, being followed by the extremities, the neck and the back, while the brain and other protected parts give no such response. This suggests the natural selection of regions much exposed to injury from without as sites for nociceptors, as the discharge of energy which culminates in shock is previously available for purposes of flight or resistance; "the greatest shock," he says, "is produced by any technic which imitates the method of attack and of slaughter which is used by carnivora." He finds that armoured animals are comparatively immune to both shock and fear, and that in general proneness to fear, distribution of nociceptors, and susceptibility to shock go hand in hand. The nerve-muscle reactions which, preceding the exhaustive stage (shock), follow stimulation of nociceptors are specific and purposive. In the case of civilized as contrasted with savage man, direct reaction to injury or to disturbing conditions in general is, however, subject to all sorts of restraint. Emotion the author regards as a state in which the resources of the organism are mobilized for an action which cannot or does not ensue. Such an action would be specific to the stimulus and racial in origin—"a phylogenetic fight is anger; a phylogenetic flight is fear; a phylogenetic copulation is love." To us it seems that these are mere feelings, comparable to those of caged animals, and that the difference between such feelings and the distinctively human emotions is qualitative, not a mere matter of degree. In emotion there is, or may be, a leaven of ideality, for which, *pace* Professor Crile, no mechanistic explanation can conceivably suffice. It is surely characteristic of the emotions that they energize the intellect and will, and are not limited to self-regarding modes of expression. But, then, Professor Crile does not believe in intellect or will otherwise than as products of an all-creative environment. In one of these papers, entitled "A mechanistic view of psychology," he asserts roundly that "if the full history of the species and of the individual could be known in every detail, then every detail of that individual's conduct in health or disease could be predicted." Such statements are as easy to make as they are impossible either to refute or substantiate.

Space forbids more than mention of the interesting and suggestive sections which deal with headache and other

pains in certain forms of infection, the clarifying functions of laughter and weeping, the relation of acidosis and hydrogen-ion concentration to anaesthesia or death. But we would call special attention to the address on the kinetic system, in which evidence is adduced that, in regard to the production and output of energy, the stress of life is shared by a chain of organs consisting of the brain, the adrenals, the liver, the muscles, and the thyroid gland.

This thought-provoking volume cannot fail to enhance its author's already high reputation as a physiologist, and will be read with pleasure not only on account of the value of its matter but also for its picturesque force of style.

EMBRYOLOGY.

In his *Manual of Embryology*³ Professor PATERSON has evidently sought to set before the student the fundamental facts of this science in as simple a fashion as possible. Minutiae have been rigorously excluded wherever this could be effected without injury to the conception which the student should possess of embryological processes. Further, the facile pencil of the author has been pressed into the service, and a large number of simple and ingenious diagrams help the student in his progress through the text. In a book of this character there must necessarily be omissions; there is little room for theories, while all doubts are hidden under a vigorous didacticism, as, for example, in the account of the developmental changes occurring in the region of the cloaca. Such features are, however, part and parcel of the book, and were, no doubt, intentionally selected, the author's aim being to give the medical student a fair and complete working idea of the subject in the short period available in the curriculum for its study. If the book is open to any criticism it is that for the sake of simplicity there is at times a somewhat unnecessary sacrifice of reality, and we think that if the author were in a future edition to replace some of the diagrams with figures drawn from nature he would increase very considerably the value of the book. We would suggest that in Fig. 27 the embryonic stalk should be shown, and that in Fig. 263 anachronisms might be avoided. In a number of the diagrams dealing with the chorion, the venous sinuses appear between the chorion and decidua instead of actually within the latter. These are, however, small blemishes, and do not seriously detract from the solid virtues of the book. Within his self-fixed limits the author has, in our opinion, given us the most concise and clear account of the subject in our language, and the book can be warmly recommended to the hard-worked and over-driven medical student as a book which is likely to mitigate both his labour and distress. While the book is primarily a book for students, both its plan and its diagrams will afford teachers of the subject no little assistance in the arts of arrangement, compression, and simplification.

In his *Laboratory Manual and Textbook of Embryology*⁴ Professor PRENTISS has supplied us with a book which has as its special feature an account of a method of dissecting pig embryos, with descriptions and illustrations of the dissections. With these are given for comparison dissections of reconstructed wax models, the result being that the student obtains the clearest possible conception of the changes which occur during, at any rate, the later stages of development. In addition to this special section, the author gives a clear and concise account of the development of the human embryo and of the more important stages in the development of the chick embryo. The book is excellently illustrated, and although the majority of the figures are borrowed from other works, quite a considerable number are original, drawn from specimens in the collection of the North-Western University Medical School. The book is of convenient size, and gives the medical student, for whom it is specially designed, all the information he requires. To him, as well as to the research worker, the book can be warmly recommended.

² *The Origin and Nature of the Emotions*. By G. W. Crile M.D. Miscellaneous papers, edited by Amy F. Rowland, B.S. Philadelphia and London: W. B. Saunders Co. 1915. (Med. 8vo, pp. 240; 76 figures. 13s. net.)

³ *Manual of Embryology*. By A. Melville Paterson, M.D. F.R.C.S. London: H. Frowde, and Hodder and Stoughton. 1915. (Cr. 8vo, pp. 401; 304 figures. 10s. 6d. net.)

⁴ *Laboratory Manual and Textbook of Embryology*. By C. W. Prentiss, A.M., Ph.D. Philadelphia and London: W. B. Saunders Co. 1915. (Sup. roy. 8vo, pp. 400; 368 figures. 17s. net.)

A STRAIGHT TALK FOR ADULTS.

NOVELISTS who set out to write novels with a purpose and a lesson to teach may be divided into two classes—those, namely, who appeal to the reading public by the excellence of their art, and those who rely rather on the extravagant violence of their statements. As obvious examples of writers of the first class may be mentioned Charles Reade, author of *Hard Cash*, and Mrs. Harriet Beecher Stowe, author of *Uncle Tom's Cabin*; both these novels had intrinsic literary merits to account for their success. As an instance of novels of the second of the two classes mentioned above, a recent American production by UPTON SINCLAIR may be quoted, *Sylvia's Marriage*,⁵ in which the author sets out to expose the alleged extent to which venereal disease is prevalent in the United States, and how this alleged prevalence is to be combated. Like certain other popular American authors, Upton Sinclair is a red-hot writer with the utmost violence of thought and expression at his command, when he so desires it; when he adopts the style of the shilling shocker, as in the present instance, he undoubtedly succeeds in giving the reader at least a guinea's worth of shock for his shilling. In *Sylvia's Marriage* the cruder aspects of gonorrhoeal disease are forced upon the reader as they strike a hard-bitten self-educated American divorcee of 47. The author quotes, and appears to endorse, the statement that 85 per cent. of the pick of America's young manhood are infected with some venereal disease while at their universities, and that "this is what is going on" "in every prep-school dormitory in America." In the pages of this novel we are introduced to mothers who encourage their sons to intrigue with mulatto girls; to medical men who do not recognize ophthalmia neonatorum when they see it, and have the strangest ideas of professional secrecy; to a state of society where temperance and continence are apparently unknown to the young men. Whether such exaggerations as these serve any useful purpose seems to us more than doubtful. No sensible person wishes to deny the existence of the social evils caused by venereal disease at the present time; but is it to be believed that any good will result from discussing their coarser aspects in stentorian tones from the house-top? The author appears to imagine that vice in the male will be lessened by instructing females in the grosser of its evil effects. To this proposition we cannot assent.

NOTES ON BOOKS.

HIS many admirers will welcome the volume of addresses which Sir DYCE DUCKWORTH has published under the title of *Views on Some Social Subjects*.⁶ Medicine occupies an intermediate position between the spheres of thought and action. This makes it, however, in many ways more conducive to the development of a philosophical temper than a life purely devoted to either. There is a good deal of truth in the saying that "Lookers on see most of the game." Yet medicine has always proved herself a jealous mistress—was it not on her behalf that a Master complained of the brevity of life?—and perhaps this accounts for the fact that very few of those who have risen to the top of the professional tree have done really great things in literature. For Sir Dyce Duckworth the writing of these addresses has evidently been a pleasant by-activity. After reading one or two of them one knows in advance what the author's verdict will be on the remaining topical controversies indicated in his list. He is always strong in his allegiance to authority and tradition. In dealing with the alcohol question he is for temperance, not abstinence; recalcitrant woman is gently but firmly assured that public affairs are no concern of hers; he will not concede any substance to the attacks made upon formal religion by representatives of the higher criticism, and of science. All is calm, sane, orthodox; but no better book could be recommended to any intelligent layman who wished to make a psychological study of the strength as well as the limitations of a typical professional mind. The opening address, "Knowledge and Wisdom in Medicine," is one of the best and most characteristic, but it is disconcerting to find the author, on p. 31, apparently identifying wisdom and

"strong commonsense." Doubtless the verdicts of wisdom and commonsense will concur more often than not; none the less, on many occasions and on questions of vital moment they have been opposed. As expressions of the author's own wisdom, based on something deeper than commonsense, these addresses sound a useful note of warning to an age seething with revolutionary ideas.

So many misconceptions are abroad as to the real aims of the movement inaugurated by the late Sir Francis Galton that it is highly desirable that the general public should be enlightened thereon, and Dr. SALEEBY in *Progress in Eugenics*⁷ has produced a manual which cannot fail to be of considerable service. He recognizes three departments of eugenic endeavour—positive, negative, and preventive. The first of these is concerned with the encouragement of worthy parenthood, the second with the discouragement of unworthy parenthood, and the third with the protection of all parenthood from the racial poisons—for example, venereal disease, lead, alcohol. The antithesis of "nature" and "nurture" of which we hear so much is for all practical purposes false; it is useless to provide for the birth of healthy children if we take no steps to secure their remaining healthy after they are born. Another fallacy is that which regards slum life as a defensible phenomenon inasmuch as its conditions are supposed to favour the elimination of the "unfit." For the survivors are assuredly damaged, and the moral and physical welfare of the entire community are impaired by the contagium of which every slum centre is a fruitful source. Dr. Saleeby's book has grave faults of manner; he writes too often in an *ex cathedra* tone which irritates the reader by its tacit suggestion that he is in a state of culpable ignorance upon matters as to which the author alone is in a state of grace. This is the more regrettable as it tends to create some prejudice against a book which is fundamentally sound and meritorious.

⁷ *The Progress of Eugenics*. By C. W. Saleeby, M.D., Ch.B., F.R.S., F.R.S.Edin. London and New York: Cassell and Co., Ltd. 1914. (Demy 8vo, pp. 263; illustrated. 5s net.)

NEW YEAR HONOURS.

THE following are among the members of the medical profession mentioned in the New Year honours:

K.C.M.G.

Surgeon-General Sir James Porter, R.N., M.D., K.C.B., Honorary Physician to the King, late Director-General, Medical Department, R.N.

Temporary Surgeon-General Sir William Watson Cheyne, Bt., R.N., M.B., C.M., Honorary Surgeon-in-Ordinary to the King.

K.C.V.O.

Surgeon-General Sir Anthony Bowlby, K.C.M.G., F.R.C.S., Surgeon-in-Ordinary to the King.

Knights.

George Andreas Berry, M.B., F.R.C.S.Edin., Honorary Surgeon-Oculist to H.M. the King in Scotland, Consulting Ophthalmic Surgeon Edinburgh Royal Infirmary, Ophthalmic Surgeon 2nd Scottish General Military Hospital, and ex-President of the Royal College of Surgeons of Edinburgh and of the Ophthalmological Society of the United Kingdom.

Thomas Wright Parkinson, M.D.Edin., Physician to H.R.H. Princess Louise of Battenberg and to Admiral Prince Louis of Battenberg. He is also the Prime Minister's family physician. He is a New Zealander by birth, and in his student days at Edinburgh was well known as secretary of the Australasian Club.

Milsom Rees, C.V.O., F.R.C.S.Edin., Laryngologist to the King and Queen and also to Queen Alexandra.

Dr. Rai Kailash Basu Bahadur, C.I.E., a member of the Municipal Corporation of Calcutta.

C.M.G.

Surgeon-General Guy Carleton Jones, Director of Medical Services, Canadian Expeditionary Force.

C.B.

Temporary Surgeon-General Humphry Davy Rolleston, M.D., F.R.C.P., R.N., Consulting Physician to the Royal Naval Hospital, Haslar.

Lieutenant-Colonel William Westropp White, I.M.S. Fleet Surgeon Arthur Gaskell, R.N.

Surgeon-General William Henry Norman, R.N., C.I.E.

Dr. John Andrew Turner, Executive Health Officer, Bombay Municipality.

Dr. Suresh Prosad Sarbadhikary, of Calcutta.

Lieutenant-Colonel Robert Charles MacWatt, I.M.S., Chief Medical Officer Rajputana and Civil Surgeon, Ajmer.

M.V.O. (4th Class).

Staff Surgeon Robert Joseph Willan, R.N.V.R.

⁵ *Sylvia's Marriage*. By Upton Sinclair. London: T. Werner Laurie, Limited. 1915. (Cr. 8vo, pp. 211. 6s.)

⁶ *Views on Some Social Subjects*. By Sir Dyce Duckworth, Bt., M.D., LL.D. London: G. Allen and Unwin, Ltd. 1915. (Demy 8vo, pp. 320. 7s. 6d. net.)

LEPROSY AND LEPER HOUSES.

THE history of leprosy in Great Britain—and, indeed, throughout Europe—forms one of the most remarkable chapters of epidemiology.



Monogram of Abbot Beere.

For several centuries it was so widespread and the cases so numerous that the disease seized on the public mind, leading on the one hand to a great dread of it, which caused the enforcement of restrictions on the leper which were often cruel, consigning him to a living death; and, on the other hand, to a great outburst of benevolence which sought to mitigate the misery of the sufferers in their isolation by establishing homes in which they could live in some sort of comfort. No doubt diagnosis was not always accurate, and cases of other chronic diseases, such as joint and gland tuberculosis, lupus,

and even psoriasis, may have been involved, but this does not explain the remarkable disappearance of the disease, rather it makes the explanation more difficult.

Dr. Mercier devoted his last course of FitzPatrick Lectures before the Royal College of Physicians of London to leper houses and mediaeval hospitals. He has published the two lectures in a pamphlet¹ which contains a great deal of information and some interesting discussion.

Leprosy existed in this country in Saxon times, and the oldest leper house, still existing as a charity, appears to be St. Oswald's Hospital at Worcester, founded by Bishop Oswald in 992. Dr. Mercier thinks, judging from the number of leper houses founded, that the disease reached its height in the second half of the twelfth century. In the first half of that century there were founded at least 46 hospitals, of which 24 were leper houses; in the following fifty years, at least 120, of which 56 were for lepers; in the thirteenth century, 240 hospitals, of which 75 were leper houses; and in the first half of the fourteenth century, 111, of which 42 were leper houses. In that century leprosy began to decline—a fact which Dr. Mercier associates with the Black Death, which swept the country in 1348-9. With the disappearance of leprosy the endowments of the leper houses either disappeared or were devoted to other charitable purposes. One of the oldest leper houses in England, the fabric of which still exists and is used for charitable purposes, is the Hospital of St. Margaret, Monkton, just outside Taunton on the London road. It is a long, low, narrow structure, consisting of seven distinct tenements, each with a staircase communicating with the room above; the walls are of stone, faced, for the most part, with plaster, and have a high-pitched thatched roof. The first and last tenements stand out in advance of the five middle ones, but the roof is

carried on continuously from one end to the other; the middle part is supported on thirteen wooden posts, rising from a parapet wall and thus forming a kind of cloister, out of which doors open to the several apartments now in use as almshouses. According to the researches of the Rev. Thomas Hugo, published in the *Proceedings* of the Somersetshire Archaeological and Natural History Society for 1871, the charity was probably established about the middle of the twelfth century, for it is mentioned in an undated charter which must have been granted between the years 1174 and 1185. During the second half of the thirteenth century it received endowments from Thomas Lambright. It was at that time a dependency of the Abbey of Taunton, which appointed the chaplain of the hospital; it appears always to have been a small and poor institution, and possibly for this reason it was permitted to continue its charitable work down to the dissolution of the monasteries. When it was burnt down, early in the sixteenth century, it was rebuilt by Richard Beere, Abbot of Glastonbury, who inserted in the front wall a panel with an escutcheon bearing his initials, surmounted by a bishop's mitre. During the reign of Henry VIII it was still called the Spital House, and in 1548 housed "vj poore lazare people." Apparently about this time all the property was confiscated and sold. Mr. Hugo finds no evidence that the almshouse itself was sold, and thinks it probable that, as was the case with the Hospital of St. John the Baptist at Bath, thanks to some powerful man in the neighbourhood, the old building continued without interruption to be devoted to its ancient use. Exactly when it became an almshouse does not appear to be known, but in 1612 an order was made regulating for the time to come the management of the almshouse, and a "governor of the house and family there" was appointed. Eventually some of its endowments appear to have been recovered, and are still available. Since 1612 the place has been uninterruptedly used as an almshouse. In 1750 there were six residents, and the number has usually been six or seven. It is stated that "the only advantage the inmates derive from the charity is that they live house-rent free, but they are all recipients of parish relief. As a *quid pro quo*, the overseers receive the rents of the various lands, amount-

ing at present to £45 10s., which rents are regularly credited in their yearly accounts passed by the union auditor, and go into the general fund in aid of the poor rates. The overseers out of their funds keep the 'Spital' in repair."

Another interesting example of the endowments of a leper house being diverted to other charitable purposes is afforded by the Magdalen School, Combe Down, Bristol, which, by an order made by the Charity Commissioners in 1891, enjoys the revenue



Old leper house at Taunton, Somerset, now an almshouse.

of the endowments of a leper hospital founded in the twelfth century by the Prior of Bath Abbey. The prior built a chapel, dedicated to St. Mary Magdalen, and also a hospital adjoining for lepers. In the sixteenth century it was used for "lunatics," and there is evidence that in the eighteenth century two or three idiots were kept in the hospital at the expense of the master. In the last century, when the new scheme was settled, the income was applied to the purposes of the institution for idiots.

The incomes of some of the mediaeval hospitals were considerable, derived chiefly from gifts of land. The diet given to the lepers was in some cases liberal; thus, at Shireburn Hospital in Yorkshire, for 65 lepers the daily allowance, Dr. Mercier states, was a loaf and a gallon of

¹ *Leper Houses and Mediaeval Hospitals*. London: H. K. Lewis. 1915. (Is. net.)

ale to each, with meat on three days in the week, and fish, cheese, or butter on the remaining four days. In addition, they had fire, candles, and all necessities.

Dr. Mercier dwells on the fact that tuberculosis seems in modern Europe to have replaced leprosy as the most serious of chronic infective diseases. He even goes so far as to put forward the hypothesis that the bacillus of leprosy has changed in the course of time into the bacillus of tubercle; the two, he says, are "so closely allied that if we hold at all the theory of evolution we must presume either that they own a common descent from some progenitor or that the one is evolved out of the other." He continues: "Thus the ancient leper house has not only its modern representative, but also its lineal descendant, in the modern sanatorium for consumption. In mediaeval times, every city and every burgh had its leper house. For all the triumphs of modern progress, modern science, modern sanitation, and modern care of the sick, we are still far behind our ancestors of six and seven hundred years ago in the provision of homes for the victims of the great scourge of Christendom."

MEDICAL CARE OF SCHOOL CHILDREN.

(Continued from p. 19.)

MOTHERS, BABIES, AND GIRLS.

IN the matter of schools for mothers there appears to be considerable danger of overlapping between the work of the Board of Education and the Local Government Board—the one being concerned directly with schools for mothers, and the other with maternity centres.

Tables are given showing the work of 157 schools for mothers; it would appear that the number of infants brought to the schools is not as yet very large. The return for 137 schools is 22,870, and the figures include children up to 5 years of age in several instances—that is, an average of 167 to each school. The average number of visits made with each infant varied in different schools from 2 to 19. Grants in aid made by the Board amounted in all to upwards of £6,100.

"Day nurseries" now number about 150; of these 80 applied for recognition, and received grants amounting to £5,100. The Board require as a condition of recognition a certificate from the medical officer of health to the effect that the institution is one which may suitably receive grants in aid.

"Nursery schools" have been founded by voluntary and independent efforts, and, as a rule, are intended to form a link between the home or the day nursery and the public elementary school, and are usually organized in general accordance with the recommendations of the Consultative Committee of the Board published in 1908. For the most part the ages of the children range from 3 to 5 years. The education given is largely a matter of practice in personal habits and conduct, of developing the brain, muscles, and senses, of teaching the beginnings of discipline and self-control. The general work of the schools can best be illustrated by a description of one of them. The Caldecott Community have had one in St. Pancras, London, since 1911. The school takes 57 children. The premises are specially furnished for the purpose. A bath-room, a cloak-room fitted with open wire boot holes, low wash-basins, a peg with a towel and toothbrush for each child, and a sleeping room furnished with stretcher beds, are provided. Two large classrooms are equipped with small tables and chairs and low wall blackboards. The daily time table is as follows:

- 9.0 to 9.30. Hats and coats removed. Washing. Teeth cleaning. Toys played with. Birds fed. Rooms dusted.
- 9.30. Prayers.
- 9.55. Cleanliness inspection.
- 10.0. Free occupations.
- 11.0. Lunch.
- 11.30. Singing games or free play. Gardens in summer.
- 12.0. School closes. Free play for those who stay dinner.
- 12.45. Dinner.
- 1.30. School reopens. Sleep for younger children. Free occupations for older children.
- 3.0. Children write diaries of day's work.
- 3.15. Closing exercises.
- 3.30. School closes.
- 4.0. Tea for those whose mothers are at work.
- 4.30 to 6.30. Play for those whose mothers are at work.

There is a routine medical examination of each child twice a year. There is a weekly meeting of a Mothers' Club, at which the mothers are encouraged to discuss the welfare of their children.

The teaching of mothercraft to girls in public elementary schools is making distinct advances. "Experience with schools for mothers shows that many women have had no instruction at all in infant care before their children were born, and that they have been dependent for advice on family traditions, and on hints given by neighbours and relatives. It is certain that infant mortality and suffering would be materially reduced if all women could have some training in the management of infants before or soon after marriage. If such apparently simple matters as the proper way to care for, to clothe, and to feed a healthy baby were known to them, they would without doubt be able to keep their infants in better health, and would be more ready to seek advice on the appearance of early signs of sickness." This instruction can be most generally given in school. "Girls of 12 to 14 years often take charge of their little brothers and sisters at home, and get some idea of the details of infant management." That practical experience makes them readily appreciative of teaching in school. Methods of washing, dressing, and clothing a child appeal to them, and practice in these details may lay the foundations of good treatment of their own children in later years.

Reports of the working of these classes show that they are essentially practical. At Swinton "a baby was procured for demonstration purposes when required, and each girl was given an infant to nurse, and become acquainted with the handling thereof whilst the demonstration proceeded."

UNCLEANLINESS.

Apart from the well-recognized conditions of physical defect that are to be met with in children, there are a number of disabilities that arise out of a general state of dirt and ill condition. It is even likely that this volume of physical unfitness is chiefly responsible for the incapacity of the child to take advantage of the education provided for it. Further, a dirty and ill-conditioned body is the easier prey to disease of all sorts. There is another side; any scheme of education that does not inculcate cleanliness as the first essential in the care of the primary capital of our youthful citizens is scarcely worth the name.

The routine medical inspections and the "systematic vermin surveys" conducted by the nurses in the schools show that there is still much room for improvement, particularly in the town children. The grand total for the conditions of the head of over a million children gives 81 per cent. clean, 17 per cent. nits only, and 1 per cent. with pediculi. The state of the body in the same children was a little better—85 per cent. were clean, 13 dirty, and in 1.2 lice were found. Approximately equal numbers of boys and girls were examined, and the comparison of the returns shows that dirty heads were 19 per cent. more frequent in the girls, and dirty bodies 7 per cent. more frequent in the boys. The long hair of the girls and the more permanent clothes of the boys probably account for the differences.

The towns are much worse than the counties. In London dirty heads total 21 per cent.; in the counties 9.5. In London, dirty bodies 21.4 per cent.; in the counties 3. Some of the difference is accounted for by the stricter methods of examination, and the higher standard of cleanliness held in London, but the fact remains that it is easier to be clean in the country than in the town. In combating this evil the "surprise" visits of the nurses play a valuable part, and have an advantage over the routine examinations of the doctors. The fact of inspection has a beneficial effect. On a finding of uncleanness notices requiring cleansing are sent to the parents. Compulsory cleansing is carried out when the condition is not remedied after notification. Prosecutions are made under the attendance by-laws of the authority, or under Sections 12 or 122 of the Children's Act, 1908, against parents who, after repeated warnings, have failed to keep their children clean.

Although the figures given show that there is ample room for improvement, it can be said with certainty that there is a very different view of lousiness in the minds of the people now than was current even a decade ago. Then it was a natural effect, "bred from the weakness of the child," now it is a disgrace to most, and but for the perpetual nuisance

of a few incorrigibly lazy parents it would be well nigh banished from the schools. A great part of the social disability attached to the public elementary school would vanish with the extinction of the louse, and the magisterial authority which treats lightly his final arbitrament over the case of a habitual offender does injury to the majority of wholesome and cleanly mothers and children. The parent is the real offender, and in this connexion it is of interest to note the report that the areas which have been most successful in combating this unpleasant and degrading condition are those which have instituted home visitations by school nurses or by members of Children's Care Committees.

MALNUTRITION.

"Something like 10 per cent. of the total number of children attending public elementary schools are suffering from malnutrition." The returns this year are founded on the examination of half a million children, and they confirm the findings of previous years. Malnutrition is not exactly a measurable quality; it is one that must rest on the considered and careful opinion of the school doctor. It is based upon the balance of several findings: Weight in relation to stature, the general balance and "substance" of the body, the firmness of the tissues, the state of the skin and mucous membranes, the tone of the controlling mechanism as shown by listlessness or alertness.

A most interesting schedule of the returns obtained during the medical inspection is given for counties, county boroughs, boroughs and urban districts. The results show that, excepting London, the degree of malnutrition (below normal and bad) is lowest in the rural areas. In London the comparatively good record is credited to "the activities of the numerous organizations which exist in the area for the preservation and protection of the public health, and to the social machinery concerned in the amelioration of insanitary conditions arising out of uncleanness and overcrowding." Probably some of it is due to the Friday and Saturday night coster markets.

The returns tend to show that more boys than girls suffer from malnutrition. This is possibly accounted for by the fact that there are more boys than girls engaged in some form of employment outside school hours.

School nurses and care committees have followed up children found to be defective and made inquiries into the conditions of their home life. The result has been in the main an insistent witness to the close connexion which exists between malnutrition and (1) unsuitable food, (2) enlarged tonsils and adenoids and tuberculosis, and (3) insufficiency of sleep.

Many medical officers speak of the importance of the food factor. Dr. Orr (Shrewsbury) writes: "The women of the working-classes often show a surprising ignorance of the proper methods of cooking for family requirements; a want of knowledge of the value and suitability of food-stuffs." He debits the responsibility to our educational methods, and claims a place in making up this deficiency for the schools for mothers, where instruction is received "with the greatest enthusiasm and interest by the women." Dr. Macdonald (Northampton) says:

Another potent factor in the production of chronic dyspepsia, which is, I believe, much more common amongst children than is generally thought, is the all-pervading antiseptic preservative. This is not restricted by any means to tinned products, but in the form of boric acid, formalin, salicylic acid, and so on, haunts our fresh butter, milk, cream, and other comestibles.

The London reports state that in one form or another tuberculosis is a cause of malnutrition in over 25 per cent. of the cases where any cause is assigned, and the parents are urged by the Care Committee to attend the local tuberculosis dispensary or other institution where treatment can be obtained. Dr. Roberts (Denbighshire) states that—

Insufficiency of sleep is another cause which unquestionably has a deleterious effect upon the growth and healthy development of the school child. One feels that the evil habit of late hours is becoming more general. Children of tender years who should be in bed crowd the poisoned atmosphere of the picture-dromes, and before long it will become essential to make regulations controlling the admission of children to such shows, as the question is becoming one of vital importance.

Besides all these points there are certain conditions associated with growth that have to be taken into account. Dr. Hamer (London) reports: "There is no doubt a seasonal influence; thus it is known that in spring children

remain almost stationary in weight while they increase in height, and it is therefore probable that any particular group examined in the spring term would show an excessive degree of malnutrition, just as nervous disorders, such as chorea, are more prevalent in this season of the year. Again, there is an age factor. During certain years growth in height is much more rapid than in the years that precede or follow, and many observers have noted the tendency to loss of energy and tone at these periods of growth. In a study of the causation of malnutrition made last year it was shown that rapid growth was confined to the leaver group as amongst school children."

The main contributions of the authorities to the cure of this condition appear to be the provision of regular and adequate meals, and in this one factor probably lies the great benefit of the open-air schools.

Tables are given showing the degree of nutrition in school children as revealed in the course of medical inspection in the areas of sixty-two local educational authorities. Some of the returns are distinctly perplexing. For example, one would have thought that a rural area like the county of the Isle of Wight would have presented a good record for fine plump children, but the returns are worse than for London; indeed, the percentage of children judged to suffer from bad nutrition is the second highest on the list, being 2.2 per cent. This is in strange conflict with another return from the same island county, which gives the incidence of cases of phthisis and other forms of tuberculosis as very low, the figures falling within the lowest group. Cases of conflicting returns such as these are not infrequent; they are probably susceptible of easy explanation, such as variation in the standard of judgement; but it would appear well worth the while of the Board to inquire as to their meaning.

(To be continued.)

ROYAL MEDICAL BENEVOLENT FUND.

At the last meeting of the Committee, held on December 14th, 1915, 46 cases were considered, and £448 granted to 40 of the applicants. The following is a summary of the cases relieved:

Widow, aged 41, of L.R.C.P. Edin. who practised at Edmonton, and died in 1910. At husband's death applicant was left practically unprovided for, with two children now aged 8 and 10 years. Has managed to earn a living until the war commenced by literary work. Has friends in Los Angeles who recommend her to go there, as the prospects look good for herself and children. Help required towards her passage, etc. The Fund granted £20, and the Guild also provided clothes. The Professional Classes War Relief Council co-operated with the Fund and made a grant of £10.

Daughter, aged 27, of L.R.C.P. Irel. who practised in Ireland, and died in 1895. Applicant's health was undermined through the long nursing of her mother who has recently died. The Fund made a small grant a little time ago to enable her to take a short holiday. A further grant of £2 was made.

Widow, aged 45, of M.R.C.S. Eng. who practised at Gravesend, and died in January, 1915. Applicant was left with three daughters, aged 13 to 21, and one son, aged 20, who is abroad and whose health has broken down. Applicant required a little help towards the education of the daughters to earn their own living. Owing to the war it was impossible to sell the practice to advantage at present. Applicant voted £10 and the case referred to the Guild with a view of helping with the education of the girls.

Daughters, aged 62 and twins 45, of M.D. Edin. who practised in London, and died in 1873. Applicants' immediate trouble caused by the death of mother who had a life interest in some property. They endeavour to make a living by taking in paying guests and doing needlework, but have not been very successful of late. Voted £10 and referred to the Guild.

Daughter, aged 44, of M.R.C.S. Eng. who practised in South Wales, and died in 1872. She was brought up by friends and when able to work managed to earn a living as a laundress, but recently has developed cancer which has quite incapacitated her from working. Voted £12 in twelve instalments, and referred to the Guild.

Widow, aged 45, of M.R.C.S. Eng. who practised at Beccles, where he had only recently established himself, and died in January, 1915. Applicant is trying to earn a living by taking in paying guests, but owing to some extent to her house being near the East Coast, she has not been very successful, but has prospects of improvement. Voted £10.

Daughter, aged 58, of M.D. Dub. who practised in the Isle of Man, and died in 1882. Applicant's money was badly invested, and she lost all; she is now an invalid suffering from rheumatoid arthritis. She is highly recommended by the Liverpool branch of the Guild. Voted £5 through the Liverpool branch of the Guild.

(To be continued.)

British Medical Journal.

SATURDAY, JANUARY 8TH, 1916.

ENROLMENT.

THE publication of Lord Derby's report has intensified the general interest taken in his scheme of attestation, and members of the medical profession who have not followed the relation of the profession to a scheme which may prove to have paved the way for a compulsory military service will desire to know as precisely as possible the present position as it is viewed by the Central Medical War Committee. That Committee is in close conference with the Medical Department of the army, and has now worked out the whole system of recruiting of officers for the R.A.M.C.

The Central Medical War Committee is at present completing a list of all medical men of military age (that is to say, all of 45 years of age or under) who have not yet received commissions. It fully recognizes the need for taking into consideration local and individual difficulties, and is in communication with the local Medical War Committees who are preparing lists of medical men of military age for each area, classified according to the scheme published in the SUPPLEMENT to the JOURNAL of December 11th, 1915, p. 214. As these local lists are completed a communication will be addressed to each medical practitioner of military age asking him to fill up a form, giving his name, age, qualifications and other personal particulars, and another form authorizing the Central Medical War Committee to forward to the War Office his application for a temporary commission R.A.M.C. so soon as in the opinion of that Committee the time has arrived when his services should be placed at the disposal of the military authorities, the Committee on its part undertaking to give him at least one month's notice. On receipt of this form of application for a commission the Committee will at once send him a certificate of enrolment, stating that the application has been received and is duly registered with the Committee. This form of enrolment is equivalent to attestation under the Derby scheme. The scheme of the Committee applies only to men who are willing to give their whole time, and it is assumed that every fit man will be prepared to make this sacrifice.

It should be clearly understood that the application of the individual practitioner for a commission, which, according to the scheme, will be in the hands of the Central Medical War Committee, will not be sent in until all his circumstances have been fully considered. This consideration will include the individual's responsibilities with regard to persons dependent upon him, and to partners, institutions, or public authorities. With regard to the general interests of the country it will include the proportion which medical men who remain in practice in the area bears to the needs of the general population, and every means will be taken to equalize the call throughout the country.

It is not possible to mention any number as the total of medical men who will be required by the army within a stated time; this must depend partly upon the development of military operations and

partly upon the amount of wastage among medical men already serving in the army. The understanding is that when the Army Medical Department needs more medical officers it will state the number required to the Central Medical War Committee; that Committee will then inspect the whole list of enrolled men and will select those who, from the information in the possession of the local Medical War Committees and the general information as to the whole country in the possession of the Central Medical War Committee, can be withdrawn from civil practice with least disadvantage to the public, to their brother practitioners, and to themselves.

As has been observed on previous occasions, there are residential areas where the proportion of medical men in civil practice is very much higher than in industrial districts, and it is certain that further calls must be made upon men practising in such areas. The public must understand that the conditions under which they have been accustomed in time of peace to obtain the attendance of their medical men cannot continue without modification; customs which have long prevailed in residential districts must be modified. In cases of sudden serious illness it will, of course, still be necessary to send for the doctor, but a great deal of his time could be saved without loss to the patient if well-to-do people who can get about easily would form the habit of going to see their doctor instead of requiring him to go and see them. Moreover, the amount of time commonly involved in paying a visit to a house may be materially curtailed without any real loss to the patient and with great saving of the doctor's time. On the other hand, it should be clearly understood that the scheme under which doctors are now invited to enrol with the Committee presents very great advantages from their point of view; they will engage under the conditions which have prevailed since the beginning of the war, that is to say, the commission they promise to accept will be for a year, at the end of which time they will be able to review the position. If the opportunity is lost and compulsion has to be faced, it is possible that the whole medical profession will be practically converted into a State service; compulsion on the individual will not then be limited in time, but he will be required to serve at least for the duration of the war. Thus it is of the utmost importance that every medical man of military age should sign the application submitted to him. Those who hold back are not unlikely to bring the whole of their medical brethren within measurable distance of a form of compulsion disastrous to the profession.

A Commission appointed at the instance of the Ministry of Munitions to inquire into labour conditions in the munitions factories of France has reported among its conclusions that the people of France realize that they are at war, and that the one idea in the mind of all is to bring the war to a successful issue. The result of their mission, they state, has been to convince them that the increase of the production of munitions in France is due to one cause, and one cause only, and that is the patriotic enthusiasm which exists there. These are not the conclusions of doctrinaires, but of practical men—among others, the chairman of the Amalgamated Society of Engineers and the secretary of the Engineering Employers' Federation.

Some light is thrown on the question how far the people of this country realize that they are at war by Lord Derby's report on the result of his effort as Director-General of Recruiting, published as a white paper on January 4th; it consisted of three parts, but

the first and third parts only are published, the second having been put out of date by the great influx during the last few days on which enlistment under the group system was open. The first part, giving a general account of the scheme and what was done under it, has, Lord Derby states, the unanimous assent of his colleagues on the Joint Committee, formed of the Parliamentary Recruiting Committee and the Joint Labour Recruiting Committee; but for the third and more objective part, which involves a number of calculations and the estimate of deductions which must be made, Lord Derby is responsible, although in the compilation of the statistics he has had the assistance of Dr. T. H. C. Stevenson, Superintendent of Statistics at the General Register Office. From the crude total figures for the period from October 11th, when Lord Derby was appointed, to December 15th, it appears that 2,950,514 men came forward and either attested in groups or enlisted immediately into the army; the latter numbered rather over a quarter of a million, but of the large total nearly half a million (428,853) have already been definitely rejected on medical grounds. For comparison we may quote the figures for Australia given in a recent telegram to the *Times*, from which it appears that of the 1,224,162 males between the ages 18 and 60 registered in Australia, 775,419 (63.34 per cent.) have been classed as fit, 380,232 (31.06 per cent.) as doubtful, and 68,511 (5.6 per cent.) as unfit. The number of fit men between the ages of 18 and 34 is 422,814.

It is stated that of the remainder who have attested in this country nearly a million (925,445) have not yet been medically examined. In the analysis of the single men and married men attested, the deduction made for the number of men likely to be found unfit on medical examination is 40 per cent. This is one reason why Lord Derby says that the figures on analysis do not prove as satisfactory as could have been wished. His general conclusion is that there are 651,160 unstarred single men unaccounted for in Great Britain.

The bill to make provision with respect to military service in connexion with the present war, introduced by the Prime Minister on January 5th, follows the general lines of Lord Derby's scheme, but introduces the principle of compulsion in respect of unmarried men and widowers without children dependent upon them. The voluntary attestation system, however, remains open, and though, under the scheme outlined above, it does not directly affect medical men, it may be well to add, with regard to the working of the local and central tribunals under it, that all claims sent to the local tribunal are forwarded at once to the recruiting officer or the military representative, who has the assistance of an advisory committee. The grounds on which the application is made are shown in the claim, which is considered by the military representative in consultation with his advisory committee. Necessary inquiries into the accuracy of the statements set out by the claimant are made, and if the committee and the military representative are satisfied that the claim is reasonable, it is agreed to and returned to the local tribunal, and in this case no formal proceedings take place before that tribunal, the claimant being simply informed that his claim has been assented to. Should the advisory committee and the military representative after inquiry consider that the claim is one which requires to be dealt with judicially by the local tribunal—that is, by a hearing of the claimant and of other necessary witnesses—the claim is sent to the local tribunal to be so dealt with. The advisory committee will not require the claimant

to appear before it, as that committee is not a court, but there is no objection to its interviewing a claimant who wishes to attend in order that he may informally explain his case to the committee. There is an appeal to the central body set up under the authority of Lord Lansdowne's committee. The bill proposes to continue the local tribunal, though it is not certain that the advisory committee will be continued, and also the central appeal body, but it introduces an intermediate appeal tribunal nominated by the Government for areas larger than those covered by the local tribunal.

INFANT LIFE PRESERVATION.

THERE is abundant evidence that the public is at last beginning to view with anxiety the enormous wastage of infant life and to realize that a considerable proportion of this loss is preventable. The subject has been discussed by writers in the medical press in all countries, but especially in this country, in France, and in America, for the last ten or twelve years, until the facts and figures have become very familiar to the medical profession. Through it the public has become interested, and in England, Scotland, and Ireland lay organizations exist which are endeavouring with more or less success to force the question on public attention. Infant consultations have been established in many centres throughout the country, particularly in the large towns, and the good effects of their system of regular medical inspection and weighing of infants, and of the education of mothers by informal "health talks" and home visiting, have been apparent in the improvement of the infant mortality-rate before the war. That so much success has been achieved is a standing testimonial to voluntary effort, but grants have also been forthcoming from the Board of Education, from the Local Government Board, and, in some instances, from the local municipal authorities.

These efforts following on the awakening of the public conscience may be abortive if the municipal authorities are not alive to their responsibilities in this direction. In many localities medical officers of health have met voluntary workers half way, and have used their influence to enlist the support of the local authority; in others—notably, we understand, in some of the poorest and most crowded districts—their attitude has been far from sympathetic. The work is too important and too urgent to be subjected to such vicissitudes of fortune. It has never been more urgent than at present. Out of every 800,000 children born alive we lose approximately 114,000 in the first year of life; to this must be added the number of infants lost by death of the fetus during the forty weeks of antenatal life, estimated by Dr. Newsholme as 138,249 during 1914 in England and Wales.

With such figures before us, it does not seem too much to hope that the favour with which infant welfare and maternity centres are regarded by the Government will be better reflected by the legislature. Further, though under the Notification of Births Act the names and addresses of the mothers of the babies are available, full advantage cannot be taken of this knowledge without the co-operation of the medical officers of health. Maternity or infant welfare centres should know from what source or sources they can confidently expect a grant or grants to cover their expenses, provided that they attain a certain definite standard of efficiency. At present this point is often obscure, for three bodies are implicated—the Board of Education, the Local

Government Board, and the local municipal authority. The support of the latter is often problematical, and if obtained, being temporary, is unstable. The management committees of the centres, although the work done may be consistently good, feel that their prospects of continuing from one year to another is altogether on the knees of the gods.

The establishment of crèches for the babies of those mothers who go out to work is germane to the subject. Many such crèches are already in existence, and an appeal was made recently for one which it was proposed to establish in Notting Hill for the babies of mothers who are engaged on Government contracts. It is proposed that the crèche shall be established near the homes of the mothers. Such an undertaking deserves encouragement, and may be the best that can be devised in the present emergency, but it is open to question whether its value would not be enhanced if it were situated near to the mothers' place of work rather than to their homes. In judicious breast-feeding lies the key to the prevention of many infant deaths. If the crèche be situated close to the factory, the baby can receive a breast-feed during the dinner hour, and, with a little ingenuity, arrangements could be made whereby artificial feeding might be unnecessary; on the other hand, if the mothers leave their infants in a crèche near their own homes and go out to work for the day, artificial feeding, with its attendant dangers and disabilities, is a necessary consequence. The appeal states that "a project is on foot to form after the war a permanent crèche on a much larger scale." Such a statement evokes two criticisms apart from that already expressed. In the first place, the establishment of crèches is not one of those many projects which can profitably be deferred until after the war. The need will never be more pressing than it is to-day. The other criticism concerns the advisability of forming "large" crèches. One of the arguments which, with some reason, has often been urged against these institutions is that they are liable to become potent centres for the dissemination, not only of exanthemata, but of other epidemic disorders of infancy. With large crèches this danger would be increasingly difficult to control. Again, a large crèche, unless it be situated within or near a large factory, implies that many babies will unnecessarily be deprived of human milk.

BRITISH RED CROSS WORK.

WHEN war broke out there were two national organizations for bringing voluntary help to wounded and sick soldiers and sailors—the British Red Cross Society and the St. John Ambulance Association. The latter was one of the principal departments in the Order of St. John of Jerusalem in England, and had established the St. John Ambulance Brigade, which had done excellent work in South Africa, and also in civil life. The British Red Cross Society, which had been preceded by the National Aid Society, was incorporated in 1908, with King Edward VII as patron. It received the official recognition of the Admiralty and War Office as the organization responsible for the Red Cross movement throughout the Empire; at the same time, both the Admiralty and the War Office agreed that in time of war they would receive voluntary offers of assistance made in Great Britain and Ireland only through the society, except those in respect of the supply of personnel from the St. John Ambulance and the St. Andrew's Ambulance Association. The main

object of the British Red Cross Society was then defined to be the examination, systemization, and co-ordination of all offers of help, so that, by the prevention of waste and overlapping, they should be given their greatest possible value.

The similarity of the work proposed to be done by the British Red Cross Society and the St. John Ambulance Association caused certain risk of overlapping and led apparently to some little friction. A War Office Committee was therefore appointed to inquire into the relations between the two organizations, and held its first meeting in July, 1914. When, however, the war began to make urgent calls upon the energies of both, a shorter way was found, and an amicable arrangement was reached which took effect from October 20th, 1914. The joint War Committee of the two bodies was formed with the Honourable Arthur Stanley, M.P., of the British Red Cross Society, as chairman, and Sir H. C. Perrott, Bt., of the Order of St. John, as vice-chairman, while Sir Frederick Treves of the former society and Mr. Edmund Owen of the latter made themselves responsible for the selection of personnel and many other matters which fall to be decided on medical authority. The co-operation immediately commanded the approval of the public, as is shown by the fact that during the first year of the joint working of the two organizations donations of the public amounted to £1,864,036.

The Joint Finance Committee of the two bodies, of which Sir Robert Hudson is chairman, has recently issued a very full statement of accounts for the year ending October 20th, 1915. The Joint Committee, in addition to what it has done in respect of the transport of wounded, has maintained or helped hospitals in France and Flanders, in Malta, and the Near East, in Africa, and in England. The total sum expended during the year was £1,642,271 6s. 5d., leaving balances in hand amounting to £221,764 17s. 7d. The use of the plural is due to the fact that about half the contributions received were ear-marked by the donors for particular classes of work, and in particular to the fund for the transport of wounded, to which more than half a million was contributed. The Finance Committee pleads that its work would be simplified if a larger proportion of the donations were sent to the general fund, since, while some of the special funds have considerable unused balances, others have had to be heavily supplemented from the general fund.

The largest single item of expenditure is for the transport of wounded. Large as was the sum contributed to it, this fund was overdrawn to the amount of nearly £62,000. The overdraft is attributed to the fact that, in order to secure delivery when wanted, it was necessary to place orders for motor ambulance cars many months ahead. The coal owners and coal workers have undertaken to supply the whole of the overdraft, and indeed much more, for the work of the motor convoys. The sum expended on the purchase of motor ambulances was £446,400, and the cost of working and maintaining them was £169,562. By far the greater part of the fleet has been working in France and Flanders, but cars were maintained also in Egypt, Malta, Serbia, Italy, and Great Britain. The number of ambulance cars is 897, but the total number of cars in use is raised to 1,245 by the repair wagons necessary, and by lorries, soup kitchens, and touring cars; in addition there are 56 motor cycles. The Committee has also two ambulance launches, three petrol ambulance launches, and an iron lighter punt working in the Mediterranean, three petrol ambulance launches working in the Persian Gulf, and

a steamer of 150 tons used for carrying Red Cross stores from Alexandria to the Dardanelles. This steamer and the three petrol launches used in the Mediterranean were presented to the Committee, which has had, however, to bear the cost of alterations and upkeep. The four hospital trains cost in round figures £44,000; one of these was converted at the cost of £4,000; the average cost of the other three was about £13,000. It should be added that the whole of the capital outlay on motor ambulances, hospital equipment, trains, etc., has been charged against the income of the year.

The value of the goods purchased or given during the year was £463,455 11s. 4d. The estimated value of goods in kind represent 43 per cent., and the majority were received in comparatively small quantities, and had to be unpacked, sorted, sized, and repacked. The fact that the management expenses only amounted to 2.96 per cent. of the value of the stores handled was due in part to the number of voluntary helpers. The joint management expenses estimated on the whole fund amounted to 2½d. in £, or if the cost of appeals be added, to 3½d. in the £. This is due again partly to the number of voluntary workers and partly to the fact that owing to the generosity of the Royal Automobile Club and Lord Michelham, the expenditure on rents, rates, etc., did not amount to £25. Heavy expenditure has been entailed by the establishment and maintenance of the St. John Hospital at Étapes, the British Red Cross Hospital at Netley, and the King George Hospital in London. Contributions have also been made to the base hospital at Nairobi, and the Cameroons Field Hospital for the wounded of the North-eastern Rhodesian Field Force, and to the Anglo-Russian Hospital, as well as for the benefit of sailors and soldiers who have been crippled or blinded.

PROPOSED COLLEGE OF NURSING.

THE Hon. Arthur Stanley, M.P., who has been acting as the chairman of a committee of matrons and managers of some London hospitals, has addressed a letter to hospital committees containing a proposal for the establishment of a college of nursing, to regulate the courses of study and technical training for nurses and to form an examination board. Mr. Stanley states that during his year's work as chairman of the Joint War Committee of the British Red Cross Society and the Order of St. John he has been struck by the lack of organization amongst the various authorities responsible for the training of nurses, and by the need for organization among the nurses themselves. He observes that the more or less active agitation which has been going on for something like twenty-five years in favour of the registration of trained nurses has hitherto failed to attain the object sought. Assuming that something should be done at once to co-ordinate the various interests involved, he thinks that without prejudice to ultimate developments, whether by legislation or otherwise, it will be necessary to rely, for the time at least, upon a voluntary scheme of co-operation among the nurse-training schools throughout the country. The college he proposes would be a purely voluntary body, which would aim at securing the support and sympathy of the governors of hospitals to which nurse-training schools are attached, of the matrons and lecturers at these nurse-training schools, of the leading members of the medical profession, and of the trained nurses themselves. For the promoters of the college he would look to persons belonging to the several classes enumerated, and he suggests that, having obtained the sanction of the Board of Trade to the registration of the college with its memorandum and articles of association, they should appoint the first

council of management, two-thirds of whom should be matrons of hospitals or superintendents of nursing. For effective administration this council must, he considers, be small, and it is proposed therefore that it should form a large consultative board, drawn from all classes of nurse-training schools and nursing associations, and from nurses in practice throughout the country, and that the council should always invite and receive a report from this consultative board before coming to a determination either upon courses of study and technical training, or upon the conditions under which recognition should be extended to nurses' schools. It should also form an examination board to advise upon the appointment of examiners, the scheme for examinations, and the acceptance, under safeguards, of internal examinations in recognized training schools to qualify for the certificate of proficiency in nursing which would be granted by the college. The college should also take power, it is suggested, to exercise similar functions in all branches of women's work connected with hospitals, whether naval, military, or civil, and to give certificates of proficiency to those who pass the necessary examinations. Mr. Stanley adds that he has reason to hope that, should these proposals meet with sympathetic support, he may be able to secure financial assistance to launch the college in a suitable building. He invites the committee of each hospital addressed to nominate representatives to take part in the establishment and development of the college.

PROFESSOR METCHNIKOFF ON DEATH.

PROFESSOR ÉLIE METCHNIKOFF of the Pasteur Institute at Paris celebrated his seventieth birthday last May. The occasion was marked by quiet commemoration and the reunion of friends, while the professor himself, with characteristic spirit, delivered an address¹ on the subject of "Death." As he pointed out, the age of seventy was generally recognized as the natural limit of normal life. In his own family death came earlier, and he attributed his survival to the hygienic regimen by which he lived. As is well known, Professor Metchnikoff holds that the normal bacterial flora of the alimentary tract is actively harmful to man, and he proposes to secure longevity by abstention from uncooked food, and the sedulous cultivation of relatively harmless microbes, notably those of the lactic acid fermentation of milk, in the intestine. He calls for the study of "scientific macrobiotics," or the science of long life, suggesting that it should be begun on the inhabitants of homes for the aged. When the problems of rational macrobiotics are better understood, the professor expects to see a keener desire to live manifested by old people, for they will then arrive at old age with their faculties less impaired than is at present usually the case. In a later contribution² to thanatology, the science of death, Professor Metchnikoff examines the causes that lead the imago of *Bombyx mori*, the Southern European silkworm moth, to die a natural death after but two or three weeks of life. This is a moth without the suctorial apparatus necessary for feeding, and so it lives and dies without taking food. Its digestive tract is incapable of ingesting or absorbing nutriment; indeed, it is a poor thing that serves only for the ejection of a drop of transparent alkaline fluid that softens the cocoon and permits the moth to escape. Hence the imago would appear to be designed for a short life only, and its death should therefore be a truly natural death in most cases. Professor Metchnikoff, having reached this general conclusion, proceeded to investigate the actual causes of death in a number of cases. The stomach and tissues were found to be sterile in three-quarters of 115 silkworm moths examined after natural death; the remainder showed infection with diplococci or moulds that may well have been the immediate cause of death. May not some

¹ Ann. Inst. Pasteur, Paris, 1915, xxix, 364

² Ibid., 477.

invisible filterable virus have been present in the apparently sterile majority, and the cause of their death? To this question no definite answer can be given at present, for want of adequate means of investigation; the professor leaves it open, and attaches some importance to its solution. Is mere starvation to be set down as the cause of death? Apparently not, for the bodies of the moths always contain after death a quantity of unused fat, even when life has been unusually prolonged; this residual fat is less in the females than the males, being exhausted by ovulation, yet the females live a little longer than the males as a rule. Is death caused by some exhaustion of the muscular or nervous tissue, such as may be demonstrated under the microscope? No, for the muscle fibres preserve their normal histological structure after death, the nerve cells present no abnormal pigmentation or vacuolation; it has been noted that some of the tissues—for example, the heart and the spermatozoa—may survive the natural death of the moth for many hours. Finally, uraemia and anuria come up for consideration; does the normal silkworm moth succumb to an anuric toxæmia? No, once more. Micturition is always observed soon after the moth has left the cocoon, and may be repeated for a day or two, or even after a week or more in exceptional cases, but anuria during the greater part of life is the rule. Yet this anuria depends only on suppression of micturition, and the bladder is found after death to be distended with fluid and uratic deposits; the moth's Malpighian tubules are active during life. This urine is undoubtedly highly toxic to silkworms, silkworm moths, and mice, on subcutaneous injection. Hence Professor Metchnikoff is unable to exclude uraemia as a cause of the natural death of these moths, although he is far from asserting that the one is the cause of the other; the question is one demanding further investigation on the lines of pathological chemistry. He entirely disagrees with Marinisco's attribution of old age and death to dehydration of the colloids in the tissues, which is, indeed, an admirable example of the *obscurum per obscurius* to which men of science are so unfortunately prone. And he is inclined to believe with Bloch that death in human beings is never natural, properly speaking, but is always precipitated by the intrusion of some avoidable factor, whether from within or from without. For himself, Professor Metchnikoff tells us, he regards intestinal infection as the most redoubtable of these factors, and he adds that for eighteen years he has done his best to neutralize its injurious effects by due attention to his intestinal flora. We wish him all possible success in the long continuance of his efforts in this direction!

VACCINE THERAPY IN ENTERIC FEVER.

Using the vaccine employed prophylactically in the Italian army, Dr. A. Fagioli has recently recorded¹ a small number of cases of enteric fever in which the disease has been cut short and has ended by crisis after the intravenous injection of from 100 to 300 million of the bacteria, the dose for prophylactic purposes being 400 million. No details as to the method of preparation of this vaccine are given, but Dr. Fagioli sees no reason for believing that an autogenous vaccine would give better results. He has never seen any harm result from the use of the intravenous method of administration; the injection is followed in a few minutes, or at any rate within an hour, by a rigor and a sharp rise of temperature to 105° or 106° F. The temperature falls eight or nine degrees within twenty-four hours, with profuse diaphoresis, and the patient becomes convalescent. The best dose of antityphoid vaccine to give can only be determined empirically; Dr. Fagioli began with 150 million bacteria, but found that with this amount a second injection a few days later might be necessitated by a recrudescence of the fever, and he now prefers to give

up to 300 million bacteria. He has not met with any case of cardiac failure or arrhythmia as a result of the treatment, or with any unpleasant symptoms that could be attributed to it. For the rest, the patients are treated on the general lines that ordinarily obtain. A case of paratyphoid B fever is quoted in which the antityphoid vaccine (200 million) produced an equally satisfactory and rapid cure on the eighteenth day of the disease; and a case of typhoid fever of severe type cured by the intravenous injection of 100 million *B. coli* vaccine on the twentieth day. No explanation of these anomalous cures is offered; the author notes that in two of the cases of typhoid fever treated successfully the characteristic leucopenia was replaced by a slight leucocytosis a few days after the injection. Dr. Fagioli has had some success in the treatment of Malta fever and tuberculosis of the lungs by intravenous injections of starch, a substance he supposes to act by developing anaphylotoxins. He gives 5 c.cm. or 10 c.cm. of a 5 per cent. solution of Kahlbaum's starch, and he quotes two cases of enteric fever in which a series of four such injections appeared to shorten the course of the disease. Some light on the question how injections of antityphoid vaccine may cut short enteric fever is thrown by Dr. F. P. Gay, who notes² that the treatment of enteric patients with a modified sensitized antityphoid vaccine produces a specific leucocytosis, mainly polymorphonuclear, the count rising as high as 20,000 or 40,000 white cells per cubic millimetre. In addition, he finds that the treatment develops a high agglutinating power in the patient's serum, no doubt an index of the development of some substance antagonistic to the *Bacillus typhosus*. The dose of vaccine he advocates contains about 300 million bacteria.

ETHER ANAESTHESIA.

In the BRITISH MEDICAL JOURNAL of May 29th, 1915 (p. 939), the question of priority in the introduction of ether anaesthesia into surgical practice was discussed, and the claim advanced on behalf of Dr. Crawford Williamson Long was admitted. At the same time it was pointed out that it was William Thomas Green Morton who compelled the attention of the medical world to the value of ether as an anaesthetic, and that to him, therefore, belongs the glory of the discovery. An interesting note on Long appeared in the *Journal of the American Medical Association* of October 30th, 1915, in which it is stated that Dr. Allen J. Smith has recently published in facsimile the documentary evidence relating to his work. Altogether, says our contemporary, there are eleven pages of photographic reproductions of letters and attestations of various kinds, including Long's statement of account with James Venable, from the back of whose neck he removed one of two small wens under ether on March 30th, 1842. The understanding was that if this operation was painless the other growth should be dealt with in the same way. This was done on June 6th, a fact which implies that the ether had been successful on the former occasion. It has been suggested, by ourselves as well as by others, that Long did not appreciate the importance of his discovery. The documents published by Dr. Allen J. Smith, however, prove that he continued to use ether, although he failed to convince his professional brethren of its value. Mr. George Foy, of Dublin, writes to point out that the centenary of Long's birth fell on November 4th. Mr. Foy also quotes an unpublished letter written by Long to his friend Dr. L. A. Dugas, Augusta, Ga., in which he states that his mind had early been directed to the fact that persons while etherized were insensible to pain from falls and injuries. Long's grandfather emigrated from the neighbourhood of Letterkenny, not far from Sligo, the birthplace of William Higgins, who predicted that the ethyl series of alkyls would furnish an anaesthetic.

¹ *Il Morgagni*, Milan, 1915, lvii, Archiv., 361.

² *Journ. Amer. Med. Assoc.*, Chicago, 1915, lxx, 322.

NERVE DEAFNESS AND MUMPS.

ATTENTION is drawn by Dr. Hubbard¹ to the fact that nerve deafness after mumps is by no means so rare as perusal of the current textbooks would lead the reader to imagine. Mumps is given as the cause of nerve deafness in from 3 to 5 per cent. of deaf-mutes. Dr. Hubbard states that there are about 50,000 deaf-mutes in the United States of America, of whom perhaps 2,000 owe their disability to mumps. In fact, mumps ranks close to scarlatina as a cause of absolute bilateral deafness, and probably the percentage due to mumps is still higher where unilateral nerve deafness is considered. The subject is, therefore, one of no little clinical and social importance. It is disappointing to find that the pathological anatomy of this form of deafness has been little studied; it is vaguely attributed to labyrinthitis, and the labyrinthitis is set down as a metastatic infection with the microbial virus of mumps, which may well be the virus described by Dr. M. H. Gordon² as capable of passing through a Berkefeld filter, and as the cause of acute lymphocytic meningitis when injected into the monkey. Others hold that ear trouble in mumps is due to the extension of the inflammatory process along the Eustachian tube. Be that as it may, auditory symptoms may occur at any stage of mumps, even before the parotid swelling appears; they consist of tinnitus, variable degrees of deafness, vertigo, nausea, vomiting, disturbances of equilibration, and headache. Naturally the cases vary very widely in severity; in some there remains no more than a slight impairment of the hearing, in others there are islands of tone perception in certain registers, while in yet others there may be complete deafness in one or both ears. In Dr. Hubbard's own cases he noted that the destruction of both cochlear and vestibular nerve functions might be complete or partial, making possible some degree of restoration of function. He draws the important practical conclusion that the evil effects of the labyrinthitis are due to the fact that there is no room for inflammatory products within the rigid labyrinthine cage; increased tension of the endolymph and perilymph rapidly injures and destroys such delicately balanced structures as the organ of Corti, the thin membranous partitions, and the terminal vestibular fibres. He regards the present treatment of the aural complications of mumps as unsatisfactory, and suggests that lumbar puncture should be given a trial, because lowering of the subarachnoid tension may lower the tension of the perilymph. Alternatively, Dr. Hubbard calls for a method of applying modern surgical decompression to the labyrinth capsule—an operation, one would say, demanding no little delicacy of touch on the part of the operating surgeon.

MEDICAL TERMS IN THE NEW ENGLISH DICTIONARY.

THE current issue of the *New English Dictionary* (a single section) carries the alphabetical rubrics from *Subterranously* to *Sullen*, and has been under the immediate care of Mr. C. T. Onions, one of the three lexicographers who now, since the death of Sir James Murray, edit this great work, national in nature if not in name. The first medical or rather semi-medical term met with in this instalment is *subventaneous*, with its meaning of "windy," and its application to conceptions and to eggs. "*Subventaneous eggs*," wrote Holme in his *Armoury* (1688), "are such as the Hen brings forth without the Treading of the Cock," and some forty years earlier Sir Thomas Browne had referred in his *Vulgar Errors* to "the Mares in Spaine and their subventaneous conceptions from the western wind." One does not think of *subversion* as in any sense a medical term, but once upon a time (Mr. Onions tells) *subversion of the stomach* signified nausea, and Crooke in his *Body of Man* (1615) wrote of "the great

consent between the stomacke and the kidneyes, and the subversion of the stomacke and frequent vomits." The verb *subvert* was also used in the sense of to upset the stomach (as one would say now), and Venner (in 1620) warned the readers of his *Via Recta* against "the sweet Orengees which are not fit for sauce, because they subvert the appetite, and cause loathsomnesse in the stomacke." The anatomical term *subvertebral* and the embryological *subzonal* are both faithfully entered and correctly defined, and the latter is illustrated by two quotations from Sir William Turner's work on *Human Anatomy* (1877). Most interesting paragraphs are devoted to *succedaneal*, *succedaneous*, and *succedaneum*, meaning acting as a substitute and a substitute. In the seventeenth century medicinal applications and ingredients were called *succedaneous*, as in the illustrative quotation, (of 1657) which declares that "by succedaneous secrets the same diseases may be restored, although not with the same speed or universality." *Succedaneum*, the noun, has the special medical significance of "a drug, frequently of inferior efficacy, substituted for another"; and one remembers that the practice of using succedanea is obsolete at the present time, although "substitution" is not unknown. One of the illustrative quotations is from Fuller (famed for his *Worthies* and his wit) and reads: "Physicians have their Succedanea, or Seconds, which well supply the place of such Simples, which the patient cannot procure." The obstetrician will, perhaps, find fault with the makers of the *New English Dictionary* for not including his often-employed term *caput succedaneum* either here or under *caput*, but they will possibly put up the plea of non-naturalization. Among the quotations Carlyle's famous phrase, which has again some added significance in these days, is not omitted: "Paper, which in many ways is the succedaneum of gold." The obstetrician possibly will again grumble because Mr. Onions has not referred to the *succenturiate* placenta (so troublesome sometimes and so elusive), especially as he has made mention of the suprarenal capsules as the "*succenturiate kidneys*," a much less frequent use of the word. A number of medical terms appear under *succin*, including *succinic*, *succinite*, *succinol*, and *succinyl*, and *succus* is not forgotten. Special uses of *sucking* are exhaustively catalogued, even the *sucking pads*, the lobulated masses of fat occupying the space between the masseter and the buccinator muscles, being named and defined. "*Sudden stroke*," too, a synonym of apoplexy, is not missed. Other medical words are *sudamina*, *sudoral*, *sudoresis*, *sudoriferous*, *sudorific*, *sudoriparous*, *sufflation*, *suffumigation*, *suggilation*, *sulculus*, and *sulcus*; and the medical usage of *suffer*, *sufferer*, *suggest*, and *suggestion* is carefully recorded. Apart from its medical aspects, the *Dictionary* is no less complete.

A MEDICAL OFFICER VINDICATED.

THE Walsall and West Bromwich Unions Joint Committee and other related bodies have an institution at Great Barr Park. It at present accommodates about 100 children and the staff, but buildings are now nearing completion for about 250 mental patients. Miss Anna Sinclair was appointed matron of Great Barr Hall on August 9th, 1912, and it had been proposed to appoint a resident medical superintendent and an assistant medical officer, but, owing to the war, these appointments were deferred, and Dr. W. Maule Smith was appointed non-resident medical superintendent in October, 1914, and commenced his duties on January 1st, 1915. On October 12th, 1915, the committee interviewed Miss Sinclair, and afterwards directed its clerk to inform her that unless she sent in her resignation her appointment would be terminated. The resignation was not received, and on October 21st notice to terminate the appointment was given to Miss Sinclair. On November 1st Miss Sinclair sent a letter to each member of the committee making grave charges and general allegations against Dr. Maule Smith, and asking

¹ T. Hubbard, *Trans. Amer. Otological Soc.*, xiii, Part 3. New Bedford, Mass., 1915.

² BRITISH MEDICAL JOURNAL, 1914, i, p. 1413.

for an investigation at the meeting of the committee on the following day. The committee unanimously decided to ask the Local Government Board to hold an inquiry. The Board instructed the committee to hold the investigation itself. After some correspondence with Miss Sinclair's solicitor, Mr. Durby, the committee permitted him to appear on her behalf at the inquiry, and to make a statement in her absence. Dr. Smith was present at the inquiry, and was represented by Mr. W. E. Hempson. The proceedings extended over three days, and eleven witnesses were heard. The committee has furnished us with a report of its investigation, in which the charges against Dr. Smith are set out, and the findings of the committee thereon stated. It suffices for us to say that the committee's report states as follows: "We have no hesitation in entirely exonerating Dr. Smith from all the charges and insinuations made against him by Miss Sinclair." We desire to offer our congratulations to Dr. Maule Smith and the Medical Defence Union, on whose instructions Mr. Hempson represented him, upon this complete vindication of his professional honour and reputation.

RAILWAYS IN WAR.

NAPOLEON, a man who had the virtue of knowing his own mind and not hesitating to express it, said he preferred a dead soldier to a wounded one. How far would he have modified this unsympathetic attitude of mind if he had had all our modern railways and railway ambulance transport to serve his ambitions? The question is one that is discussed very fully, though indirectly, in a book Mr. Edwin A. Pratt¹ has published recently. He gives a most interesting historical account of the influence of railways in the conduct of warfare. Great Britain is a country devoid of strategical railways; our iron roads were built to serve commerce only. Germany, on the other hand, was already busy building "aggressive" railway lines aiming at France and Russia as long ago as 1842; with what success it is needless to point out now. These, however, are matters that do not directly concern us; but Mr. Pratt has a most interesting chapter on railway ambulance transport—a branch of railway work that has grown out of all knowledge since its crude beginnings in the Crimean war sixty years ago. The hospital train, it appears, was invented in the American War of Secession, 1861-65, and attained so high a degree of efficiency during the last eighteen months of that war as to be of high strategical as well as humanitarian value. Thus we are told that the provisions made for the wounded during this period were worth an army of 100,000 men to the Federal forces. Each train consisted of five ward cars, a surgeon's car, a dispensary car, an ordinary passenger car for the less serious cases to sit in, a kitchen car with dining-room and storeroom, and a conductor's car. The trains had distinguishing signals which were recognized by the Confederates, and none of them were ever fired on or molested in any way. *O si sic omnes!* Some of these cars were specially built for the purposes they served. They were warmed and lighted in winter, and special attention was devoted to their ventilation. Mr. Pratt gives an interesting account of the use made of hospital trains in the chief wars of the last fifty years, and of their steady improvement in design and effectiveness. Their most recent representatives have been on view in London, Edinburgh, and other large towns during the past year, and have been visited and admired by many of us who are non-combatants. The bulk of Mr. Pratt's book is occupied with the economic and strategic aspects of railway development all the world over. It is well written and well documented, and should be welcome to the many readers of the daily papers who are in process of becoming well-grounded students of politics at home and abroad.

¹ *The Rise of Rail-Power in War and Conquest, 1839-1914.* By E. A. Pratt; with a Bibliography. London: P. S. King and Son, Ltd. 1915. (Demy 8vo, pp. 417. 7s. 6d. net.)

SCIENCE AND ADVERTISING.

No sooner is a discovery made in medicine than it is greedily seized upon by enterprising "providers" as a text upon which to preach their wares, until, like an operatic air that has been adapted to the barrel organ, it soon becomes unspeakably hackneyed. What tons of paper have been printed over to the tune of Garrod's discovery of uric acid, to push the sale of preventives, solvents, and destroyers of that peccant substance, which is now recognized to be an incidental and comparatively harmless by-product of gouty proclivities! Ever since Lister made public his immortal discovery we have been overwhelmed with antiseptics—antiseptic drugs, antiseptic dressings, antiseptic garments—in fact, almost everything one can think of except antiseptic babies. Then came the era of intestinal antiseptics, "warranted to cure" in spite of the asseverations of physiological chemists of repute, who denied the possibility of a successful direct attack on hypothetical microbes in a canal lined by exquisitely sensitive cells. Metchnikoff introduced the conception of phagocytosis, and forthwith came a procession of drugs, ointments, and lotions to promote, facilitate, and, if need be, compel, leucocytes *qua* phagocytes to do their duty. Huchard, or some other inventive genius, suggested "demineralization of the tissues" as the underlying cause of weakened resistance to microbial attack, and lo! phosphates, hypophosphites, and glycerophosphates flooded the market, the fact being ignored that a spendthrift who is unable to keep his money in his pocket is unlikely to succeed in retaining money conferred upon him as a gift. Investigators have ascribed beri-beri and rickets, pellagra and scurvy to the absence of hypothetical substances in prepared and preserved foods. Every patent food worth mentioning is warranted to contain a surfeit of vitamins. Well might the cynical French professor exclaim, "Make haste to use the new remedy while yet it cures."

Medical Notes in Parliament.

War.

Naval and Military War Pensions Committee.—The Prime Minister on January 4th stated that the Prince of Wales had consented to act as chairman of the statutory committee set up by the Naval and Military War Pensions Act, and that the paid vice-chairman would be Mr. Cyril Jackson. The other members of the committee are as follows:

Major-General Sir Ivor Herbert, Bt., C.B., C.M.G., M.P.; Mr. A. A. Allen, M.P.; Sir Henry Craik, K.C.B., M.P.; Mr. C. J. Mathew; Sir W. Ryland Adkins, M.P.; Lord Chylesmore, K.C.V.O.; the Right Hon. G. N. Barnes, M.P.; Mr. H. Gosling; Mrs. Sidney Webb; Miss Durham.

Sir Nominees of the Royal Patriotic Corporation: The Right Hon. W. Hayes Fisher, M.P.; Admiral Sir Wilmot H. Fawkes, G.C.B., K.C.V.O.; Mr. B. B. Cubitt; Mr. J. E. Rayner; the Countess Roberts; Mrs. McKenna.

Two Nominees of the Soldiers' and Sailors' Families Association: Lieutenant-Colonel Sir Donald Robertson, K.C.S.I.; the Countess of March.

Nominees of Government Offices: Treasury, Mr. H. E. Haward; Admiralty, Mr. C. M. Bruce; War Office, Lieutenant-General the Hon. Sir F. W. Stopford, K.C.M.G., K.C.V.O., C.B.; National Health Commissioners, Mr. D. J. Shackleton; Local Government Board, Sir S. B. Provis, K.C.B.; Local Government Board (Scotland), Sir R. Macleod, K.C.B.; Local Government Board (Ireland), Mr. C. H. O'Connor.

Men Temporarily Unfit.—Mr. Partington, on January 4th, asked whether, in view of the shortage of labour, men returned from active service and temporarily unfit for further service were allowed to return to civil life. Mr. Tennant said that men who are medically unfit for service abroad or at home, and who are not likely to become fit within six months, are discharged from the service; but men who are temporarily unfit are not discharged. He recognized the necessity of returning to civil life men no longer fit for military service, but it was necessary that the permanent unfitness should be conclusively established.

THE WAR.

WAR NEPHRITIS.

At a meeting of the K.k. Gesellschaft der Aerzte¹ in Vienna the etiology of the serious outbreaks of nephritis which have occurred among soldiers was discussed by, among others, Professor A. Klein and Dr. Pulay. Their investigations had been carried out in the First Reserve Hospital and in the Serotherapeutic Institute in Vienna. A large number of cases of haemorrhagic nephritis observed in April and May were attributed to a variety of different causes, such as sore throats, slight undetected scarlatina, and "chills." It was also frequently suggested that inoculation against typhoid fever might have been responsible. The clinical picture was fairly uniform: slight fever and oedema, accompanied by headache and tiredness. The urine contained albumin and blood and casts of every shape. Polyuria, nocturnal incontinence, and signs of pyelitis, including leucocytes and mucus in the urine, were observed in many cases. In 25 *B. coli* was found in pure culture in the urine, and yet these micro-organisms were very seldom found in the urethra. It was suggested that the bacilli might have reached the kidneys by the lymphatic system or the blood, the bladder having escaped infection. It was further assumed that the thermal and mechanical conditions to which soldiers were exposed facilitated the migration of the *B. coli* from the intestine to the kidneys, particularly if there was some lesion of the intestine, and in many cases the subjects of nephritis had previously suffered from dysentery, enteritis, or typhoid fever. In this connexion great interest attached to the frequency with which jaundice had lately been observed among soldiers who had previously contracted dysentery or enteritis. In many diagnosed as cholecystitis following "coli sepsis" the distended gall bladder was palpable. It was considered too early to attempt to formulate a definite prognosis in these cases of haemorrhagic nephritis; but on the whole a benign course was anticipated. Only three cases had terminated fatally, and in them probably the disease was of old standing. In one case the large white kidney was found, and in two cases the small, granular kidney (*Schrumpf-niere*). The symptoms in these three cases were those of sepsis, not those of uraemia. The necropsy also showed signs of sepsis, including enlargement of the spleen. The flooding of the urine with *B. coli* was intermittent, whereas haematuria was the most persistent phenomenon. It was considered advisable to keep the patients under observation for some time after they had apparently recovered. In a great number of the cases there was a definite relation between previous attacks of intestinal disease and pyelonephritis. It was maintained that this condition was far more common than was generally recognized, and that the *B. coli* played an important part in its causation.

In his contribution to the discussion Professor H. Schlesinger pointed out that the frequency with which the nephritis occurred in March and April suggested one common cause. He had been told by some army surgeons that the nephritis, in a certain number of cases, had been intentionally provoked by such drugs as cantharides and chromic acid, but this explanation probably held good only for a negligible proportion of all the cases. The nephritis was characterized by the length of the acute stage and by the obstinacy with which symptoms persisted. The haematuria often lasted many months. It was a curious fact that in a great number of cases hypertrophy of the heart did not supervene. He was somewhat sceptical as to the relation between intestinal disease and nephritis. He was of the opinion that the subjects of haemorrhagic nephritis were no longer fit for active service.

Professor Strasser said that he had seen about one hundred cases of "war nephritis." The severe symptoms were, in his opinion, evidence of extensive renal disease. He had often found as much as 3 per cent. albumin in the urine. About twenty of his cases belonged to the category of "coli sepsis." There were, however, many cases the etiology of which was independent of the *B. coli*. There must be many soldiers on active service whose kidneys

had previously been injured by scarlatina or other disease, and also, assuredly, alcoholists, whose reaction to cold and overwork would take the form of renal disease. Discussing the hypothetical relation between intestinal disease and nephritis, he drew attention to the facts that, though the epidemic of dysentery had culminated in September and October, the maximum incidence of the nephritis was observed more than half a year later. In very many of his cases the patients had been exposed to wet and cold, which, as experience proved, must provoke albuminuria. He had found nothing to check the haemorrhage in these cases. Though he considered soldiers who had recovered from this nephritis no longer fit for active service, he thought they might still be used for less strenuous military duties. On active service such patients were liable to relapse.

Dr. A. Schiff insisted that many of these patients had been treated for nephritis before the war, and that their "war nephritis" was nothing more than a relapse. In six out of seventeen cases the patients attributed their symptoms directly to exposure to cold. He also drew attention to the fact that, though the epidemic of dysentery had ceased, cases of nephritis in the field were still cropping up. Indeed, soldiers who had not been on active service sometimes developed nephritis after exposure to cold. He thought that with proper treatment many of these patients would recover; but in view of the frequency with which relapses occurred he considered they should not be sent back on active service. In two of his cases he had traced the nephritis to a previous attack of dysentery.

Professor E. Schwarz expressed his astonishment at the frequency with which nephritis occurred; he remarked that though pyelonephritis was well known in time of peace, haemorrhagic nephritis was exceedingly rare. Though he did not deny the part played by micro-organisms, he thought that in many cases the outbreak of the disease was determined by exposure to cold. He had found both polyuria and oliguria among his patients, and he thought these phenomena might represent different stages of the same disease. The last traces of albumin and blood were difficult to banish from the urine, and were apt to increase again on provocation, such as over-indulgence in alcohol. Another speaker confessed that the severe haematuria observed in some of these cases was unaffected by dietetic and therapeutic measures. Many of his patients had never suffered from any intestinal disease. Professor K. Landsteiner reported that he had found the paratyphoid bacillus in a case of parenchymatous nephritis associated with numerous haemorrhages. Professor L. Braun confirmed the statement that this nephritis was not confined to soldiers returning from the front, but was also observed among soldiers remaining in Vienna. He did not think that the nephritis could be traced to one common cause, and he had observed cases in which no explanation of the origin of the disease was forthcoming; the examination of the stools was negative, there was no sign of dysentery, and the patients had not previously been exposed to a soaking.

Professor C. Singer, on the other hand, considered that dysentery in many cases was a predisposing factor, and called to mind that dysentery might be followed by septic infection. Protective inoculation might well lead to the stirring up of quiescent micro-organisms. Among many patients suffering from jaundice there was a history of paratyphoid infection, and agglutination of the paratyphoid bacillus was often observed in these cases. Dr. Pribram cited experiments on animals to show that the subcutaneous injection of immune bodies even in large quantities did not harm parenchymatous organs.

MALINGERING IN THE FRENCH ARMY.

(From a Correspondent.)

From various recent communications in the French medical press it is plain that the problem of outwitting the malingerer is one which occupies a large share of the army surgeon's attention. It is equally plain that the simulation of different diseases has become a fine art, though the ingenuity displayed in this direction is often wasted owing to the simulator's ignorance of pathological associations and limitations. There have been epidemics of jaundice which for some time greatly puzzled the medical officers

of hospitals at or near the front, but the very number of the cases led to close inquiry, when it was discovered that a yellow coloration of the skin can be brought about by the ingestion of picric acid. Once suspicion was aroused the unmasking of the perpetrator was an easy matter and a court-martial followed. The directions for the detection of picric acid in the urine are to render it alkaline and add a solution of potassium cyanide (1 in 5). On heating, the mixture yields a deep purplish-blue tint. Another test is to shake up a sample of the urine with twice its volume of ether, whereupon the latter acquires a yellow hue. If a strip of white wool be steeped therein it is dyed yellow and the colour cannot be removed by washing. If the dyed wool is dipped in a solution of ammonium sulphide, it turns red. Apart from these chemical tests, the jaundiced subjects do not present the colourless stools, slowness of pulse, or itching associated with jaundice, and the urine does not contain bile pigments.

Another popular trick is to introduce white of egg into the urine or even to inject it into the bladder; it renders the urine albuminous, in diminishing quantities, for twenty-four hours. As a rule simulators overstep the mark in that the amount of albumin is incompatible with the general health of the subject. A modification of this trick is to have a little white of egg in a pocket, the finger is dipped into it when the man is asked to micturate, and the jet is made to wash the albumin off into the specimen for examination.

In another series of cases oedema is simulated by injecting water beneath the skin, and in the same order of ideas we meet with fixation abscesses determined by the injection of paraffin or turpentine. The former causes a mild abscess, but the inflammation set up by the latter may be serious. These abscesses are usually situated on the inner aspect of the left lower limb, and the patient describes himself as suffering from "phlebitis." It follows that phlebitis of the left leg, starting on the inner aspect, should be regarded with some suspicion. The points to be borne in mind in arriving at a diagnosis are that the area of inflammation is strictly localized, and develops around the mark of a puncture; there is no tendency to lymphangitis and no rise of temperature or constitutional disturbance. Care must be taken in opening these abscesses not to apply iodine, ether, or other odoriferous substance to the skin because this might prevent the characteristic odour of paraffin or turpentine being perceived on evacuation. There is, however, no limit to the misplaced ingenuity of the pacifists in this direction. Victims of slight wounds to the head have been known to prolong their convalescence indefinitely by provoking inequality of the pupils by the judicious use of atropine. Some men on their way to the front are taken ill, and have to be detained at a station infirmary, the favourite device being acute conjunctivitis, induced by means of snuff or powdered ipecacuanha, or facial "erisipelas" precipitated by the application of croton oil. Hydrarthrosis of the knee is simulated by placing a potato in the popliteal space and strongly flexing the joint for a few hours, just as swelling of the feet can be brought about by tying the puttees too tightly. Simulated epilepsy is a form of deceit that will not withstand close scrutiny, and men suspected of "trying it on" are at once sent to the line of fire *pour encourager les autres*. There have been many cases of alleged retention or incontinence of urine consequent upon nervous shock, but careful observation and instrumental exploration enables the specialist to decide which cases call for treatment and which may safely be ignored. The detection of simulated defects of sight and hearing calls for highly technical methods of investigation which have now been so perfected that probably not even the specialist himself could steer his way through the maze and escape conviction.

EXPERIENCES OF A NORWEGIAN DOCTOR IN AUSTRIA.

A NORWEGIAN doctor, Einar Aaser, who served for several months with the Austrian forces in various districts, has published an account of his experiences in *Norsk Tidsskrift for Militærmedicin* (vol. xix, No. 3, 1915).

FAULTY AMBULANCE ORGANIZATION.

In the early months of the war the transport of the sick and wounded from the front was hopelessly disorganized,

and many of the sick spent over a week on the railway on their way to the base hospitals. Even when the infectious nature of disease was recognized at the front the patients were crowded together with the wounded, and were hurried inland without isolation precautions. The injunction not to use the lavatories while a train was halted at a station was a dead letter to patients suffering from cholera, dysentery, and typhoid fever, and among the civilian patients infection was frequently traceable to neglected disease among the soldiers. Indeed, at one time in Vienna there were more civilians than soldiers suffering from dysentery. Dr. Aaser suggests that this disease among civilians might have been largely averted had the military authorities adopted measures to protect civilians as well as soldiers from infectious disease. In war time the non-military authorities found themselves practically powerless to cope with the problems of infectious disease among the civil population.

FEEDING THE WOUNDED AT RAILWAY STATIONS.

According to the mobilization scheme, the train service was slowed down, the maximum speed being 17 kilometres an hour. Journeys, therefore, which under ordinary conditions would have lasted only a day, took three to four. At the few stations where refreshment stalls existed the arrival of a train was a signal for a free fight for sausages and beer. Matters were considerably improved when the Red Cross organized refreshment stalls free of charge at the large stations, where the military trains usually stopped for some time. The ladies who volunteered for this service met the trains at all hours of the day and night, and supplied with food and drinks not only the sick and wounded returning from the front, but also the new drafts travelling in the opposite direction. In spite of the admirable services rendered by these ladies, the system was abandoned, probably because of the fear of infection.

DYSENTERY.

Soon after the outbreak of the war the Wilhelmina Children's Hospital in Vienna was set aside for the treatment of men suffering from dysentery. Before admission to the pavilions of the hospital they were rubbed with parasitic applications to destroy lice. Most of the soldiers referred the onset of the disease to attacks of anorexia, rheumatic pains, and slight rigors. Only a few had suffered from vomiting. These prodromal symptoms were soon followed by almost continuous pain in the epigastrium, accompanied by severe diarrhoea and almost unbearable tenesmus. Though the evacuations were often as frequent as thirty to forty a day, and prevented sleep, the general appearance of the patients was, on the whole, good; and it was very exceptional to find cyanosis, collapse, and other signs of severe infection. The soldiers complained of having had to march for as long as five days at a time out of touch with the commissariat, and on these occasions they had to subsist on the potatoes they dug up and the fruit they picked. The supply of water was also inadequate. Though the majority of the men in one company was infected, only a few gave up; the rest struggled on, and when a certain district had been left behind the outbreak ceased suddenly. This was attributed to the escape from an area saturated with infection by soldiers defaecating on the march. The treatment was principally dietetic; a full fluid diet was combined with narcotics, such as morphine. Only the most severe cases were treated with serum, and its effects were scarcely noticeable. The results obtained by dietetic treatment in one hospital, by serum in another, and by intestinal irrigation in a third, were all good, and in the hospital in which Dr. Aaser worked there was only one death. In his opinion the subjects of dysentery recover in spite of every treatment.

CHOLERA.

After numerous outbreaks of cholera had occurred in different parts of the interior, the authorities realized how faulty the isolation of infected persons had been, and proceeded to establish large quarantine stations. Dr. Aaser was attached to one of these in Marisch-Weiskirchen, where 2,400 beds were provided, and where the wounded from West Galicia were detained for five to six days before being transferred to the interior. Subsequently he was transferred to Witkowitz, a manufacturing town only a few miles from Cracow. He estimates that the number

of cases of cholera in this area did not exceed a couple of thousand, and he was astonished to find how mild a course the disease usually ran. At the outbreak of the war no soldier had been inoculated against cholera, but after the disease had broken out in the Serbian campaign inoculation was made compulsory for every soldier; 1 c.cm. of an emulsion of dead cholera bacilli was injected subcutaneously, and the same dose was repeated four to six days later. The reactions were so slight that they did not interfere with the soldiers' duties. It was, in Dr. Aaser's opinion, this prophylactic inoculation which reduced the incidence of the disease and caused it to run so mild a course. When it attacked the uninoculated, its manifestations were much more alarming. The slight cases required little treatment apart from careful nursing; the severe cases were treated with calomel, charcoal, and bolus alba, given internally; and by subcutaneous injection of serum, the action of which, in many cases, was strikingly beneficial. Large subcutaneous or intravenous injections of saline solution were given as a last resource, and were often very effective. When hypertonic saline solution was used, it was given intravenously only. The mortality was very low, and only three out of about fifty patients died under Dr. Aaser's care. Though he attributed this low death-rate to prophylactic inoculation, he anticipated that this procedure was calculated to produce many slight cases and "carriers," who would be a source of grave danger to the uninoculated population when the soldiers returned home.

QUARANTINE ARRANGEMENTS.

The number of sick and wounded in a train which had been dispatched was notified to the quarantine hospital, and the whole staff met the train at the station and at once began to sort out the infectious from the non-infectious cases. Two non-commissioned officers collected the soldiers' weapons and equipment, and uniforms were at once disinfected in steam and subsequently washed. Meanwhile two elderly Sisters took charge of and registered the soldiers' money and other articles of value. The men were then bathed and put into clean clothing, and at this stage a further grouping was made, according as the cases were medical or surgical. As soon as the dressings were changed, the first meal, consisting of sausages, soup, and bread, was given. In a draft of men from the front, 10 to 15 per cent. usually consisted of infectious cases, but the nature of the infection was, as a rule, not recognized till the patients had been in quarantine for a few days. A great drawback to the system was the lack of facilities for operating in the quarantine station itself, and on several occasions it was necessary to ignore the quarantine and to transfer the patient to a purely surgical ward so as to perform some urgent operation. There were no fully-trained nurses available in this quarantine establishment, and the nursing devolved on women whose qualification for the work consisted of a three weeks' course of theoretical and practical instruction. Yet, on the whole, they did excellent service, not so much in changing dressings and handing instruments, as in helping the patients at their meals, writing letters for them, etc.

LORD FRENCH'S DISPATCH.

The following are among the names mentioned in Field-Marshal Lord French's dispatch of November 30th, 1915, for gallant and distinguished service in the field:

ARMY MEDICAL SERVICE.

General Head Quarters Staff, Etc.

Surgeon-Generals: W. G. Macpherson, C.B., C.M.G., M.B., K.H.P.; T. J. O'Donnell, D.S.O.; M. W. O'Keefe, C.B., M.D.; R. Porter, M.B.; F. H. Treherne, C.M.G., F.R.C.S.E.; T. P. Woodhouse, C.B.

Colonels: G. H. Barefoot, C.M.G.; E. G. Browne; C. H. Burchaell, C.M.G., M.B.; G. Cree, C.M.G.; R. H. Firth, F.R.C.S.; M. P. C. Holt, C.B., D.S.O.; G. D. Hunter, D.S.O.; R. Kirkpatrick, C.M.G., M.D.; S. MacDonald, M.B.; R. L. R. MacLeod, M.B.; C. E. Nichol, D.S.O., M.B.; D. M. O'Callaghan; W. W. Pike, D.S.O., F.R.C.S.I., A.M.S.; G. T. Rawnsley; J. J. Russell, M.B.; B. H. Scott; B. M. Skinner, M.V.O.; W. H. Starr; H. N. Thompson, D.S.O., M.B., A.M.S.; H. C. Thurston, C.M.G.; T. du B. White, M.B., A.M.S.; J. B. Wilson, M.D., A.M.B.; C. A. Young, A.M.S.

Temporary Colonels: J. Atkins, M.B., F.R.C.S., A.M.S.; W. C. Beevor, C.M.G., M.B., T.F. (Lieutenant-Colonel, *ret. pay*).

Lieutenant-Colonels: E. T. F. Birrell, C.M.G., M.B., R.A.M.C.; F. J. Brakenridge, R.A.M.C.; A. Chopping, R.A.M.C.; S. L. Cummins, C.M.G., M.D., R.A.M.C.; H. E. M. Douglas, V.C., D.S.O., R.A.M.C.; H. B. Fawcett, C.M.G., M.B., R.A.M.C.; L. N. Lloyd, D.S.O., R.A.M.C.; C. K. Morgan, M.B., R.A.M.C.; F. S. Penny, M.B., R.A.M.C.; H. S. Roch, R.A.M.C.; J. M. Sloan, D.S.O., M.B., R.A.M.C.; N. Tyacke (temp. Col.), M.B., R.A.M.C.

Majors: C. G. Browne, D.S.O., R.A.M.C.; B. B. Burke, R.A.M.C.; J. M. H. Conway, F.R.C.S.I., R.A.M.C.; P. Davidson, D.S.O., M.B., R.A.M.C.; P. G. Easton, R.A.M.C.; C. C. Fleming, D.S.O., M.B. (Res. of Off.); J. A. Hartigan, M.B., R.A.M.C.; T. E. Harty, R.A.M.C.; P. H. Henderson, M.B., R.A.M.C.; H. C. Hildreth, F.R.C.S. Edin., R.A.M.C.; J. D. Richmond, M.D., R.A.M.C.; M. B. H. Ritchie, M.B., R.A.M.C.; A. B. Smallman, M.D., R.A.M.C.; R. N. Woodley, R.A.M.C.

Captains: J. J. H. Beckett, R.A.M.C.; F. W. M. Cunningham, M.D., R.A.M.C.; R. Gale, D.S.O., M.B., R.A.M.C.; F. D. G. Howell, R.A.M.C.; W. P. MacArthur, M.D., F.R.C.P.I., R.A.M.C.; J. W. L. Scott, M.B., R.A.M.C.

Consultants.

Temporary Colonels: Sir B. E. Dawson, K.C.V.O., M.D. (Captain London General Hospital, R.A.M.C.T.F.); H. McI. W. Gray, M.D., F.R.C.S. Edin. (Major Scottish General Hospital, R.A.M.C.T.F.); W. T. Lister, M.B., F.R.C.S.; H. A. Thomson, M.D., F.R.C.S. (Captain Scottish General Hospital, R.A.M.C.T.F.); C. S. Wallace.

Royal Army Medical Corps.

Lieutenant-Colonels: L. Addams-Williams; J. E. Brogden; T. H. M. Clarke, C.M.G., D.S.O., M.B.; R. W. Clements, M.B.; V. J. Crawford, D.S.O.; G. H. Goddard; H. A. Hinge (temporary Colonel); A. W. Hooper, D.S.O.; W. E. Hudleston; E. T. Inkson, V.C.; F. Kiddle, M.B.; J. W. Langstaff; J. W. Leake; J. R. McMunn; C. W. Mainprize; E. W. P. V. Marriott; H. G. Martin; G. A. Moore, M.D.; W. H. S. Nickerson, V.C., M.B.; H. H. Norman, M.B.; M. MacG. Rattray, M.B.; J. P. Silver, M.B.; F. Smith, D.S.O. (Brevet Colonel); A. A. Watson (S.R.), (Lieutenant-Colonel R.A.M.C.T.F.); A. O. B. Wroughton.

Temporary Lieutenant-Colonel: T. C. English, M.B., F.R.C.S. (Captain London General Hospital, R.A.M.C.T.F.).

Majors: R. B. Ainsworth; E. G. Anthonisz; R. B. Black, M.B. (Res. of Off.); G. H. J. Brown, M.B.; J. H. Campbell, M.B.; K. A. C. Doig; Fitzg. G. Fitzgerald; A. W. Gibson; F. J. Hanafin; D. L. Harding, F.R.C.S.I.; H. Harding, M.B.; A. E. S. Irvine; E. F. Q. L'Estrange; R. P. Lewis; S. E. Lewis, M.B.; N. Low; J. T. McEntire, M.B.; A. A. Meaden; S. M. W. Meadows; A. H. McN. Mitchell; J. S. Pascoe; L. M. Purser, M.B.; J. M. B. Rahilly, M.B.; W. Riach, M.D.; T. F. Ritchie, M.B.; F. E. Roberts; E. Ryan; F. C. Sampson, M.B.; H. F. Shea, M.B.; M. Sinclair, M.B.; R. S. Smyth, M.D.; H. Stewart, M.B.; R. Storrs; R. J. C. Thompson; J. A. Turnbull; C. H. Turner; W. J. Waters; J. W. West, M.B.; R. K. White; W. Wiley, M.B.

Temporary Major: E. L. Gowland, M.B.

Captains: J. Adams, M.B. (S.R.); J. E. Allan, M.B. (S.R.); R. R. G. Atkins, M.B. (S.R.); J. H. Baird, M.B. (S.R.); D. C. G. Ballingall, M.B.; H. C. Bazett, M.B., F.R.C.S. (S.R.); W. K. Beaman; F. A. Bearn, M.B. (S.R.); E. C. Beddows; W. J. E. Bell, D.S.O., M.B.; J. E. Black, M.B. (S.R.); J. E. M. Boyd; A. B. H. Bridges; W. K. Campbell, M.B. (S.R.); A. G. W. Compton (S.R.); A. R. Dale (S.R.); E. C. Deane (killed); G. De La Cour, M.B.; R. M. Dickson, M.B.; M. G. Dill, M.D.; J. S. Dockrill, M.B. (S.R.); J. C. A. Dowse, M.B. (S.R.); A. C. Elliott, M.B.; E. J. Elliot, M.B.; P. Elvery, G.M.; D. B. Chiles-Evans, M.B. (S.R.); Welsh Field Ambulance, R.A.M.C. (T.F.); A. J. Ewing, M.B. (S.R.); F. G. Flood, M.B. (S.R.); R. Forgan, M.B. (S.R.); W. Fotheringham, M.B. (S.R.); H. R. Friedlander (S.R.); J. K. Gaunt, M.B.; A. J. Gilchrist, M.B. (S.R.); T. O. Graham, M.D., F.R.C.S.I. (S.R.); J. W. Gray, M.B. (S.R.); J. B. Grogan; B. Goldsmith (S.R.); O. Hairsine (S.R.); T. Hampson, M.B. (Res. of Off.); H. A. Harbison, M.B. (S.R.); J. W. P. Harkness, M.B. (S.R.); R. Hemphill, M.B.; A. H. Heslop, M.B.; J. W. Houston, M.B.; B. Hughes, M.B., F.R.C.S., West Riding Field Ambulance, R.A.M.C. (T.F.); A. C. Jebb, M.B. (S.R.); K. W. Jones, D.S.O., M.D. (S.R.), East Lancashire Field Ambulance, R.A.M.C. (T.F.); F. R. Kerr, D.S.O., M.B. (S.R.); D. R. King, M.B. (S.R.); S. D. Large; N. V. Lothian, M.B.; W. H. L. McCarthy, M.D. (S.R.); W. McK. H. McCullagh, M.B. (S.R.); C. McN. McCormack, M.B. (S.R.); J. R. McCurdie, M.B. (S.R.); D. Mackie, M.B. (S.R.); J. W. McNea, M.B. (S.R.); C. McQueen; J. J. Magner, M.B. (S.R.); D. M. Marr, M.B. (S.R.); A. J. A. Menzies, D.S.O., M.B.; S. Miller, M.B. (S.R.); T. MacK. Miller, (S.R.); J. P. Mitchell, M.D. (S.R.); T. J. Mitchell, M.B.; H. G. Monteith, D.S.O.; G. T. Mullaly, M.B., F.R.C.S. (S.R.); R. E. U. Newman, M.B.; C. M. Nicol, M.B.; A. P. O'Connor, M.B.; J. A. O'Driscoll (S.R.); J. J. O'Keefe, M.B.; E. M. O'Neill, M.B.; W. H. O'Riordan; K. L. O'Sullivan, (S.R.); R. C. Ozanne, M.B. (S.R.); G. S. Parkinson; H. M. J. Perry; G. Petit; E. Phillips, M.B.; W. T. Quinlan (S.R.); A. Ramsbottom, M.D. (S.R.), East Lancashire Field Ambulance, (R.A.M.C.T.F.); E. Robinson, M.B., (S.R.); A. W. Russell, M.B. (S.R.); E. U. Russell; P. Sampson, D.S.O.; H. B. Sherlock (S.R.); W. C. Smales; H. Smith (S.R.); S. H. Smith; C. W. Sparks, (S.R.); G. H. Stevenson, M.B. (S.R.); E. A. Sutton; R. G. H. Tate, M.D.; M. R. Taylor, M.B. (S.R.); W. O. Tobias, M.B. (S.R.); F. T. Turner; W. Tyrrell, M.B. (Res. of Off.); T. Walker, M.B. (S.R.); Q. V. B. Wallace, M.D. (S.R.); S. J. A. H. Walshe, D.S.O., M.B. (S.R.); H. K. Ward,

M.B. (S.R.); J. H. Ward, M.B. (S.R.); A. G. Wells; M. J. Williamson, M.B.; F. Worthington, M.B.; A. R. Wright, M.B.; T. W. Wyhe, M.B. (S.R.).

Temporary Captains: J. A. Andrews, M.B.; J. H. Barry, D. Bell, M.B.; L. G. Bourdillon; A. E. Bullock (killed); E. W. Carrington, M.B. (killed); R. Charles, F.R.C.S.I.; R. E. Cree, M.B.; W. S. Danks, M.D.; J. W. Dew, M. Donaldson, M.B.; F.R.C.S.; G. D. Ferguson, M.B.; P. Ferguson, M.B., F.R.C.S.; W. Foot, M.B.; J. M. Gillespie, M.B.; R. H. C. Gompertz, M.B.; G. L. Grant (killed); J. R. C. Greenlees, D.S.O., M.B.; E. H. Griffin, M.D.; S. Gurney-Dixon; C. S. P. Hamilton, D.S.O.; F. A. Hampton, M.B.; E. B. Jardine; H. J. R. Jones; W. Kelsey-Fry; R. Kennon, M.D.; H. R. Knowles, M.B.; D. A. Laird, M.B.; T. A. Lawder, M.B.; E. F. W. MacKenzie, M.B.; S. F. McDonald, M.B.; J. M. McLaggan, M.B.; J. C. MacLean, M.D.; J. A. MacLeod, M.B.; J. W. McLeod, M.P.; J. H. McNicol, M.B.; D. McVicker; E. K. Martin, F.R.C.S.; G. Millar, M.B.; W. G. Mumford, M.B., F.R.C.S.; F. L. Nash-Worham, F.R.C.S. Edin.; G. E. Nelligan, M.B., F.R.C.S.; C. J. O'Reilly, M.D.; T. E. Parker, M.B.; H. W. Parnis, M.D.; M. Peto, M.B.; W. B. Purchase; G. Rankine, M.B.; E. L. N. Rhodes; O. Richards, D.S.O., M.D., F.R.C.S.; J. E. H. Roberts, M.B., F.R.C.S.; R. E. Roberts; R. C. Robertson, M.B.; H. A. Rona, M.B.; W. A. Russell, M.B.; J. F. Smith, M.B.; P. Smith; T. V. Somerville; D. B. Spence; D. J. S. Stephen, M.D.; J. S. Stewart, M.B.; G. Stiell; F. R. Thornton, M.B.; S. L. Walker, M.B.; A. W. Weston, M.B.; J. S. Wilson, M.D., F.R.C.S.; C. G. L. Wolf, M.D.; R. F. Young, M.B.

Lieutenants: A. F. Menzies, M.D.; and C. S. Williams, M.D., of the Canadian A.M.C.

Temporary Lieutenants: D. C. Alexander, M.B.; J. E. Barnes, M.B.; C. M. Bernays; J. H. Boag, M.B.; H. E. A. Boldero; C. A. Boyd, M.D.; B. S. Browne, M.B.; P. Cagney; J. Caton-Shelmerdine; W. E. David, M.B.; C. G. Douglas, M.D.; J. Dunbar, M.B.; J. C. Dunn, M.D.; J. D. Driberg; R. H. Fothergill, M.B.; H. C. Godding; R. A. Hughes, M.D.; C. A. Kenny; J. T. Kirkland, M.B.; M. MacKenzie; O. G. Maginness; R. H. McGillicuddy; T. Meagher, M.B.; C. S. L. Roberts; A. R. Roche; H. A. Rowell; L. D. Saunders; C. A. Smallhorn; J. F. Steven, M.B.; J. K. Stewart; T. Strain, M.D.; R. H. Tribe; H. B. Walker, M.B.; D. G. Watson, M.B. (died of wounds); W. N. Watson, M.B.; J. R. M. Whigham; N. S. Whitton, M.B.; A. F. Wright, M.B.

Late Temporary Lieutenants: A. E. Brown; H. P. Costobadie, F.R.C.S. Edin.; B. V. Dunne, M.B.; R. J. Harley-Masou; P. W. James, M.D.; A. C. S. Smith; J. B. Wood, M.B.

ROYAL ARMY MEDICAL CORPS (T.F.).

Colonels: J. V. W. Rutherford, F. O. Wight (Lieutenant-Colonel, retired pay).

Lieutenant-Colonels: L. J. Blandford, M.D.; T. F. Dewar, M.D.; S. G. Barling, M.B., F.R.C.S. (South Midland Field Ambulance); W. K. Clayton (Yorkshire Mounted Brigade Field Ambulance); F. Hawthorn, M.D. (Northumbrian Field Ambulance); C. H. Hawkins (South Midland Field Ambulance); A. Milne Thomson (Wessex Field Ambulance); W. M. O'Connor, M.D. (London Field Ambulance); R. Pickard, M.D. (Wessex Field Ambulance); W. Ranson, F.R.C.S. Edin. (Northumbrian Field Ambulance, Captain R.A.M.C. (S.R.)); A. D. Sharp (West Riding Field Ambulance); A. B. Soltan, M.D. (Wessex Field Ambulance); J. Young, M.D. (South Midland Field Ambulance).

Temporary Lieutenant-Colonels: W. A. Benson (Northumbrian Field Ambulance); H. Collinson, M.B., F.R.C.S. (West Riding Field Ambulance); L. P. Demetriadi, M.D., F.R.C.S. Edin. (West Riding Casualty Clearing Station); E. Lloyd-Williams (London Field Ambulance).

Majors: W. B. Armstrong, M.B.; J. P. Brown, M.B.; H. L. de Legh, M.D.; A. Don, M.B., F.R.C.S. Edin. (Highland Casualty Clearing Station); A. D. Ducat, M.B.; G. H. L. Hammerton (Yorks Mounted Brigade Field Ambulance); T. Kay, M.B.; A. E. Kidd, M.B. (Highland Field Ambulance); W. B. Mackay, M.D.; E. C. Montgomery-Smith (London Field Ambulance); T. P. Puddicombe (Wessex Field Ambulance); W. F. Roe; J. S. Y. Rogers, M.B.; H. B. Syroat, M.D. (West Riding Field Ambulance); J. Ward (temporary Lieutenant-Colonel, Home Counties Field Ambulance).

Temporary Majors: J. W. Bird, D.S.O. (London Field Ambulance); J. C. S. Burkitt, M.D. (North Midland Field Ambulance); H. G. G. Mackenzie, M.D. (temporary Lieutenant-Colonel, Home Counties Field Ambulance); T. H. Peyton, M.D. (Home Counties Field Ambulance).

Surgeon-Majors: A. R. Stoddart, M.B. (West Yorks Regiment, T.F.); E. G. Stocker (Wessex Divisional Engineers, R.E. T.F.).

Captains: J. W. Anderson, M.B.; M. H. Barton; H. T. Bates, M.B. (West Riding Casualty Clearing Hospital); M. H. Barton; F. G. Bennett (North Midland Field Ambulance); J. M. Bowie, M.D.; T. Carnwath, M.B.; F. S. Carson, M.B. (London Sanitary Company); N. G. Chavasse, M.B.; S. Clark (London Field Ambulance); E. A. Cooper (London Sanitary Company); M. Coplans, M.D. (London Field Ambulance); T. W. Crowley, M.D. (Northumbrian Field Ambulance); J. Dale, M.B.; S. H. Dawkes, M.B. (London Sanitary Company); H. B. F. Dixon, M.B. (London Field Ambulance); J. Downie, M.B. (Yorks Mounted Brigade Field Ambulance); C. N. Draycott (London Sanitary Company); R. Errington, M.B. (Northumbrian Field Ambulance); C. H. S. Frankau, M.B., F.R.C.S. Edin. (temporary Major, London Casualty Clearing Station); J. Golding (London Sanitary Company); C. W. Greene, M.B., F.R.C.S. (Home Counties Field Ambulance); H. S. Hollis, M.B. (Home Counties Field Ambulance); G. H. Hunt, M.B. (London Casualty

Clearing Station); D. M. Johnston, M.B. (Home Counties Field Ambulance); W. B. Keith, M.B. (Home Counties Field Ambulance); G. Q. Lennane, F.R.C.S.I. (London Sanitary Company); H. Lightstone; H. B. Low, M.D. (Northumbrian Field Ambulance); J. MacMillan, M.B. (London Field Ambulance); G. S. Melvin, M.B. (Highland Field Ambulance); F. Metcalfe, M.B. (Northumbrian Field Ambulance); J. Murdock, M.B., F.R.C.S. Edin.; A. W. Nuthall, F.R.C.S. (South Midland Casualty Clearing Station); W. J. C. B. Pitt (South Midland Casualty Clearing Station); J. A. C. Scott, M.B.; H. J. D. Smythe (South Midland Field Ambulance); R. F. T. Tatlow, M.D.; R. M. Vick (London Field Ambulance); C. G. Watson (T.F.R.), F.R.C.S. (temporary Honorary Lieutenant-Colonel, R.A.M.C.); J. A. Watt, M.B. (London Field Ambulance); G. White (London Sanitary Company); H. F. Wilkin, F.R.C.S. Edin.; G. S. Williamson (South Midland Field Ambulance); W. L. R. Wood.

Surgeon-Captain: R. W. Branthwaite (T.F.R.).

Temporary Captains: J. W. Craven, M.B. (Northumbrian Field Ambulance); J. H. Fletcher, R.A.M.C.; J. R. Marrack, M.B., R.A.M.C.

Lieutenant: S. R. Foster, M.B. (North Midland Field Ambulance).

INDIAN MEDICAL SERVICE.

Colonel: B. B. Grayfoot, M.D.

Lieutenant-Colonels: A. E. Berry, M.B.; J. A. Hamilton, M.B., F.R.C.S. Edin.; A. J. MacNab, F.R.C.S.

Majors: H. Boulton, M.B.; R. J. Bradley, M.B.; G. Browne, M.D.; H. M. Cruddas; A. N. Fleming, M.B., F.R.C.S. Edin.; J. Good, M.B.; C. Hudson, D.S.O., F.R.C.S. Edin.; W. W. Jendwine, M.D.; G. C. L. Kearns; R. A. Needham, M.B.

Captains: F. B. Shettle; H. S. Carmack, M.B., F.R.C.S. Edin.; V. B. Green-Armytage; S. H. Middleton-West, M.B.; R. B. Nicholson; W. C. Paton, M.B.; J. Scott, M.B.; J. Smalley, M.B.; C. H. Smith, M.D., F.R.C.S.; V. N. Whitmore; C. A. Wood, M.B.

INDIAN SUBORDINATE MEDICAL DEPARTMENT.

Bal-Mukand, No. 991 1st Class Sub-Assistant Surgeon; Hiralal, No. 1255 1st Class Sub-Assistant Surgeon P.; Hira Sing, No. 929 1st Class Sub-Assistant Surgeon, Rai Bahadur; Jassudassam, No. 1286 1st Class Sub-Assistant Surgeon S.; Kishan Singh, No. 1046 1st Class Sub-Assistant Surgeon; McMillan, 1st Class Assistant Surgeon W. C.; Maine, 1st Class Assistant Surgeon W. J. S.; Pohlo Ram, 772 1st Class Sub-Assistant Surgeon; Shaikh Hussain Ali, Subadar and 1st Class Senior Sub-Assistant Surgeon; Bishan Singh, 1143 1st Class Sub-Assistant Surgeon; Browne, 2nd Class Assistant Surgeon R. F.; Culpankum Virasami Rajagopal Pillai, 2nd Class Sub-Assistant Surgeon; Kishan Singh, 1246 2nd Class Sub-Assistant Surgeon; Pargan Singh, 1230 2nd Class Sub-Assistant Surgeon; Boilard, 3rd Class Assistant Surgeon E. H.; Mathurapershad Sarawit, 1360 3rd Class Sub-Assistant Surgeon; Messinier, 3rd Class Assistant Surgeon E. B.; Rodrigues, 3rd Class Assistant Surgeon J. M.; Browne, 4th Class Sub-Assistant Surgeon W. A.

MEDICAL SERVICES.

Members of the American, Chicago, and Harvard Units, Attached to Nos. 22 and 23 General Hospitals, Etampes: Dr. P. S. Chancellor, Dr. W. J. Dodd, Dr. W. E. Faulkner, Dr. V. Kazanjian, Dr. J. M. Neff.

The list also contains the names of a large number of non-commissioned officers and men, and also members of the nursing services.

CASUALTIES IN THE MEDICAL SERVICES.

ROYAL NAVY.

H.M.S. *Natal*.

THE year 1915 closed, as it had opened, with a naval disaster. On January 1st, 1915, the battleship *Formidable* was sunk in the Channel with the loss of the greater part of her complement. On December 31st the Admiralty announced that H.M.S. *Natal*, armoured cruiser, Captain Eric Back, R.N., had sunk in harbour on the previous afternoon as the result of an internal explosion. This is the third vessel which has been lost by an explosion in harbour since the war began, H.M.S. *Bulwark* and H.M.S. *Princess Irene* both having been destroyed in this way in Sheerness harbour. Out of a total ship's complement of 704 on the *Natal*, 14 officers and 373 men were reported as saved, while 25 officers, including the captain, and 292 men were killed. She carried three medical officers, of whom one, Fleet Surgeon E. S. Tuck, was saved, and two, Staff Surgeon A. Hooper and Surgeon (temporary) D. W. K. Moody, were lost. The locality of the accident has not been made known.

Staff Surgeon Alfred Oswald Hooper was educated at Edinburgh, where he graduated M.B. and Ch.B. in 1903, entered the navy in the following year, and became Staff Surgeon on November 21st, 1912.

Surgeon Douglas Whinster Keiller Moody was educated at Aberdeen, where he graduated M.B. and Ch.B. in 1900

and M.D. in 1902. He subsequently studied in London, Dublin, and Berlin, and filled the posts of house-surgeon of Peterborough Infirmary, assistant medical officer of the Central London Infirmary, and second house-surgeon of Addenbrooke's Hospital, Cambridge. He took a temporary commission as surgeon in the navy on August 10th, 1915.

ARMY.

Killed in Action.

Captain Anthony Purdon Hegarty Corley, M.D., killed in the Dardanelles last August, was the son of the late Anthony Corley, surgeon to the Richmond Hospital, Dublin, and president of the Royal College of Surgeons, Ireland. He was educated at Trinity College, Dublin, where he took the M.B., B.Ch., B.A.O., and M.D. in 1902. After qualifying he entered the Colonial Medical Service as a Government medical officer in Fiji. He subsequently settled in West Australia, where he served as Government medical officer successively at Wagin and Karridale and as medical officer of health at Pingelly. He joined the first Australian contingent as a combatant officer—captain in the 11th Infantry Battalion—on August 28th, 1914.

Major Frederick Miller Johnson, of the Australian Army Medical Corps, was killed at "Anzac" in the Gallipoli Peninsula, on November 29th. He was educated at Melbourne, and at Edinburgh, where he took the M.B. and C.M. in 1886 and the M.D. in 1888, subsequently studying also in Vienna and at Heidelberg. He then returned to Australia and went into practice at Melbourne, receiving the degree of M.D. *ad eundem* from the university of that city. He was attached to the 6th Australian Field Ambulance when killed. He was a grandnephew of the late Sir William Gull.

Captain Guy Fitzmaurice John Luther, of the Australian Army Medical Corps, killed in the Dardanelles last August, was educated at Trinity College, Dublin, and took the diplomas of L.R.C.S.Ire. and L.R.C.P.Ire. in 1893. After serving as house-surgeon of the City Hospital, Dublin, he went to Australia, where he filled the post of assistant physician to the Goodna Asylum, Queensland, and then settled in practice at Bundaberg, Queensland.

Captain Albert Guy Miller, R.A.M.C., was killed in France on December 29th, aged 31. He was the fourth son of the late Albert Miller, of Whernside, Toorak, Melbourne. He took a temporary commission as Lieutenant on October 21st, 1914, and was promoted to Captain on completion of a year's service. He was attached to the 12th Battalion Middlesex Regiment.

Lieutenant Arnold Bosanquet Thompson, R.A.M.C.(T.F.), was killed in the Mediterranean (Dardanelles?) on December 25th, aged 29. He was the fourth son of Arthur Thompson, Esq., of Garthlands, Reigate Heath, and of 38, Mincing Lane, London, and was educated at Oxford, where he took the M.B. and Ch.B. in 1914, and at the London Hospital. He was serving in the 1/3rd East Lancashire Field Ambulance.

Lieutenant William Frank Thompson, R.A.M.C., was killed in France on January 1st, aged 28. He was the elder son of W. W. Thompson, Esq., of 3, The Avenue, Brondesbury, was educated at the Leys School, Cambridge, and at Bath, and took the M.R.C.S. and L.R.C.P.Lond. in 1912.

Died of Wounds.

Lieutenant Manockji Burjorji Patel, I.M.S., whose name was in the casualty list as wounded in the battle of Ctesiphon, in Mesopotamia, on November 22nd-24th, has since been reported as having died of his wounds. He took the Scottish triple qualification in 1908, and also the D.P.H., Wales, in 1910. After serving as medical officer of the Madras and Southern Mysore Railway, he went into practice at Khambala Hill, Bombay. He took a temporary commission in the I.M.S. from June 9th, 1915. He is the third Indian-born member of the I.M.S. to fall in the present war, but the first Parsi, and also the first of the temporarily commissioned officers.

Died on Service.

The death is reported, while serving with the Expeditionary Force in France, of Miss M. E. Wilson, Queen Alexandra's Imperial Military Nursing Service, Reserve of Queensland, Australia.

Wounded.

Captain J. E. Brydon, R.A.M.C.(T.F.), Flanders.
Lieutenant R. C. Macmillan, R.A.M.C. (temporary), Flanders.

In the list of medical men killed serving as combatants, published in the BRITISH MEDICAL JOURNAL of December 25th, 1915, was given the name of Captain B. M. Hughes, M.R.C.S., of the 1/4th Norfolk Regiment. We are informed that Captain Hughes had been promoted to Major shortly before his death.

MEDICAL STUDENTS.

Beasley, James Joyce, third year medical student, Trinity College, Dublin, Second Lieutenant 6th Battalion Royal Irish Fusiliers, missing, believed killed, in the Dardanelles. He got his commission on September 28th, 1914.

Black, Thomas Samuel Cuthbert, fifth year medical student, Trinity College, Dublin, Private 7th Battalion Royal Dublin Fusiliers, died at Alexandria of wounds received in the Dardanelles.

Elliott, Thomas Cecil Moore, third year medical student, Trinity College, Dublin, Private 7th Battalion Royal Dublin Fusiliers, killed in action at the Dardanelles.

Gamble, Richard Maurice Brooks, third year medical student, Trinity College, Dublin, Second Lieutenant 7th Battalion King's Liverpool Regiment, killed at Festubert, in France, on May 17th, 1915. His commission was dated September 5th, 1914.

Heuston, Frederick Gibson, fourth year medical student, Trinity College, Dublin, Second Lieutenant 6th Battalion Royal Irish Rifles, killed in the Dardanelles. He joined on September 22nd, 1914.

Levis, George John France, second year medical student, Trinity College, Dublin, Private 5th Battalion Royal Inniskilling Fusiliers, killed in action in France.

Levis, James Henry Bruce, second year medical student, Trinity College, Dublin, Second Lieutenant 6th Battalion Royal Irish Rifles, killed in the Dardanelles. His commission was dated November 6th, 1914.

Murphy, James Neville Herbert, third year medical student, Trinity College, Dublin, Second Lieutenant 5th Battalion Royal Dublin Fusiliers, killed in Flanders, on May 10th, 1915. He got his commission on August 15th, 1914.

Nelis, James Edward Thornhill, third year medical student, Trinity College, Dublin, Lieutenant 5th Battalion Royal Inniskilling Fusiliers, killed in the Dardanelles. He was commissioned from November 19th, 1914.

Snell, Philip Sidney, third year medical student, Trinity College, Dublin, Second Lieutenant 6th Battalion Royal Irish Fusiliers, killed in the Dardanelles. His commission was dated September 28th, 1914.

Toomey, Archibald Roche, fifth year medical student, Trinity College, Dublin, Second Lieutenant 6th Battalion Leinster Regiment, killed in the Dardanelles. He joined on November 28th, 1914.

DEATHS AMONG SONS OF MEDICAL MEN.

Hudson, Arthur Frederick, Corporal 16th Battalion Canadian Scottish, eldest son of Dr. Hudson, of British Columbia, late of Cobham, Surrey, killed at Ypres on April 22nd, aged 21.

Lee, Charles Stewart, Second Lieutenant Royal Engineers, only child of Lieutenant-Colonel W. A. Lee, I.M.S.(ret.), killed in France on December 30th, aged 19.

Wight, Ronald Toynbee, Loyal Sussex Hussars, only son of T. H. Toynbee Wight, M.D., Harvard, died on October 30th in hospital at Malta, of dysentery contracted in the Dardanelles, aged 20.

TRINITY COLLEGE, DUBLIN.

We are indebted to Professor Dixon, of Trinity College, Dublin, for a roll of honour of the medical school of that university up to a recent date. Eleven graduates and fifteen undergraduates have been killed in action, while thirteen undergraduates at least are known to have been wounded.

The eleven graduates are Staff Surgeon W. G. Moore-Anderson and Surgeon G. Taylor, R.N.; Major E. B. Steel, Captain C. T. Conyngham, temporary Captain J. N. Armstrong, Lieutenant W. O. W. Ball, and temporary Lieutenants G. M. M. Fleming and J. A. Macmahon, R.A.M.C.; Captain G. F. J. Luther, Australian A.M.C.; Captain A. P. H. Corley, Australian Infantry; and Dr. P. N. Gerrard of Singapore. Brief notices of Captains Luther and Corley are given above. The others have all received a tribute in the JOURNAL already.

Notices of four of the undergraduates—Captain R. P. Tobin, and Lieutenants G. F. Dobbin, J. R. Duggan, and H. H. Warnock—have already appeared in the JOURNAL. Brief notices of the others are given above.

The thirteen undergraduates wounded are Captain W. C. L. Shee, Lieutenants G. C. Ballentine, F. F. J. Battersby, A. L. Gregg, E. J. Hamilton, G. W. Holmes,

C. F. Kennedy, C. R. E. Littledale, J. McClelland, A. A. Murphy, G. R. G. Smyth, and R. L. Vance, and Private G. G. Allardyce. Lieutenant Holmes is an Irish international football player. Lieutenant Vance has just passed his final examination, having qualified while on leave.

NOTES.

MEDICAL OFFICERS WANTED. *The Welsh General Hospital.*

THIS hospital, to which we have already referred, is a general hospital of 1,040 beds, the personnel of which is being raised by Wales for overseas service. The medical staff includes officers in charge of medical and surgical divisions, an ophthalmologist, pathologist, radiographer, and ear and throat specialist. A dental surgeon with a medical qualification will also be accepted. Appointments are for temporary commissions for service with the hospital. Officers who already hold temporary commissions or Territorial commissions are not accepted, with this exception, that the officers in charge of the medical and surgical divisions, who should be consultants in their own branches, may be transferred from Territorial units if they can be spared. The hospital is under the command of Lieutenant-Colonel A. W. Sheen, R.A.M.C.(T.F.), and leaves probably some time in February next. Forms of application for posts can be obtained from the Hon. Secretaries, Welsh Hospitals Offices, 47, Principality Buildings, Cardiff.

2/2nd South Midland Mounted Brigade Field Ambulance.

Medical officers are urgently wanted for this unit, at present stationed at King's Lynn. They must be prepared to sign for foreign service. Applications to Major A. G. Magrath, Officer Commanding 2/2nd South Midland Brigade Field Ambulance, London Road, King's Lynn.

2/3rd South Midland Mounted Brigade Field Ambulance.

A medical officer is required for this unit, which is stationed at Oxford for the winter. Full particulars can be obtained on application to the Officer Commanding, 1, Ifley Road, Oxford.

EMOLUMENTS OF MEDICAL OFFICERS TERRITORIAL OR WITH TEMPORARY COMMISSIONS.

Major R. Eager, O.C. 2/1st Wessex Field Ambulance, writes: In your issue of December 25th, 1915, I note that an officer commanding a Territorial Field Ambulance is asking for five medical officers, and as an inducement states, "rates of pay, etc., higher than temporary commissions abroad." I should be obliged if this commanding officer will explain to me and the rest of your readers how he can substantiate this statement. We have communicated with the O.C. in question, and in reply he refers Major Eager to the JOURNAL of October 30th, p. 662.

Scotland.

WESTERN INFIRMARY, GLASGOW.

At the Christmas meeting at the Western Infirmary, Glasgow, it was announced that the building scheme had been completed, and the new departments were formally opened. The meeting was held in the new admission department. The chairman of the Board of Managers, Sir Matthew Arthur, Bt., who presided, said that the new block in addition to providing a new admission department connected the new wing with the main building, and supplied the operating theatres and administrative rooms required. The admission department was the groundwork of the scheme, and it had been possible to carry it out owing to the gift of £16,000 by the Davis trustees. Rooms were provided in which minor operations could be performed on slighter cases and casualties and the patients cared for until they were able to leave. Such cases often came in at night, and if taken to the wards the patients there were disturbed. On the floor above had been built what was recognized by experts as one of the most perfect operating theatres in existence. Its cost, £3,500, had been defrayed by Mr. William Robertson, who had also defrayed the cost, £8,000, of the large ward in the new wing. While the new building would help the efficiency of the infirmary, it would not increase the annual expenditure, and did not add to the number of beds. The year had been a strenuous one; some of the physicians and surgeons were entirely engaged in war work, while the remainder combined it with their other duties. The medical superintendent, Colonel Mackintosh, M.V.O., and the matron, had been incessant in their labours. The infirmary had provided 100 beds for wounded soldiers, and it was fortunate that the dispensary was so planned that the hall made an excellent ward of 50 beds, from which the patients could

be easily taken to the consulting rooms and operating theatres. By affording facilities for the training of nurses the infirmary rendered a great service to the community; the value of trained nurses had never been more fully realized. The Davis Admission Department, and the William Robertson Operating Theatre, were then declared open by Miss Davis and Mr. Robertson respectively. Colonel Roxburgh, the convener of the House Committee, in moving a vote of thanks to the donors, said that the hospital was now practically complete in every respect, and unless some special gift were given for some special purpose he did not think that any further expenditure on building need be anticipated.

GLASGOW ROYAL INFIRMARY.

In addressing the nurses at the Glasgow Royal Infirmary on New Year's Day, the Lord Provost said that practically all the members of the medical and surgical staff were doing military duty; thirty-eight held commissions in the Royal Army Medical Corps, and twelve were engaged in Red Cross hospitals. Of those who held commissions, twenty-five were so actively employed on war duty that they were not available for the ordinary work of the infirmary; nevertheless it had gone on as usual. Eight wards, with an aggregate of 150 beds, had been set aside for the treatment of wounded sailors and soldiers, but this had not been allowed to encroach upon the accommodation for civilian cases. The chairman of the board of managers said that the number of civilian cases admitted was 9,982, a slight increase on the previous year. The number of sailors and soldiers admitted was 713. The daily average number of in-patients was 663.

ROYAL INFIRMARY, EDINBURGH.

From the annual reports of the Board of Managers it appears that the number of patients treated in the Royal Infirmary, Edinburgh, in the year ending September 30th, was 13,102, an increase of 284 on the previous year, which was the largest previously on record. The average daily number of patients was 903, compared with 847 in the previous year. In spite of this the deficit of ordinary income over ordinary expenditure showed a diminution of £9,687; at the same time the voluntary contributions had gone up by nearly £11,000, an increase of more than 50 per cent. The Board had set apart 200 beds for naval and military patients, and was prepared to give more if required; at the end of the year the number of such patients in the infirmary was about 160. To meet this special demand the managers had opened two spare wards and introduced extra beds temporarily in other wards; in addition a number of Territorial soldiers had been admitted to the general wards, and many of them had been submitted to operation to fit them for service. At the beginning of the war the managers had suspended the practice of charging for service patients in view of the great national emergency, but having learnt that other large hospitals had reconsidered their position in this respect, notice was given to the Admiralty and to the War Office that payment at the rate of 4s. a head a day would be accepted for all men treated after October 1st, 1915. The Army Council, however, had refused to make any donation in respect of the men who had been treated previously. Since the commencement of the war 61 nurses had been supplied directly to the War Office by the infirmary, and in addition a large number of former nurses were now serving in military hospitals. The complete roll contained 252 names, and of these 170 were on service abroad and 82 at home. The number of applications for nursing training had increased during the year from 695 to 1,051.

Ireland.

MAJOR EDWIN STEEL.

A LECTERN placed in the chapel of the Dr. Steevens's Hospital, Dublin, by the governors and staff to the memory of Major Edwin Bedford Steel, R.A.M.C., has been dedicated by the Archbishop of Dublin. Steel was for several years a resident pupil in the hospital, where the thoroughness of his work and the sterling qualities of his character made him many warm friends. He graduated in medicine in the University of Dublin in the summer of

1893, and in January, 1895, entered the Royal Army Medical Corps. He was for two periods in India, where he specially distinguished himself for his work in connexion with plague. He held the South African War Medal and the Durbar Medal. In August, 1914, he went to France in command of Field Ambulance No. 20, and for his work with it was mentioned in dispatches by Sir John French. In October, 1914, Steel was appointed Assistant Director of Medical Services with the First Cavalry Division. While on this duty he was, on November 23rd, wounded at La Clytte by shell fire, and died the same day. The handsome brass lectern in the chapel of his old hospital will form a visible token of the honour in which the memory of Edwin Steel's short but full life is held by some of those who knew and loved him well.

SMALL-POX IN COUNTY FERMANAGH.

Dr. McCormack, Local Government Board Medical Inspector, who attended a meeting of the Lisnaskea board of guardians, said that he had been directed to confer with the medical officer, Dr. Knox, in regard to the two reported cases of small-pox in the Fever Hospital. Isolation was absolutely necessary, and, in addition, systematic observation of all the contacts, along with the destruction, by fire, of the bedding and clothing that came in contact with the patients, the thorough disinfection of the infected premises, and the vaccination of all contacts. Those measures, so far as possible, had already been carried out by Dr. Knox. The nurses in the fever hospital had been vaccinated, and the small-pox cases were being treated in the upper, and the other cases of infectious disease in the lower, wards of the hospital. Communication between the nurse attending the small-pox cases and the nurse attending the other patients had been forbidden as far as possible. Should other cases of small-pox arise the board of guardians would have to consider the advisability of erecting a self-contained pavilion. The Lisnaskea Union was a "partially vaccinated community." In the Derrylin dispensary district there were 111 defaulters in the last quarter, which number was about equal to the annual birth-rate. The board should make arrangements to have primary vaccination carried out as quickly as possible.

England and Wales.

THE SANDLEBRIDGE COLONY FOR THE FEEBLE-MINDED.

The report presented to the annual meeting of the Incorporated Lancashire and Cheshire Society for the Permanent Care of the Feeble-minded stated that the Mental Deficiency Act, 1913, had proved of great value in stimulating the work of the Sandebridge Colony. A considerable number of committees formed under the Act had applied to the society for places, but it had been necessary to refuse the applications, as the provision for permanent care so far made at Sandebridge had been only designed for inmates who had been received as children and suitably taught and trained. A subcommittee had, however, been formed to consider the possibility of building an additional house for lower grade children. The operations of the Elementary Education Act, 1914, had brought increased calls on the accommodation from educational authorities, and the vacancies at the disposal of the management were altogether inadequate. There had been a constant growth in numbers since the year 1902, when there were only 20 boys and girls in the institution, until at present there were about 300 inmates. Miss Dendy, the pioneer of the institution, gave an interesting account of the work done by the inmates. The girls had made 800 pairs of socks for soldiers since the war began and the boys had soled and heeled over 900 pairs of boots and shoes. The financial account showed a total income of £11,647, which included £7,630 from local authorities, and there was a credit balance of about £2,000. On the farm account there was a profit of over £620.

ATTENDANCE ON PANEL PATIENTS DURING THE WAR IN MANCHESTER AND SALFORD.

At a meeting of the Manchester Insurance Committee held on December 28th, the chairman, Mr. Walter Davies, in drawing attention to the minutes of the Medical Benefit Subcommittee, specially referred to the new commercial

tariff, which provided that chemists should be paid in full. The arrangements had been completed, and Manchester and Salford would now work out a scheme for the two areas conjointly, while other parts of the country would be mapped out into areas. He hoped and believed that the chemists would now be satisfied, as they would receive their 100 per cent.

Mr. Davies also drew attention to the treatment of insured persons during the war. A large demand was now being made on the medical men of Manchester to join the forces, and the committee had had to consider two circulars, one from the Medical War Committee and the other from the Insurance Commissioners, setting forth what they felt was their duty towards the civil population. The committee had been in communication with the local War Committee and the Panel Committee, and they had agreed jointly to a scheme which would secure to every insured person adequate medical attention. Many of the Manchester doctors had entertained conscientious objections to the insurance scheme, and had refused to go on the panel, but they had now been appealed to on the grounds of patriotism, and it had been made clear to them that if some of the profession had to go to the war it would be necessary for non-panel doctors to render aid to insured persons. A scheme had now been arrived at whereby the whole of the panel doctors and also those not on the panel had agreed to attend any insured person who cared to go to them. The patriotism the doctors had shown in this matter deserved acknowledgement. Several members of the committee also congratulated the doctors on their patriotic action, and Mr. Davies further expressed the hope that while every effort was being made to obtain an adequate service, insured persons would not put any undue strain on the resources of the committee, but would only seek the services of a doctor when it was really necessary.

It appears that the position in Manchester is not quite so straightforward as described by Mr. Davies, as in a letter which appeared in the *Manchester Guardian* on December 31st, 1915, signed by Dr. E. W. Floyd, it is stated that it is incorrect to say that the non-panel doctors had agreed to treat panel patients. At a meeting of non-panel practitioners, held on December 29th, to consider the War Committee's proposals, the two following resolutions were passed with only three dissentients, who were members of the War Committee:

1. That this meeting of non-panel practitioners heartily supports the general lines of the scheme for the conservation of the private practice of practitioners on service.
2. That they cannot accept as it stands the scheme for attendance on insurance patients, but will require it to be expressly stated that home panel practitioners shall be responsible for attendance on all panel patients.

A copy of these resolutions to be sent to all the papers which published Mr. Davies's statement.

Canada.

CANADIAN GRADUATES AND THE R.A.M.C.

The regulation by which a graduate of a Canadian medical school was required to obtain a provincial licence to practise before he could join the R.A.M.C., to which Sir Donald MacAlister made reference in his presidential address to the General Medical Council, has since been altered, and it is now possible for a graduate of any Canadian medical school of recognized standing to join the R.A.M.C. or the C.A.M.C. without first obtaining a licence to practise in the province in which he has graduated. The obligation has resulted in unfortunate delays and disappointments in the past, and its removal will facilitate the completion of arrangements between the Dominion of Canada and the Mother Country.

ALBERTA MEDICAL ASSOCIATION.

At the tenth annual meeting of the Alberta Medical Association, which was held at Banff, under the presidency of His Honour Lieutenant-Governor R. G. Brett, M.D., reference was made to the offer of a fully-equipped hospital of 1,040 beds for service overseas, made to the military authorities by the University of Alberta. The offer had been refused for the time being, but the

association wished to express its willingness to assist in the matter and accordingly the following resolution was passed:

That the Alberta Medical Association puts itself on record as being strongly in favour of a scheme to form a hospital unit to be placed at the disposal of the War Office and to be called upon when required; and also that the Association is in favour of authorizing the Alberta College of Physicians and Surgeons to support, as fully as its finances will permit, the organization of the hospital unit.

The association also resolved to support the efforts of the Alberta Nurses' Association to obtain registration.

The subject of the presidential address was the "Social Evil." Dr. Brett quoted statistics to show the terrible effects of the two diseases considered under this heading, and strongly impressed upon the profession the necessity for further enlightenment of the public in the matter of prevention and cure. Other interesting papers were read, among them one by Dr. Whitelaw, medical officer of health at Edmonton, on the Public Health Act. The next annual meeting of the association will take place at Edmonton, under the presidency of Dr. Whitelaw.

SERUMS SUPPLIED FREE.

The Ontario Board of Health has announced its intention of supplying free, from February 1st, 1916, to physicians, hospitals, health boards, and the public generally throughout the province antitoxins and serums for diphtheria, small-pox, meningitis, tetanus, rabies, and other diseases. The appropriate material, which will be prepared in the laboratories of the University of Toronto, will be supplied free to any applicant, on presentation of a physician's prescription, by institutions formed by the department. It is estimated that for diphtheria alone from 150,000 to 200,000 doses may be needed within the year, and provision will be made for at least 500,000 doses of typhoid vaccine. During the present war the Ontario Board of Health has supplied large quantities of anti-typhoid vaccine for use amongst the troops. Down to May, 1914, the cost of serums annually imported into Canada was 120,000 dols. At that time, however, an arrangement was made with the University of Toronto whereby antitoxin could be supplied to boards of health and druggists at a much reduced rate. The splendid results obtained at the Isolation Hospital, Toronto, through the use of antitoxin in diphtheria, where the death-rate has been reduced from 16 to 6 per cent., has largely influenced the Board of Health in deciding to prepare the vaccine and supply it free of charge.

Correspondence.

OUR BELGIAN COLLEAGUES.

SIR,—The wind up of the year brings back to my mind the events which occurred a year ago at the same period, when you gave me the opportunity to expose to you the sufferings of my country-folk, the crimes committed in Belgium, the sad situation in which so many Belgian doctors and pharmacists were living.

Under the management of a medical committee, you immediately called upon the spirit of fellowship of the members of our corporation, and I enjoyed the moving consolation to find that your call was responded to from all quarters of the world.

On behalf of my colleagues in Belgium, and although I have been unable for a good while to communicate with them, I grasp this opportunity to deeply express to you, to the chairman and gentlemen of the committee, my heartfelt thanks for the lasting effort made by all of you during the past year. The voices of all those you have so generously assisted in their sufferings, of whom you may have saved life, cannot yet reach you; the Germans are still there to prevent it. Later on, when we shall be freed, when we will be able to think again and to express freely our feelings, they will tell you themselves—better than I could—the greatness of your assistance.

I will only now beg you to accept the gratitude of the Belgian doctors and pharmacists—the gratefulness of their little children, which must bless you at the distance.—I am, etc.,

London, W., Dec. 31st, 1915.

C. JACOBS.

THE TONSILS.

SIR.—Arising out of your review of a monograph on *The Tonsils* by Dr. Barnes (U.S.A.), two letters have recently appeared in the JOURNAL, one from Dr. Mechan on December 25th, 1915, p. 948, and another from Dr. Syme on January 1st, 1916, p. 33, which appear to me to call for comment.

Dr. Syme lays it down without qualification that "when surgical interference is necessary" the "only operation applicable" is "enucleation of the tonsil"; that is to say, total removal of the whole tonsil *en masse* complete in its capsule. Whilst agreeing that total removal should be the operation of choice in the general run of cases, more especially in children, yet most of us would hesitate, and so probably would Dr. Syme, to eviscerate the entire tonsillar bed in trained singers and other adult professional voice users, on account of the danger of altering the form and deranging the muscular mechanism of the fauces from post-operative adhesions.

Dr. Syme makes no dogmatic statement as to the technique to be employed in effecting enucleation, holding doubtless that there is considerable room for eclecticism on that question.

Not so Dr. Mechan, however, who, while lauding complete removal by the old combined dissection and finger technique favoured by general surgeons thirty years ago, proceeds utterly to condemn the employment of the guillotine for the removal of tonsils. Dr. Mechan appears to be under the misapprehension (in common, doubtless, with many others) that the technique of the modern guillotine operation resembles that carried out in the last century, when many operators were satisfied with a subtotal removal. It was, however, shown in 1910 by Whillis of Newcastle and by Sluder of Chicago that in most instances the tonsils could be completely and rapidly enucleated by means of a modification of the Mackenzie guillotine method, provided the shaft was rigid and the edge of the blade was dull rather than sharp. The methods of technique employed by Whillis and by Sluder respectively, though differing in detail, are similar in principle, but it is unnecessary to my point to enter into particulars.

The outstanding facts are that most specialists now aim at the complete removal of a diseased tonsil *en masse* in the general run of cases, more especially in children, and that such enucleation can be carried out by experts, (1) in every case by one or other of the various modern dissection methods, (2) in nearly every case by the modern guillotine method alone, and (3) in a somewhat less number of instances by the snare and vulsellum only.

Many specialists, more especially those who favour the snare method, resort to a preliminary dissection in difficult cases and finish up either with the snare or with the blunt guillotine. Others prefer and employ some form of dissection method throughout as a routine measure, without resorting to the snare or guillotine, either alone or as an adjunct. Such an attitude of personal preference for dissection methods, however, does not imply any agreement with Dr. Mechan's allegations as to the inutility of the Mackenzie type of guillotine in radical removal of diseased tonsils, whether enlarged or otherwise. In many clinics in this country, where school children are operated on, and where nothing less than total removal of the tonsils is invariably aimed at, the enucleating guillotine method of Whillis alone is consistently and successfully employed for that purpose.

It may be mentioned that to such a pitch of perfection has enucleation with the guillotine been brought that La Force in America and Elphick in this country have actually gone so far as to devise haemostatic guillotines in order to deal with enlarged tonsils in haemophilics and in anaemic children.

The whole subject was recently reviewed in a paper by the last-named and myself, read at the annual meeting at Aberdeen in 1914, and published in full in the *Journal of Laryngology*, December, 1914.¹—I am, etc.,

London, W., Jan. 4th.

WILLIAM HILL.

THE AUSCULTATION OF THE HEART.

SIR.—I think it is time we recalled the motto, "Honour where honour is due." Is it not the fact that the late

¹ A short abstract was published in the *BRITISH MEDICAL JOURNAL*, 1914, vol. ii, p. 1019.

Dr. George Gibson of Edinburgh was the first to point out that murmurs are not evidence of heart disease? I have heard him relate that many times he had secured admission of young candidates for commissions in the army by means of delay and a period of rest. I think it is also the fact that Sir James Mackenzie pointed out in his address in memoriam of this great physician that it was he who had shown the way in all the new discoveries in regard to heart pathology and diagnosis.—I am, etc.,

W. HALL CALVERT Capt. R.A.M.C.(T.).

Crieff, Dec. 29th, 1915.

THE DEMAND FOR LOCUMTENENTS.

SIR,—May I through your columns appeal to practitioners requiring locumtenents during their absence at the front or otherwise not to be misled by misrepresentations that, owing to the scarcity of men, they will have to pay 9 or 10 guineas a week to secure deputies? As a matter of fact, owing to the generous way in which retired and elderly practitioners have come forward to assist, besides those returning from the front and those ineligible for military service, the supply of locumtenents is at present in excess of the demand, and trustworthy men can be had at 7 guineas a week in most cases, or less if with their wives, and in the interests of recruiting I trust all requiring help will refuse to pay the excessive fees in some cases demanded, especially by men who should be doing their duty in the R.A.M.C.—I am, etc.,

London, W.C., Jan. 3rd.

PERCIVAL TURNER.

STATE REGISTRATION OF NURSES AND THE RED CROSS SCHEME.

SIR,—The circular from the Red Cross Society on the proposed nursing college* is an immensely important matter, and the hospitals of the country should be very wide awake. After the war the nursing profession runs the risk of being flooded by partially-trained nurses.

The nurses should claim to be put under similar government to the Central Midwives Board. The hospitals of the country must take prompt action to nip this Red Cross scheme in the bud. Let them force Government action, so as to have State regulation and guarantee of the training, examination, and registration of nurses. There is grave risk of the status of the nursing profession being seriously lowered.—I am, etc.,

Wigan, Jan. 4th.

FERDINAND REES.

Universities and Colleges.

UNIVERSITY OF LONDON.

MEETING OF THE SENATE.

A MEETING of the Senate was held on December 15th, 1915.

Treasury War Grants.

It was reported that the Lords Commissioners of the Treasury had, on the recommendation of the Advisory Committee on University Grants, made, under certain conditions, a special grant to the University of £3,500 in respect of the years 1914-15 and 1915-16 together to cover loss of income caused by the war, and that grants of £10,500 and £7,000 respectively had been made by the Treasury to University College and King's College for the same purpose. It was resolved to transmit to the Treasury the thanks of the Senate for the grants.

Brown Animal Sanatory Institution.

Dr. Edward Mellanby, M.D., was appointed Acting Superintendent of the Brown Animal Sanatory Institution during the absence of the Superintendent, Mr. F. W. Twort, who had received leave of absence in order to organize, for the War Office, base laboratories in the Eastern theatre of war.

Professor of Protozoology.

Dr. H. M. Woodcock, assistant to the Professor of Protozoology, was appointed acting head of the Department of Protozoology at the Lister Institute of Preventive Medicine, and was subsequently granted leave of absence to undertake special service at one of the Mediterranean base hospitals.

Personnel of the Senate.

It was reported that Professor F. W. Andrewes, M.D., F.R.C.P., F.R.S. (St. Bartholomew's Hospital Medical School), and Sir Cooper Perry, M.D., F.R.C.P. (Guy's Hospital Medical School), had been appointed the representatives of the faculty of medicine on the Senate, in the place of Mr. H. L. Eason, M.D., M.S., and Sir Wilmot Herringham, C.B., M.D., F.R.C.P., resigned.

* See page 60.

Chairmen of Committees.

Sir Rickman Godlee, Bt., K.C.V.O., and Sir Seymour Sharkey, M.D., F.R.C.P., have been elected chairmen of the Brown Animal Sanatory Institution Committee and the Graham Legacy Committee respectively.

University Medal.

The university medal at the M.B. B.S. examination for internal and external students, October, 1915, has been awarded Geoffrey Challon Linder of St. Bartholomew's Hospital.

Gilchrist Studentship for Women.

Applications for this studentship must reach the Academic Registrar not later than the last day of February. The studentship is of the value of £100, tenable for one year by a graduate of the university who is prepared to take a course of study in an approved institution for some profession. Candidates must have graduated in honours in the University of London, and must be of not more than three years' standing from their first graduation.

UNIVERSITY OF SHEFFIELD.

THE following have passed the examinations indicated:

THIRD M.B., CH.B.—G. E. Hill, Elizabeth E. Jenkins, B. H. Rae.
D.P.H.—Beatrice Garvie.

UNIVERSITY OF EDINBURGH.

THE annual report for 1915 states that the total number of matriculated students was 1,853, being 676 fewer than for 1914, and 1,408 fewer than for 1913. There were 807 students, including 11 women, in the Faculty of Medicine, a decrease of 218. Of the students of medicine, 382, or over 47 per cent., belonged to Scotland; 122, or over 15 per cent., were from England and Wales; 30 from Ireland; 80 from India; 193, or nearly 24 per cent., from the British Overseas Dominions and Dependencies; and 26 from foreign countries.

The University roll of war service—embracing members of the staff, graduates, and students, past and present—which a year ago contained about 1,700 names, has now reached a total of nearly 4,000, to which should be added about 400 who are members of the Officers' Training Corps. The University authorities have renewed, with modifications, various concessions made last year to students on service; and a number of scholarships, etc., which would, in ordinary course, have been tenable or open for competition this session, have been in the meantime suspended.

During the year the bequests of the James Cropper and the Waldie Griffith Scholarship Funds for the medical education of women in Edinburgh, were handed over to be administered by the university authorities, and the balance of the funds left over on the winding up of the Scottish Association for the Medical Education of Women has been given to the University Court for the foundation of an annual prize for a woman student qualifying in medicine.

The Services.

* EXCHANGE DESIRED.

ROYAL ARMY MEDICAL CORPS.

A LIEUTENANT R.A.M.C. (temporary), at present stationed in Lancashire, desires to exchange with an officer holding a temporary commission in or near London. In addition to his military duties the applicant is on the staff of the local military hospital. Applications should be addressed to No. 200, BRITISH MEDICAL JOURNAL Office, 429, Strand, London, W.C.

DR. HOWARD A. KELLY, of Baltimore, has given to the Johns Hopkins Hospital of that city more than 4,000 volumes, including books, monographs, and periodicals. The collection, which for the most part consists of literature dealing with obstetrics and gynaecology, is valued at £5,000. It is proposed to erect a suitable building for its reception.

THE bicentenary of the firm of Allen and Hanburys was celebrated last month, when the employees at home and abroad presented to the vice-chairman his portrait, painted by Mr. Percy Bigland, and to Mr. W. Ralph Dodd, a director, a silver centrepiece. The business was established in the City of London in 1715, and though the buildings have been rebuilt the site is the same. We gather that the business was founded by Mr. Silvanus Bevan in Plough Court, and that the first bearers of the name by which the company is now known were William Allen, F.R.S., President of the Pharmaceutical Society on its foundation in 1841, and Daniel Hanbury, F.R.S., whose name and work are commemorated in the Hanbury medal. Among the members of the firm at this time is Mr. Cornelius Hanbury, who joined it as a partner nearly sixty years ago; while Mr. F. J. Hanbury, the vice-chairman, has belonged to it for some forty years.

Obituary.

GEORGE OLIVER, M.D., F.R.C.P.,
FORMERLY OF HARROGATE.

It is with deep regret that we announce the death of Dr. George Oliver, which occurred at his residence, "Riversleigh," Farnham, Surrey, on December 27th, 1915.

He was born in April, 1841, and was the second son of Mr. W. Oliver, a surgeon of Middleton-on-Tees, Durham. He was educated at Gainford School, Yorkshire, and having decided to adopt his father's profession he proceeded to University College, London, and University College Hospital, where he had a brilliant academic career which culminated in his taking the Gold Medal at the M.D. examination of the University of London in 1873. Even in these early days he gave evidence of a truly scientific conception of his work, and he always had a deep admiration for William Sharpey, who was Professor of Physiology at University College in those days.

He started practice at Redcar, but he only stayed there a few years. In 1875 he went to Harrogate, where he speedily acquired a large practice, first as a general physician and subsequently as a consultant. He spent altogether thirty-three years at Harrogate, and was recognized as the highest authority there in the special branch of practice associated with that town. During the later portion of this period he used to reside at London or Sidmouth during the winter, only living at Harrogate for the season. In 1901, however, he purchased his beautiful Surrey home, where he spent the winter months, and it was not until 1908 that he entirely relinquished his Harrogate work.

This freedom from the claims of a busy practice during a long period of each year enabled him to prosecute original research, which he loved; some of this was carried out in the Physiological Laboratory, University College, London, but a good deal in his private laboratory in his own house. He was always clever at any mechanical device, and most ingenious and resourceful in overcoming difficulties. He wrote extensively not only on the Harrogate waters, but also on urine testing; the fourth edition of his *Bedside Urine Testing* was published in 1889, and his originality here was shown by the invention of the testing papers known as "Oliver's test-papers."

But it was always the blood and its circulation that most attracted his attention, and one instrument after another dealing with this branch of science was brought before the notice of the medical world; his haemacytometer, haemoglobinometer, arteriometer, and sphygmometer are instances. He will be especially remembered for his work in connexion with blood pressure; he it was among British physicians who chiefly insisted on the importance of estimating blood pressure in diagnosis, and the instruments of precision he introduced for this purpose will live long and keep his memory green. His book on *Blood Pressure* rapidly passed through two editions, and at the time of his death he was actively engaged in the preparation of a third, in which the book was practically rewritten. It is earnestly to be hoped that this work, which was nearing completion, may ultimately see the light.

Another branch of medical science to which he devoted himself was that relating to the ductless glands, and he published papers on the suprarenal, thyroid, thymus, and pituitary bodies. In this direction he is perhaps best known by the epoch-marking paper, published in conjunction with Professor Sir Edward Schäfer on the suprarenal glands. This really formed the foundation for all the enormous amount of subsequent work on the adrenal body which has resulted not only in the elucidation of the functions of this formerly mysterious organ but also in the discovery of the active principle, adrenalin, one of the greatest boons to suffering humanity. Although Addison many years ago had dimly conjectured the use of the suprarenal capsule, it was not until Oliver and Schäfer published their famous paper that any clear light was thrown upon the subject.

In 1887 Dr. Oliver was elected Fellow of the Royal College of Physicians of London, and a few years later, with characteristic generosity, he founded there, in memory of his old master Sharpey, the lectureship which now bears

the name of the Oliver-Sharpey Lectureship. Dr. Oliver was most suitably chosen as the first lecturer under this trust, when he took as his subject, "Studies on tissue-lymph" (1904). He had previously filled the position of Croonian lecturer at the same college (1896), which gave him the opportunity of bringing prominently before the profession the importance of a study of blood pressure.

This does not by any means exhaust the list of his writings, for he contributed largely to the journals, and also to standard works, such as *Quain's Dictionary of Medicine*, for which he wrote articles on constipation and on other ailments of the bowels. He was thus a man of wide attainments; his recreations included photography, in which he became an expert, and until the last few years he took his exercise mostly in the form of bicycling. He was never a man of strong physique, but, in spite of this, continued to live an active and strenuous life. About five years ago he had an attack of haematemesis, from which he fortunately quickly recovered; for about a month before he died he suffered from some bronchial catarrh, and the coughing so occasioned evidently strained the weak spot in his gastric lining. On Christmas night he was again seized with bleeding, which no remedy could check, and in two days he peacefully passed away.

His great aim throughout life was to make medicine a more exact science than he found it, and none can deny that he succeeded in this great endeavour; the keynote of his success, both at the bedside and in the laboratory, was untiring perseverance; he was never satisfied with anything that was imperfect, but went steadily on, altering and improving his inventions until they gave absolutely correct results. It was the same with his writings: he wrote and rewrote each sentence until it was absolutely clear, so as to express his meaning in the fewest possible words. He never hesitated to change his views when necessary, and much of what he wrote in his earlier editions was consequently amended as his apparatus was perfected and gave him results which corrected those obtained with less perfect instruments.

He was a man of a singularly sweet, genial, and unselfish disposition, which endeared him to his patients and his friends. He will be greatly missed not only in the scientific world, but also by the large circle of his personal friends in Yorkshire, London, and Surrey.

During the time he was at Redcar he married Alice, the only daughter of Mr. J. Hunt, of Barnard Castle, by whom he had one son and one daughter, who survive him; she died in 1898. In 1900 he married again Mary, daughter of Mr. W. Ledgard, of Roundhay, Leeds, and she also survives to mourn her irreparable loss. He was buried in the churchyard of the peaceful little church at Tilford on December 31st, the church which he used so faithfully to attend.

SIR GEORGE SCOTT ROBERTSON, K.C.S.I., M.P.

WE regret to have to record the death of Sir G. S. Robertson, so well known as the defender of Chitral in 1895. He was born in London in 1852, but both his parents belonged to Orkney families. He received his medical education at the Westminster Hospital Medical School, and took the diploma of L.S.A. in 1876, and that of M.R.C.S. in 1877. He entered the Indian Medical Service in 1878, and his first Indian experience was the Afghan war of 1879-80, when he served in the operations in and round Kabul in December, 1879, in the affair of Shekhabad, and in the operations in Kohistan, receiving the medal with a clasp. He then went into civil employment in the North-west, now the United Provinces, serving as civil surgeon successively of Bahraich, Meerut, and Ghazipur. In 1888 he entered the service of the Foreign Department as agency surgeon of Gilgit, a small dependency of Kashmir, on the extreme north-east frontier of the Indian empire. In 1890-91 he made a solitary expedition through Kafiristan, being the first European to explore that country, and gave an extremely interesting account of the year he spent amongst the wild hillmen in his first book, *The Kafirs of the Hindu Kush*. It was published in 1896, and in the interval he had an opportunity of showing his diplomatic powers in dealing with the hillmen when acting as chief political officer of the Hunza-Nagar expedition in 1891-92. For his services on this occasion he received the Frontier medal and was nominated C.S.I. In 1892 he installed the Mir of Hunza in the presence of the

Chinese envoys. Afterwards he was sent on a mission to Gor, was besieged in the Thalpen entrenchment, and present at the capture of Chilas. The following year he was sent on a political mission to Chitral at the extremity of the tribal country over which the Government of India exercises influence. In 1895 the ruler of Chitral was murdered by a rival, and the position of Robertson with his British and Sikh forces of 543 men, of whom 139 were non-combatants, became critical. The siege of Chitral began on March 4th, 1895, and it was not until April 20th that the relieving force arrived to find Robertson severely wounded. He was able, however, in September of the same year to instal the present ruler of Chitral. He was created K.C.S.I. in 1895, and appointed British agent in Gilgit. Afterwards he was political officer in charge of the late Ayub Khan. He was promoted surgeon-major in 1890 and lieutenant-colonel in 1898. He retired in 1899.

In the year after he came home Robertson contested Stirlingshire in the Liberal interest unsuccessfully. He was elected for Central Bradford in 1906. He did not achieve any prominent position in the House of Commons, but had recently shown by speech and question his anxiety to arouse the House and the Government to a sense of the peril in which the country stands.

In 1898 he published in a volume, entitled, *Chitral: the Story of a Minor Siege*, a very modest account of the events of 1895. He was an honorary D.C.L. of Trinity University, Toronto. He was twice married, and his second wife, the daughter of Mr. Samuel Laurence, the painter, survives him.

ALBERT WESTLAND, M.D.,
ABERDEEN (FORMERLY OF HAMPSHIRE).

WE regret to announce the death of Dr. Albert Westland, M.D., formerly of Belsize Park, Hampstead, and, for the last seventeen years, of Aberdeen, where he died on December 31st, 1915, at the age of 62. He had been ailing for the last year of his life, and was unable to attend to the numerous duties in which he was interested.

Dr. Westland was a son of the late Mr. James W. Westland, manager of the North of Scotland Bank, and was a brother of the late Sir James Westland, C.S.I., who had a distinguished career in the Indian Civil Service. In 1872 he obtained the degree of M.A., and in 1875 graduated M.B., C.M. with highest honours, being awarded the John Murray Medal and Scholarship as the most distinguished medical graduate of the year. In 1877 he proceeded to the degree of M.D.

After a visit of a few months to the Paris school of medicine and a short assistantship at Highgate, he became engaged in large and influential general practice in Hampstead, and here he practised from 1877 to 1898; during that time he gained the affection and respect of an ever-increasing *clientèle*, and his kindness, his skill, and his devotion to duty were recognized by his patients and friends in the presentation of a substantial testimonial when he left Hampstead to reside in his native city of Aberdeen. In Aberdeen he took a great interest in public affairs, local and imperial. He was an active and influential member of the Town Council for three years, and when, on account of his advocacy of a new scheme for water supply for which the inhabitants were not prepared, he was thrown out in an election in 1910, he did not seek re-election. He was often named as a probable Lord Provost of the City of Aberdeen, and had he consented to resume his connexion with the town council he would doubtless have been promoted to the civic head of the community. Dr. Westland had also been a member of the Aberdeen University Court as one of the representatives of the General Council since 1905.

His long residence in London made him thoroughly conversant with the conditions of English medical practice and with the views of graduates of the university resident in the metropolis and the south, and as a member from its foundation of the Aberdeen University Club in London, of which he was a vice-president, he had continuous opportunities of meeting and conferring with brother graduates of the university. Dr. Westland was strongly in favour of placing modern languages and literature on an equal footing with classics, and urged that in the medical

curriculum more time should be given to clinical study and that there should be a closer relationship between the medical school and the infirmary. During his tenure of office as a member of the court Dr. Westland took a considerable part in the organization of the quatercentenary celebrations, while he also assisted in bringing about important changes and reforms in the arts and medical curricula.

He was a ready and effective public speaker, and became president of the Aberdeen Liberal Association. He presided at the last meeting held in Aberdeen addressed by Mr. Lloyd George, but a few weeks after this meeting he publicly resigned the presidency as he resented the treatment meted out to the medical profession by the Insurance Act.

Dr. Westland was co-editor of the *University Review*, and when in London practice he wrote *The Wife and Mother* and *The Child*. Of these two works the former especially has been appreciated ever since it was published, and has gone through several editions. He was also editor of Thomson and Steele's *Dictionary of Domestic Medicine and Surgery*. Dr. Westland will be much missed. To his intimate friends he was known as a most engaging and delightful conversationalist. In university circles he will be particularly regretted, and he has left behind him the memory of a pleasant nature and a high record for diligence, ability, and integrity in the discharge of professional and public duty. He leaves a widow and two daughters.

ANDREW DUNLOP, M.D. EDIN., D.P.H., F.G.S.,
JERSEY.

By the death of Dr. Andrew Dunlop, which occurred at his residence at St. Helier, on December 30th, 1915, the profession in Jersey has lost its esteemed doyen. Recently Dr. Dunlop had been in failing health, and had suffered from heart trouble, but he had continued actively at work almost to the last, and the end (from cardiac failure) came rather suddenly. His death has called forth expressions of genuine regret and sorrow among all classes of the island community. Eloquent and emphatic testimony is borne in the local press to the affection and esteem with which he was regarded, special reference being made to his high personal character, his generosity, his native courtesy and gentleness, his genuine kindness and considerateness towards all seeking his advice, quite irrespective of class or station.

Dr. Dunlop received his medical education in Edinburgh, and graduated M.D. there in 1863. He settled in Jersey in 1868, and soon acquired an extensive general practice. His success was upon every ground well merited, and never left him. His fidelity towards his patients was absolute, and in the case of very many he was also the personal valued friend. So also towards his medical *confrères*, his loyalty and kindness were never in doubt. Dr. Dunlop held several honorary positions and appointments in connexion with the Jersey General Dispensary and other institutions, to which he devoted much time. He was one of the original founders of the Jersey Medical Society, was for a time its honorary secretary, and subsequently for some years its president. His medical contributions were numerous—an article on rupture of the heart written so far back as 1866 (*Edinburgh Medical Journal*) may be mentioned specially—all being marked by care and painstaking accuracy. In addition he was an enthusiastic geologist and contributed papers, all of interest and value, upon local geological features, as also on anthropology, to the leading scientific society in the island, the *Société Jersiaise*.

Recent years brought sad trouble in Dr. Dunlop's domestic circle—the death of a much-loved daughter, the loss of two sons in the South African war, and in the present conflict the falling of three other heroic sons, killed in action fighting for their country. The general sympathy—inclusive of royal condolence—has gone out towards the sorely stricken yet resolute parents in their heavy bereavement.

Dr. Dunlop was at one time Surgeon-Lieutenant-Colonel and Principal Medical Officer of the Royal Jersey Militia. He was 73 years of age. He leaves a widow, a married daughter, and two sons to mourn the loss of an attached and devoted husband and father.

It is with great regret we have to record the death, on December 17th, 1915, at the age of 55, of Dr. G. S. Morrison, Physician-Superintendent of Hereford County and City Asylum. He was the second son of Malcolm Brown and Rosalie Olivia Morrison, of Bhagalpur, and was born in India. He was educated at the University of Calcutta and the Royal College of Surgeons of Edinburgh. After taking the triple qualification in Scotland, he was for a time family physician to the late Earl of Elgin. Afterwards he was assistant medical officer to the Derby Asylum, and later was selected to fill a similar position at the County and City Asylum, Hereford, where he assisted his chief, Dr. T. A. Chapman. On Dr. Chapman's retirement a few years later, Dr. Morrison was appointed medical superintendent, which post he held until the day of his death. During his twenty years' service as medical superintendent he proved himself to be a skilful physician and a capable administrator, and was considered by the profession generally to be an authority in his speciality. As assistant medical officer he was one of the first to be selected to be put on the council of the Medico-Psychological Association, and afterwards was placed on the committee appointed to revise the constitution of that association with a view to assistant medical officers taking a more important part in its affairs and to revise the scientific work, which had gradually been allowed to take a secondary place in the affairs of the association. He took part in many debates when alterations were proposed which would give younger and junior members a more leading position than had been previously the case. He addressed himself to the assistant medical officers of that day, and by his vigorous action and forceful arguments he effected his purpose, and the existing constitution of the association, which has expanded its work and prosperity, was largely due to his unflagging efforts. He was Vice-President of the Section of Neurology and Psychological Medicine of the annual meeting of the British Medical Association when it met in Birmingham in 1911, and was recently President of the Worcestershire and Herefordshire Branch of the British Medical Association, and had for a considerable time acted as secretary, when he successfully worked to revive scientific work, which had been flagging for some years. Dr. Morrison was a man of many parts, courteous, sympathetic, and kindly. He enjoyed public respect and the affectionate regard of his afflicted patients, who learned to value him as their trusted and beloved friend. His love for the suffering poor was conspicuous, and his consideration at all times given them, irrespective of caste or creed.

DR. JOHN RIMINGTON FOTHERGILL died at his home in Darlington on December 13th, 1915, in his 91st year. He was the senior magistrate of the borough, and was for many years honorary physician to the Darlington Hospital. After studying in Edinburgh he took the diploma of L.R.C.S. in 1850 and the degree of M.D. St. Andrews in 1867; he joined his father in 1848, and remained in active practice for about thirty years. He then partially retired, but continued to work as a consulting physician for another twenty years. Dr. Fothergill took an active part in the civic, philanthropic, and political life of Darlington. He remained strongly Liberal throughout his life. An enthusiastic fisherman, he was constantly seen on the river Tees during the salmon season. In his younger days he was a keen fox-hunter. He was the son of John Fothergill, M.R.C.S., who left his native Wensleydale to practise in Darlington about one hundred years ago. Thus John Rimington was born just about the time when the world's first passenger train began to run between Darlington and Stockton-on-Tees in 1825. He was not a great writer, but he published his personal observations of a case of hydrophobia, and of a case, probably the first, in which he used chloroform in 1848 for the relief of puerperal eclampsia. John Fothergill, the London physician who died in 1780, was a great-great-uncle of the deceased.

DEATHS IN THE PROFESSION ABROAD.—Among the members of the medical profession in foreign countries who have recently died are Dr. Piero Baj, editor of the *Pensiero Medico*; and Dr. Adolphe Blin, professor in the Medical School of Rennes, serving as surgeon-major and head of the temporary hospital No. 30, in that town, aged 63.

Medical News.

On the afternoon of Tuesday, January 18th, a discussion on the treatment of soldier's heart will be opened by Sir James Mackenzie before the Section of Therapeutics and Pharmacology of the Royal Society of Medicine.

At the meeting of the Society for the Study of Inebriety in the rooms of the Medical Society of London, Chandos Street, W., on Tuesday next, at 4 p.m., Mr. John Turner Rae, Secretary of the National Temperance League, will open a discussion on the study of inebriety in the light of two wars.

The usual monthly committee meeting of the Medical Sickness Accident Society was held on December 17th, 1915, with Dr. F. J. Allan in the chair. The reports submitted showed that during the month of November the claims for sickness had risen slightly above expectation, but that for the whole year, so far, the total experience had been below the total expectation. It was reported that new proposals received were greater in number than those for the same period in the preceding year. The number of additional proposals received has been fairly well maintained. One satisfactory feature noted was the increase in the combined sickness and accident and life assurance contracts issued, and the tendency among existing members to avail themselves of the opportunity of increasing their insurances in the society by the addition of endowment life assurances, payable at the age of 65, or previous death. The number of claims from members on active service had, fortunately, been few in comparison with the total number serving in the Royal Army Medical Corps and similar forces. The complete figures will probably be included in the chairman's speech at the next annual general meeting. The soundness of the financial administration of the society during its thirty-three years' of existence is of decided import to members under the present disturbed conditions. The practice of writing down Stock Exchange securities, when necessary, has shown itself to be a wise one, in view of the heavy fall in stock values. It is anticipated that a further sum will have to be written off investments at the close of this year, but practically all the society's holdings are stocks repayable at par at fixed dates. Members of the medical profession would be well advised to avail themselves of the society's insurance against sickness and accident, and any desirous of so doing can obtain all information on application to the Secretary, Medical Sickness and Accident Society, 300, High Holborn.

THE large building known as the Grand Palais, Paris, was early last year converted into a hospital for the physical treatment of sick and wounded soldiers, mainly those suffering from disabling conditions of the limbs. There are separate departments, under medical direction, for baths, electricity, massage movements manual and by apparatus, and for radiology. Dr. Fortescue Fox, who has described this "complementary" hospital in the *Journal of the Royal Army Medical Corps*, states that for stiff and disabled joints and muscles the best results have been obtained by a combined treatment, in which the limb is submitted first to a bath and then to massage and movements. The favourite bath method is by the local hyperthermal bath known as *cau courante*. There is a continual current through the bath, and its temperature can be regulated in a mixer provided with valves. The motion may be that of a gentle stream or a miniature whirlpool. The temperature, checked by the mixer and by a thermometer in the bath, varies from 104° to 122° F., but is usually given as hot as can conveniently be borne for fifteen to twenty minutes daily. The method is said to give results superior to still water at the same temperature, or to the ordinary douche, or hot air or electric radiation baths. The circulation in arteries, capillaries, veins, and lymphatics is stimulated, and there is great vaso-dilatation, but the effect on the nerve endings is sedative. The pain, swelling, and stiffness are diminished, and the mobilization of limbs, either by the hand or by apparatus, is greatly facilitated. The local bath used for the upper limb resembles a small hip bath mounted on a tripod; that for the lower limb, in which the water is admitted at any part of the bath and runs out by a tube at the upper end, is an obliquely-placed cylinder. Recently the bath was being used in 400 cases a day, massage and mechanotherapy in 800, and gymnastic exercises and electrotherapy in 500. We are informed that a hyperthermal bath apparatus is now available in London, and that particulars can be obtained on application to the Secretaries of the committee on the after-treatment of soldiers established by the Balneology Section of the Royal Society of Medicine of London, 1, Wimpole Street, W.

Letters, Notes, and Answers.

THE telegraphic addresses of the BRITISH MEDICAL ASSOCIATION and JOURNAL are: (1) EDITOR of the BRITISH MEDICAL JOURNAL, *Atiology, Westrand, London*; telephone, 2631, Gerrard. (2) FINANCIAL SECRETARY AND BUSINESS MANAGER (advertisements, etc.), *Articulate, Westrand, London*; telephone, 2630, Gerrard. (3) MEDICAL SECRETARY, *Medisera, Westrand, London*; telephone, 2634, Gerrard. The address of the Irish office of the British Medical Association is 16, South Frederick Street, Dublin.

Queries, answers, and communications relating to subjects to which special departments of the BRITISH MEDICAL JOURNAL are devoted will be found under their respective headings.

QUERIES.

FERGUSON'S SPECULUM.

GYNAECOLOGIST inquires where the first account of this instrument is to be found. The inventor was, he understands, Dr. W. E. Laing Ferguson, who was in practice in Claremont Square; N., forty years ago, and, according to the *Medical Directory*, died on April 25th, 1880. There is no obituary notice of him in the medical journals of the period nor in the *Transactions* of the Obstetrical Society of London. He must be distinguished from Sir William Ferguson, the eminent surgeon, and Ferguson (one s), the surgical instrument maker in Smithfield.

LACTATION AMONG THE JAPANESE.

A CORRESPONDENT seeks for information as to the usual age at which Japanese children are weaned, and as to what effect, if the age be more advanced than in Europe, the custom has on lactation and pregnancy amongst the women of the race.

* Remy in 1883 wrote: "Among the details of Japanese hygiene I have been especially struck by the manner in which children are fed and brought up. They are suckled by the mother until the age of 5 or 6 years. They run after their mothers asking for the teat in a correct language. The manner in which the age of a child is reckoned may occasion an error of more than a year. However, during a long period the child depends entirely on its mother; artificial lactation is unknown; the mother considers it a duty to suckle her babies." This is a translation of Remy's notes (*Archives gén. de méd.*, vols. i and ii, 1883) by Dr. Albert Ashmead in an article "On the Non-existence of Rachitis in Japan," published in the *New York Medical Record*, vol. xxxviii, October 11th, 1890, p. 399, the author adding a further quotation from Remy: "There is, however, a result of the lactation which I would above all clearly represent. The rachitic (*sic*) does not exist in Japan. I never met him, neither among the children nor among the adults; neither in city, nor in country, nor in hospitals. The physicians, native and foreign, whom I consulted are aware of no single instance."

REBATE ON MOTOR SPIRIT.

HILLMAN made a claim for rebate on motor spirit to the local officer of Customs and Excise some months ago, but has heard nothing of the matter even after repeated reminders. He inquires as to the proper quarter to which any complaint should be addressed.

* The local officers appear to act under the Surveyor of Customs and Excise, whose name and address our correspondent may be able to obtain from the local directory; if the complaint is to go to head quarters the appropriate address would be: The Secretary, Board of Customs and Excise, Customs House, London.

INCOME TAX.

NET INCOME desires information as to the proportion of rent or rental value and other semi-professional expenses deductible for income tax purposes.

* The deduction to be made in respect of rental value is "such sum not exceeding two-third parts... as the Commissioners shall allow" (Sections 100 and 101 of the Income Tax Act of 1842). In most cases the proportion appears to be settled between the person making the return and the surveyor of taxes, but the Commissioners are the authorities for determining the amounts and, where agreement cannot be arrived at, they will decide the question on appeal. Where rents are high it does not necessarily follow that a larger proportion should be allocated to the professional part of the premises, seeing that the whole of the house would be affected by the local conditions of rent. The rental value as assessed includes the ground rent, and that payment does not constitute a separate subject for deduction; if income tax is—as it should be—deducted from the ground rent on payment, then the occupier of the property has not ultimately paid any tax on that portion of the rental assessment which refers to the ground rent. The proportion for dividing the rent

will also apply to the rates and inhabited house duty paid on the premises. The sum to be divided is not an arbitrary estimate of the value but the actual sum upon which income tax has been paid for the year covered by the professional statement of receipts and expenses. There are decided cases which make it quite clear that no deduction can be made by way of sinking fund or otherwise for the expiry of a lease. A payment of income tax is not a deductible expense. The only restriction with regard to the wages of servants, lighting, heating, etc., appears to be that the deductions shall be reasonable having regard to the amounts fairly attributable to professional rather than to private services. No general rule is—or perhaps could be—laid down, the matter being one capable of such wide variation that each case is apparently considered on its own merits. It should not be overlooked that the cost of a servant's food is in effect a part of his or her wages.

LETTERS, NOTES, ETC.

THE Temperance Collegiate Association offers two prizes of 10 and 5 guineas respectively for essays on heredity as a factor in alcoholic degeneration. The characters which the essay should possess can be obtained on application to the Secretary, "Strathblane," Alexandra Park, Nottingham. The Science and Education Committee of the National Temperance League is willing to consider applications addressed to its secretary, Paternoster House, London, E.C., from university and hospital students in physics and medicine for financial assistance in carrying on research or making investigations.

WHOOPIING-COUGH AND KINKHOST.

A CORRESPONDENCE was started recently in *Nature* by an incidental statement to the effect that the word "chincough" meant "hiccough." This was contested by a correspondent, who said that it was applied to whooping-cough in the north of Ireland, and suggested that it might have something to do with the French *chien*, a dog. This rather wild piece of etymology was promptly denounced by more than one correspondent. It was pointed out that "kinkhost" was good and common Scottish for whooping-cough, and that "kink" was used for the paroxysm not only in Scotland but in the north of England, as well as, we believe, in some parts of North America. Other correspondents stated that the term "kinkhoest" was used in Holland and Belgium for whooping-cough, and the similarity to the German "Keuchhusten" was mentioned. Authorities were quoted for the derivation of "kink" from "krik" or "kuk," an imitative word meaning to gasp, which is also the basis of cough. A remark in this correspondence to the effect that *coqueluche*, the French word for whooping-cough, was more puzzling, has brought us an interesting note from Dr. Lawrence Oliphant of Glasgow.

Coqueluche, he writes, is a name transferred from an epidemic disease (resembling influenza or *grippe*) to whooping-cough in recent times. Littré, quoting Ménage, suggests a derivation from *cuculus* through *cuculicchio*, and the word *coqueluche* originally meant a hood or "capuchon." This is borne out by its use as the name of a bird (reed-hunting) with black and white head. A. Paré's use of the word, as also d'Aubigné's, suggests influenza. Rabelais, in the list of books in the Library of St. Victor, has "la coqueluche des moynes," glossed by Lacroix as "rhume et capuchon"—that is, both flu and hood. Smith translates "wheeziness"; Urquhart "cowl or capuchon." In the *Dictionnaire Général*, Hatfield and Darmesteter say that the etymology is unknown, but also give "hood" as the original meaning of the word. In any case, its use as meaning "Kinkhost" is recent, so that the words are probably not related. As to *Keuchen*, Kluge (*Etymologischen Wörterbuch*) seems to make it cognate with English "cough." Mid High German *Kichen*, from Germanic *skik*—that is, sign for root—which in Low German, Netherlandish, and English is nasalized; Holstein, *Kinghosten*; Netherlandish, *Kinkhoest*; M.E., *chincough* for *chink-cough*; compare Swed. *Kikhosta*, Dan. *Kighoste*, Anglo-Saxon *cincung*; in which case our "kinkhost" is just a coughcough!

The fail-me-never Cotgrave (1611) gives "Coqueluche, f., a hood; also the Coqueluchoe, or new disease; which troubled the French about the yeares 1510 and 1557, and us but a while agoe." Ménage (1650) also gives information about the epidemics and the use of the word "coqueluche" from 1414 onwards.

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

	£	s.	d.
Seven lines and under	---	---	0 5 0
Each additional line	---	---	0 0 8
A whole column	---	---	3 10 0
A page	---	---	10 0 0

An average line contains six words.

All remittances by Post Office Orders must be made payable to the British Medical Association at the General Post Office, London. No responsibility will be accepted for any such remittance not so safeguarded.

Advertisements should be delivered, addressed to the Manager, 429, Strand, London, not later than the first post on Wednesday morning preceding publication, and, if not paid for at the time, should be accompanied by a reference.

NOTE.—It is against the rules of the Post Office to receive *poste restante* letters addressed either in initials or numbers.

THE BACTERIA OF GANGRENOUS WOUNDS.*

BY

MAJOR H. R. DEAN, M.D., F.R.C.P., R.A.M.C.(T.),

PROFESSOR OF PATHOLOGY, UNIVERSITY OF MANCHESTER,

AND

CAPTAIN T. B. MOUAT, M.D., F.R.C.S., R.A.M.C.(T.),

3RD NORTHERN GENERAL HOSPITAL, SHEFFIELD.

(Report to the Medical Research Committee.)

THE cases which provided the material for this investigation were selected from those undergoing treatment at the 3rd Northern General Hospital, Sheffield. The injuries were of a severe nature, and in nearly all there was evidence of the presence of necrotic or gangrenous tissue in the wound. Comparatively few, however, presented the clinical features of emphysematous gangrene.

Methods Employed.

The material used for examination consisted of fragments of necrotic tissue or of the discharges from the deeper parts of the wound.

The procedure usually adopted was as follows: Films were prepared and stained by various methods. Attention was directed to the cells and to the appearance and numbers of bacteria present in the discharge.

Methods for the Isolation of Aërobic Organisms.

Plate cultures were made on blood agar, and in some cases on MacConkey's medium. The resulting colonies were identified by the usual methods.

Methods for the Isolation and Identification of Anaërobic Organisms.

A tube containing about 5 c.cm. of broth was heavily inoculated with the material to be examined. In some cases a small piece of necrotic tissue was placed bodily into the tube, in others the material present on one or two swabs was thoroughly emulsified in the broth. In place of broth the following medium was employed on several occasions.

"Egg Broth."

The white and yolk of one egg were thoroughly beaten up by vigorous shaking in a stout glass bottle containing a liberal supply of glass beads; 300 c.cm. of distilled water were then added, and the mixture was thoroughly shaken. The bottle containing the mixture was then placed in a water bath which was slowly brought to the boil. This temperature was maintained for half an hour. During the whole period of heating the bottle was constantly and violently shaken. The result was a loose porridge-like mass consisting of finely divided particles of egg suspended in fluid. The medium was distributed in quantities of 50 to 100 c.cm. in wide-mouthed bottles, which were plugged and sterilized in the autoclave.

"Egg broth" prepared in this way proved to be very useful as a culture medium for the growth of anaërobic micro-organisms. It is particularly useful for the growth of *B. oedematis maligni*.

This egg broth or ordinary nutrient broth, after liberal inoculation, was heated for half an hour at a temperature of 80° C. It was then incubated in a Bulloch's chamber at 37° C. for periods which varied from two to twenty days. After this preliminary incubation (1) films were prepared, stained, and examined; (2) guinea-pigs were inoculated subcutaneously with one or two cubic centimetres of the broth; (3) agar, blood agar, or glucose agar plates were prepared, inoculated from the broth, placed in a Bulloch's chamber, and incubated for a period of three to seven days.

It was found that glucose agar was the most suitable medium for these anaërobic plate cultures. Subcultures from the resulting colonies were made on Dorset's egg medium, which proved admirably adapted for the needs of *B. aerogenes capsulatus* and *B. oedematis maligni*. It is probably better to subculture tetanus on glucose agar. The cultural characteristics of the various strains of anaërobic bacteria were examined on various culture media.

* A more detailed account of this investigation is to be published in the Journal of the Royal Army Medical Corps.

General Table.

No. of Case.	Gas observed in Tissues.	Symptoms of Tetanus.	Fatal.	B. oedematis maligni.	B. aerogenes capsulatus.	B. tetani.
1	0	+	0	+	+	0
2	+	0	+	+	+	■
3	■	0	0	+	+	0
4	0	■	0	■	■	0
5	0	0	0	+	0	0
6	■	+	0	+	0	+
7	0	■	0	+	0	0
8	0	0	0	+	+	0
9	0	0	■	+	+	0
10	0	0	0	+	+	+
11	■	0	0	+	+	0
12	■	■	0	+	+	0
13	■	0	0	0	+	0
14	+	0	0	+	+	+
15	0	+	0	+	+	0
16	0	+	+	0	+	+
17	+	■	+	+	0	0
18	+	0	0	+	+	0

Comment on Results.

The eighteen cases enumerated in Table I came under observation during a period of ten months from September, 1914, to June, 1915. The patients had been wounded in various parts of France and Belgium during this period. Although the number of cases is small, the series comprises patients wounded in widely separated districts and under very different climatic conditions, and in the circumstances the absence of variety in the bacteriological findings is somewhat noteworthy. The cases investigated were those in which there had been gross destruction of tissue, with subsequent necrosis and gangrene. The discharge from the wound was, in the majority of cases, excessively offensive.

The aërobic bacteria which were isolated call for little comment. Streptococci were isolated from nearly every case. No attempt was made to define accurately the variety of streptococcus, but nearly all those isolated appeared to belong to one type, which in films appeared as a small diplococcus, or more rarely as a chain of four or six members. It grew freely on blood-smear agar and on ordinary agar in small translucent colonies. Films made from blood agar cultures showed short chains. Staphylococci were isolated less frequently than might have been anticipated. When present, they were not as a rule numerous.

B. coli was only isolated from four cases. The only other aërobic organism of any interest was a *proteus* bacillus from case No. 5.

The Anaërobic Bacteria.

Only three varieties of anaërobic bacteria were isolated—the *B. aerogenes capsulatus*, *B. oedematis maligni*, and the *B. tetani*.

These varieties belong to one group of bacteria, whose normal habitat is usually stated to be highly cultivated earth and dung; their constant presence in wounds of the type investigated was to be anticipated.

Morphology and Staining Reactions.

B. aerogenes capsulatus and *B. oedematis maligni* differ enormously both in shape and in staining reactions under different cultural conditions, and the identification of either from the appearances seen in a film preparation alone may often be difficult. The results obtained by Gram's method of staining differ greatly with the nature of the culture medium and the age of the culture. The influence of the variety of culture medium employed on the formation of spores is also well marked.

The relative rate of growth of the different varieties is a matter of some interest from the practical standpoint, and

is a factor which must be allowed for in any attempt to isolate bacteria of this group in pure culture. In a mixed culture made by inoculating a tube of broth with the discharge obtained from a wound the different varieties appear after different periods of time, as it were in crops. After two or three days' incubation the broth may appear to contain a pure culture of *B. aerogenes capsulatus*. After a further period of incubation the *B. oedematis maligni* is often the predominant organism. Tetanus bacilli seem to require a still longer interval for multiplication, and may appear first after ten days' incubation. A result of this kind was obtained on several occasions, and in the later cases of the series the original broth culture was subjected to a routine examination at various intervals after inoculation. The preparation of pure cultures was thereby considerably facilitated. It is possible that a similar method might prove useful in dealing with other groups of bacteria.

The cultural characteristics of the various strains were examined on a variety of media. The appearances of well isolated colonies on agar and glucose agar plates, the characteristics of the growth on agar, glucose agar, broth, litmus milk and Dorset's egg medium, and the reactions produced with various sugars and alcohols were recorded.

THE BACILLUS OF MALIGNANT OEDEMA.

A pure culture of this bacillus was isolated in fifteen of the eighteen cases. All were cases in which considerable laceration and necrosis of tissue had occurred, and all were characterized by an offensive discharge. The degree and extent of the septic process varied considerably in the various cases of the series. Gas formation in the tissues was observed in four cases only, in three of which *B. aerogenes capsulatus* was also found. Of the fifteen cases three only were fatal—Cases 2, 16, and 17. In Case 2 there was a large gas-containing abscess of the arm, *B. aerogenes capsulatus* and *B. coli* were also present. Case 16 was one of tetanus. Case 17 was remarkable in that it was the only case of the series in which, although there was abundant gas formation in the tissues, *B. aerogenes capsulatus* was not found. Twelve cases of the fifteen in which *B. oedematis maligni* was found made good recoveries. There is apparently no reason to think that the presence of this micro-organism in a wound is necessarily of serious import. This conclusion is substantiated by the results obtained by the inoculation of animals. Its presence is an indication of the occurrence of gangrene, for it has probably little or no capacity for multiplication in living tissue. There appears to be no evidence that its presence is constantly associated with any particular group of signs or symptoms. Many of the films prepared from pus showed that this bacillus is readily taken up by the polymorphonuclear leucocytes.

Isolation of Pure Cultures.

The bacillus of malignant oedema grows extremely well on egg media. When but few are present in the discharge pure cultures are most readily obtained by freely inoculating the egg broth described in an earlier part of this paper and incubating in an anaërobic chamber for five to seven days. The *B. oedematis maligni* may then often be found in very large numbers and pure cultures may readily be obtained by plating on glucose agar.

Cultural Characteristics.

The appearances of a slope culture on Dorset's egg medium are very characteristic. A profuse creamy white growth appears within twenty-four hours. It increases rapidly and is at first raised above the surface of the medium. At the end of forty-eight hours, or even earlier, liquefaction is noticed. A clear fluid gradually accumulates in the lower part of the tube, in which float drops of oil. Liquefaction continues rapidly, and a bluish-black discoloration is a well-marked characteristic of *B. oedematis maligni* in this medium. The odour is extremely powerful and offensive; it is somewhat suggestive of gorgonzola cheese.

Films made from such a culture after incubation at 37° C. under anaërobic conditions for three days showed the following characteristics: The bacilli varied greatly in length; the larger forms, which were the more

numerous, were from 8 to 10 μ long and 0.6 μ wide. Of the shorter forms several were observed which measured about 2 μ in length and 0.6 μ in width. The majority of the bacilli occurred singly, but chains of two, four, and six members were met with. They were Gram-positive. Many of the bacilli contained spores which were of an oval shape and situated near to one end of the bacillus. Occasionally one bacillus appeared to contain two spores. A contained spore of average size measured 1.5 μ by 1 μ . There were also a comparatively small number of free spores approximately 2 μ long by 1 μ wide. Films made from an egg culture after seven days' incubation showed numerous large, free oval spores, but very few bacillary forms. The bacilli present in these old egg cultures were Gram-negative.

Surface colonies on glucose agar plates showed a central opaque node from which radiated numerous long delicate hair-like processes. Streak cultures on glucose agar slopes showed a central opaque whitish line, with delicate hair-like lateral projections. Stab cultures in deep glucose agar tubes are not characteristic. Gas formation is well marked, but usually less than in cultures of *B. aerogenes capsulatus*. Profuse growth occurs along the deeper portions of the needle track. The lateral projections are seldom slender spikes, but more often in the form of disc or coin-shaped, circular, flattened projections. Very similar appearances are seen in stab cultures of *B. aerogenes capsulatus*.

Microscopical Appearances of Films made from a Glucose Agar Slope after Three Days' Incubation at 37° C., under Anaërobic Conditions.

The majority of the bacilli were Gram-negative. Variation in size was even more marked than in the case of the egg culture. The following dimensions, which are fairly representative, may be given:

Length	...	15 μ	Breadth	...	0.6 μ
"	...	8 μ	"	...	0.8 μ
"	...	3 μ	"	...	1.5 μ

Some of the shorter forms resembled oval cocci in outline. The majority were short single rods with rounded ends. There were also long chains of slender bacilli constituting delicate filaments, in which the subdivisions could be distinguished with difficulty or not at all. Spores were not found. After eight days' growth on glucose agar the appearances were not greatly different. All bacilli were Gram-negative and stained poorly. There were great variations in length. A few spores were seen.

The appearances of surface colonies on agar plates, slope cultures, and in deep stabs are similar to those observed with glucose agar. The growth is less profuse. The microscopical appearances of films from an agar slope after three days' incubation were similar to those seen in films made from the glucose agar culture of the same age. Spores, however, were fairly numerous. After eight days' growth on agar the films showed numerous short forms containing spores and a large number of free spores. The bacteria stained badly, and were Gram-negative.

On broth rapid growth occurred with the production of turbidity and an offensive odour. After about a week a deposit formed at the bottom of the tube. In broth cultures filamentous forms or chains were frequent, and attained a considerable length. Spore formations occurred readily, and the older cultures contained more spores than bacillary forms. In young broth cultures the majority of forms were Gram-positive, in older cultures Gram-negative.

After incubation in litmus milk for about seven days under anaërobic conditions very characteristic changes may be observed. When the anaërobic chamber is first opened the contents of the tube are seen in two layers. The upper layer is turbid but translucent, the lower layer consists of a bulky dirty white deposit. The odour is sour and offensive. If the culture is allowed to stand on the bench for twenty-four hours, colour returns to the upper layer. There are now three well defined layers. The uppermost layer has a reddish claret colour except at the actual air surface, where a poorly marked blue ring may often be seen. The middle layer is a colourless translucent, but slightly turbid, fluid. At the bottom of the tube is a bulky deposit. On shaking the tube the whole of the contents assume a claret colour. The fluid is amphoteric to litmus paper.

On inspissated serum a whitish growth appears, and the medium is slowly liquefied with the formation of a neutral or faintly alkaline fluid. There is no discoloration, but the odour of the culture is offensive.

B. oedematis maligni ferments glucose and maltose with the formation of acid and gas. Its action on these sugars is less rapid and less violent than that of *B. aerogenes capsulatus*. Some strains act very slowly, others show a well-marked acid reaction within forty-eight hours. Cane sugar, lactose, mannite, and dulcitol remain unaltered. After seven days' incubation under anaërobic conditions the appearance of a tube of serum water glucose or maltose is as follows: At the bottom of the tube is a considerable deposit consisting of flocculi and shreds of torn-up clot. The supernatant fluid is colourless and slightly turbid. At the surface a few shreds of clot of a bright red colour may be seen floating. On shaking, the entire contents of the tube assume a red colour. The culture has an odour suggestive of lactic acid. In the case of some of the strains of malignant oedema, the reaction of the glucose and maltose cultures after incubation was only slightly acid, and no clot was formed. In the majority of cases the sugar reactions were recorded shortly after the isolation of the pure culture, and the tests were repeated after the strains had been subcultured for several months. The strain isolated from Case 3 gave the same reactions in June as it had done shortly after isolation in the previous December.

B. AEROGENES CAPSULATUS.

This bacillus was isolated from 13 of the 18 cases. In all but one (No. 13) the bacillus of malignant oedema was also found. It was present in 3 of the 4 cases in which the presence of "tetanus" bacilli was demonstrated. It was present in 3 of the 4 cases in which signs of tetanus developed in the patient. It was present in 3 of the 4 cases in which gas was present in the tissues. Of the 13 cases only 2 were fatal, and in one of these death was due to tetanus.

Isolation.

This bacillus grows readily in broth and egg broth under anaërobic conditions. If the mixed culture which is prepared from the discharge be examined after forty-eight hours, large numbers of this bacillus are often found, and a pure culture may readily be obtained by plating on glucose agar.

Morphological and Cultural Characteristics.

In films made from the fluid present in the subcutaneous tissues of a guinea-pig which has succumbed to experimental inoculation, numerous short Gram-positive rods are seen. The majority occur singly, and have square ends. The organism also occurs in pairs and chains of four. A capsule can be demonstrated. Many of the bacilli are seen within leucocytes. In some of the films made from the pus obtained from gangrenous wounds similar short definitely Gram-positive bacilli occurred. There were, however, other forms, somewhat larger, which stained unevenly by Gram's method. These bacilli exhibited a peculiar arrangement of Gram-positive stripes or granules on a Gram-negative ground. Both these and the Gram-positive forms were encapsulated.

B. aerogenes capsulatus grows excellently on Dorset's egg medium, although not so vigorously as does the bacillus of malignant oedema. The colonies are white, circular, and at first raised above the surface. After three or four days the medium is slowly eroded, and the colonies come to lie at the bottom of shallow saucer-like depressions. The digestion of the medium proceeds slowly, but nothing like the rapid liquefaction produced by *B. oedematis maligni* is seen. No discoloration of the medium occurs. Films prepared from a 48 hours' slope culture on Dorset's egg medium showed single short Gram-positive rods of fairly uniform length. There were a few long and comparatively slender forms and a few very short forms which resembled cocci. Spore formation occurs on this medium. The spores, which are oval in shape, distend the central portion of the bacillus, the remaining cytoplasm of the bacillus appearing as two caps, one at either end of the bacillus. Films prepared from old egg cultures showed great varieties in shape, size, and reaction to Gram's stain. Spores were numerous. On films made from egg medium long slender bacilli with a round

terminal spore are occasionally met with. These forms closely resemble the tetanus bacillus.

Isolated colonies on the surface of agar and glucose agar medium appear to the naked eye as circular colonies, 1 to 4 mm. in diameter, somewhat opaque, whitish in colour, and definitely thicker in the centre. Viewed under a $\times 10$ lens, the centre of the colony is seen to be opaque and raised up above a thin semitranslucent marginal zone, which often shows several rings. The margin is slightly wavy, and occasionally the irregularities of the outline are so well marked that an appearance of short offsets or processes is produced. Streak cultures on the surface of a glucose agar slope show a central opaque white line and a marginal somewhat translucent zone, which has a wavy outline. In glucose agar slabs the evolution of gas is commonly so violent that the wool plug and the greater part of the culture medium are expelled from the tube. Under less violent conditions the growth appears as an opaque white streak along the track of the needle, from which proceed flat coin-like outgrowths. The appearances of surface colonies on agar are similar to those on glucose agar, except that the growth is less vigorous. Films prepared from agar and glucose agar cultures of the same age show very marked differences. In films made from a 48 hours' agar culture short forms predominate. Many of the bacilli are very short, very broad, and present an almost square outline. Clostridial forms occur. The margins of many of the bacilli are indistinct and blurred. The bacilli occur singly. Both Gram-positive and Gram-negative forms may be found, but many show well-marked Gram-positive markings on a Gram-negative ground. Films prepared from a 48 hours' glucose agar culture showed considerable varieties in the length of individual bacilli, but long forms predominated. There were numerous pairs and short chains, and a few long chains of six, eight, or more bacilli. In older glucose agar cultures numerous club-shaped forms occurred. In neither agar nor glucose agar cultures were spores found.

Broth cultures are in no way characteristic. Uniform turbidity is seen in young cultures. Older cultures show a deposit and a comparatively translucent supernatant fluid. Films prepared from broth cultures showed numerous short broad rods. The majority occurred singly, but pairs and short chains were not uncommon.

On inspissated serum a greyish-white, not very profuse, growth makes its appearance. The surface of the medium is very slowly eroded. Films show forms similar to those seen in films prepared from egg medium. Spore formation occurs on this medium. Forms resembling the tetanus bacillus are occasionally met with.

The appearances of a litmus milk culture are well known. The production of acid and the formation of a clot are accompanied by a violent evolution of gas. After three or four days the tube is found to contain a clear acid translucent fluid and fragments of gas-contorted clot.

Sugar Reactions.—Violent fermentation occurs in media containing glucose and maltose with production of acid and much gas. Cane sugar and lactose are much less readily attacked, and the reaction in media containing these sugars is less acid. No reaction takes place with mannite, dulcitol, and inulin. The reactions can be demonstrated by the use of the ordinary peptone-sugar media or by Hiss's serum water sugar media. In the latter media the production of acid is accompanied by the formation of a clot, the disruption of which affords satisfactory evidence of the evolution of gas. The torn and lacerated clot, and the clear, strongly acid fluid which are found in the serum maltose tubes and serum glucose tubes present very characteristic appearances. The sugar reactions of *B. aerogenes capsulatus* were found to be quite constant, and were the same in all the strains examined.

INOCULATION EXPERIMENTS.

The results obtained by the inoculation of the mixed growth contained in the original broth cultures yielded very variable results.

Inoculation experiments were undertaken with eight strains of *B. oedematis maligni* and with five strains of *B. aerogenes capsulatus* in pure culture. In the first series of experiments the inoculated material consisted of either a broth culture, or an emulsion in broth of several loopfuls of the surface growth from a Dorset's egg or agar slope. The injections were subcutaneous. Thirteen

guinea-pigs and two rabbits were inoculated with cultures of *B. oedematis maligni*. One of these animals died twenty-four hours after inoculation. The cause of death, which could not be ascertained, was probably not the inoculation, for the site of the injection showed only a slight inflammatory reaction. The remainder of the animals survived and remained in good health for one month after the inoculation. In a few cases there were signs of illness during the first forty-eight hours, and examination revealed a slight swelling at the site of inoculation. Recovery was in these cases rapid and apparently complete. In the first series of experiments with *B. aerogenes capsulatus* twelve guinea-pigs and two rabbits were used.

Two guinea-pigs which had been inoculated subcutaneously at 5 p.m. on November 25th with 2 c.cm. of a broth culture of *B. aerogenes capsulatus* from Case 2, were found dead at 9 a.m. on November 26th. Emphysema was found at site of inoculation and the skin had been separated from the deep tissues over the greater part of the trunk. The subcutaneous tissues were infiltrated by a blood-stained fluid, in which floated globules of fat. Gas was present in the subcutaneous tissues, but not in the organs of the thorax and abdomen. Films made from the site of inoculation contained large numbers of *B. aerogenes capsulatus*, and a pure culture of this bacillus was obtained from the exudate. The heart blood was sterile.

On December 11th a guinea-pig received a subcutaneous injection of 1 c.cm. of a broth culture of the same strain (Case 2). The animal was found dead on December 15th. Necrosis of tissue was found at the site of the injection, and films showed *B. aerogenes capsulatus* and numerous streptococci. All the organs of the body and the serous membranes were engorged with blood. The lungs showed patchy consolidation. Films made from the lung showed streptococci only. The heart blood was sterile.

On December 11th a guinea-pig received a subcutaneous injection of 1 c.cm. of a broth culture of *B. aerogenes capsulatus* (Case 3). Slight local swelling and gas formation followed. The animal had apparently completely recovered after forty-eight hours. It died on December 18th. At the post-mortem examination an acute volvulus of the small intestine was found.

In two additional experiments with pure cultures from strain No. 2 the animals remained in perfect health for two months. Similar experiments were performed with pure cultures from Cases 10, 12, 13, and 14. In each case two guinea-pigs were inoculated. One of the animals inoculated with Strain 13 died after twenty-four hours from typical gas gangrene. The remaining seven animals were kept under observation for more than a month and showed no evidence of infection.

Two rabbits received a subcutaneous injection of 2 c.cm. of a pure culture of Strain 2. After twenty-four hours there was a slight local swelling and the animals appeared to be slightly unwell. Recovery had taken place at the end of forty-eight hours and no further symptoms were observed.

The conclusion arrived at from these experiments was that the subcutaneous injection of pure cultures of *B. aerogenes capsulatus* may occasionally give rise to fatal gas gangrene. With possibly one exception, all the experiments with pure cultures of *B. oedematis maligni* yielded negative results.

The results obtained by animal inoculation with pure cultures accord well with the evidence afforded by the clinical findings in the various cases above recorded. Both *B. oedematis maligni* and *B. aerogenes capsulatus* were present in the majority of the cases; but three only of the eighteen patients died, and in four cases only was gas formation observed in the tissues. We must assume that neither of these micro-organisms is truly parasitic—that is to say, neither bacillus is capable of multiplication in living tissue. In blood clot, in dead tissue, and fragments of foreign bodies which are so often present in wounds, they are capable of active growth and multiplication. Here they produce, by ferment action, poisonous substances, possibly organic acids,* which, in circumstances favourable to them, diffuse out into the surrounding living tissue. The result is that the adjacent tissues die and are then invaded by the micro-organisms. In this fashion the gangrenous area increases in size, successive zones of tissue being first poisoned and then invaded by the saprophytes.

Acting on the assumption that the pathogenic action of these micro-organisms might be dependent on the action

of the organic acids which they produce, the following experiments were undertaken:

B. oedematis maligni (Strain 3) and *B. aerogenes capsulatus* (Strain 2) were subcultured on agar, broth, Dorset's egg medium, and on serum water, cane sugar, glucose, lactose, maltose, mannite, and dulcitol. With *B. aerogenes capsulatus* marked acid reactions were obtained with glucose and maltose, and less marked reactions with cane sugar and lactose. With *B. oedematis maligni* the media containing glucose and maltose became slightly acid. A portion of each medium was injected into a guinea-pig. In the case of the fluid media the quantity inoculated was 2 c.cm.; in the case of the solid media one loopful of the growth was emulsified in 2 c.cm. of broth. It was thought that the cultures which contained acid might prove the more pathogenic. The result of the experiment was negative. In no case was gangrene produced, and, with the exception of slight and transient symptoms, all the animals remained in perfect health. In a third series of experiments guinea-pigs were inoculated with various strains of *B. oedematis maligni* and *B. aerogenes capsulatus* mixed with a recently isolated strain of *Staphylococcus aureus*. It was thought that the anaerobic bacteria might gain a hold in the tissue damaged by the action of *Staphylococcus aureus*.

INOCULATION EXPERIMENTS.

Series 3.

Experiment 1.—*B. oedematis maligni*, Strain 8, alone. Inoculated on May 27th. No symptoms. Animal alive and well on July 1st.

Experiment 2.—*B. oedematis maligni*, Strain 8, + *Staphylococcus aureus*. Inoculated on May 27th. No symptoms. Animal alive and well on July 1st.

Experiment 3.—Same as Experiment 1.

Experiment 4.—*B. oedematis maligni*, Strain 8, + *Staphylococcus aureus*. Inoculated on May 27th. Animal ill, with local swelling, on May 29th. Died on June 2nd; gangrene of subcutaneous tissues, blood-stained rancid effusion. Films showed pus cells, cocci, and *B. oedematis maligni*.

Experiment 5.—Same as Experiment 1.

Experiment 6.—*B. oedematis maligni*, Strain 8, + *Staphylococcus aureus*. Inoculated on May 27th. No local symptoms. Died on June 14th. No lesion at site of inoculation. No obvious cause of death.

Experiment 7.—*B. oedematis maligni*, Strain 2, alone. Inoculated on May 27th. Died on June 12th. No local lesion; no obvious cause of death.

Experiment 8.—*B. oedematis maligni*, Strain 2, + *Staphylococcus aureus*. Inoculated on May 27th. Died the following day. Swelling and oedema at site of inoculation. Film showed numerous cocci and *B. oedematis maligni*.

Experiment 9.—*B. oedematis maligni*, Strain 15, alone. Inoculated on May 27th. No symptoms. Alive and well on July 1st.

Experiment 10.—*B. oedematis maligni*, Strain 15, + *Staphylococcus aureus*. Inoculated on May 27th. Died on June 21st. No local lesion; no obvious cause of death.

Experiment 11.—Same as Experiment 9.

Experiment 12.—*B. oedematis maligni*, Strain 15, + *Staphylococcus aureus*. Inoculated on May 27th. On May 29th there was local swelling, which was marked on the following day; animal very ill. On the 31st it was much better. It eventually recovered, and was quite well on July 1st.

Experiment 13.—*B. aerogenes capsulatus*, Strain 2, alone. Inoculated on May 27th. On the 28th there was local swelling, and the animal was ill. On the 29th the swelling had disappeared, and the animal was well. It recovered completely, and was alive and well on July 1st.

Experiment 14.—*B. aerogenes capsulatus*, Strain 2, + *Staphylococcus aureus*. Inoculated on May 27th. On May 29th there was local swelling; animal slightly unwell. It recovered completely, and was alive and well on July 1st.

Experiment 15.—*B. aerogenes capsulatus*, Strain 3, alone. Inoculated on May 27th. Died on June 18th. No local lesion; no obvious cause of death.

Experiment 16.—*B. aerogenes capsulatus*, Strain 3, + *Staphylococcus aureus*. Inoculated on May 27th. No symptoms. Animal alive and well on July 1st.

Experiments 17 and 18.—Controls: *Staphylococcus aureus*, alone. Inoculated on May 27th. No symptoms. Animals alive and well on July 1st.

The results obtained in the above series of inoculations were not very conclusive. Possibly a more interesting result might have been obtained by the use of a more virulent culture of *Staphylococcus aureus*. Of the eighteen animals, two died with typical gangrene around the site of inoculation. Both of these animals (No. 4 and No. 8) had been inoculated with a mixture of *B. oedematis maligni* and *Staphylococcus aureus*. The control animals (No. 3 and No. 7), which were inoculated with the same strains of *B. oedematis maligni* and *Staphylococcus aureus*,

* After our paper had been sent to press there appeared in the BRITISH MEDICAL JOURNAL of December 4th a Note on a Supposed Soluble Toxin, Produced in Artificial Culture by the Bacillus of Malignant Oedema, by G. Barger and H. H. Dale. These workers have been able to prove that the "poisonous substances," the presence of which we suspected, are ammonium salts. The well-marked proteolytic activity of *B. oedematis maligni* is referred to in our paper.

did not develop gangrene. On the other hand, two other guinea-pigs (No. 2 and No. 6), which were inoculated with a mixture of *Staphylococcus aureus* with the same strain of *B. oedematis maligni* as was used in Experiment No. 4, did not develop gangrene. In the case of several of the patients reported in this series pieces of clothing were removed from the depth of the wound. It is presumed that such fragments, which must be often covered with mud and impregnated with anaërobic bacteria or their spores, may often form the starting-point of gangrene.

In the following four experiments an attempt was made to reproduce these conditions by the introduction of a foreign body heavily charged with anaërobic bacteria. Splinters about $\frac{1}{4}$ in. long were prepared from wooden matches and impregnated with cultures of *B. aërogenes capsulatus* and *B. oedematis maligni*. They were then introduced into the subcutaneous tissues of guinea-pigs.

INOCULATION EXPERIMENTS.

Series 4.

Experiment 1.—*B. oedematis maligni*, Strain 8. Splinter inserted on June 26th. The animal was well on June 28th. Marked swelling developed around the splinter on the 29th, and on the 30th the animal was very ill. It subsequently recovered completely.

Experiment 2.—*B. oedematis maligni*, Strain 8. Splinter inserted on June 26th. On June 28th there was marked swelling around the splinter; animal ill. It died the following day. Inflammation and oedematous infiltration around splinter.

Experiment 3.—*B. aërogenes capsulatus*, Strain 2. Splinter inserted on June 26th. The animal was well until June 30th, when marked swelling developed around the splinter. Animal very ill, but subsequently recovered completely.

Experiment 4.—*B. aërogenes capsulatus*, Strain 2. Splinter inserted on June 26th. No symptoms developed.

The series of inoculation experiments with these strains of *B. oedematis maligni* and *B. aërogenes capsulatus* led to the following conclusions:

1. The subcutaneous injection of pure strains does not, as a rule, produce any sign or symptom of disease.
2. If the tissues are damaged by a parasitic micro-organism, foreign body, or other irritant, the introduction of *B. aërogenes capsulatus* or *B. oedematis maligni* may, in a comparatively small number of cases, lead to local gangrene and the death of the animal.

TETANUS.

No. of Case.	Symptoms of Tetanus in Patient.	Prophylactic Injection of Antiserum.	Presence of <i>B. tetani</i> Proved by Inoculation.	No. of Days required for Bacteriological Diagnosis.	Other Anaërobic Bacteria Present.
No. 1	+	■	■	—	<i>B. oedematis maligni</i> . <i>B. aërogenes capsulatus</i> .
No. 6	+	0	+	19	<i>B. oedematis maligni</i> .
No. 10	0	+	+	6	<i>B. oedematis maligni</i> .
No. 14	■	+	+	15	<i>B. oedematis maligni</i> . <i>B. aërogenes capsulatus</i> .
No. 15	+	0	0	—	<i>B. oedematis maligni</i> . <i>B. aërogenes capsulatus</i> .
No. 16	+	0	+	13	<i>B. aërogenes capsulatus</i> .

The methods which were employed with the object of establishing a bacteriological diagnosis of tetanus fall under three headings:

1. The microscopical examination of (a) films from the discharge from the wound, (b) films from the original mixed culture prepared by the inoculation of broth with the discharge.
2. The inoculation of guinea-pigs with the original mixed culture.
3. The isolation of *B. tetani* in pure culture.

1. Examination of Films.

In none of these cases were bacteriological forms resembling *B. tetani* found in films made from the discharge. In the films made from mixed broth cultures tetanus forms were observed in Cases 6, 10, 14, and 16, and also in Case 1. By the expression "tetanus form" is implied a slender

Gram-positive rod bearing a large absolutely terminal round spore. Microscopical examinations of films from the original broth culture of Case 15 were made on numerous occasions, but no forms resembling tetanus were observed.

In Cases 6 and 16 tetanus forms could not be demonstrated until the mixed culture had been incubated under anaërobic conditions for a relatively long period. Unfortunately no systematic attempt was made to record the number of days which elapsed in each case before bacteria resembling tetanus appeared in the broth cultures.

The following observations were, however, recorded:

	Tetanus Forms not present after			Tetanus Forms present after		
Case 1	—	2 days
Case 6	6 days	...	...	17 days
Case 10	—	4 days
Case 14	3 days	...	...	8 days
Case 16	5 days	...	...	10 days

It appears that:

1. Tetanus bacilli are often not found in films made from the discharge from the wound.
2. A long time may elapse before they appear in cultures in sufficient number for microscopical recognition.

A more serious objection to the microscopical method of diagnosis is the fact that closely similar, if not indistinguishable forms, occur in films made from pure cultures of *B. oedematis maligni* and *B. aërogenes capsulatus*. On the other hand, a pure culture of *B. tetani* may often contain many bacilli which are in no way characteristic in appearance. In the absence of other evidence, the discovery of tetanus-like bacilli in films is not satisfactory evidence of the presence of *B. tetani*. The presence in a film of numerous slender Gram-positive bacilli, bearing a large round terminal spore, is, of course, a suspicious circumstance, and may justify a preliminary opinion. The microscopical evidence is, however, not sufficient, unless supported by the result of an inoculation experiment.

2. Inoculation of Mixed Broth Culture.

The presence of *B. tetani* was demonstrated in Cases 6, 10, 14, and 16 by injecting a guinea-pig with the original mixed broth culture.

One or two cubic centimetres of the culture were injected beneath the skin on the left side of the chest. After a variable interval—usually two or three days—slight stiffness of the forelimb nearest to the site of inoculation was observed. Within a few hours the limb became rigid in a position of extreme extension. Subsequently a condition of extensor spasm spread to the other limbs and the muscles of the neck and back. Death usually occurred within twenty-four to forty-eight hours after the first onset of symptoms. In the majority of cases there was little or no evidence of inflammation at the site of inoculation. The method is a satisfactory one, and yields results which are not open to doubt. The disadvantage is the considerable interval that may elapse before a demonstrable amount of toxin is produced.

3. Isolation of Pure Cultures.

In Cases 6, 10, 14, and 16 tetanus bacilli were found in large numbers in the original mixed broth cultures, and the inoculation of these broth cultures produced characteristic symptoms in animals. In only one of these cases was the tetanus bacillus isolated in pure culture, in the other three cases repeated attempts ended in failure. Agar, glucose agar, and blood agar plates were employed; colonies of *B. oedematis maligni* were readily obtained, but not of tetanus. Fractional heating was employed in the hope that the spore of tetanus might prove more resistant than that of malignant oedema. No success was obtained in this way. A pure culture was eventually obtained by the inoculation of glucose agar plates with the mixed broth culture from Case 16.

Cultural Characteristics.

The surface colonies on glucose agar plates varied greatly in size. They were round, opaque, and rather white. Under a hand lens they showed a central portion which was thicker and made up the greater part of the colony, surrounded by a thin, translucent margin, which had a wavy outline.

With higher magnification the centre of the colony was seen to be granular, while the margin showed delicate rounded projections. In older cultures numerous small circular opaque nodes or thickenings appeared on the colony. These may perhaps be described as secondary colonies. Other colonies showed large branching out-growths, which were beautifully rounded, and somewhat suggested the contour of an oak-leaf. Streak cultures on glucose agar slopes showed a central thick opaque line and a broad, translucent margin, showing branching and rounded processes. The appearance of agar cultures was similar, but the growth was not so vigorous. Broth cultures became turbid with the formation of a deposit. The growth on Dorset's egg medium was not very vigorous, but resembled that on glucose agar. Flat white colonies appeared, which after a time came to lie in shallow depressions in the medium. No change was produced in litmus milk. The sugar reactions were examined on several occasions with Hiss's serum water, and with peptone water media. This strain produced no change on cane sugar, glucose, maltose, lactose, mannite, dulcitol, and inulin.

The microscopical appearances of films from various culture media were recorded. As only one strain was examined, the results have little value.

The appearance of bacilli grown on agar, glucose agar, and broth accorded with the description usually given of this micro-organism. The bacilli were slender, showed considerable variations in length and size, and had rounded ends. The majority occurred singly. Many bacilli contained spores, the majority of which were terminal, round, and very large. In a very few bacilli the spores were oval in shape and were either in the centre of the bacillus or near but not actually at one end. These forms showed a close resemblance to the appearances commonly met with in cultures of *B. oedematis maligni*. In a few of the bacilli there was an appearance of granules similar to that seen in films of *B. aerogenes capsulatus*. Bacilli which appeared to have two terminal spores occurred occasionally. Films made from a three days old culture on Dorset's egg medium were distinctly different in appearance. The majority of the bacilli appeared to be broader than those grown on agar. Although in many bacilli the spore was terminal, there were many others in which it was oval and occupied a central position. Apart from the spore-bearing forms, bacilli occurred in which the poles stained faintly, while the centre appeared as a solid deeply stained band. In other bacilli the arrangement was reversed, and a bipolar effect was produced. Possibly these appearances represent early stages of spore formation.

Inoculation Experiments.

Eleven guinea-pigs and 2 rabbits were inoculated from a ten-day-old pure broth culture of this strain. Tetanus developed in 4 of the guinea-pigs. The other 7 guinea-pigs and the 2 rabbits showed no evidence of the disease.

Remarks on above Cases of Tetanus.

It is perhaps worthy of note that the two patients who did not suffer from tetanus although the presence of tetanus bacilli was demonstrated in the wounds had received a prophylactic injection of antitoxin. The four patients who developed signs of tetanus did not have a prophylactic injection. In Cases 10, 14, 15, and 16, fragments of clothing were removed from the wound. It may be assumed that the presence of fragments of cloth, saturated with the discharges of a gangrenous wound, must form a peculiarly suitable nucleus for the growth of tetanus bacilli.

The results above recorded lead to the conclusion that the microscopical examination of films made from the discharge from a wound may be of little value in the diagnosis of tetanus. Satisfactory results may be expected from the injection of guinea-pigs with broth which has been inoculated from the discharge. Prolonged incubation may be necessary before a positive result is obtained. Under these circumstances the patient may develop tetanus before a diagnosis is arrived at in the laboratory. Now the tetanus bacillus belongs to the same group of bacteria as do *B. aerogenes capsulatus* and *B. oedematis maligni*, and the demonstration of the presence of these two micro-organisms is a relatively simple and rapid matter. All three micro-organisms are of intestinal origin and are apt to be found in polluted soil. All three are no doubt frequently simultaneously introduced into a wound, and all three require the same conditions for growth and multiplication. The presence of either *B. aerogenes capsulatus* or *B. oedematis maligni* might with great advantage be taken as an indication for one or more

prophylactic injections of antitetanus serum. In two at least of the above cases the first symptoms of tetanus followed immediately on an operation, and it appears to us that antitetanic serum should be injected as a prophylactic measure before any considerable operative procedure is attempted on a patient with a gangrenous wound.

Since the conclusion of this investigation two other cases have been observed in which the onset of tetanic symptoms was apparently determined by operative procedure.

TREATMENT.

In the summary of our cases no reference has been made to treatment, and we did not in the first instance contemplate any reference to the matter. It may, however, be remarked that the results obtained were, considering the gravity of the majority of the cases, satisfactory; and as the bacteriological findings exhibited a marked uniformity, a brief note on the general lines of treatment may be of some interest. Cases 17 and 18 received continuous irrigation with hypertonic saline. In the other sixteen cases treatment consisted of irrigation with hydrogen peroxide (5 to 10 vols.) and fomentations of hot sterile isotonic saline solution (0.9 per cent.) or boracic lotion. In the later stages, when the wounds had cleaned up, lotio rubra and gauze dressings were employed.

After the conclusion of this investigation, irrigation with hypertonic saline solution was employed in more than 100 cases which presented similar features to those above recorded. The method caused considerable discomfort to the patients, and did not yield results in any way superior to those obtained by the use of older methods of treatment. In this connexion it may be noted that active phagocytosis was often observed in films prepared from the discharge of wounds which had been treated by the usual methods.

B. aerogenes capsulatus and *B. oedematis maligni* were frequently isolated from wounds in which no gas was produced and the gangrenous area showed no tendency to spread. It may be inferred that the conditions which enable these micro-organisms to exercise any serious influence in the course of a case are only exceptionally present. These micro-organisms are essentially saprophytes, and are relatively, if not entirely, innocuous to undamaged living tissues. The presence of dead tissue or fragments of clothing and the retention of discharge or blood clot within a wound provide these micro-organisms with a favourable culture medium. It is of the utmost importance that wounds containing anaerobic bacteria should be freely opened up and thoroughly drained.

SUMMARY.

1. The series comprises 18 cases of gangrenous wounds, of which 3 only were fatal. Included in this total are 4 cases of tetanus (1 of which was fatal), and 4 cases of gas gangrene (2 of which were fatal). Of the 18 cases *B. oedematis maligni* was found in 15 and *B. aerogenes capsulatus* in 13.
2. *B. aerogenes capsulatus* and *B. oedematis maligni* are apparently possessed of powerful enzymes. The former is peculiarly able to attack carbohydrates, the latter proteins. Dorset's egg medium is an admirable medium for both micro-organisms.
3. The shape, size, staining reactions, and capacity for spore formation of these bacilli are profoundly influenced by the nature of the culture medium.
4. On Dorset's egg medium the majority of the bacilli are typical in shape, uniform in size, and Gram-positive. On media which contain a carbohydrate, from which the bacilli can form acid, growth is at first rapid and vigorous, but after a few days the bacilli become atypical in appearance, vary greatly in size, and the majority are Gram-negative.
5. *B. aerogenes capsulatus* forms spores on Dorset's egg medium and inspissated serum, but not on media in which an acid reaction is produced. *B. oedematis maligni* forms spores less readily in acid media.
6. The presence of *B. aerogenes capsulatus* and *B. oedematis maligni* is not necessarily associated with the development of gas in the tissues.
7. *B. oedematis maligni* and *B. aerogenes capsulatus* are essentially saprophytes. They have little or no power to multiply in living tissue. In dead tissue they grow

rapidly and produce poisonous substances, by which the adjacent living tissue is destroyed and rendered a suitable medium for the further multiplication of these bacilli.

8. *B. tetani* was not found in films made from the discharge in any one of the six cases of this series in which it was present.

9. The recognition of *B. tetani* by purely microscopical methods is complicated by the fact that slender Gram-positive rods bearing an absolutely terminal spore may be occasionally found in pure cultures of *B. oedematis maligni* and *B. aerogenes capsulatus*. Moreover, pure cultures of tetanus bacilli, especially cultures on egg medium, contain many atypical forms.

10. If broth is inoculated with material from the wound in a case of tetanus, and incubated under anaërobic conditions, the presence of *B. tetani* can often be satisfactorily demonstrated by animal inoculation. Such a broth culture should be examined at intervals, and two or three weeks may elapse before *B. tetani* can be demonstrated.

11. The presence of *B. tetani* was demonstrated in the discharge from the wounds of two patients who did not develop signs of tetanus. Both had received prophylactic injections of antitetanus serum.

12. The discovery of *B. tetani* in the wounds of a patient who had not developed tetanus would obviously be an indication for one or more prophylactic injections of antitetanic serum. But the practical utility of such a procedure is limited by the difficulty and delay which attend the bacteriological recognition of this bacillus. Now, *B. tetani* belongs to the same group of anaërobic bacteria as *B. aerogenes capsulatus* and *B. oedematis maligni*. All three have probably a common source, and the conditions favourable to their growth within a wound are probably identical. The demonstration of either *B. oedematis maligni* or *B. aerogenes capsulatus* is a relatively simple matter and does not involve much delay. The discovery of either of these bacilli might with advantage be followed by a prophylactic injection of antitetanic serum.

13. A prophylactic injection of antitetanic serum should be given before any considerable operation is performed on a patient with a gangrenous wound.

THE

TREATMENT OF ACUTE TOXAEMIA SECONDARY TO GAS GANGRENE BY THE INTRAVENOUS INJECTION OF A SOLUTION OF HYPOCHLOROUS ACID.

BY

CAPTAIN JOHN FRASER, M.D., M.Ch., F.R.C.S., R.A.M.C.,
ASSISTANT SURGEON, ROYAL HOSPITAL FOR SICK CHILDREN,
EDINBURGH,

AND

CAPTAIN H. J. BATES, B.A., M.B., B.Ch.DUBL.,
R.A.M.C.(T.F.),
BRITISH EXPEDITIONARY FORCE.

(Report to the Medical Research Committee.)

It has been our experience that soldiers whose wounds are infected by a gas-producing organism sometimes suffer from a condition which can only be described as an intense toxæmia and which frequently proves fatal.

Such cases present features as follows: The patient is admitted to hospital suffering from a wound of one of the extremities; there is extensive infection by a gas-producing organism, and it is obvious that the infected part must be amputated as soon as possible.

In some of these cases, although the operation is carried out, it is found that the general symptoms and signs of toxæmia do not abate but develop and deepen till death ensues; the following two cases are illustrative of these facts:

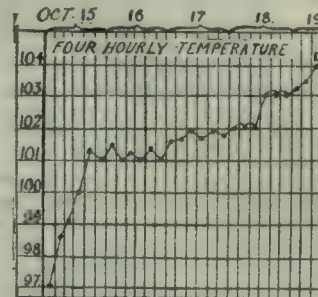
CASE A.

A sergeant-major, admitted on October 15th, 1915, suffering from a gunshot wound of the left upper arm a short distance below the shoulder-joint. There was a complicated compound fracture of the humerus, and the

brachial artery was divided. The wound was infected by a gas-producing organism, and the infection was spreading in the surrounding tissues. His general appearance was that of a man who was suffering from severe hæmorrhage; he had an intense grey pallor, and this was the more extraordinary because inquiry showed that the loss of blood had not been excessive; his features were distressed. The pulse was 130, the temperature (see Chart) 97° F., and the respirations 24. He was suffering from the condition of general toxæmia which so closely resembles shock. It was decided that amputation was necessary, but the operation was delayed for some time in the hope that matters might improve. After some hours there was no improvement and disarticulation through the shoulder-joint was carried out.

At the operation the fact was confirmed that the loss of blood was not severe, for the vessel at its site of division was twisted into a fibrous cord.

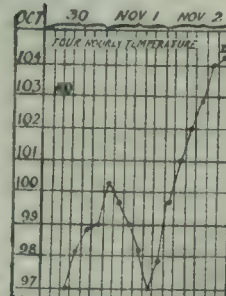
The post-operation history was disappointing, not as regards the local condition—for no trace of infection developed in the stump—but in regard to the general condition. The pallor remained, and, if anything, deepened; there was a faint underlying tinge of jaundice, there were profuse perspirations and occasional rigors, the pulse-rate increased to 150, the respirations quickened from 24 to 60, unconsciousness developed, and he died on the fourth day following the operation. After the amputation of the diseased limb there was no local site which could be regarded as the source and origin of the poisoning from which the man was suffering. A process of reasoning led to the conclusion that there was proceeding either a septicæmia or a toxæmia which had originally been instituted from the infected wound. A blood examination was carried out by Captain Ellis, but no organism could be isolated. The process was apparently, therefore, a toxæmia.



CASE A.—Gas gangrene: disarticulation through the shoulder-joint on October 15th. D, Death.

CASE B.

A private, admitted on October 30th, 1915, suffering from a gas-infected wound of the right leg. Generally he presented an appearance very similar to that of Case A—an intense pallor as though from severe loss of blood, restlessness and sweating; the temperature was 97° F., and the pulse 140. The right limb below the knee was extensively infected with a gas-producing organism; the bones were not injured, but the main blood vessels were involved. It was decided that amputation was necessary, and this was carried out through the knee-joint under spinal anaesthesia. After the operation the stump did well, but the general condition was far from satisfactory; the temperature rose and remained high; the pulse increased in rapidity and became weaker. On the morning of the second day after the operation the patient seemed better, but immediately after being dressed he collapsed and died.



CASE B.—Gas gangrene: amputation through the knee-joint on October 30th. A, Admission; O, operation; D, death.

We have chosen these cases at random from amongst others. To our minds they are illustrations of cases suffering from intense toxæmia. The removal of the original and local source of the toxæmia was not sufficient to counteract the malady, for the poison had acquired so firm a hold that its continued activity led to the death of the patients. The counteraction of the toxæmia formed a very distinct problem, and while it was under consideration Professor Lorrain Smith of Edinburgh suggested to us that eusol, which contains 0.5 per cent. hypochlorous



CASE C.—Gas gangrene; wound opened up on November 5th; amputation below the shoulder-joint on November 6th, injection of 40 c.cm. eusol at the same time. The chart shows the temperature taken every half-hour on the day on which the operation was performed and the following day. O, Operation. E, Eusol 40 c.cm. injected intravenously.

acid, might be used intravenously to combat the action of the toxin. We immediately put the suggestion into execution, and it is the result as demonstrated in three cases which we now record. Professor Lorrain Smith and those associated with him had advised us of certain experiments they had carried out proving that eusol containing 0.5 per cent. hypochlorous acid could be injected intravenously into rabbits in amounts up to 25 c.cm. without any ill effects arising.

We repeated these experiments and assured ourselves of a similar result. Thus safeguarded, we proceeded to use the solution intravenously in the treatment of toxæmia secondary to wound infection with a gas-producing organism.

CASE C.

A private was admitted on November 5th, 1915. Forty-eight hours before admission he had been struck by a bullet on the right forearm just below the elbow. The wound was dressed, but he could not be evacuated from the trenches until about twenty-four hours later.

On admission, there was found to be a gaping and ragged wound of the forearm below the elbow-joint; the bones were not broken; the main blood supply was interrupted, as no pulse could be felt in either radial or ulnar vessels. The wound was sloughing, and apparently infected by a gas-producing organism. The general condition was bad; he had an unhealthy toxic appearance, and was somewhat blanched. The temperature was 100° F., and the pulse 120.

As there was some evidence of a collateral circulation being established, attempts were made to conserve the limb. Under anaesthesia the wound was thoroughly opened up; various fascial planes were exposed, and the parts were freely dressed with eusol.

On the morning of November 6th the patient was distinctly worse; sleep had been broken and imperfect. His general appearance was decidedly grave; he was blanched as though from a severe haemorrhage, with a yellowish discoloration of the skin. He was slightly delirious. The pulse-rate was 150, and the temperature had fallen to sub-normal, 98° F. The local condition was correspondingly worse; there was complete arrest of circulation in that portion of the arm distal to the wound. There was emphysema from the centre of the upper arm to the neighbourhood of the wrist; there were patches of a bluish discoloration of the skin, and the muscles in certain parts showed distinct necrosis.

At 3 p.m. the arm was removed just below the shoulder-joint, and immediately after the operation 40 c.cm. of eusol were injected intravenously. From this time the temperature rose almost continuously for three hours, and at 7 p.m. it had reached 102° F.; the pulse-rate likewise correspondingly increased from 120 to 160. Immediately after operation it fell from 150 to 120 and then rose again. From 7 p.m. until midnight the temperature remained at about 102° to 101° F., and the pulse remained about 160 (see Chart). Soon after midnight the temperature began to fall until at 8 a.m. on November 7th it had reached 99° F.; the pulse likewise fell from 160 to 108.

During November 8th, 9th, and 10th there were successive rises of temperature, usually occurring in the early morning and accompanied by corresponding increases in pulse rate. On November 15th the temperature fell to normal and remained so.

There were other changes to be noted in addition to those in pulse and temperature. The general appearance improved by leaps and bounds; the ashy pallor disappeared within twenty-four hours, to be replaced by a slightly flushed appearance. The respirations altered strikingly; previous to operation and injection of eusol the respirations were deep and slightly stertorous, such as gave us the impression of a sense of air hunger. Subsequent to operation and injection they became quicker, shallower and less noisy. Shortly after operation and injection the restlessness disappeared and the patient slept comfortably.

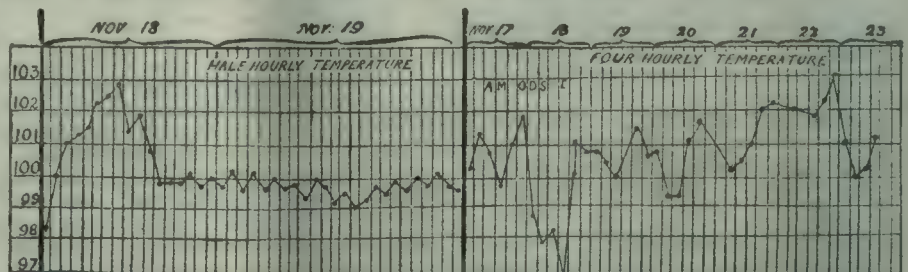
The further progress was one to complete recovery.

Immediately before the injection of eusol was given blood was taken for bacteriological examination; both aerobic and anaerobic cultures were negative.

CASE D.

A private, admitted on November 16th, 1915. About twelve hours before admission he had sustained a bullet wound through the left arm about the level of the elbow joint. There was considerable bleeding and a tourniquet was applied. Beyond a simple dressing nothing further was done, and the patient was sent into hospital with the tourniquet still in position.

On admission it was found that the brachial artery was severed immediately above its division; the vessel was tied. There was no definite evidence of infection in the wound, but it was thoroughly opened up and treated with eusol. There were signs that an adequate collateral circulation might be established.



CASE D.—Gas gangrene; wound opened up on the morning of November 17th, amputation same evening. Injection of eusol 40 c.cm. at 3.15 p.m. on November 18th. A, Anaesthetic; wound opened up, etc. M, Morphine, gr. ½. O, Operation. D, Digitalin, gr. rds. S, Saline, 3 pints. E, Eusol, 40 c.cm., intravenously at 4 p.m.

On the morning of November 17th the general condition of the patient was unsatisfactory; he had had a restless night, and there was some evidence of gas in the neighbourhood of the wound. The wound and fascial planes around were further opened up. He was pallid and slightly jaundiced, restless, and sweating slightly.

At 10 p.m., on dressing the wound, it was found that the condition had become much more extensive. There was gas throughout the forearm and extending upwards along the vessels as far as the axilla. It was obvious that operation was necessary, and at 11.30 p.m., the arm was amputated below the shoulder-joint and partly through the infected area. After the operation there was evidence of collapse; the temperature fell to 98° F., the pulse was 126.

Stimulation was carried out with saline, 3 pints subcutaneously, and digitalin $\frac{1}{10}$ grain.

During the morning of the 18th the condition became more serious; the temperature continued to fall, and reached 97° F.; the pulse increased to 126-124; the respirations were full and stertorous, resembling a condition of air hunger. The general appearance was one of pallor with a tinge of jaundice. At 2 p.m. the condition had become so serious that it was obvious that something further ought to be tried, therefore at 3.15 p.m. 40 c.cm. of eusol were injected intravenously with a Record syringe. Before injection a blood examination was made, but no organism was isolated.

At 4 p.m. the temperature was 98.6° F. and the pulse 136; there was no obvious change in general condition. At 4.30 p.m. the temperature was 100° F. and the pulse 136; at 5 p.m. the temperature was 101° F. and the pulse 136; and at 7 p.m. 102.5° F. and 140 respectively. By this time also there was a change in the general condition; he was sleeping peacefully; respiration was quicker and quite quiet; his colour had improved, and the pallor was replaced by a slight flush.

By midnight the temperature had begun to fall and was 100° F.; the pulse was 120.

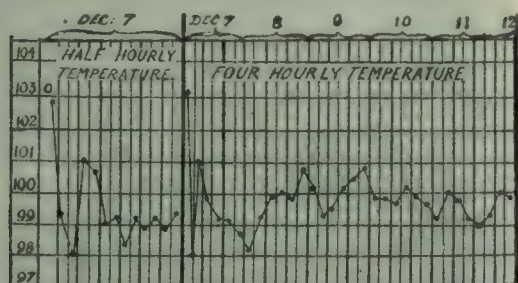
On November 19th his condition was greatly improved; the temperature was 99° F., the pulse 100; he was sleeping well and taking nourishment, and the local part looked well.

The further progress was one of uninterrupted recovery.

Some of the facts in regard to this case call for special attention. The operation of removal of the arm did not produce any benefit; in fact, after it the general condition grew steadily worse. The collapse was so intense that it was thought to be the result of loss of blood; but the reaction after the intravenous administration of eusol was so correspondingly great that we had no hesitation in saying that the alarming symptoms were the result of an intense toxæmia. The eusol was not given until sixteen hours had elapsed from the time of operation; and before the drug was given we were agreed that the prognosis was absolutely hopeless.

CASE E.

A private was wounded in the calf of the right leg by a shrapnel bullet on the afternoon of December 6th, 1915. He was admitted to hospital on December 7th about midday. The neighbourhood of the wound was found to be infected by a gas-producing organism. The general condition was bad; there was pallor as though from loss of blood; the temperature was 100° F., and the pulse 120. Arrange-



CASE E.—Gas gangrene; amputation through the knee-joint on the afternoon of December 7th. Injection of 70 c.cm. eusol. The chart shows the variation of temperature at each half hour during the first six hours after the operation. O, Operation, 70 c.cm. eusol intravenously.

ments were made to have the wound opened up, but pressure of work rendered it impossible to have this done until 2.30 p.m. (two and a half hours after admission). At this, the second, examination it was found that the condition had become much graver: the leg below the knee was enormously swollen; it was as resonant as a drum from knee to toes, and signs of infection had extended along the line of the femoral vessels as far as the centre of the thigh; there was an entire arrest of circulation in the foot and leg. The general condition was correspondingly worse; the temperature had reached 102.5° F., and the pulse-rate was 130.

Half an hour later, when the patient was in the operating theatre, a further advance had been made which

we could hardly have believed possible in so brief a space of time. In places the skin of the leg was becoming mottled as the result of actual tissue necrosis; the gas infection of the thigh had extended upwards as far as the groin. The general condition had become correspondingly worse. Disarticulation through the knee-joint was performed by the Stephen Smith method; it was necessary to cut through infected tissue, but former experience had told us that this could be done. The cutting of the flaps revealed green, foul-smelling subcutaneous tissue; free incisions were made along the whole length of the femoral artery as far as the groin; the knee-flaps were left open and drainage of the thigh wounds was thoroughly secured. Before the patient left the theatre 70 c.cm. of eusol were injected intravenously; the dose was larger than usual because from our former knowledge of such cases we took an exceedingly grave view of this case.

His history after operation exceeded even our most sanguine expectations; there was no further appearance of gas formation or gangrene, and forty-eight hours after operation his pulse-rate had fallen to 88. His condition in the future never gave us the slightest cause for anxiety. Under usual circumstances we should have regarded this case as very likely to prove fatal, or at least to have recovered only after a prolonged period of debility.

Blood Cultures.—These were made for both aerobic and anaerobic organisms. For the aerobic ordinary plates of 1 per cent. glucose agar were employed, and 1 c.cm. of blood was introduced. Three kinds of anaerobic cultures were made use of in each instance: (1) Plates as above, but grown in a carbon monoxide atmosphere; (2) 1.0 c.cm. of blood in litmus milk in a Buchner tube; (3) 1.0 to 2.0 c.cm. of blood in an ordinary shake culture in deep 1 per cent. glucose agar tubes.

COMMENTARY.

There is really very little which we wish to add of the nature of a commentary. The position, briefly, is as follows: We were faced by the fact that men suffering from an infection of their wounds by a gas-producing organism frequently succumbed to what to our minds appeared to be an intense and progressive toxæmia. The first two cases (A and B) which we have described are illustrative of such a condition.

We found extreme difficulty in antagonizing and treating these toxæmias. Following Professor Lorrain Smith's suggestion, we are now using intravenous injection of a solution containing 0.5 per cent. hypochlorous acid (eusol) for this purpose, and, to our minds, the results which we have obtained most thoroughly justify the adoption of the method. We have quoted three cases illustrative of the treatment (Cases C, D, and E). Before the injection of the hypochlorous acid solution these were, in our opinion, as dangerously ill as the two illustrative cases (A and B) which we have described, and we believe that the eventual recovery which the three (C, D, and E) made was due to the action of the hypochlorous acid.

A striking feature of Cases C and D is that at the time of the operation the patients were in a condition of collapse, as was evidenced by the progressive fall in temperature and the general state. In Case D the collapse continued for fourteen hours after the operation. The disappearance of the signs of collapse took place after the intravenous injection of eusol. In both cases (C and D) the injection was followed by an immediate rise of temperature. This is to be looked upon as a sign of reaction, for even during the pyrexia a clinical improvement became evident, and the fever was a precursor of steady recovery.

Case E indicates that it may sometimes be advantageous to give a larger dose. In a note on the successful treatment of a case of puerperal septicæmia by intravenous injection of eusol, published by Lorrain Smith, Ritchie and Rettie, it is stated that an injection of 100 c.cm. eusol was given, and this was repeated after twenty-four hours without any indication of untoward effect on the patient.

The solution employed for injection was eusol containing 0.5 per cent. hypochlorous acid, to which was added 8.5 grams of sodium chloride per litre. The solution was carefully standardized before injection. The injection was made by means of a Record syringe into the median basilic vein. In two instances 40 c.cm. of hypochlorous acid (eusol) were injected; we were prepared to repeat the injection, but the recovery was so progressive that

repetition was not necessary. In the third case 70 c.cm. of eusol were injected.

We wish to acknowledge our indebtedness to Lieut.-Colonel West, R.A.M.C.(T.), for permission to study these cases; also to the staff of the Canadian Mobile Laboratory, who carried out the necessary bacteriological work.

REFERENCE.

¹ BRITISH MEDICAL JOURNAL, November 13th, 1915.

NOTES ON CLOTHING AGAINST COLD.

BY

W. T. GRENFELL, C.M.G., M.D. OXON.,

SUPERINTENDENT OF LABRADOR MEDICAL MISSION, ROYAL NATIONAL MISSION TO DEEP SEA FISHERMEN.

THE following brief notes are founded upon experience gained in Labrador and North Newfoundland during the last five-and-twenty years; they express not only my own opinion, but the winter practice of those who live and work in the countries mentioned.

The source of heat being the body, and the chilling of the body being the result of loss of heat, we design our garments against this issue, and I may say at once that we do not use india-rubber boots or any waterproofed garments.

Exercise being conducive to increased production of heat, we make our clothing very light and see that the material is as far as possible (1) thin and pliant, (2) wind and waterproof, (3) durable, (4) inexpensive.

We always use two layers of light material instead of one-layer of heavy. We never use flannel or wool outside, but as it contains air spaces and can be woven thick, soft, and light, we use a thick undergarment and a very light outside one. The colder it is the thinner material we use for boots, because it is more pliable.

Jumper.

The general plan of the upper garment is always the same. To adapt it for use in Europe in mild climates where rain is frequent we should use light Willesden canvas outside, or Burberry or light waterproof rubber material. When very cold we wear a second loose one underneath. The essential point is that there shall be no draughts.

1. At the neck draughts are avoided by making the capot, or hood, continuous with the body piece.

2. Leakage in front is avoided by making the jacket in one piece and getting into it from below.

3. Leakage below is avoided by a canvas or webbing belt fastened on to the lower edge of the jacket, or heavy elastic sewed in, or a soft pliable thong running through a gusset.

4. Leakage through the arm is avoided by a rubber band round a reversed cuff inside (as shown in Fig. 1), or



FIG. 1.—Showing the jacket (jumper) and the hood (capot); also the harness for carrying gloves. The waist band and the left wrist band are open.

webbing strap sewn on the outside edge of the sleeve cuff, exactly as the belt is attached.

5. Leakage round the face is stopped by a draw string round the opening.

The best belt fastenings are without any buckle, but have glove push-fastenings and a thong going through an eye. They can be opened and closed in a moment with gloves on.

In hot weather the sleeves and belt can be loosened and the hood thrown back, so that the wearer has a cool light garment. It is a funnel through which air blows. There is no garment on earth to beat it; it cramps nothing, no snow can get inside, nor can rain, especially when two are worn. It is the next thing to a diver's suit when in use, and makes a splendid bag or sack when not in use. With No. 2 canvas it can be used as a wash-basin if wanted. The breath can also be kept in more or less to add to warmth at a pinch, if the capot is loose enough. We often carry light articles in our capots as we run along by the sledges. When in extreme cold we use two; one is often of mere calico over one of duffel or blanket. The canvas is easily cleaned from mud when dry. There are no folds to catch on obstructions.

Gloves and Mitts.

Our mitts, when we are shooting, have the right index separate. All our gloves are double, the outside being skin, or wind-proof material, light and soft, and water-tight if possible. The inside mitt is woollen and soft and thick. The glove always goes over the sleeve, and has a strap as well round the wrist (Fig. 2). The inside glove



FIG. 2.—t, Travelling glove or mitt. s, Shooting gloves. The strap at the wrist is of canvas or rubber; the upper strap is of canvas.

alone might have a separate index finger. Lastly, we suspend the outside mitts by a string round our necks, so that we can leave them dangling when we throw them off in a hurry.

Trousers.

For trousers we use the same material as for the jumper, canvas or "duck" (Fig. 3). We find the chest

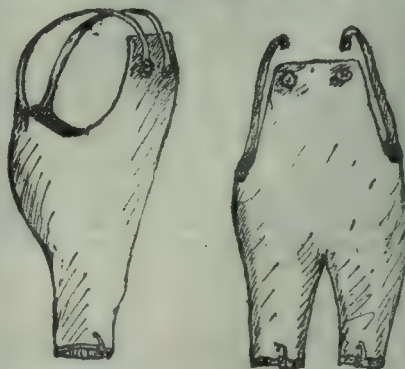


FIG. 3.—Side and front view of trousers. The braces are sewn on to the trousers at the back. They are usually made of canvas, but might be of elastic. When desired the knee strap can be loosened and the trousers worn as running shorts outside the boots.

flap coming right up from the breeches a very great saving of heat. The back should also be above the waist; there can then be no leak of heat. The trouser always goes well inside the boot tops. We use no opening for urination—the trouser is all in one piece. A flap might be made if necessary, but we want no draughts.

Boots and Socks.

For boots we use sealskin and deerskin. Deerskin boots are the warmest, but are not watertight; we use them in hard frost.

Our boot materials are, as are all our garments, soft, light, and water and wind tight (Fig. 4). There are no nails and no pegs. The sole is soft; we use no thread; all are sewn with tissue from tendons, and as these swell with wet they never leak. We soak the boot or rub it over with tar and oil. It wants careful treatment to keep it from tinting or rotting, as we use raw or green skins. These are the most watertight. The hair is shaved off, and so there are no holes left in the leather. Occasionally we tan these skins and then soak them in tar and oil. It would be hard to get any number of these boots from Labrador now, as the



FIG. 4.—Boot.

coast is shut off from communication. They could not be obtained in any quantity till autumn, though a few thousand pairs of the tanned boots might be obtained in a few months, especially if the old sealskins from the Newfoundland fishery were purchased for the purpose. I think, however, skins of pigs or goats or dogs, and possibly sheep, would serve just as well. The features are, first, that they should be absolutely soft and very thin, so that the foot can move in every joint and keep warm. They are large and loose, and strap or tie round the knee. Very often, especially in spring, we carry the boot above the knee and tie it again, as then we can kneel to shoot or crawl on wet ground. The boot will take easily three pairs of socks. Very often in wet weather we use a pair of shoes of the same material, or of tanned skin inside the boot, and then two pairs of socks. These will keep dry on wet ground all day. The outer thin boot when of tanned skin "seeps water" a little, and the inside shoe keeps that from the sock. The looseness of the boot would prevent anything like "trench foot" from pressure. The boots are perfectly good on stony ground, the number of socks inside prevent the stones cutting the boot, and very soon the wearer does not notice the inequalities. We use them often, long after all the snow is gone, on our rocky hills and shores.

The sewing is always done with sinews. The fascia lumborum of the deer is dried and thread made from it by tearing the fibres and twisting them. This swells with the wet and prevents any leaking. Also the sewing is done exactly like sewing bowel; the stitches go only half way through the skin.

To demonstrate the way they resist water I would say our kajaks, one of which I always use for shooting on the sea, are only of one single layer of this sealskin, sewn together with this same sinew in this way, and they never leak a drop. I have driven my kajak through rough water, hunting all day, and never got damp even. One can run and jump in this costume as one did in football flannels. Among our doctors we have had more than one 'varsity runner and other athletes, and it is the unanimous opinion that when we get rid of our hard boots at the beginning of the winter, and abandon our conventional European clothing we begin to know what ease and comfort in moving is, and what resisting cold and wet means. There is no hard boot made that will save a foot from frost-bite. The sealers travelling over the sea ice put a thin tap or sole, pegged into our thin sealskin boot, so that they can screw in the "chisel" and "sparble" that prevents slipping.

This soft boot also allows yet another very important improvement over any hard boot. There is so much room in the boot that if the feet are cold and wet socks can be discarded and grass or hay used instead. The hay is just twisted into a hank loosely and bound round the foot, enough to enable one to distribute it around in the boot. A wisp is first put into the toe and on the sole. Hay is cheap—grass is easy to get. The air spaces are very warm. It takes a lot of water to wet hay. The foot sweats less in hay than in wool. There is no reason,

however, why one sock should not be worn inside the hay. When hay is wet, it can be changed by putting it into the cap or capot to dry from the heat of the body, as a scout does his matches. The "Lap" always uses grass in his skin boots, and wears the change grass in his tam-o'-shanter or knitted cap. The soft wading stockings are rendered almost useless in a hard boot—as the boot must be large and clumsy. They could readily be used in a perfectly soft boot.

A vamp is a low shoe made in wool (Fig. 5). The shops sell them. But much the best are those we make by



FIG. 5.—A, Vamp in knitted wool. B, Cross sections of vamp with wisps of raw wool drawn in. C, Vamps one over the other.

knitting the vamp, and then drawing in wisps of raw wool through the meshes, so that all the raw wool is inside. This gets trodden into a thick soft layer. The wool can be left greasy if preferred. It is very warm, and not easily wetted. To show how soft a boot is I would add that when one is wet and it has been taken off we turn it inside out and hang it up to dry. If a raw skin boot is hard, when we are putting it on we rub it on a boot stick and break it soft again, or just throw it in a bucket of water. The boots are so light that a spare pair could easily be carried to the trench and used as a pair of water-proof bags for rations if necessary. We never use any overcoat, hard hat, or hard belt, or any clumsy, heavy, hard contrivance at all.

Lice and fleas cannot breed in canvas and linen, as they can in hairy sheepskins and goat, and the heat necessary can yet be retained.

CHLORAMINE IN THE TREATMENT OF WOUNDS OF THE MOUTH AND JAWS.

By STAFF SURGEON A. R. FISHER, R.N.,

H. M. HOSPITAL SHIP "REWA."

(Report to the Medical Research Committee.)

THE septic character of all gunshot wounds involving the mouth and the disadvantages attending the use of the common antiseptics led me to try in these cases a new agent—chloramine (toluene sodium sulphochloramido).

The suggestion was made to me by Dr. H. D. Dakin, by whom the preparation was made. He advised a 2 per cent. aqueous solution for use as an irrigant and mouth wash.

During the months of October, November, and December, there was a great falling off in the number of surgical cases received on board this ship, but I was able to try the effect of this agent in seven cases, and in all the result was highly satisfactory. Where necessary, the usual surgical procedures were carried out under an anaesthetic, such as the opening up of external wounds, the removal of loose bone, teeth, foreign bodies, and ragged portions of tissue, the arrest of haemorrhage, and the suturing where possible of severed tissues—for example, the soft palate. Tubes were inserted through the wounds and the mouth to allow access of the injected fluid to all the damaged surfaces. The external wounds were dressed in the usual way, but the distal ends of the tubes were allowed to project outside the bandage, so that the reagent could be introduced frequently without disturbing the dressing. Irrigation was carried out every hour during the day, and as often as possible during the night, the patient sitting up in bed. Three or four syringes (2 oz. capacity) were injected through each tube, the fluid returning through the mouth into a receptacle. The patient was fed through a tube, irrigation with the chloramine solution being carried out immediately before and after.

Chloramine, besides being a powerful antiseptic, has the property of penetrating the tissues, and is not so readily neutralized by albuminous discharges as the simpler chemical antiseptics; also it is bland and quite pleasant to use, being non-irritant.

Of the 7 cases treated with chloramine, 5 were compound fractures of the jaw and 2 were flesh wounds involving the mouth. The following are clinical notes of these cases:

CASE I.

P. C., wounded at Anzac on October 6th, was operated on nine hours later under an anaesthetic for a rifle-bullet wound of the upper jaw. The bullet had entered the right cheek just below and in front of the malar prominence, shattering the right supramaxilla, plunging up the soft palate, removing some teeth of the left upper jaw, and then passing through the left cheek, leaving a large ragged wound. The wounds and surrounding skin were cleansed with hypochlorite solution, the ragged edges cut away, and many small fragments of bone removed. A tube was inserted through the exit wound into the palate region and another through the mouth; the latter was kept in position by a safety-pin through the bandage. The mouth was irrigated every two hours with chloramine and the wounds dressed twice daily. He was fed every four hours through the tube.

Six days later he was able to gargle for himself and drink fluids. On October 18th he was discharged to H.M.H.S. *Aquitania*. The wounds had remained clean, and there had at no time been any purulent discharge or offensive smell from the mouth. I am informed that ten days later he was landed in England with the wounds almost healed and the mouth condition satisfactory.

CASE II.

F. L. sustained a shrapnel wound of the right upper jaw on October 13th at Helles. He was received on board twenty-four hours later suffering from marked dyspnoea. Under chloroform he was found to have a compound fracture of the right upper jaw and laceration of the palate. The wounds were cleansed, and a shrapnel bullet and a tooth were removed from the posterior pharyngeal wall. No tubes were inserted. The patient was able to gargle frequently with chloramine and to drink fluid.

On October 18th he was discharged to H.M.H.S. *Aquitania*. During this period the breath remained inoffensive and the tongue clean.

CASE III.

W. G. T. was wounded at Anzac by shrapnel on October 27th. Two days later he was received on board, and examined under an anaesthetic. He was found to have extensive flesh wounds of the right arm, and a compound fracture of the right lower jaw; all wounds were very septic and the breath fetid. The wounds were irrigated and dressed with hypochlorite, and a chloramine mouth wash ordered to be used every two hours.

On November 2nd, when the patient was discharged to hospital at Malta, the external jaw wound had cleaned up considerably, all surrounding inflammation had subsided, and only a slight purulent discharge remained; the mouth had become quite clean, and the breath inoffensive.

CASE IV.

T. G. was wounded at Suvla on November 8th. An operation was performed sixteen hours later for a penetrating rifle bullet wound; the entrance was at the right mastoid process, and the exit through left cheek; it had injured the base of the skull, the hard palate, and the left supramaxilla. The right ear was cleansed with hypochlorite and plugged with gauze. The wound of entrance, through which cerebro-spinal fluid was leaking, was cleansed and dressed, and a tube inserted through the exit wound into the palate. Daily dressing and hourly irrigation with chloramine was used.

On November 13th he was discharged to hospital at Alexandria, the wounds clean, and the mouth being inoffensive.

CASE V.

W. T. received on December 7th, near Salonika, a rifle bullet wound at the angle of the left lower jaw, causing compound fracture of jaw. There was no exit wound.

He was received on board this ship on December 14th; the wounds were very septic, the mouth foul, and the breath exceedingly offensive. There was much submaxillary swelling and adenitis. The external wound was treated with frequent hypochlorite dressings and the mouth with chloramine wash. The condition rapidly improved, the oral discharge decreased, and the submaxillary swelling subsided. On December 20th a bullet was detected lying on the right side deep to the floor of the mouth. It was extracted through a skin incision. The patient is now making a good recovery.

CASES VI AND VII.

The other two cases were both recent flesh wounds involving the buccal cavity, but not injuring bone. They both remained clean and healed in a few days.

The number of cases treated is small, but the results were so encouraging that a short account of this method may be of value. No such rapid and satisfactory results have followed the application of the antiseptics commonly in use.

COMBINED PREVENTIVE INOCULATION AGAINST TYPHOID AND PARATYPHOID FEVER AND BACILLARY DYSENTERY.

BY

J. PRATT JOHNSON, M.B.LOND., D.P.H. OXON.,

AND

A. J. MILNE, M.B., D.P.H.,

ASSISTANT MEDICAL OFFICER OF HEALTH, JOHANNESBURG.

(Preliminary Note.)

It has been shown by Widal, Sicard, Castellani, and others that the employment of mixed bacterial vaccines has a sound experimental and clinical basis, and marked success has followed the use of a mixed typhoid + paratyphoid A + paratyphoid B vaccine for preventive inoculation both in Europe and German South-West Africa.

We have made investigations into the possibility of amplifying the scope of preventive inoculation so as to afford protection not only against typhoid and the paratyphoid infections but also against bacillary dysentery. The intense toxicity of *B. dysenteriae*, especially in the Shiga strains, constitutes a serious difficulty in regard to the use of dysentery vaccine. In a short note published in the *BRITISH MEDICAL JOURNAL* of August 8th, 1914, Broughton-Alcock points out that this may be largely overcome by submitting the bacteria to a treatment with normal heated serum, and by employing this technique he was able to use doses of 350 and 700 million dysentery organisms in some 200 cases, producing reactions which were never marked nor inconveniencing. The reduction in the amount of local reaction is due to a non-specific action of the serum on the bacilli. Our method depends upon the use of a dysentery vaccine completely sensitized with a heated polyvalent dysentery serum. The vaccine is prepared from Shiga, Flexner, Kruse, Hiss, and Russell strains in equal proportions. In all some 150 inoculations were carried out among individuals kept under close observation for some fourteen days; 60 per cent. of these were actually engaged in heavy manual labour, which they carried on during the period of observation.

For the purposes of comparative observations and controls a small series of inoculations were carried out among hospital patients, who volunteered, with varying doses of untreated dysentery vaccine, both alone and mixed with typhoid + paratyphoid vaccine.

CONCLUSIONS.

1. Inoculations with untreated dysentery vaccine, either alone or combined with a typhoid + paratyphoid vaccine is not under any circumstances justified, owing to the severity and duration of the local reaction.

2. Complete sensitization of dysentery vaccine produces marked reduction in local reaction, and general reaction is very exceptional.

3. The use of a typhoid + paratyphoid vaccine, combined with sensitized dysentery vaccine, is a practical proposition from a military point of view, and can be employed in doses sufficiently large to produce a satisfactory immunity, while the local reaction is practically in all cases slight. Such a vaccine should contain in 1 c.cm. *B. typhosus*, *B. paratyphosus* A, and *B. paratyphosus* B 500 million in a ratio of 2, 1, 1 plus *B. dysenteriae* (sensitized) 250 million. A dose of 1 c.cm. is recommended as a first inoculation, followed by a second inoculation of the same amount after an interval of seven or eight days. A third inoculation may be made, but is not essential. It is important that the inoculations should be made in subcutaneous tissue over muscle. In our experience the pectoral region is convenient. In order to ensure accurate doses, a 1 c.cm. syringe with a moderately fine needle should be used.

4. *Agglutination Reactions.*—After one inoculation of a combined untreated vaccine specific agglutinins are found in the blood after an interval of nine to fourteen days for each of the four organisms present. Immunity is therefore rapidly produced, and it would appear that complete sensitization of the dysentery organisms not only reduces the local reaction, but produces a much more rapid and satisfactory immunization, owing to the more complete disintegration of the treated organisms and the absence of any mechanical obstruction (such as localized fibrosis) to the blood supply of the affected area.

5. We anticipate that even a further reduction in local reaction will be obtained on the employment of a mixed vaccine prepared from typhoid, paratyphoid A, paratyphoid B, and dysentery organisms, completely sensitized with their respective antisera.

We propose shortly to publish full details of our observations in regard to the use of this vaccine.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

STRANGE WOUNDS CAUSED BY HIGH EXPLOSIVES.

ABOUT twenty years ago three men were concerned in a nitroglycerine explosion, and two of them lost their lives and one—less hurt—his reason.

They were sitting by the fireside in a small cabin, "having a smoke" after breakfast. One of the number was also busy trying to readjust the composition of some dynamite which he had been tempering on the hob in an old salmon tin. Becoming heated too much, the nitroglycerine separated from the earthy matter and formed a jelly-like lining on the inside of the tin, and this the unfortunate man—who described his action fully and confidentially to the writer just before he died—was endeavouring to scrape off with his pocket knife.

A terrible explosion occurred, and two of the men presented extraordinary wounds, especially on the thighs, and in only one wound (a chest one) was any trace of metal found. In the thighs and trunk the chief feature was a small external wound leading into a large cavity churned up and softened. One unfortunate man had both eyes quite burst up, as if a rough attempt had been made to gouge them out.

The oldest man, who, it seems, was furthest away and thus less injured, was quite mentally upset, and not able, when he recovered consciousness, to give any particulars of the accident. His mind was such a blank that it was thought that he was malingering, in order, being a fireman, to escape responsibility.

At the time I came to the conclusion that the strange wounds were caused by the escape of internal body pressure into the vacuum produced by the explosion, the particular situation being determined by certain spots in the integument being accidentally punctured and a funnel-shaped cavity produced. There was very little damage to clothing and practically no burning.

Tuberculosis Institute,
Newport, Mon.

J. LEWIS THOMAS, M.D.

THE VALUE OF ANTITETANIC SERUM.

CAPTAIN KILNER'S paper in the JOURNAL of January 8th on a severe case of tetanus successfully treated by antitoxin is very interesting, and I have no doubt that at the end of the war there will be a full report of cases of tetanus treated by serums, as also cases of lacerated wounds in which prophylactic doses of serum have been given.

In the BRITISH MEDICAL JOURNAL for December 24th, 1910, I published two cases of acute tetanus in which antitoxic serum was used and the patients recovered. In cases of lacerated wounds prophylactic doses were recommended to be given as soon as possible.

Since 1910 other two cases have come under observation and recovered with the serum treatment. The serum was injected into the soft part of the hip every twelve hours until the symptoms improved and then every twenty-four hours until recovery was complete.

Both in hospital and private practice prophylactic doses of serum have been used with the best effect. Even in comparatively slight lacerated wounds where contamination with earth or dirt of any kind was possible, in addition to thorough cleansing, the prophylactic dose of serum was invariably given.

Microscopic examination of discharges from wounds is essential, but no delay must take place in giving the serum, as it is important to anticipate the absorption of the bacillus. In the cases of acute tetanus which came under my care Professor Muir found the bacillus; on the

other hand, its absence does not justify withholding the serum if the symptoms and local conditions indicate that it is necessary.

J. CRAWFORD RENTON, M.D. Edin.,
Lieut.-Col. R.A.M.C.(T.).
Edinburgh.

TWO CASES OF STONE IN THE PROSTATE.

CASE I.—A. B., aged 78, came to me in June, 1913, complaining of stricture. With difficulty I got the smallest filiform catheter into the bladder. On rectal examination a very hard, fixed, but even mass was felt at the site of the prostate. The condition was, therefore, calculus or malignant disease. To decide the point quickly I passed a needle through the perineum; it struck a calculus. In company with Drs. Browne and Scott I opened the bladder suprapubically, and removed many stones (earthy phosphates) from a cavity which now was the only relic of the prostate left. I then cut the stricture. He made an excellent recovery.

CASE II.—In April, 1914, I operated on C. D., aged 76, assisted by Dr. Duncan of Richmond. The history was that on two other occasions stones had been removed suprapubically. Years ago I removed both testes for disorganizing suppuration. We removed the stones through the perineum, having slowly dilated the membranous urethra by the finger. The whole bladder, and especially its neck, where some of the stones lay, was encrusted with phosphates impossible to remove save by a curette. I therefore curetted them off, paying special attention to the cavity in the prostate. He made a good recovery.

There were some points of interest and importance in these cases.

1. A. B. had a severe rigor, and collapsed before he gained consciousness, and had rigors (and subsequent fever) each time, and immediately I douched his urethra, and more markedly when this canal was distended, even in its anterior part. He had therefore reflex urethral fever, in contradistinction to infective urethral fever (terms which should be used).

2. The simple and inexpensive means of making a diagnosis between calculus and malignant disease.

3. C. D. suffered for some years after the orchidectomy, just as a woman suffers after the menopause, and at his age (76) this is interesting. He had frequent flushings and sweatings, strange feelings in his head, irritability, etc. These were partially relieved by orchitic extract.

4. C. D. was also left with some degree of urinary incontinence. This might, I think, have been avoided had I adopted, as I did in other cases, gradual instrumental dilatation of the wound before the introduction of the finger. This applies also to perineal prostatectomy, provided the organ is removed through the wound in pieces.

London, E.C.

JAMES MACMUNN.

Reports

ON

MEDICAL AND SURGICAL PRACTICE IN HOSPITALS AND ASYLUMS.

FULHAM MILITARY HOSPITAL.

THE medical staff of this hospital has instituted fortnightly meetings for the discussion of cases. At the third meeting, on December 21st, 1915, Major PARSONS, O.C., being in the chair, Lieutenant CUMMINGS showed a case of aneurysm of the arch of the aorta, due apparently to violent concussion by an exploding shell, the symptoms developing immediately afterwards, and there being no history of syphilis. He also showed a case of auricular flutter supervening on the stress of military service, but giving a suggestive history of several attacks of sudden unconsciousness previous to enlistment; and a case of pericarditis and aortic valvular disease, with enormous enlargement of the heart, in which great improvement had followed the use of thyroid gland medication. The signs of hypothyroidism were very slight, but of the usual character.

Mr. CHAPPLE showed two cases of spiral fracture in the

lower third of the tibia, with marked eversion of the foot after union; in one, subsequent replacement of the bone and plating had resulted in a good position and a useful foot. He advocated operation in every case possible, but in septic compound fractures it was necessary to wait for long after the wound was completely healed before attempting any surgical interference.

Dr. GAY showed a patient giving a history of attacks of vertigo, vomiting, and abdominal pain, extending over four years; since admission he had developed nystagmus and a tendency to fall backwards. The vertigo was of the intracerebellar type—that is, he had a sense of rotation, external objects appearing to move in the same direction. The abdominal reflexes were diminished. Dr. Nourse, otologist to the hospital, had pronounced against labyrinthine disease. In a very illuminating review of the case Dr. KINNIER WILSON, neurologist to the hospital, gave grounds for the belief that no one lesion would explain both the nystagmus and the diminution in the abdominal reflexes, and stated his opinion that the case was probably one of early insular sclerosis.

British Medical Association.

CLINICAL AND SCIENTIFIC PROCEEDINGS.

STAFFORDSHIRE BRANCH.

THE first general meeting of the session was held at Stoke-on-Trent on November 18th, 1915, when the President, Dr. F. M. ROWLAND, was in the chair. Dr. MITCHELL SMITH read a paper on *Alimentary hygiene in children* in which he pointed out that the two chief causes of infantile mortality were (1) insufficient care of the mother in the prenatal life of the child, (2) artificial feeding. He briefly described pyloric spasm and stenosis, the routine treatment of epidemic diarrhoea at the Evelina Clinic, advocated examination under an anaesthetic in suspected cases of abdominal tuberculosis in children, and drastic restriction of milk fluids and carbohydrates in the treatment of these early cases. After referring to the frequency with which stomach cough is mistaken for pulmonary tuberculosis in children, he concluded by emphasizing the importance of schemes for children's welfare at the present time and stated that the country was under a debt of gratitude to those who were inaugurating classes and demonstrations to teach the young mother her duty towards her offspring.

In a paper on *Nose bleeding*, Mr. G. A. CARTER urged the necessity of conducting all examinations of the nose with the aid of proper illumination and a speculum, and showed a small portable dry-cell battery and head-light which he found of great use. The post-nasal use of plugs was condemned as obsolete, and the dangers attending the use of any kind of packing in the nose were discussed. The value of hydrogen peroxide as a haemostatic in nasal cases was urged, and all styptic drugs, such as perchloride of iron, condemned as dangerous.

MESSRS. S. McMURRAY and E. E. YOUNG presented a paper on a *Case of intracranial new growth simulating miner's nystagmus*.

J. D., aged 36. Previous history unimportant. In February, 1911, a stone struck his left eye, causing a traumatic cataract. After treatment he worked for six months as a timberer, but had to stop on account of pain in his injured eye. When examined in February, 1915, he was suffering from miner's nystagmus, rotatory in type. Right vision (with glasses) = $\frac{3}{4}$; fundus normal. Left eye, aphakia—divergent strabismus; fundus normal. Examined again in June, 1915. He had not worked down the pit since February, 1913. Complained of severe frontal headaches; blurred vision. Right vision = $\frac{3}{4}$; faint jerky irregular nystagmus on looking up; fundus normal.

On August 20th, 1915, he complained of severe frontal headaches for past six days; no sickness, giddy. Right vision = $\frac{3}{8}$. Right disc was swollen 2 D., field contracted. Wassermann reaction positive.

August 26th, 1915. Decompression.

September 16th, 1915. Right vision = $\frac{3}{4}$; fundus normal.

The authors considered the case interesting in that the symptoms of miner's nystagmus apparently returned, and that until papilloedema developed there was no reason to suspect intracranial new growth.

Rebuelus.

FIBROSITIS.

THE authors of this encyclopaedic work on *Fibrositis*,¹ or inflammation of some portion of the white fibrous tissue of the body, are to be congratulated upon the thoroughness with which they have executed their task. Their task has been to extract and characterize one class of cases from the clinical *omnium gatherum* known as "chronic rheumatism." As everybody knows, "rheumatism" is a term that has been so widely and so loosely used as to have lost all definite meaning—except, indeed, to the actual sufferer. Clinically, the word "rheumatism" has been more abused and misapplied in the description of all chronic painful affections than even "influenza" has in the diagnosis of acute infections of unknown etiology. Drs. LLEWELLYN and JONES argue that the term "chronic rheumatism" contains three entities at the present time, namely: (1) Chronic articular rheumatism, (2) muscular rheumatism, and (3) neuralgic rheumatism, each containing subvarieties that may be classed as infective, toxic, traumatic, static, and so forth. They propose to restrict the name "chronic rheumatism" to the chronic cases of infective arthritis in which the causal microbe has not yet been identified. "Fibrositis" is the term to be given to all cases in which the pathological lesion is an inflammation (whether infective or toxic) of the white fibrous tissue of the body—a conception that is far from novel, for it was entertained by Craigie early in the nineteenth century. Either joints, nerves, or muscles may be the apparent seat of this fibrositis. Further explaining the arrangement of their subject matter, the authors divide it into three main portions, namely: (1) Infective or toxic fibrositis, (2) traumatic fibrositis, and (3) villous synovitis of the hip and knee, and sacro-iliac relaxation. The first of these groups again has three subdivisions—articular fibrositis or chronic articular rheumatism, myofibrositis or muscular rheumatism, and neurofibrositis or neuralgic rheumatism. The second group also has three subdivisions; these are subacute rheumatic synovitis, "rheumatic" bursitis, and traumatic muscular fibrositis. Thus it appears that they would throw out the popular term "chronic rheumatism" altogether, substituting for it the name "fibrositis," with its aforementioned subdivisions. Their classification, therefore, takes no account of the diverse causal factors of fibrositis, but rests solely upon the anatomical pathology of its various forms.

The experience of Dr. Llewellyn at Bath, of which he has clearly taken the fullest advantage, enables him to write of the manifold varieties of fibrositis with a first-hand knowledge that few physicians could hope to rival. He tabulates 1,250 cases of fibrositis; for example, in his statistics, 543 of sciatica, and so throughout his series of fibrositic forms. The forty-five chapters of the book deal faithfully with these forms and with their description, etiology, cause, course, and treatment. The photographic illustrations and plates are excellent, and do much to help the text. The text itself is clearly written and full of interesting and original observations. The subject is one that has engaged the casual pens of a host of medical writers. The appearance of so full and authoritative an account of what the public will for many years, no doubt, continue to call "rheumatism," "gout," or "rheumatic gout" indifferently, is a most welcome event for medical men. The book should be widely read, not only for the good sense and novelty of its contents, but also because it contains a mine of information on the cause, diagnosis, and treatment of a group of painful affections so common as to be commonplace—and therefore perhaps unduly neglected—in general medical practice.

PHYSIOLOGY AND HISTOLOGY.

THE first edition of HUXLEY's popular *Lessons in Elementary Physiology*² was published in 1866; the book was ultimately revised and almost rewritten by Michael

¹ *Fibrositis (Gouty, Infective, Traumatic), so-called Chronic Rheumatism, including Villous Synovitis of Knee and Hip, and Sacro-iliac Relaxation.* By Lt Jones Llewellyn, M.B.I.Lond., and A. Bassett Jones, M.B.Lond. London: W. Heinemann. 1915. (Sup. roy. 8vo, pp. 728; 6 plates; 136 figures. 25s. net.)

² *Lessons in Elementary Physiology.* By T. H. Huxley, LL.D., F.R.S. Enlarged and revised edition (6th). London: Macmillan and Co. 1915. (Fcap. 8vo, pp. 619; 185 figures. 4s. 6d.)

Foster. Now Mr. Barcroft restores the work of these men from the dilapidations made by two decades of scientific progress. He has faithfully left untouched any portion of the fabric in which there was not an actual flaw, but where the structure needed repair he has made it thorough, substantial and simple. The results of his handiwork are certain to maintain the long continued popularity of this work, and carry on Huxley's name to yet another generation of students. The textbooks of physiology written for medical students, as all the other tomes on anatomy, medicine, and surgery, have grown to such proportions that they crush his spirit and weigh down his intellect. Mr. Barcroft in the "new Huxley" has given us a book on physiology of the right scope and size not for the public, but for the ordinary medical student. We hope that those students, now destined to be combatants, who live through the war, will on returning to their studies find a less absurd system of education, for the world will want medical men and will be impatient of academic folly. On the subject of ventilation we note that Mr. Barcroft authoritatively states that the air of crowded ill-ventilated rooms contains poisonous exhalations and produces its ill effects through these. He seems to be unaware that the scientific proof of the existence of such poisons has wholly broken down, as evidenced by the researches of first-class workers in Europe and America; the real causes of discomfort and ill health—stagnation, excessive moisture and heat of the atmosphere—are not even mentioned. This is a regrettable defect in a book designed for popular guidance.

Professor FREDERIC T. LEWIS has brought out the second edition of a *Textbook of Histology*,⁵ an enlarged and improved version of Stöhr's book, arranged upon an embryological basis. The account given of the subject is good and full; it is illustrated by 495 figures, which deserve the highest praise for their truth to structural detail and artistic merit. There is a section on drawing at the end of the chapter on microscopical technique, and Professor Lewis recalls therein the fact that the works of Vesalius were illustrated by Jean de Calcar, a pupil of Titian. He cites Robert Hooke, who said: "I endeavoured first to discover the true appearance, and next to make a plain representation of it," and Ruskin, who held that "the real refinement of the outline depends on its truly following the contours." How difficult it is to analyse the truth so as to express it, is shown by the drawings appended of the medullary tube by six students. In the description of the testis the author gives an account of the discovery of the spermatozoa. They were first seen by Dr. Ham, "a man of singular modesty," to whom Leeuwenhoek gives full credit for the discovery in his letters to the Royal Society. "This discerning youth," he says, "visited me, and brought with him in a small vial seminal fluid from a man who had cohabited with a diseased woman; and he stated that after some minutes, when the fluid had become so attenuate that it could be put in a slender glass tube, he had seen living animalcules in it . . . which seemed to him to be provided with tails." Dalenpatius thought that the new individual was enclosed in the spermatozoon, like an insect in its chrysalis. "For while we were observing them attentively a large one threw off its surrounding membrane and appeared naked, showing distinctly the legs, thighs, breasts, and arms. The cast-off skin drawn upward covered the head like a cap, and it was a delightful and incredible sight." This is a gross presentation of the doctrine of preformation of which Sterne made such humorous use in the opening chapter of *Tristram Shandy*. The alternative theory of epigenesis ascribed the origin of the body out of formless substance. Descartes said the new individual "seems to be only a confused mixture of liquors which, serving to leaven one another, become heated; some of their agitated particles dilate and press upon the others, gradually dispersing them in the way necessary to form organs." The careful choice of such interesting matter makes the study of histology far more attractive and of much higher educational value.

⁵ *A Textbook of Histology arranged upon an Embryological Basis*. By Dr. F. T. Lewis and Dr. P. Stöhr. Second edition, being the seventh American edition of Stöhr's Histology. From the fifteenth German edition. Edited by Dr. O. Schultze. Philadelphia: P. Blakiston's Son and Co. 1913. (Roy. 8vo, pp. 650; 495 figures.)

TREATMENT OF FRACTURES.

THE fact that *The Treatment of Fractures*, by Dr. C. L. SCUDDER,⁴ has reached its eighth edition in the space of fifteen years, gives some indication of its popularity. It may fairly be said that no pains have been spared in its production; it contains a most beautiful collection of photographs and skiagrams illustrating not only fractures of the various bones, but in nearly every case plates are given of the most suitable form of splint and its application.

To the British reader a certain number of the methods of treatment are unfamiliar, and he will probably regret to miss, for example, Carr's splint in the description of the treatment of Colles's fracture, but this dissimilarity is no real disadvantage, as it helps to a broader outlook. The author is evidently no great enthusiast for the open treatment of fractures. Most will agree with him when he states that operative treatment should never be undertaken lightly, and should only be resorted to when there are clear indications that the older forms of treatment are not likely to give good results.

Certain sections of the book are especially worthy of mention. There is a most useful article on fractures of the jaw, showing how these difficult cases may be dealt with by wiring and by other methods. Matas's splint, which we have not seen in use in this country, is described and figured. It would seem to be a useful contrivance. It consists of a clamp, one arm holding a mouthpiece which fits the lower jaw, the other a cup which is applied under the chin. When in position, these two arms project directly forward outside the mouth, and are fastened together by a screw. Many fractures of the jaw fall more within the province of the dentist, with his special skill in taking casts and making interdental splints, but Dr. Scudder's observations will be useful to those who have to treat cases of compound fracture of the jaw among the wounded. There are interesting articles on gunshot wounds of bones and the making and application of the various forms of plaster splints. Into the description of the latter a series of photographs is introduced showing every step in the production and application of these splints. The author has devoted considerable attention to the prognosis of the various forms of fracture. In every case a statement is made as to the average length of time in which consolidation may be expected and function regained. The notes should prove of great practical value to the practitioner. In conclusion, it may be said that the book is a most comprehensive account of the subject, and can be most strongly recommended.

CAN LIFE BE EXPLAINED?

DR. R. E. LLOYD is inclined to the opinion that there is a growing number of thoughtful persons whose minds do not regard life as a problem requiring or capable of any final solution. His book, *What is Adaptation?*⁶ was written, he tells us, mainly to determine the direction of opinion on this point. He regards what may be called the teleological enterprise as an outcome of the mechanistic view—that view which regards the universe in general and living organisms in particular as things made, analogous to those of which we ourselves are the makers. This view led first naturally and inevitably to the theological explanation, of which Paley's comparison of man to a watch and the Deity to its maker is a familiar example. When that explanation had ceased to give satisfaction, Darwin suggested natural selection as an alternative. It is a great point with Dr. Lloyd that the selection theory is an attempt to account for adaptation on mechanical lines, but for all that an outcome of the same teleological attitude towards life which produced the theological explanation. For it regards adaptation as a problem assumed to be capable of solution, also as a quality of variable degree, which Dr. Lloyd questions. He thinks that we regard adaptation as a problem only because man does not realize himself as a part of nature and life, so that when he discovers in organisms the same purposive attributes of which he is conscious in his own handiwork

⁴ *The Treatment of Fractures, with Notes upon a Few Common Dislocations*. By C. L. Scudder, M.D. Eighth edition, revised. Philadelphia and London: W. B. Saunders Co. 1915. (Roy. 8vo, pp. 734; 1,057 figures, 25s. net.)

⁶ *What is Adaptation?* By R. E. Lloyd, M.B., D.Sc. (Lond.), Major, Indian Medical Service. London: Longmans, Green, and Co. 1914. (Med. 8vo, pp. 122. 2s. 6d.)

he puts to himself the question: "How is it that life can produce the same kind of results that I myself can produce?" From the author's point of view, which is vitalistic and Bergsonian, "purpose is not a human attribute present in life, but a vital attribute present in man." Once we realize purposive adaptation as an essential and inalienable attribute of life in all forms we shall, the author thinks, cease to wonder at the resemblance between organisms and mechanisms and to regard it as a problem. We shall content ourselves with the endeavour to know more and more about life, but we shall not expect or even desire to explain it. "The problem of life is to know how it is, not how it was made; not to seek for an explanation of it, but to go on explaining it." Dr. Lloyd holds that we are aware of a something beyond the sphere of sense and reason which he calls "supernature," but deprecates the supposition that this something can ever be clearly imagined or understood. His book is well worth reading.

NOTES ON BOOKS.

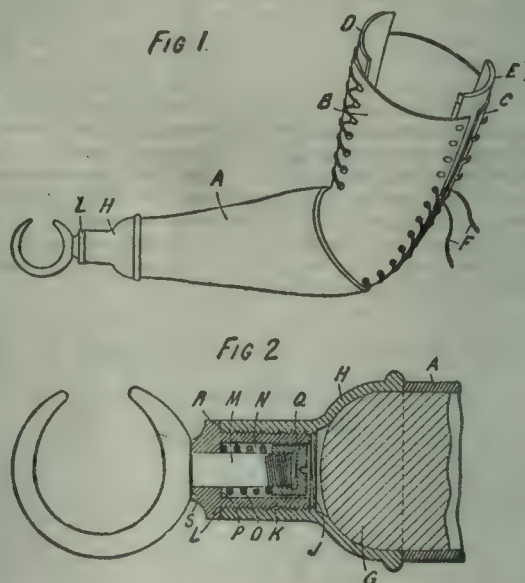
THE dependence of the modern treatment of lunacy upon Harvey's great discovery is not very easy to establish, but in his *Harveian Oration*⁸ Dr. COUPLAND contrived with some skill to pass from the one to the other, and what he says about insanity is marked by restraint and good sense. He is no fanatical advocate of the universal causation of insanity by drink. It is true that of first attacks of insanity 26.3 in the male and 10.4 in the female occur in persons addicted to drink, but he very properly points out what is usually forgotten—that these figures are of no value unless they are controlled by an analogous census of drinkers who do not become insane. It is rather astonishing to hear from Dr. Coupland that no fewer than one-fifth of the total admissions into public asylums, amounting in all to 20,000 in each year, are known to have suicidal propensities, and it is extraordinary that, although more than 4,000 persons known to be suicidally inclined are admitted in each year, yet only fourteen in each year succeed in carrying out their intention. How much vigilance, care, and anxiety on the part of asylum officials these figures indicate it is difficult to estimate. Dr. Coupland reviews recent legislative proposals for treating insane persons without certifying them, and shows without difficulty that the "stigma" of certification is wrongly placed. The real "stigma" is upon the insanity.

MEDICAL AND SURGICAL APPLIANCES.

An Artificial Arm.

AT a recent meeting of the Swansea Division of the British Medical Association, Dr. W. L. Griffiths, surgeon to the Swansea General and Eye Hospital, demonstrated an artificial limb for cases in which the arm has been amputated below the elbow. It was, he said, the invention of Mr. Thomas Williams of Dunvant, who forty years ago had undergone amputation of the right forearm four inches below the tip of the olecranon process, but had since been able to earn his living as a collier, as a mechanic, and in other ways. The construction of the limb is illustrated in the diagram, which is taken from the patent specification. The forearm, A, is made in one piece of stout or stiff leather, and the casing for the upper arm is formed in two pieces, B, C, of soft or pliable leather attached to the forearm. These pieces are eyeletted and laced together so as to clasp the upper arm, soft tongues, D, E, being provided under the laces, F, if desired. This arrangement, besides giving more comfort, renders it possible in most cases for the wearer to attach the appliance in position without assistance. Within the wrist of the forearm casing is a block (G, Fig. 2) of wood or other suitable material, over the outer part of which is firmly fitted and secured a dome-shaped metal cap or holder, H, having a central hole or socket, J, screw-threaded internally. A correspondingly threaded plug, K, provided with an outer flange, L, is adapted to screw into this socket. This plug is centrally bored so that the shank, M, of the C-shaped hook can freely pass therethrough. The part of the bore nearest to the arm has an enlarged part, N, similar to a stuffing box, to receive a spring, O, which is coiled around the end of the shank when placed therein. This spring is com-

pressed between abutments formed by the shoulder, P, in the plug, and a nut or cap, Q, which is screwed on to the end of the shank, and is small enough to enter the space N. The plug, K, is then screwed into the socket, J, until the flange, L, meets its seating, R, and the appliance is ready for use. The hook, with its shank, M, is free to revolve axially in the plug, K, after the latter is screwed home, but is prevented from doing so too freely owing to the friction on the ends of the spring and between the base of the hook and its abutment, S. When a sudden pull comes upon the hook, the spring is further compressed and lessens the jar. Dr. Griffiths said that the chief points of interest were the shape and action of the hook, and the mode of attachment to the stump. The hook was convenient for using tools, for lifting and for pushing. The attachment of the artificial limb by means of soft leather flaps laced round the upper arm taking their grip above



the condyles of the humerus, allowed free movement of the elbow-joint. The experience of the inventor, who had been using the arm for forty years, showed that there was no risk of pressure sores; the skin was freely movable over the deeper tissues, and it was not appreciably thickened. Mr. Williams could use a pick and shovel, could lift a weight of 56 lb., could swing a 14 lb. sledge hammer, could use a scythe, could plough, could pitch hay, and do any other work of an agricultural labourer, and could work as a collier, a mechanic, and a carpenter. Dr. Griffiths expressed the opinion, in which members present concurred, that it was the best artificial arm yet designed for a case in which the forearm has been amputated below the elbow.

THE MILITARY MEDICAL SERVICES IN 1915.

IN the *BRITISH MEDICAL JOURNAL* of January 2nd, 1915, was published an article on the military medical services in 1914, with special reference to the first five months of war, and the work and losses of these services under arms. The present article continues the history of these services during twelve months of war in 1915.

THE ARMY.

Last year's note included two tables, giving the strength of the R.A.M.C. in January and in December, 1914, respectively, showing the great expansion of the R.A.M.C. to meet the needs of war. The strength of that service had increased between July and December, chiefly by the employment of temporary officers, by about two-fifths, or roughly, including Territorials and Reserve medical officers, from somewhat over 3,000 to a good deal over 5,000.

These two tables are now reproduced (slightly corrected), along with a third, six months later, compiled from the monthly *Army List* of June, 1915, the last available to the

⁸ *The Harveian Oration, 1915.* By Sydney Coupland, M.D. London: Cassell and Co. 1915.

general public, which shows a much greater expansion, after nearly a year of war, to well over 7,000.

*Strength of the R.A.M.C.**

	January, 1914.	December, 1914.	June, 1915.
<i>R.A.M.C. Regulars.</i>			
Surgeon Generals	12	12	22
Colonels	29	35	59
Lieut.-Colonels	130	151	254
Majors	312	351	245
Captains	422	399	488
Lieutenants	129	121	1
Total	1,054	1,099	1,107
<i>Retired Officers employed</i>			
	65	102	149
<i>Special Reserve.</i>			
Lieut.-Colonels	—	1	1
Majors	15	10	9
Captains	26	60	73
Lieutenants	143	590	626
Total	184	661	709
<i>Temporary Officers.</i>			
Colonels	—	7	14
Lieut.-Colonels	—	7	33
Majors	—	10	51
Captains	—	41	122
Lieutenants	—	1,073	2,477
Total	—	1,138	2,697
<i>Territorials, all Ranks.</i>			
Regimental	567	640	703
Field ambulances	363	609	808
General hospitals	201	745	848
Sanitary service	116	119	169
Clearing hospitals	—	31	93
Total	1,709	2,144	2,621

* These figures should be considered absolutely accurate, but will be found correct within a few units in each case. There is a certain amount of overlapping. In some cases an officer's name appears twice over, in different places.

Summary.

	January, 1914.	December, 1914.	June 1915.
<i>R.A.M.C.</i>			
Regulars	1,054	1,099	1,107
Retired officers	65	102	149
Special Reserve	184	661	709
Temporary officers	—	1,138	2,697
Territorials	1,709	2,144	2,621
Total	3,012	5,144	7,283

It will be seen that, though there had been no new admissions to the R.A.M.C. between December, 1914, and June, 1915, while many casualties have occurred, the numbers have not fallen but have slightly increased. This is due to the absorption into the active list of a number of retired officers from the reserve. The one lieutenant shown in June, 1915, is a reserve officer. Senior officers who have attained the age for compulsory retirement, and those who have completed the regular tour of service in the administrative ranks, have also been retained on the active list. The numerous recent promotions from the rank of lieutenant to that of captain, among the temporary officers and those of the Special Reserve, were still shown as lieutenants in June.

The June *Army List* also shows 114 medical officers in the Canadian forces and three in the Newfoundland contingent. The details of the Australian and New Zealand forces are not given.

Though the *Army Lists* of a later date than June, 1915,

are not available for comparison, we can refer to an official statement of strength in November, which must be at least approximately accurate up to that date. On November 9th Mr. Tennant, Under Secretary of State for War, stated in the House of Commons that the strength of the R.A.M.C. up to that date, including regulars, retired officers re-employed, Special Reserve, temporary officers, and Territorials, was 9,626, of whom 2,474 were Territorials. (In a similar statement made in the House on May 19th the number of Territorials was given as 2,122, and the total number as 7,027.)

It must be noted that the figures given above—9,626 medical officers—do not appear to include the medical department of the Canadian, New Zealand, and Australian forces—say perhaps 400 in all—or the Indian Medical Service—nearly a thousand. To these may also be added the strength of the medical department of the navy—say 1,000—making a total of, roughly, some 12,000 medical officers employed in the different fighting services.

Since November 9th a further considerable number of temporary lieutenants have been gazetted to the R.A.M.C., while a few have resigned their commissions. These changes have probably brought up the total number of officers in the various branches of the R.A.M.C. to over 10,000 by the end of the year. Many of the Canadian medical officers have also been gazetted temporarily to the R.A.M.C. On the other hand, the number of Territorial medical officers shown in the June *Army List* (2,621) is larger than the figure given for November 9th (2,474).

Not all of these medical officers are giving full-time service. The Regulars, Special Reserve, and temporary officers are of course doing so. So are all the Territorial medical officers serving with regiments, with field ambulances, and with clearing stations. In the Territorial general hospitals, however, as a rule, only the commanding officer and registrar are whole-time officers; the majority of the staff are giving part-time service only. Many individuals have been seconded for service abroad, and thus are giving their whole time; but such officers have presumably been replaced and struck off the strength of their own hospitals. On the other hand, a number of medical men are serving under the British Red Cross, chiefly in hospitals at home and abroad; and while some of them hold temporary commissions, and so are included in the statistics given above, the majority are not so commissioned.

KILLED OR DIED OF WOUNDS OR DISEASE.

The number of medical officers killed in action, including those who died of wounds or went down with the ships on which they were serving, in 1914, during five months of war, was 46. Of these, 27 belonged to the R.A.M.C. (Regulars 21, Special Reserve 1, Territorials 1, and temporary officers 4), 13 to the navy (active list 9, reserve 2, R.N.V.R. 1, and 1 temporary), 2 to the I.M.S., 1 to the West African Medical Staff, and 1 to the Australian force in New Guinea, while 2 were serving as combatants. The two last, of course, though medical men, were not medical officers.

In 1915 the number killed is, as might be expected, much larger, totalling over 100. No fewer than 15 fell in the advance on September 25th and subsequent days and the ensuing German counter-attacks. The chief incidence of loss in the past year, however, has fallen, not on the Regulars, but on the Territorials and the temporary officers. The figures are as follows:

Royal Navy (active list 9, R.N.V.R. 2, temporary 3)	14
R.A.M.C. (Regulars 8, Special Reserve 6, Territorials 12, temporary 36)	62
Colonial Forces (Canada 2, Australia 5, New Zealand 1)	8
Indian Medical Service	5
Colonial Services	5
Mercantile Marine	3
Combatants	13

In addition to those actually killed, 21 have died of disease or by accident while serving abroad, or very soon after being invalided home, making a total roll of honour of considerably over 120.

The names of those killed are as follows. It is possible that one or two names may have been omitted. If so, we shall be glad to receive information.

R.A.M.C., Regulars.

In France and Flanders: Colonel E. O. Wight; Major F. G. Richards; Captains H. V. B. Byatt, J. F. Gwynne, and E. C. Deane; and Lieutenant P. M. J. Power.

In the Dardanelles: Colonel N. Manders.

In Mesopotamia: Captain M. Burneth.

R.A.M.C., Special Reserve.

In France and Flanders: Captains H. C. Storrie and S. F. M. Cesari; Lieutenants W. T. McCurry, G. M. Chapman, E. Faulks, and R. Montgomery.

R.A.M.C.(T.F.).

In France: Captain E. L. Giblin.
In the Dardanelles: Lieutenant-Colonel W. B. Pritchard; Majors J. C. Taylor and D. R. Taylor; Captains A. Keilas and W. R. Roberts; and Lieutenants P. T. Warren and A. B. Thompson; also four lost in the transport *Royal Edward* in the Aegean Sea: Lieutenant-Colonel J. H. Dauber, Major J. Mowat, Captain C. B. Marshall, and Lieutenant T. Hayhurst.

R.A.M.C., Temporary.

In France and Flanders: Captains J. N. Armstrong, A. E. Bullock, E. W. Carrington, T. H. S. Bell, G. I. Grant, A. G. Miller, and J. H. Meers; Lieutenants D. Campbell, D. O. Turnbull, J. R. Waddy, E. Stratford, H. W. Goodden, J. A. MacMahon, M. Pern, G. H. Lunan, D. G. Watson, G. M. M. Fleming, G. Macallum, J. C. Hawkes, K. Robinson, C. M. Harris, E. T. Nangle, J. R. Spensley, E. H. P. Brunton, T. J. Latham, M. Mackenzie, J. R. G. Garbutt, A. Hegarty, and O. G. Muirness.

In the Dardanelles: Captain A. Graham; Lieutenants J. Cattanach, T. A. Peel, J. Clarke, F. J. Wisley, J. W. Parker, and F. H. Young (in the transport *Marquette*).

Canadians.

In France and Flanders: Major W. P. Dillon and Captain G. O. Glidden.

Australians.

In the Dardanelles: Majors S. J. Richards and F. M. Johnson; Captains G. C. Matthison, K. Levi, and G. P. J. Luther.

New Zealanders.

In the Dardanelles: Lieutenant-Colonel C. E. Thomas.

The names of those who have died on service overseas, or soon after reaching home invalided from service, are:

R.A.M.C., Regulars: Major C. E. Fleming, Glasgow; Captains A. A. Sutcliffe and S. Field, both as prisoners of war at Wittenberg, in Saxony.
R.A.M.C.(T.F.): Lieutenant-Colonels G. A. Edsell, Surbiton, and A. A. Ross, London; Majors A. Hilton, Egypt, and W. A. Malcolm, Malta; Captains G. W. Buxton and W. E. Rielly, Dardanelles.

R.A.M.C. (Temporary): Captain J. F. Fairley, France; Lieutenants E. A. Wright, Alexandria; W. R. Pryn, France (accident); S. B. Walsh, France; E. D. Parsons, London; J. McGowan, Malta, and J. C. Bell and B. C. Letts, Alexandria.

Australians: Captain A. Verge, Alexandria.

New Zealanders: Colonel F. C. Batchelor, Dunedin; Major T. C. Savage and Captain J. A. T. Bell, Egypt.

As was the case last year, and as is naturally the case, the great majority of the officers killed were of the junior ranks. In the R.A.M.C., two full colonels and one major were killed, of the Territorials two lieutenant-colonels and three majors, one lieutenant-colonel in the New Zealand contingent, two majors in that from Australia, one major in the I.M.S., and one lieutenant-colonel and one major serving as combatants.

SONS OF MEDICAL MEN.

A very large number of sons of medical men have fallen in the war, as may be seen in the pages of this JOURNAL during the past six months, during which over two hundred have been recorded. A very large number also fell during the first eleven months of the war, before the JOURNAL began to insert these notes. Many cases must have escaped notice, especially among the colonial contingents.

MEDICAL STUDENTS.

The number of medical students recorded as killed is not so large, but in this case also, even more than in that of sons of the profession, the information available is very incomplete. During the past six months over fifty such cases have been recorded in the JOURNAL, not counting those medical students who were also sons of medical men, but including those recently reported from Trinity College, Dublin.

MEDICAL MEN AND DENTISTS KILLED OR DIED OF WOUNDS WHILST SERVING AS COMBATANTS.

The following is a list, as complete as we have been able to make it, of medical men and dentists holding commissions as combatants who have been killed or died of wounds since the beginning of the war. The list is very possibly incomplete, and we shall be obliged if relatives of any other medical men who have been killed or died of wounds while holding commissions as combatants would communicate with us. We should also be glad to receive particulars of any medical man who may have been killed or died of wounds whilst serving as a combatant but not holding a commission. The names in the list are arranged in alphabetical order:

Medical Practitioners.

F. M. Bingham, L.R.C.P., M.R.C.S., Captain 5th King's Own Lancaster Regiment, Flanders, May 22nd, 1915.

A. C. Clifford, L.R.C.P., M.R.C.S., Second Lieutenant 3rd Dragoon Guards, Ypres, Flanders, June 1st, 1915.

A. Corley, M.D., Captain 11th Australian Infantry, Dardanelles.

S. N. Crowther, L.R.C.P., M.B.C.S., dispatch rider, Flanders, October 18th, 1914.

S. C. Huddleston, M.B.Edin., Second Lieutenant 3rd Black Watch, France, January 25th, 1915.

B. M. Hughes, L.R.C.P., M.R.C.S., Captain 1/4th Norfolk, Dardanelles, September 15th, 1915.

H. T. Hunter, M.B.Durh., Captain 6th Northumberland Fusiliers, Ypres, Flanders, April 26th, 1915.

J. W. Jessop, L.R.C.P., M.R.C.S., Lieutenant-Colonel 4th Lincoln, France, June, 1915.

T. S. Lukis, M.D.Lond., Lieutenant 13th London Regiment, France, March 15th, 1915.

W. E. Maitland, M.B.Glasg., Lieutenant 3rd Seaforth Highlanders, France, December, 1914.

E. M. Ridge, F.R.C.S., Sub-Lieutenant R.N.V.R., Antwerp, October, 1914.

A. Wallace, M.B.Edin., Captain 1/4th K.O.S. Borderers, Dardanelles, July 12th, 1915.

Dentists.

J. J. Dykes, L.R.C.P. and S.Edin., L.R.F.P.S., L.D.S., Captain 1/5th K.O.S. Borderers, Dardanelles, July, 1915.

J. Morham, L.R.C.P. and S.Edin., L.R.F.P.S., L.D.S., R.C.S.Edin., Captain 4th Royal Scots (missing), Dardanelles, September, 1915.

H. B. Neely, L.D.S., 2nd Lieutenant 1st Suffolk, Ypres, Flanders, April 25th, 1915.

WOUNDED.

The number of medical officers whose names have appeared in the casualty lists as wounded during the year is considerably over two hundred. It is probable that the figures given are not absolutely correct, but they are approximately so. In a few cases the same officer has been more than once returned as wounded. The numbers recorded can be shown most easily and clearly in a tabular form, for all the services together.

	France and Flanders.	Dardanelles	Balkans.	Persian Gulf.	East Africa.	West Africa.	India.	Total.
R.A.M.C.	19	4	—	1	—	—	—	26
R.A.M.C.(T.F.)	24	25	—	—	—	—	—	49
R.A.M.C.(S.R.)	18	4	—	—	—	—	—	22
R.A.M.C. (temporary)	67	21	—	1	—	—	—	89
Canadians	4	—	—	—	—	—	—	4
Australians	—	7	—	—	—	—	—	7
New Zealanders	—	2	—	—	—	—	—	2
R.N.	—	6	—	—	—	—	—	6
I.M.S.	3	3	—	10	—	1	1	18
West African Service	—	—	—	—	—	1	—	1
Total	135	72	—	14	—	2	1	224

HONOURS.

A fair share of honours has fallen to the medical services during the year, chiefly to the regular R.A.M.C. The greatest honour of all—the Victoria Cross—has been bestowed on three medical officers in 1915, besides one, the late Captain Ranken (killed in action) in 1914: temporary Lieutenant (now Major) Martin-Leake; Captain Scrimgeour of the Canadian force, and temporary Lieutenant Maling. Major Martin-Leake had won the V.C. in South Africa, and in February, 1915, received a clasp to his Cross. Whether a clasp to the V.C. has ever been awarded before seems somewhat doubtful, but however this may be, it is certain that such a grant is a very rare honour.

Honours also can be most clearly shown in a table for all the medical services together.

	V.C.	K.C.B.	C.B.	D.S.O.	Military Cross	D.S. Cross	K.C.M.G.	C.M.G.	Foreign.	Total.
R.A.M.C.	—	1	17	27	23	—	—	20	1	88
R.A.M.C.(T.F.)	—	—	—	1	3	—	—	1	2	7
R.A.M.C.(S.R.)	—	—	—	2	9	—	—	—	—	11
R.A.M.C. (temporary)	1	—	3	5	23	—	3	—	1	40
Canadians	1	—	1	1	1	—	—	2	—	6
Australians	—	—	1	1	—	—	—	1	—	3
New Zealanders	—	—	1	2	—	—	—	1	—	4
R.N.	—	—	—	3	—	2	—	—	4	9
I.M.S.	—	—	2	3	3	—	—	3	—	11
Total	3	1	25	45	64	2	3	28	8	179

The honours gazetted on January 1st, 1916, are not included in the above table.

PROMOTIONS.

On March 1st a large number of promotions were made in the regular R.A.M.C.—68 lieutenant-colonels were promoted to the rank of full colonel, 171 majors to that of lieutenant-colonel, while all the lieutenants were promoted to the rank of captain. Later, all temporary lieutenants were granted the rank of captain after one year's service, while lieutenants of the Special Reserve and Territorial Force have been granted that rank after six months' embodied service. Ten brevet promotions have also been given in the R.A.M.C. and 5 in the I.M.S.

NURSES.

The members of the nursing service are not ordinarily employed under fire, and, as far as we know, no nurse has actually been killed in this way. But 10 were lost in the transport *Marquette* in the Aegean Sea and 1 in the hospital ship *Anglia* in the Channel. These ladies have in their way lost their lives in action just as much as if they had fallen in the firing line. Eleven others, at least, have died on service.

THE INDIAN MEDICAL SERVICE.

This service has maintained its normal strength of a little under eight hundred throughout. Early in 1915 the men who passed in July, 1914, joined the active list. An examination was held in July, 1915, at which eight candidates were accepted, and a few of the temporary lieutenants have been gazetted to the permanent list.

A large addition has, however, been made by the employment of temporary lieutenants, chiefly Indian qualified men, and of retired officers re-employed. It may be remarked that while only five retired I.M.S. officers are shown as employed in the *Army List* of January, 1915, there were actually nearly fifty such officers serving before the end of 1914.

The following table shows the strength of the I.M.S.:

	January, 1914	January, 1915.	June, 1915.
Active list	770	788	785
Temporary officers	—	5	62
Retired officers re-employed	—	5	49
Total	770	792	896

Since June the number of temporary officers has increased to 130. There are also some thirty retired officers, re-employed in India, all or most of them in civil appointments, who are not included in the above table.

The temporary officers appointed include one major and four captains; the rest are all lieutenants. Among them are two officers who had resigned the service in their first few years, and who have now temporarily rejoined. A third officer, who had likewise resigned, has been reappointed on the permanent list. The temporary major is an officer who had served for nearly thirty years in the Indian army, and had retired after the usual period of command of a regiment. After retirement he took up the study of medicine, and qualified shortly before the war.

In normal times the number of officers of the I.M.S. in civil employ is nearly 500, while nearly 300 are ordinarily on military duty. The civil branch of the I.M.S. has always been looked on as a reserve for the army in time of stress, and fully one half of the officers usually in civil employ have been on military duty during the year. Members of the I.M.S. have been on active service, during 1915, in France and Flanders, in the Dardanelles, Egypt, the Persian Gulf, East Africa, West Africa, and on the Indian frontier. A number have also been employed in base hospitals in the south of England and in hospital ships. Some of the Indian base hospitals in England have recently been closed; the others will also be closed before long, as it is reported that most of the Indian troops have left France for the East.

Two members of the I.M.S. were killed in action in 1914—Major P. P. Atal and Captain K. I. Singh. Five more have fallen in 1915—Major J. Woods and Lieutenant J. P. Walsh in Flanders, Captain M. F. Reaney in the Dardanelles, Captain F. S. Smith and Lieutenant M. B. Patel in the battle of Ctesiphon, in Mesopotamia. Lieutenant

Patel has been the first of the temporary officers of the I.M.S. to fall, also the first Parsi, though the third Indian-born member of the I.M.S. who has been killed in action. Two other officers have lost their lives on active service—Major J. O'Leary, drowned at Ismailia, and Lieutenant T. B. Paul, who died in the Persian Gulf Expedition. Two retired officers also died on duty during the year while employed in the base hospitals for Indian troops—Lieutenant-Colonel E. Lawrie at Brighton, and Lieutenant-Colonel L. F. Childe, who was serving in the Lady Hardinge Hospital at Brockenhurst.

Eighteen others have been wounded—ten in Turkish Arabia, including five in the battle of Ctesiphon, three in the Dardanelles, three in Flanders, and one each in West Africa and on the Indian Frontier.

Of war honours, the I.M.S. have received eleven—two C.B.'s, three D.S.O.'s, three Military Crosses, and three C.M.G.'s, besides five brevets.

THE COLONIAL SERVICES.

The only colonial medical service which has officially taken part in the war is the West African Medical Staff, several members of which have been serving in the Cameroons. This service lost one officer killed in 1914, in the past year one officer has been wounded. Several retired officers are now temporarily serving in the R.A.M.C.

Two members of the service—Drs. F. J. A. Baldwin and A. W. H. Grant—were also lost in the *Falaba*, torpedoed in the Irish Sea on March 28th.

Another colonial medical service, however, that of the Straits Settlements and Federated Malay States, has lost heavily, no less than three of their members having been killed in the mutiny at Singapore last February, two of them while serving with volunteer troops. These three were Dr. E. D. Whittle, Colonial Surgeon, Dr. P. N. Gerrard, Malay States Volunteer Rifles, and Lieutenant A. F. Legge, Singapore Volunteer Medical Company.

THE ROYAL NAVY.

The following table shows the strength of the medical departments of the navy for January, 1914, January, 1915, and July, 1915, as given in the *Navy Lists*, respectively. Unlike the R.A.M.C., the naval medical department has not required to expand, and has not expanded, to any very great extent during the war; the number of temporary and reserve officers is barely equal to that of the regular active list.

	January, 1914.	January, 1915.	July, 1915.
Active list:			
Surgeon-Generals... ..	6	6	6
Deputy Surgeon-Generals	10	11	11
Fleet Surgeons	162	178	182
Staff Surgeons	171	171	162
Surgeons	159	158	150
	523	524	511
Temporary:			
Consultants... ..	—	11	10
Staff Surgeons	—	—	1
Surgeons	—	289	383
	—	300	394
R.N.V.R.:			
Staff Surgeons	11	—	21
Surgeons	53	6	71
Surgeon Probationers	—	82	37
	64	88	114
Reserve	10	9	7
Total	597	921	1,026

There are also shown in the *Navy Lists* a little over 400 appointments as surgeon and agent, at small seaports round the coast. These are not whole-time posts; the duties are light and the remuneration small. They are mostly held by private practitioners; a few are filled by retired naval medical officers.

Losses.—The number of naval medical officers killed during the year is 14, as follows:

Fleet Surgeon G. Taylor, and Surgeons W. M. S. Miller and S. Hibbert, lost in H.M.S. *Formidable*, in the Channel, on January 1st.
Surgeon V. L. Matthews, lost in H.M.S. *Viktor* off the North of Ireland, about January 20th.
Staff Surgeon W. G. Moore Anderson and Surgeon-Probationer R. O'C. Redmond, lost in H.M.S. *Clan Macnaghten*, in the North Sea, in February.
Surgeon F. W. Quirke, lost in H.M.S. *Princess Irene*, blown up at Sheerness, on May 27th.
Fleet Surgeon G. A. Forrester, killed on H.M.S. *Implacable*, April 25th, and Fleet Surgeon G. A. Waters, lost in H.M.S. *Goliath* on May 12th, both in the Dardanelles.
Surgeon T. L. G. Stewart (June 14th), Surgeon F. H. Rees (June 1st), and Surgeon F. J. Humphreys (September 5th), killed in the Dardanelles.
Staff Surgeon A. O. Hooper and Surgeon D. W. K. Moody, killed on H.M.S. *Natal*, blown up on December 30th.
Temporary Surgeon D. R. B. Sivright, died at the Dardanelles.

Of these officers, Surgeon Hibbert and Surgeon-Probationer Redmond belonged to the R.N.V.R.; Surgeons Stewart, Humphreys, Moody, and Sivright were temporary Surgeons; the other ten were on the active list.

Wounded: Six naval medical officers have been wounded, all in the Dardanelles.

Honours granted have not been many; they may be seen in the table above.

THE MERCANTILE MARINE.

Three medical officers of the mercantile marine have lost their lives in ships torpedoed and sunk by the enemy, Drs. J. Macdermott and J. Garry in the *Lusitania* on May 7th and Dr. Everett in the *Persia* on December 30th. It would seem probable that other ships' surgeons must have perished in some of the numerous vessels sunk by submarines, but we have not noticed the names of any others recorded.

Miss E. S. Impey, M.B., a lady doctor going out to join the Dufferin Hospital for Women at Lahore, appears also to have been lost in the *Persia*.

MOTORS FOR MEDICAL MEN.

By H. MASSAC BUIST.

WAR EXPERIENCE AND NEW DESIGNS.

At the turn of the year it is natural to take stock of the motor situation, particularly as concerns the prospects of obtaining vehicles in the future in face of the continuance of the war. As regards the British industry, it is plain that, save for releasing a limited portion of the heavy vehicle production for supply of firms concerned in war work, and for a few examples of light cars, chiefly of the assembled variety, all the resources of the factories will continue indefinitely to be fully employed on Government work.

Incidentally, the medical man will doubtless be aware that during the five months that have elapsed since last this topic was touched on in these pages a large amount of experience has been gained at the front with British-made light cars of the comparatively few well-established makes, including, notably, the Singer machines. The French also now make extensive use of light cars in the war area, running them almost invariably with open exhausts.

None of these machines is spared in the least degree, and the test is a hard one, not only of engine revolutions and reliability in the ordinary sense, but also of every part of the chassis. Much cobble or *pavé* has to be traversed in the vicinity of the towns, while in the open the roads are very much broken up. It is impossible for large numbers of vehicles to be submitted to these conditions of use for month after month without the manufacturers of them learning lessons which will ensure their being able to make light cars after the war which shall be as absolutely dependable for the medical man's daily and nightly service all the year round as middle-size cars, such as Rovers, De Dions, Swifts, and the like, have been for years.

LIGHT CAR TENDENCIES.

Turning to light-car progress in quite another direction, namely, across the Atlantic, we note in such comparatively new propositions as the Saxon machine that in the New World they are using wider axles for light cars than is the current practice in Europe, and this without

appreciably increasing the weight factor. This development is likely to be followed in some degree in this country in that these wider axles are a natural corollary of the tendency that has been manifest here to lengthen light-car wheelbases. It is not only that better riding is obtained; with the wider axle there is besides the gain of enhanced lateral stability. This is of especial importance in the light car. Taken with the fact, proved by war service rendered by the British-built Singer light car, that the change-speed gear mechanism can be satisfactorily incorporated in the back axle details, even as for years past has been done in some of the middle-size and large cars, such as the Overland, it will be realized that the problem of making a highly efficient and speedy light car to hold the road is one already far on the way towards solution.

In the meantime the medical man would be wise to bear in mind that, while many varieties of light cars, assembled and otherwise, are available to him to-day, nevertheless the pick of the output is being taken, as it ought to be taken, by the Government for war service. For the rest, production is restricted by the necessity for the shops turning out other war requisites besides light cars.

As far as we can see into 1916, the only light cars likely to be available in large numbers are of the imported or of the assembled varieties; though by careful investigation here and there it will be possible to secure on occasion examples of what one might call the more classic makes that have been tried in war service and not found wanting.

A CAR TO BE LUBRICATED ONCE IN SIX MONTHS.

Turning next to middle-size cars which, from the inception of the motor movement to date, have rendered the medical profession the greatest amount and variety of service, we find that no such thing as a 1916 model has yet been announced by the British manufacturers. A few 1915 examples can be unearthed out of stock, and, of course, to the number of used cars that are being offered for sale as the strain of the war becomes more and more apparent on folks' finances, there would appear to be no end.

But there has lately been brought forward by the firm of J. B. Ferguson, of Belfast, a design for a middle-size motor-car which, as a design, is of considerable interest to the medical profession. It represents the conception of a machine of refinement of working which shall need the minimum of attention and which will nevertheless be so adequately oiled and lubricated throughout that there will be the minimum of wear on the parts, therefore the maximum of use will be obtainable. This will be called the 14-20 horse-power Fergus car. The first example has been on the road some time. I understand that in face of the impossibility of getting the type made in any numbers here the notion is to get most of the parts manufactured in America, each by a specialist.

The scheme embraces a four-cylinder 14-20 h.p. monobloc engine, in combination with a worm-driven back axle and cantilever springs. All the springs are leather bound, to ensure their retention of the lubrication, the feed of which is automatic, and to protect the leaves from damp. The side members of the frame are quite original, being of girder formation, combining great rigidity with lightness.

There are here no inaccessible parts for the owner to lubricate; consequently, no vital parts can be neglected in this connexion. In the average car of to-day there are anything up to eighty parts to attend to in the way of lubrication, many of them daily, whereas in the Fergus car there are only eleven parts to which lubrication has to be supplied, and each of these needs attention once in every six months only.

This is really studying the man who wants to look after his own car. Apart from trouble saving, automatic lubrication is preferable on the grounds of effectiveness. In turn this represents economy of wear and adjustments, and consequent reduction of repair bills to the minimum, it being assumed, of course, that each part is correctly designed for the work it is called on to do.

The frames, which are to be made at Messrs. Ferguson's own works by special presses, reveal that the designing talent employed is sound. Though of extremely light appearance, the combination of steel girder and lattice work design ingeniously provides strength precisely where

It is needed, the shape being determined by the conditions arising from the tension stresses at this point and the compression ones at that.

A NEW YEAR AMERICAN NOVELTY.

As far as concerns vehicles not used wholly for business purposes, Mr. McKenna's autumn budget largely altered the prices of American cars in this country, though, so far, those who import these vehicles in parts, and assemble them here at little cost, successfully escape all but a fraction of the duty.

As from January 9th, 1916, one of the best-known and largest American motor firms—Willys-Overland—which has already established a reputation here, is putting on the market in this country a new model car, which, though imported completely assembled, will cost only £225 for the five-seater and £220 for the two-seater, both prices being inclusive of the full duty of 33½ per cent., which represents a contribution to the Exchequer of over £40 per vehicle.

Thus the price, including duty, is brought within the range of a very large public, while no less important is the fact that the whole plan of it is essentially European and not nominally so. The four-cylinder engine comes under the 4 guinea tax, being a fraction under 80 mm. in the bore with a stroke measurement of 127 mm. The cylinders are cast in a block, the valves being all on one side.

The engine might have been designed in Coventry. It is nominally of 12 h.p. and actually capable of developing over 20 h.p., so that here we have an American car rated according to European practice, as distinct from the American fashion of rating the motor at the very utmost power it is capable of developing for a brief spell.

The chassis is of European pattern, also in having cantilever rear springs, while the three-speed gear box is combined with the back axle on a system widely tested and found successful for many years. When the lower indirect speeds are in service, this scheme represents a reduction of engine torque to a quarter the amount experienced when the gear box is at the forward end of the propeller shaft. The weight of the complete vehicle comes within the ton limit, and the tyres are proportionately large. The equipment is complete, from electrical engine-starter and lighting system, embracing dashboard inspection lamp, down to detachable rims, including a spare hood cover, gauges, pockets, foot-rests, and so on. Of course, the gear-control and hand-brake levers are worked by the left hand, because they are centrally situated to the saving of weight and attaining a better leverage. I have seen the car, which will be widely announced in the general press from now onwards.

At the moment this is about all there is in the motoring situation calculated to be of interest to the medical man.

TENURE OF MEDICAL OFFICERS OF HEALTH.

SIR PHILIP MAGNUS, M.P. for the University of London, has maintained his interest in the subject of obtaining security of tenure for medical officers of health, which he took up at the request of the British Medical Association. Last February, in consequence of his representations, the then president of the Local Government Board, Mr. Herbert Samuel,¹ stated that he was prepared to issue an order providing that in the case of future appointments of whole-time officers (medical officers of health, and sanitary inspectors), whose appointments are subject to regulations made by the Local Government Board, the officer shall continue to hold office until he is removed by the local authority with the Board's consent, or is removed by the Board. He also undertook to suggest to local authorities that all officers holding temporary whole-time appointments should be reappointed under the new terms. Sir Philip Magnus has recently approached Mr. Samuel's successor, and the following correspondence has passed:

Local Government Board, Whitehall, S.W.,
December 30th, 1915.

My dear Magnus,

In accordance with the decision of my predecessor, which was contained in his letter to you of February last, my Department have prepared an Order giving security of tenure to whole-time medical officers of health and inspectors of nuisances appointed in the future.

I entirely agree with the decision at which Mr. Samuel arrived, and am strongly in favour of security of tenure for these officers, but I must confess that my own feeling is that the present is hardly the most appropriate time for the issue of such an Order, in view of the fact that so many of our best men have given up local work for service with the army or navy, and that the conditions are now quite abnormal.

Perhaps you would kindly let me know what your views are, and whether in the circumstances you would see any objection to the issue of the Order being further postponed.

Yours sincerely,
(Signed) WALTER H. LONG.

Sir Philip Magnus, M.P.

16, Gloucester Terrace, Hyde Park,
January 4th, 1916.

Dear Mr. Long,

I have carefully considered your letter of December 30th last, for which I am much obliged.

I agree with you that the present time may not be opportune for the issue of the proposed order of your Board giving security of tenure to whole-time medical officers of health and inspectors of nuisances appointed in the future.

I understand that your reasons for postponing the order are:

First, because many of the best men who previously held these posts are now serving in the army or navy, and that it is consequently undesirable that their places should be permanently filled by other applicants in their absence.

Secondly, because even when vacancies occur through death or resignation, such vacancies cannot be so efficiently filled at a time when competition for the appointments is necessarily restricted owing to the absence of many competent men who might be applicants.

These reasons seem to me quite sound, and I may add that the complaint has already reached me that advertisements have appeared in the press for the appointment by Local Authorities of medical officers to fill posts which have been vacated by those who are now serving in the army, and it is contended that these positions should be only temporarily filled, in order to enable the absent officers to resume their former duties should they so desire when the war is over.

In these circumstances, therefore, it certainly seems to me advisable that the issue of the Board's order should be further postponed.

I am, dear Mr. Long,
Yours very faithfully,
(Signed) PHILIP MAGNUS.

The Right Hon. Walter Long, M.P.,
President of the Local Government Board.

The public health service and the medical profession generally are greatly indebted to Sir Philip Magnus for his unwearied efforts to obtain the removal of the present disabilities of medical officers of health as regards security of tenure and other matters, and will, we have no doubt, agree with the general tenour of the letter with which the correspondence has at present closed.

ROYAL MEDICAL BENEVOLENT FUND.

(Continued from page 66.)

The following is a continuation of the summary of cases relieved by the Committee at its meeting on December 14th, 1915:

Daughter, aged 49, of M.D.Lond. who practised in London and India, and died in 1873. Applicant was able to supplement an income of about £20 per annum by teaching French, but owing to ill health is unable to continue this work. Relieved twice, £10. Voted £10 in two instalments.

Widow, aged 51, of M.D.Dub. who was in the R.A.M.C., and died in 1905. Applicant lives in a flat rent free, and has a small army pension. In addition to her four daughters, ages 21 to 26, she has her mother partly dependent on her. None of the daughters are strong, nor have they been trained for work. They have recently been training for nurses. Voted £5 and referred to the Guild.

Daughter, aged 55, of L.R.C.S.Glasg. who practised at Glasgow, and died in 1883. Applicant managed to earn a living before the war by teaching music, but since October, 1914, has practically lost all her pupils. Only permanent income £4 12s. per annum, and lives in own house. Voted £12 in twelve instalments. Recommended by the Glasgow branch of the Guild.

Daughters, ages 44, 50, 55, of M.R.C.S.Eng. who practised at Bodmin and died in 1912. Until father's death they were all able to live comfortably together, as the father had a life interest in some property. Only income of the daughters £5 each per annum. Voted £18 in twelve instalments jointly, and referred to the Guild.

Widow, aged 73, of M.R.C.S.Eng. who practised at Rye and died in 1891. Applicant has cataract in both eyes and unsatisfactory health. Has two daughters, both married. Lives in own house, but has only very limited means. Voted £12 in twelve instalments.

(To be continued.)

¹ BRITISH MEDICAL JOURNAL, March 6th, 1915, p. 429.

MEDICAL CARE OF SCHOOL CHILDREN.

(Continued from p. 66.)

TUBERCULOSIS.

THE chapter on tuberculosis in school children is chiefly noteworthy for the valuable tables giving figures concerning the extent to which tuberculosis is prevalent among children. The first of these tables has been compiled by Dr. T. H. C. Stephenson, superintendent of the Registrar-General's office; it gives the mortality at several ages from all causes and from tuberculous diseases for the last eight years in England and Wales. Death from all causes is high in the first year of life, being nearly ten times as great as that from all causes for the five succeeding years, and thirty times as great as in the second five years. From phthisis the deaths in the first year are as heavy as in the next five years, and nearly twice as heavy as in the second five years of life. In the succeeding five-year groups there is a gradual increase in the death-rate, so that in the group 20 to 25 years it is more than five times as great as in the 1 to 5 year group. Other forms of tuberculosis account for many deaths in the first year of life, the percentage being more than twice that for the succeeding five years; then, for each succeeding five years, there is a steady decrease in the tale.

Returns derived from the examination of school children suggest a slight diminution of the incidence of the disease amongst them. Comparative returns of town and country areas show that the incidence is higher for town areas. There is a solitary exception in the case of Worcestershire; the return of "phthisis" made by this county education authority is higher than that received from any other area, and it is nearly twice as heavy as the next largest on the list. In contrast to this the return for "other forms of tuberculosis" is well within the average. The figures are derived from the examination of 7,128 children, amongst whom 148 cases of phthisis, besides 250 doubtful cases, were reported. Such a return as this is another example of the desirability for some sort of cross-examination by the Board and the presentation of some explanation for the anomalous returns.

MEDICAL TREATMENT.

The report takes a very optimistic view of the progress of medical treatment amongst school children. Many of the most fruitful activities are of the nature of voluntary undertakings on the part of the local education authorities; the initiative in regard to treatment schemes rests with the local authority, and a considerable proportion of the cost is borne by the local taxpayer. The work has hitherto been placed, for the most part, in the hands of the local doctors. The introduction of the systematic examination and treatment of the children has produced a higher standard of health, both children and adults look upon accustomed ailments in a different light, and the desire for something better than the endurable has been fostered.

The war has put a check upon many of the activities of the school medical service, and perhaps in no branch has its effect been more heavy than in the stoppage of schemes of treatment. But it is considered to be "extremely important to maintain the machinery, both of inspection and treatment, in good working order. The need for such organization is likely to prove greater in the future than in the past."

A feature of the year is the great increase of the provision for dental treatment. In London for the year beginning April 1st, 1915, provision has been made for the treatment of 125,486 defects, including 63,140 dental cases. During the year the number of authorities providing treatment has increased from 139 to 179, and the treatment clinics now number upwards of 350. There appears to be a steady growth in the appreciation of the work by the people. Sheffield reports that the proportion of children obtaining treatment for which the education authority make provision has risen from 34 per cent. of the children treated in 1908 to 66 per cent. in 1914. It is satisfactory to note that there is a growing recognition of the view that the treatment of school children found on inspection to be defective is no part of the work of the voluntary charitable hospitals. This was first impressed upon the authorities by the inability of the hospital staffs to cope with a veritable inundation; now the authorities

recognize that half the value of their costly inspection is lost by merely turning over the children to the out-patient departments adapted to the adult population. Children's cases need a systematic following up, both to secure regular attendance and the effective application of the remedies ordered; these desiderata can only be secured through the school authority's own staff or an associated voluntary Care Committee. The organization of treatment is not difficult in town, but it is quite otherwise in the counties; each district has its own particular difficulties to face, and, as no two areas are exactly alike in these respects, each county scheme has to be developed according to local circumstances. Notwithstanding the difficulty, the work is progressing. Out of 62 such authorities (London excluded) treatment of one form or another is now undertaken by 50; it includes treatment of minor ailments, dental defects, ringworm (*x* rays), tonsils and adenoids, defective vision, and the provision of spectacles. The chief difficulty in rural districts appears to be with the staffs. A nurse to be of any good must be on the spot, and there is not sufficient work to keep one school nurse. It is suggested that each of these small areas should have one whole-time nurse to attend to several public health duties—school attendance, school nursing, tuberculosis, and district health visiting. In some places the local medical practitioners work under contract scheme: medical specialists come from the central town of the area; a medical staff is appointed by the local education authority; a school clinic is staffed by the local practitioners, or the local hospital is used. It would appear that each of these methods has its rightful place according to the type of work. Temporary clinics, working in a district over a sufficient period and then being transferred to a quarter where there is more need, have been found valuable. An even more mobile form of clinic, the "travelling clinic," has been worked with great success for dental purposes by caravan; the equipment of one such clinic is carried by the dentist on the back of his motor car.

DENTAL DISEASE AND TREATMENT.

It is noted that there is a steady appreciation in all parts of the country of the necessity for dental treatment. Several doctors have made comparative investigations of the state of the teeth of children of different types. One writes: "On the whole the possession of perfectly sound dentures seems to confer unexpectedly small advantages. Even the apparent advantage in height and weight . . . may be a matter of race rather than of better health." Another found that "in general terms the best nourished children compared distinctly unfavourably as regards their teeth with the children as a whole," and he concludes that "in the aggregate bad teeth is not the cause of malnutrition in children." These conclusions are in conflict with those arrived at after similar investigations by other doctors. A most systematic inquiry was made in Lancashire, and a direct association between bad nutrition and bad teeth was found. Children with "excellent" nutrition had on an average 3.6 decayed teeth per child, with normal nutrition 4.4 bad teeth, with subnormal nutrition 5.2, and with bad nutrition 6.2 decayed teeth. Be the effect of bad teeth immediate or not there is no doubt of the national loss in the end. In the annual report of the Director-General of the Army Medical Service for 1910 it is written that 44.3 per 1,000 recruits were rejected on account of bad teeth. "This high ratio bears eloquent testimony to the poor dental conditions of the classes from which the majority of the recruits are drawn." If the state of the children's teeth be bad it is certain that the same persons when adults will have yet worse teeth, for all the evidence, of which some is given, tends to prove that there is a progressive deterioration in the state of the permanent teeth with every year of school life.

Of predisposing causes the two most important appear to be improper feeding of young children, and excessive sweet eating. Others put alongside these the lack of the toothbrush, and the effects of certain illnesses, such as rickets. But there is general agreement that food is the most potent influence. One illuminative observation comes from Dr. Milligan of Bootle; he has shown that children in the poor schools frequently have the cleanest and soundest teeth. This observation, we have reason to believe, is correct. He adds that "the reason for this is to be found

in the domestic arrangements of the poorer classes, and the fact that the children are left to pursue their natural aptitude for chewing uncooked fruit and vegetables." Of the virtue of the toothbrush there can be no question, but the assertion of one medical officer that "clean teeth do not decay," is unfortunately not of universal application.

The great benefit that may be obtained by short demonstrations given in the schools by the visiting doctors is brought out. These lessons, when well and dramatically given, with a sufficiency of blackboard illustration, arouse keen interest amongst the children, the teachers, and ultimately the parents.

Lengthy tables of figures are given of the incidence of dental defects in different areas, and here again we find the same conflict of testimony as in other figures. One would expect the figures of Cornwall and Torquay to bear some near resemblance, but they are as the poles asunder—Cornwall takes first prize for good teeth, Torquay is nearly last.

Mention is made of the need for experienced anaesthetists for the purpose of general anaesthesia, if and when this is practised. Dr. Norman Bennett lays great stress on this point, as important both from the patient's and the doctor's point of view. "Time is saved and the child benefited." It is worth while to quote one paragraph:

In the administration of nitrous oxide for children it is of cardinal importance to give a certain amount of air or oxygen. In this way struggling is prevented, cyanosis is minimized, and the anaesthesia is prolonged. This point was certainly not generally appreciated. The routine procedure of washing the face-piece after each administration was not carried out. After administration ceased an experienced anaesthetist can greatly assist the dentist by holding the head in a particular way, and by manipulating a Mason gag quickly and correctly when necessary. These points are of more importance with children than with adults, because they easily become more cyanosed, relaxation is often very sudden, and, generally speaking, the physiological changes induced by the anaesthetic are more rapid and less easily controlled.

Point is made that the general anaesthetic should not be given by the operator except in cases of exceptional emergency.

There appears to be considerable difference in the practice adopted at different dental clinics. The figures of the London area show this well: 32,430 children were attended to; taking the children as 1, the number of attendances was 1.5; temporary teeth extracted, 4; permanent teeth, 0.5; stoppings, 1. The extractions and stoppings vary considerably in the constituent clinics; two extremes are: Marylebone—temporary teeth extractions 9, permanent 1.3, stoppings 1; Peckham—temporary 2.8, permanent 0.1, stoppings 2. These would appear to be extreme examples of "radical" and "conservative" dentistry; and if the conservative practice is justified, then the rate of extractions in some places would seem to be excessive.

OPEN-AIR EDUCATION.

The demand for facilities for the open-air education of weakly children has caused many experiments to be made. The cost of special provision has led to the use of the school playgrounds. On this Dr. Hamer, writing of London, says: "The results of the classes appear to show that the average child gains considerable advantage in health and vitality from education upon open-air conditions, such as can be given in a suitable school playground. In connexion with the campaign against tuberculosis there is necessarily arising a demand for the further provision of facilities for open-air education for debilitated children. Although the ordinary playground class does not well suit the needs of the more delicate child of phthisical tendencies, the results of the Hackney Marsh class appears to show that there is room for the development of such children in open spaces and parks." There is a whole world of difference between an open space and the open draughts of a town school playground; the latter is pleasant enough for an occasional class in the summer, but in the winter it is no place for any but the active. Testimony is given to the excellent effects that have been derived from the activities of the boy scouts movement, and the establishment of holiday schools and camps.

THE CRIPPLES.

The incidence of physical deformity and the causes thereof are shown in several tables. Tuberculosis always

heads the list; it accounts for about 40 per cent. of the cases. Next comes infantile paralysis with about 25 per cent., and rickets with 10 per cent. The remaining 25 per cent. are due to a variety of conditions ranging from accident to congenital deformity. There are now sixty-one special schools with accommodation for 5,005 children. A speciality of the education is to be found in the trade instruction given in the schools for elder children. Girls are taught fine needlework and dressmaking, the boys cabinet making, carpentry, and toy making. The work done by some of these schools is well worth examination.

A special investigation was made in London into the mental condition of the cripple children. The result was a complete overthrow of the popular idea that the cripple was of superior mental development. Amongst 1,080 children not more than 8.5 per cent. were up to the proper standard, and of the remainder who were below normal, 21 per cent. were of exceptionally low ability. A critical review of the cases of children suffering from paralysis shows that the mental development was inversely proportional to the height of the lesion. In poliomyelitis 48 per cent. were average children mentally, in hemiplegia 32 per cent., and in diplegia and paraplegia only 10 per cent. Excellent work is done by the after-care committees in the supervision of these children; every effort is made to associate them with societies, clubs, and other friendly associations, with a view to continuing educational influences and preventing degeneration. This section closes with an important paragraph headed

The Training of the Cripple Soldier.

It is hoped that the experience gained by some authorities in fifteen years' administration of cripple schools may be of timely use in helping to provide for cripple soldiers. Their numbers will be large; they will in many cases be unable to follow their old trades; they will have to be taught a new means of earning a livelihood, and their claim for consideration will be pressing. Many are already returning home, and no time is to be lost if they are to be saved from a condition of lifelong inactivity and poverty. The work already organized by Mr. C. Arthur Pearson for blinded soldiers at St. Dunstan's, Regent's Park, will serve to show what can be done in a short time: 50 soldiers are now receiving instruction in new trades; workshops are being erected and residential accommodation being provided for 120 men. They are being taught carpentry, boat repairing, mat making, basketry, and poultry farming, bee keeping, market gardening, and massage. Special attention is given to recreation, including rowing and swimming. A similar effort, though unhappily on a much more extensive scale, is required for cripple soldiers. In order to make appropriate provision in particular areas or in suitable circumstances four steps may be taken as follows:

1. A complete register of cripple soldiers should be formed, suitably subdivided into those who are trainable and those who are not.

2. Local education or other committees should co-operate with the military authorities on the one hand and ameliorative agencies on the other with a view to organizing a scheme of training.

3. Day and residential technical classes should be established, and the subjects should include carpentry, cabinet making, toy making, tailoring, boot making, horticulture, etc. Provision should also be made for the apprenticeship of students to craft trades of higher type—watchmaking, engraving, working in precious metals, etc.

4. After-care supervision would be necessary, and in many large towns considerable experience has now been gained in the work.

Schools for the instruction of cripples, if established by local education authorities, can be recognized for grants under the Board's regulations for technical schools. The Board is therefore in a position to assist movements of this nature, not merely in advising as to the scope and nature of schemes of instruction, but by affording financial aid.

The report contains also sections dealing with physical training, provision of meals, and the employment of children, but no new facts arise for remark. Among appendices, the most important appears to be that dealing with the physical defects of leavers in industrial areas, in residential towns, and in rural areas.

In the autumn of 1915 the incidence of diphtheria in Berlin assumed alarming proportions, and in the eight weeks August 1st to September 25th 1,276 cases were notified, as compared with 907 in the same period of 1914. The deaths from diphtheria in these eight weeks of 1915 numbered 111, as compared with 74 deaths in the same period of 1914. The authorities in Berlin increased the staff of nurses, and steps were taken to provide anti-toxin free of charge.

British Medical Journal.

SATURDAY, JANUARY 16TH, 1916.

THE CAMPAIGN IN EAST AFRICA.

It seems clear that a campaign of considerable importance is commencing in East Africa. Like all campaigns in tropical countries, its success will, in large measure, depend on the efficiency of the means adopted to prevent the occurrence of disease among the troops engaged.

When large bodies of men, natives of a temperate climate, are brought into a tropical country, they are exposed both to the diseases which they may carry with them from their homes and to diseases indigenous in the country to which they come. Troops brought to German East Africa from South Africa or elsewhere may therefore suffer both from the ordinary diseases of their native countries and from those tropical diseases which exist in East Africa; the fatigue and exposure inseparable from military operations will add greatly to their susceptibility. Owing to these two causes the problems presented to the military medical officers by the East African campaign will be especially difficult of solution, and success will, to a great extent, depend upon the loyal co-operation of the troops, and upon the observance by all ranks of the preventive and curative measures advised by the medical authorities.

German East Africa covers so large an area that local conditions vary greatly in its different parts and with the season of the year. But while it is on this account not possible to go into details, some of the special difficulties which will be met with during the East African campaign can be described and the methods by which they may be successfully countered stated in a general way.

There will probably be little difficulty in controlling the diseases which the troops bring with them, though it must not be forgotten that sometimes in East Africa it may be cold enough to make pneumonia, and other diseases often precipitated by exposure, a real danger. Minor tropical diseases, such as various indeterminate fevers of short duration, are certain to be a source of discomfort, and it has to be remembered that there are centres in East Africa where plague is endemic; but these will probably be avoided.

The four diseases which might very seriously interfere with the success of the East African Expeditionary Force are tick fever, malaria, dysentery, and—especially if it is necessary to use animal transport to any great extent—trypanosomiasis.

Tick fever occurs everywhere along the Central African trade routes. The disease is caused by a spirochaete, which is carried from man to man by the bites of a tick, though it may also be transmitted by lice. The fever develops soon after the infecting bite. It is a relapsing fever, consisting of three or more attacks, each of three or four days' duration, recurring at intervals of about a week. If untreated, the disease will incapacitate a man for about five weeks, more or less. If those infected are quickly treated by the injection of salvarsan and properly nursed, recovery is prompt and the mortality very small. If, on the other hand, there is a lack of proper

treatment and nursing, the mortality may be high. The tick—called in Swahili *Kimputu*—is found wherever Swahili traders have gone. In its habits it is much like a bed-bug, and is certain to be found in every native house, new, old, or deserted, along the trade routes. Natives living in districts where ticks exist will often deny their presence or insist that a tick bite has no ill effects. Such persons have become immune to the fever; newcomers, who sleep in houses where ticks exist, are almost certain to be bitten and to be attacked by the fever. There are on record many instances in which caravans coming from a tick-free to a tick-infested district have been stopped because every individual comprising them had contracted tick fever. Since the ticks only exist in native houses, and especially along established trade routes, they may be avoided by sleeping always in camps instead of in native towns and by avoiding old camping places on trade routes.

Means should be, and no doubt will be, taken to impress on every soldier engaged that malaria is caused by a parasite transmitted from man to man by a mosquito. When once this fact is firmly fixed in the minds of soldiers the necessity for mosquito nets will become apparent to them, and they will also be able to understand the need for the careful control of those who have chronic malaria and for the prophylactic use of quinine. French and Belgian native soldiers have for many years shown that it is possible for a soldier to use a mosquito net; they count as one of their most necessary possessions a box-like mosquito net which weighs perhaps half a pound and measures about 3 by 3 by 6 ft. when open. It is supported by strings from the top and has no side opening. These nets are made of mosquito netting when it can be obtained, but more often than not of common white cotton cloth, "Americani." If our troops employed such nets, and if each man took daily with his dinner from 3 to 5 grains of quinine, much would have been done towards lessening the number of men who will be invalidated on account of malaria. Another point of personal hygiene is to wear knee-breeches, or better, baggy knickerbockers, and not shorts which leave the knees bare; shorts seem very popular among our men in warm climates, but they expose an unnecessarily large area to the attentions of the mosquito, the tsetse, and the tick. An administrative point which ought to be constantly before the minds of officers, including those on detachment duty, is that native children very commonly harbour the malarial parasite; the proportion varies, but is usually very high, even among those children who appear to be in good health. The fact affords an additional reason for avoiding native villages and camping in the open beyond the range of the excursions of the small child.

Bacillary and amoebic dysentery both occur in East Africa, and are contracted by the ingestion of contaminated water or food. Water is an especially common source of infection, but all ranks should be urged not only rigorously to abstain from drinking water that has not been boiled or sterilized otherwise, but also from eating uncooked food. The flat taste of boiled water, at first disagreeable, is no longer noticed after it has been used for a week. Circumstances may make it impossible for drinking water always to be sterilized by heat, and in such an event chlorination might be substituted.

The trypanosomes of "sleeping sickness" and "tsetse fly disease," popular names applied to trypanosomiasis affecting men and animals respectively, are transmitted from animal to animal, or from man to man usually by the bites of a tsetse fly, but some-

times by other biting flies. Unfortunately, there is no uniformly successful treatment for these diseases. As there is no drug by which they can be controlled, it is doubly important that the bites of flies should be avoided. It is often possible to do so by keeping away from the neighbourhood of streams and areas where the flies are known to occur.

Tropical medicine has attracted many students during the past few years, and it is certain that there will be no lack in the field of medical officers who have both a practical and theoretical knowledge of tropical diseases. The great advantages which might be derived from the establishment, at some convenient point or points, of well-equipped laboratories are very apparent. Such laboratories would be of the utmost value not only for diagnostic but for remedial purposes.

A successful outcome to the application of the measures the military medical service will advise for safeguarding the health of an unusually large military expedition in a tropical country will be eagerly expected. In order that this fortunate result should be attained it seems essential that men as well as officers should understand something of the reasons for the precautions recommended. A brief printed statement about mosquitos and malaria, ticks and the fever they cause, about dysentery and trypanosomiasis, would enable them to understand the instructions concerning the use of mosquito nets and the proper employment of a water-bottle, and prepare their minds to benefit from the talks and admonitions that medical officers serving in East Africa will, without doubt, give to the men of the commands with which they are serving.

EDUCATION TO-DAY AND TO-MORROW.

LAST week a number of societies concerned with education, and consisting for the most part of associations of schoolmasters and schoolmistresses, met in London; they were linked by a conference of educational associations, opened on Monday, January 3rd, in the Great Hall of the University of London by the Vice-Chancellor, Sir Alfred Pearce Gould. An inaugural address was delivered by the Principal of the University of Birmingham. He spoke on education after the war, and this subject, and that of education during the war, were the chief topics discussed at all the meetings. Sir Oliver Lodge said that the educational danger of Germany had been disclosed by its conduct of the war; it was the heavy pedagogic grind, the desperate worship of material good, the soulless preparation for business, and the concentration of a purely material idea. The old sentimental Germany with a message to the soul of the human race had been slain, and a ruthless monster had taken its place. The dangers in this country were, he thought, the neglect of intellectual things and concentration on physical prowess and a passive kind of material prosperity; the satisfaction with book knowledge; and widespread indifference to natural facts not only among the general public but among the leaders, leading to contempt for investigation and expert knowledge. Canon Masterman, in addressing the Teachers' Guild of Great Britain and Ireland, took up the same parable. The Prussian leaders of Germany after 1870, he said, had extended the claim of the State over the bodies of its citizens to their minds, and even, in Bismarck's *Kulturkampf*, to their souls. Education had shown itself capable in unscrupulous hands of producing one of the most colossal catastrophes in history. Our fault in this country, on the other hand, was the lack of a clear

idea of the object of education; consequently, the results were not proportionate to the cost and effort they involved.

Very little was said at any of the meetings about the teaching of Greek and Latin, but a great deal about the need for proper instruction in modern languages, and also for giving better opportunities for becoming acquainted with the modern literature of foreign nations.

When we come to look into matters of detail we are attracted by a very outspoken address by the Professor of Applied Mathematics in the Imperial College of Science, and some rather revolutionary proposals with regard to medical education by the Regius Professor of Medicine at Oxford. Professor Whitehead, in pleading for a reform in the aims of education, said that the devil in the scholastic world of this country had assumed the form of a general education consisting of scraps of a large number of disconnected subjects, and with the artfulness of the serpent had entrenched himself in the ditch of the matriculation of the University of London, with a wire entanglement formed by the Oxford and Cambridge schools examination. English education, he asserted, was suffering from a lack of definite aim: we had not made up our minds whether to produce amateurs or experts, but he insisted that it was impeded also by external machinery which killed its vitality. His conclusion was that the results of education in the schools should be tested not by rigid examinations of the pupils, but by proper inspection and correction of the schools, while leaving each a unit with its curriculum based on its own needs.

Sir William Osler, in addressing the public schools science masters, pleaded that boys designed for the medical profession should leave their hands fit to begin their special studies. He urged that earlier and more extensive work in science subjects would save time at the universities. He ventured on the assertion that by the time a boy was 16 he had already, in the majority of instances, selected his career, and from that proposition deduced the conclusion that the sixteenth and seventeenth years should be devoted to the preliminary sciences—physics, chemistry, and biology. A boy would then be fit to go to the university at 18 and to proceed at once with physiological chemistry, physiology, and anatomy. He contended, therefore, that the school problem was to organize teaching so as to have a continuous science course through two years, and for this teachers, laboratories, and a systematic organization of the courses were necessary. The teaching in chemistry at the schools was not yet good enough, but if it were improved in this and the other preliminary sciences he believed that by shortening the vacations and rearranging methods of instruction it would be possible to return to a four years' curriculum for medical students. The average man would then qualify at the age of 22, spend a year in hospital or in post-graduate study, and start in life at 23. Sir William Osler argued that at present valuable time was being lost and much needed money wasted because science was a Cinderella in the kitchen instead of being the dominant partner in the educational family.

Sir William Osler's picture of the possibilities of the future is very different from that drawn in the reports to the General Medical Council of the actual state of things in the recent past. From a report made by the Education Committee, after a very full investigation of the curriculum of 1,111 who qualified in 1906, it appeared that the mean length of the curriculum in the United Kingdom was seven years (6 years 11.3 months). In England it was seven and a half

years, and in Scotland and Ireland a little over six and a half years. One result was that the mean age of qualification was in England 26 years and in Scotland and Ireland 25 years. This is with a minimum curriculum of five years. The report, it is true, was prepared nine years ago, but there is no reason to suppose that there has been since then any important alteration.

We are not quite sure whether Sir William Osler means to suggest that the minimum curriculum should be reduced to four years, or whether, if so, it would have any such effect in reducing the average age of qualification, as he supposes. Already teachers at all schools are complaining that it is impossible to crowd into the five years all the subjects which a student ought to learn, and it might be that the reduction of the length of the curriculum would only have the effect of increasing the number of rejections at examinations. But we take it that he would advise any reduction only if his other proposals with regard to the improvement of scientific education at schools and early differentiation of boys at schools were also accepted. We are disposed to think that the cry about the shortage of doctors at the present time has been exaggerated, and have seen no conclusive argument that there will be any shortage after the war. We may, perhaps, take warning by the example of Germany. At the beginning of the war the Government of that country relaxed the regulations and permitted a large number of senior students to obtain a licence to practise after examinations taken at an earlier date and under less stringent conditions than prevailed before the war. This policy has been strongly condemned by the medical profession in Germany. We are far more disposed to agree with Mr. Runciman, who in a very admirable speech in the debate in the House of Commons on January 10th laid it down that one of the first necessities of this country, if she wishes to hold her own during the time of war and when the war is over, is to improve research methods, the education of the people, and the training of young men. He repudiated the suggestion that we should attempt to economize on the money now spent on colleges and modern appliances. "There are," he said, "other directions in which we can cut down expenditure with less rational damage."

It is, we submit, something of a disgrace to our great public schools and to the universities of Oxford and Cambridge that a man, after passing through those venerable institutions with the highest distinction, may be totally ignorant, and will not be ashamed to admit that he is totally ignorant, of the elements of science—ignorant not only of the facts, but of the methods of science, and void of the intellectual training which it affords.

THE ARMY COUNCIL AND MEDICAL RECRUITING.

The following official communication has been issued by the War Office (January 12th, 1916):

"The Army Council consider that no qualified medical practitioner who is willing to accept (if offered) a Commission in the Royal Army Medical Corps should be accepted as an ordinary combatant.

"It is understood that the Central Medical War Committee will circularize the profession, stating that any medical practitioner who has enlisted under the group system should immediately enrol himself under the Committee's scheme as willing to accept a Commission in the Royal Army Medical Corps, if offered him.

"To every practitioner who enrolls the Committee issues a Certificate of Enrolment.

"Every medical practitioner who has attested and enrolled under the Central Medical War Committee's scheme should, when called up, produce to the recruiting officer his Certificate of Enrolment. He will then not be posted to a combatant unit, and will await instructions from the Central Medical War Committee."

The draft of the circular letter referred to above was considered by the Central Medical War Committee at its meeting on January 12th, and will be issued immediately.

WELFARE OF MUNITION WORKERS.

The Health of Munition Workers Committee has presented a memorandum to the Minister on the need of careful supervision of the welfare of munition workers. Attention is drawn to the deficient housing accommodation in certain districts and to difficulties of transit when no local accommodation at all can be obtained; to the need for the provision of adequate and appetizing meals at the works, and generally to the subject of the means which should be taken to prevent mental strain produced by long or exceptional exertion. The problem concerns at least three classes—adult men, boys, and women. In some munition works steps have already been taken to extend the movement in this direction started before the war. In 1913 a conference of thirty representatives of welfare workers at a number of factories was held at York. Since then the number of such workers has largely increased. At one of the largest of the munition factories a chaplain, who before taking orders served several years in a large engineering firm, has been appointed to adjust difficulties in the families living in the hostels, to look after the children, and to organize healthy recreation, both indoor and outdoor; a doctor has been appointed, and an infirmary, with a small operating theatre, has been taken over for cases removed from the hostels. At another factory the supervisor looks after safety appliances and organizes first aid stations and canteen accommodation. In the case of another munition firm a shop committee has been made the intermediary for dealing with various questions affecting the detailed management of the workshops and the institutions for the benefit or pleasure of the men, such as dining arrangements and rifle clubs. Women supervisors, where the need for them was felt, have been most successful, for it has been found that the presence of a capable woman, of broad sympathies, has provided the best and quickest aid to the solution of many of the problems affecting women's labour. Her duties include such matters as the provision and maintenance of sufficient sanitary accommodation, and general supervision of the woman's health to see that she is capable of withstanding the physical strain and stress of work, and to endure long hours, overtime, or nightwork. It is recommended that a woman of good standing and education, experience, and sympathy should be selected for such work; she should live near the factory, and in "national" factories should be appointed and paid by the Ministry of Munitions, in "controlled" establishments by the employer, but her appointment should be reported to the Ministry. It is pointed out that courses of social study designed for students preparing themselves as members of various local authorities and as welfare workers in factories have been established in the universities of London, Birmingham, Manchester, Leeds, Bristol, Edinburgh, and Glasgow.

WELCH'S BACILLUS.

In a recent elaborate study of the *Bacillus welchii* Dr. J. P. Simonds¹ gives a clear, though necessarily inconclusive, account of a group of microbes that has

¹ Monographs of the Rockefeller Institute for Medical Research. No. 6. September 27th, 1915. New York. (S. roy. 8vo, pp. 130. \$2.00.)

occupied the attention of pathologists and bacteriologists for many years. The bacillus of Welch was first fully described by Welch and Nuttall in 1892; Dr. Simonds has collected from the literature no fewer than 476 references to papers and books dealing with it and its congeners. Welch's bacillus is one of a group of bacteria the members of which defy satisfactory classification. Welch and Nuttall named their organism *B. aerogenes capsulatus*; identical or closely related bacterial species have received eight or ten other names, and include Achalmé's bacillus alleged to be the cause of acute articular rheumatism, Klein's *B. enteritidis sporogenes*, Veillon and Zuber's *B. perfringens*, Fraenkel's *B. phlegmonis emphysematosae*, and many other varieties of "gas bacillus" generally. The literature abounds in contradictory statements as to the biological characteristics of these bacilli, and it may be added that these characteristics are liable to considerable changes in accordance with the methods of culture or subculture employed. Speaking generally, however, the bacteria are large, anthrax-like, Gram-positive, non-motile, strict anaerobes; they form spores in alkaline media, and bring about the stormy fermentation of milk—coagulation takes place quickly, and the clot is broken up by the abundant formation of gas. After an elaborate consideration of their cultural characteristics, Dr. Simonds proposes to divide the bacteria of this group into four subgroups, on the basis of their ability to produce acid and gas or to sporulate in media containing inulin and glycerin. He notes the great variability among members of the group in the formation of toxins and haemolysins and in pathogenicity to both animals and man. In man either local or general infections of the most various tissues and organs of the body by these microbes have been recorded; gas formation is habitually observed, and in many cases leads to the production of "foamy" organs or emphysematous gangrene, a condition that has unfortunately received abundant illustration among the wounded in the present war. Some years ago Herter endeavoured to show a connexion between pernicious anaemia and the presence of excess of *B. welchii* in the stools of the patients; the connexion of the bacillus with epidemic or sporadic diarrhoea in either children or adults is much more definite, and is discussed by Dr. Simonds at full length. The bacillus is undoubtedly a normal inhabitant of the intestines of adults, and is sometimes found in small numbers in the stools of infants; if the bacilli are present in excessive numbers, and if the diet contains an undue proportion of fermentable carbohydrate, diarrhoea with highly acid stools is likely to result. Dr. Simonds claims that the number of spores of *B. welchii* in the stools, estimated by a technique which he describes, is a reasonably accurate index of the number of actively fermenting, disease-producing organisms of this type higher up in the intestine. The acid they produce is butyric acid, and this is a highly irritating substance. The condition may be cured by substituting a diet rich in protein for one rich in carbohydrate, and by giving butter-milk which encourages the growth of bacteria producing lactic acid at the expense of those producing butyric acid.

THE MEDICAL TOPOGRAPHY OF PERSIA IN 1873.

In view of our present military commitments in Persia and the valley of the Euphrates, it is not without interest to read an account of the climate and prevalent diseases of that district as they were recorded by an officer of the Army Medical Department—Surgeon-General J. H. Evatt, C.B.—in 1873,¹ in the course of a tour of inspection up the Persian Gulf and on to Bagdad. The possible importance of such a route from Europe and Asia to India was the motive of the journey, and such notes were taken as might prove useful to an officer of the Army Medical Department engaged in service there or thereabouts. From the point of view of health and sanitation the

report is depressing. Of Bushire, the chief town near the head of the Persian Gulf, it is said that "Remittent fever of a bad type is common. Dysentery is common. Cholera rages from time to time. Ophthalmia is common." Of Basra we read that the town and neighbourhood are "decimated by malarious diseases, such as ague and remittent fever. . . . Every man in Bassorah has ague. . . . Cholera has several times attacked the place. . . . The Bagdad or Aleppo boil has marked many people here." Higher up country, at Kurna, where the waters of the Tigris and Euphrates join, the traveller in 1873 had at least the felicity of viewing the Garden of Eden, although it was not even then at its best. We are told that "to-day the happy garden is the post of some Turkish soldiers; around the base of the reputed tree of knowledge, which is still shown to travellers, useful vegetables grow, and high up above the garden I noticed in mid-air the telegraph wire. . . ." But at the present time the Garden of Eden is no longer to be found at Kurna, if Sir William Willcocks is to be believed, but much further off, in Mesopotamia. Between Kurna and Bagdad lay 350 miles of desert crying out for irrigation and cultivation in 1873 as at the present time. Bagdad in 1873 had a population of nearly 100,000, and was full of disease; in 1832 it lost 60,000 of its 150,000 inhabitants by plague, and forty years later had still not recovered from the shock. Cholera, Bagdad boil, fevers of remittent and low type, and small-pox are mentioned as the chief medical scourges. "The hospital accommodation for the civil population is almost nil. There is a municipal physician, an Englishman, but he has no medicines. . . ." It is observed that the civil hospital had been annexed temporarily by the Turkish Viceroy for the military, and was an excellently appointed institution. It is particularly interesting to note that the writer of this report considered the construction of a railway down the Euphrates valley, as an alternative to the road through Egypt, ridiculous from the British point of view, adding, "Indeed, no other nation wants this line but England." Subsequent history has not confirmed this view of the matter; but the writer's final conclusion may be quoted with the most complete approval: "The simplest way to keep the road to India open is by being strong in Egypt, and such we can any day be."

THE FULL DIET FOR ENTERIC FEVER IN CHILDREN.

Dr. H. D. CHAPIN remarks¹ that in New York, at any rate, enteric fever occurs at least as freely among children under 14 years of age as it does among adults. Thus, in an epidemic occurring towards the end of 1913, of 521 cases, 36 were under 5 years old, 98 were aged 5 to 9, and 87 were aged 10 to 14—in other words, over 42 per cent. were 14 years old or less. The epidemic was traced to infected milk; 70 per cent. of the cases reported were getting milk from one dairy. When the milk from this source of supply was cut off by the New York Health Department the epidemic ceased. Dr. Chapin treated 11 children, aged from 2 to 8, during the epidemic. All recovered, and all gave a positive Widal reaction; none showed any rose spots or enlargement of the spleen. The blood counts taken showed little diminution in the red cells and no leucopenia except in one instance; a differential count of the white cells, which averaged 8,300 per c.c.m., showed a relative increase of the polymorphonuclears at the expense of the lymphocytes. The gastro-intestinal symptoms were not marked; the children all received the general ward diet with the exception of meat; the attempt to make them take food to the heat-value of 40 calories per kilo of body weight was not successful while the fever lasted, which was for twenty-two days on the average. No severe complications and no relapses were recorded. It is of interest to note that the diagnoses made before the

¹ Army Medical Report for 1874, vol. xvi.

¹ Transactions of the American Paediatric Society, 1915, xxi, 51.

admission of these patients were very various. Enteric fever was diagnosed in 5, and no diagnosis was made in 2; in the remaining 4, meningitis, miliary tuberculosis, bronchitis, and Brill's disease (an aberrant type of typhus fever, in all probability) had been diagnosed. The value of a diet of high heat value in the case of children with enteric fever is further elaborated by Drs. L. E. La F  tra and L. C. Schroeder,² who have treated 48 cases, aged from 1 to 12, on these lines. Dr. A. I. Kendall³ had given good physiological and bacteriological reasons for supplying enteric patients with a full diet rich in carbohydrates; and Coleman, in an account of his experience with 111 cases, had found that an increased amount of fat in the dietary did not tend to cause diarrhoea. Drs. La F  tra and Schroeder's patients were treated on the usual lines, being sponged if the temperature reached 103.5   F., and being kept in bed on balconies or in rooms with open windows. Seven patients received vaccine treatment, which had no perceptible influence on the course of the disease. All 48 but one recovered; the death was due to pneumonia. It is noted that the general condition of the patients was remarkably good; the average stay in hospital was four weeks, varying from two to eleven. Abdominal distension was present in six instances, and was troublesome in only one; five patients had blood in the stools. In two cases the loss of blood was serious, and one patient, aged 11, was thrice transfused with 160, 260, and 280 c.cm. paternal blood by the Lindemann method, and also had saline solution intravenously twice and two injections of horse serum. He lost the greatest amount of weight, but during convalescence made up for this by taking a diet equivalent to 8,000 calories a day, or 310 calories per kilogram. In thirty-seven days he increased in weight from 45 lb. to 72 lb. A full account and analysis of the diet in these cases is given; the number of calories actually taken after the first few days varied from 100 to 300 per kilo. Unless toxic nervous symptoms were present, high fever did not prevent the children from taking a generous diet. The diagnosis was established, in 47 of the cases, by a positive Widal reaction in 44 and a positive blood culture in 36. During the course of the fever 29 patients gained in weight, and all but 4 were heavier on leaving the hospital than on entering it. As for the diet itself, the children were fed every three hours from 6 a.m. to 9 p.m. The food was such as would be taken by a child in health, with the exception that chicken cream was the only meat used; eggs and toast were offered from the beginning; lactose, cocoa, and cream were added to milk, which was practically the only liquid food. Among the other solids were bread, biscuits, potato, custard, apple sauce, cereals, and the like. For example, a child of 5 on the ninth day of the disease, with a temperature of 100   F. to 103   F., was taking a diet of 2,430 calories value, containing a pint of milk, half a pint of cream, 17 oz. cocoa at one meal, 3 eggs, 3 slices of bread, and 2 oz. milk sugar. It is noted that the tact and encouragement of the nurses were of great assistance in getting these large diets consumed. The conclusion is reached that the high calorie diet prevents the emaciation customary in enteric fever, greatly increases the comfort of the patients, prevents the occurrence of severe nervous symptoms (which are attributed to the tox  mia of starvation), and lessens the dangers of the disease and its complications.

ACTINOMYCOSIS AND ACTINOBACILLOSIS IN OXEN.

ACTINOMYCES, or the ray fungus, discovered by Bollinger in 1877, is well known to bacteriologists and pathologists as the most important organism of the streptothrix group, and it is recognized that there are at least two different forms of the ray fungus—*Actinomyces bovis* and *Streptothrix israeli*. The actinobacillus, first described

by Lign  res and Spitz in 1902, is a distinct organism, but produces in cattle various forms of disease clinically indistinguishable from those due to infection with the ray fungus. Epizootics of what is commonly called actinomycosis, but due some to the one and some to the other, have been of common occurrence in the herds of cattle in the Argentine and elsewhere. The Local Government Board has published a report¹ by Dr. F. Griffith, who mentions that out of 85,455 imported ox tongues examined by inspectors of foods in the city and port of London between August and October, 1913, no fewer than 4,949 were found to be infected with actinomycosis, chiefly in the glands. In order to determine the exact nature of the organism causing this bovine actinomycosis, or, to use the more comprehensive name suggested by Lign  res and Spitz, actinophytosis, Dr. Griffith has examined 44 specimens taken from oxen slaughtered in this country, 45 Argentine tongues, 2 tongues from North America, and 2 frozen tongues from Siberia. The tongue itself was infected in one Argentine and the two North American cases, showing scattered fibrous nodules up to a centimetre in diameter, and containing gritty or gunny granules consisting of Gram-negative, radiating clubs, and finely granular debris. In all the other cases the tongue itself was not infected, but cascating glands surrounded by fibrous tissue and containing granulation tissue or semipurulent matter with masses of more or less Gram-negative radiating clubs were found attached to it. No definite success attended numerous attempts to grow the causal organism infecting these imported tongues and their glands; inoculation experiments also proved failures. Investigation of the 44 British cases yielded Dr. Griffith rather different and more satisfactory results, given in detail in the report. In 40 instances the infecting organism showed Gram-negative granules and clubs, and pure cultures of it were obtained in 23 cases; all 23 gave identical Gram-negative specimens of the actinobacillus, and a culture, inoculated into a calf, produced a local lesion with the characters of a natural actinomycotic lesion. The histological features and the anatomical distribution of the disease in these 40 specimens were identical with those of the Argentine actinobacillosis described by Lign  res and Spitz, and with those of the 49 imported specimens already described. The remaining four British cases Dr. Griffith puts into a class by themselves; the lesions were situated in each case in the inferior maxilla, and the specific granules formed by the infecting organism were composed of clubs and Gram-positive organisms, including branching filaments, chains of coccil bodies, and short bacilli. Dr. Griffith reaches the general conclusion that actinobacillosis is widespread in the world, and forms a considerable proportion of the cases of disease in oxen known as actinomycosis.

X-RAY INTENSIFYING SCREENS.

So many radiographers are now using intensifying screens to accelerate x-ray exposures that one little practical point, brought out in the course of a discussion on the subject at a recent meeting of the R  ntgen Society, may be worthy of note. It is that, if an intensifying screen is used, there is no need to employ a special x-ray plate, and some speakers even claimed that the results when the x-ray plate was not used were quite distinctly better. Care should be taken, however, to choose a plate which is specially sensitive to the blue-violet light of the screen. The trouble with these intensifying screens seems to be that, while they will give contrast, they blur the very fine detail; and therefore, in chest work, for example, if the instrumentation is such that a full and rapid exposure can be obtained without them, this course is to be

¹ Ibid., p. 67.

² Boston Medical and Surgical Journal, 1913, clxviii, 825.

¹ Reports to the Local Government Board on Public Health and Medical Subjects. New series, No. 107: A Preliminary Report on the Pathology of Bovine Actinomycosis. Food Reports, No. 23. London: J. Truscott and Son, Ltd., 1915. (Price 2d.)

preferred. In the case of ordinary x-ray action the radiation goes right through the grains in the body of the photographic film, but when an intensifying screen is added the action is more like that of light, and the two things work one against the other. Thus the screen cannot increase, and must to some extent destroy, the rendering of fine detail. If a screen is used, the best results are obtained with about one-tenth of the normal exposure, and the tube should be slightly softer for a given subject than would be used if the exposure were made without the screen. Great care should be taken to avoid finger-marks on the screen, which should be dusted with a fine camel-hair brush. The after-phosphorescence of the screen is an important point; this may persist for a few seconds or for as long as twenty-four hours. After-phosphorescence for a few seconds is useful, because to a certain degree it increases the rapidity of the exposure; but beyond this it is a disadvantage, because it upsets subsequent exposures, and the ideal would be never to use the same intensifying screen again the same morning or afternoon.

THE ALLEGED INCREASE OF INSANITY.

DR. SYDNEY COUPLAND, who is a skilled statistician, examines the question of the alleged increase of insanity in his recently published *Harveian Oration*. He shows that the number of insane persons known to the authorities has been continually increasing, out of proportion to the increase of population, for the last fifty-five years. A great part of this increase is due to three causes: first, that a far larger proportion of the insane has become known to the central authorities; secondly, that the death-rate has continually diminished, thus allowing of a larger accumulation; and thirdly, that the recovery-rate also has diminished, with a similar result. The only sound criterion for determining whether or not there is a real increase of lunacy is, he shows, that based upon the numbers admitted to care who are attacked for the first time. It appears—and the admission is rather surprising—that the proportion of first attacks to total admissions has been observed only since 1907. During these eight years the total number of the insane in institutions per 10,000 of the population has steadily increased from 28.25 to 30.19, while in the same time the number of those who were admitted for a first attack has increased, but not steadily, from 4.12 to 4.26 per 10,000 of the population. From these figures Dr. Coupland draws the conclusion that the ratio of first attacks to the population has remained fairly constant, at about 4 per 10,000, while the proportion borne by the total number under care has risen from 28 to 30 per 10,000. This is one way of putting it, but there is another not quite so comforting. The increase from 28.25 to 30.19 is an increase of 6.868 per cent.; the increase from 4.12 to 4.26 is an increase of 3.374 per cent.; so that actually the proportion of first attacks to the population has been increasing nearly half as fast as the proportion of the total number of the insane. This is not quite as comforting as Dr. Coupland's assurance, nor is there much comfort to be extracted from his admission that part of the increase of the accumulation is due to a diminished recovery-rate. The only hope that our present knowledge of insanity permits us to entertain of appreciably diminishing the number of "first attacks" lies in diminishing habitual and long enduring drunkenness and in diminishing the incidence of syphilis.

THE BIRTH-RATE IN WAR TIME.

In a note published in the *BRITISH MEDICAL JOURNAL* of December 25th last year, p. 935, comment was made upon the apparent increase in the birth-rate of males during the last few months. Further light is shed upon this obscure subject in a paper published recently by Dr. R. J. Ewart,¹ dealing with the influence of the age of

the grandparent at the birth of the parent on the number of children born and their sex. As a result of a minute statistical inquiry, Dr. Ewart concludes that the pre-natal mortality has an important effect on the production of variations of the sex-ratio at birth in any community. Prenatal mortality affects males more than females, and is closely connected with infant mortality, which is itself higher in the case of elderly parturients. How far these considerations would explain the predominance of male over female births alleged by "F." and Dr. Peck in the note referred to above is an interesting question that could be solved only by painstaking statistical investigations.

In the list of New Year honours published last week the name of Dr. A. W. J. MacFadden, Chief Inspector of Foods, Local Government Board, was accidentally omitted. He has been appointed a Companion of the Bath in recognition of services during the war.

From a statement issued by the President of the General Medical Council it appears that the number of medical practitioners whose names were added to the *Medical Register* in 1915 was 1,526. This included 269 practitioners with colonial and foreign qualifications. The annual average number added during the five years 1910-14 was 1,172. The number of medical students registered in 1915 was 1,918. The annual average during the five years 1910-14 was 1,441.

Medical Notes in Parliament.

War.

Battle of Loos.—In reply to Mr. Pringle, who asked for official figures of the casualties in the battle of Loos, Mr. Tennant said that it was not possible to define with geographical exactitude the area within which the operations that had been called the battle of Loos took place, nor to divide the casualties occurring in them with precision from those arising from simultaneous operations on other adjacent parts of the front. The figures for the period from September 25th to October 8th, 1915, for all the fighting on the Western front were:

	Officers.		Other Ranks.	
Killed...	...	773	...	10,345
Wounded	...	1,288	...	38,095
Missing	...	317	...	8,848
Total	2,378	...	57,288
59,666				

These figures included the returns from the regular Army and Territorial Force, the Overseas contingents, and the Indian native forces.

Military Hospitals and Asylums.—In reply to Mr. King, Mr. Brace (Under Secretary, Home Department) said on January 5th that ten asylums in England and Wales and isolated parts of two others had been placed at the disposal of the War Office for use as hospitals, and accommodation had thereby been provided for over 14,000 sick and wounded soldiers. Arrangements were in contemplation for converting into hospitals two more asylums. In addition an asylum which at the outbreak of war was nearly completed but not yet occupied was taken over by the War Office, and a similar course would be adopted with another new asylum now approaching completion. Nearly all the civilian patients displaced by these arrangements had been distributed over the remaining asylums, with the result that most of these asylums had at present more inmates than would be considered advisable by the Board of Control in normal times. Every effort was being made to minimize the inconveniences of the arrangement, which was only justified by the exceptional circumstances of the present time.

Antityphoid Inoculation.—Mr. W. Thorne asked the Under Secretary of State for War, on January 10th, for figures showing the number of cases of, and deaths from, typhoid fever, showing separately inoculated and uninoculated among officers and men of the British army

¹ *Journal of Hygiene*, vol. xv, No. 1, 1915.

in the United Kingdom and in France and Belgium since August 1st, 1914, and the date to which the figures were compiled. Mr. Tennant said: The figures I have cover the period from the commencement of hostilities to November 10th. During this period 1,365 cases of enteric fever were reported as having occurred amongst the British troops in France and Belgium; of these, 1,150 cases have been definitely diagnosed after bacteriological examination. In 579 cases where there had been inoculation there were 35 deaths, and in 571 cases where there had not been inoculation there were 115 deaths. In the United Kingdom from August 1st, 1914, to October 30th, 1915, 540 cases of enteric fever were reported and 87 deaths; 39 per cent. of these cases occurred in men who had not been inoculated, but I cannot say how the deaths were distributed amongst the inoculated and uninoculated respectively. For paratyphoid no system of inoculation has yet been adopted.

Employment for Wounded and Discharged Soldiers.—Several questions have been asked recently in the House of Commons with regard to the steps that were being taken to organize a national system for training wounded and discharged soldiers and sailors for trades or occupations, and providing employment for them. Mr. Tennant has stated that men discharged from the army were invited to register at a Labour Exchange if they desired assistance in obtaining employment. The number of men so registered who had been placed in employment was so large that the openings for partially disabled discharged soldiers either in situations or in institutions where training was given were in excess of the number of men eligible to fill them. Mr. Tennant has also pointed out that one of the duties of the Statutory Committee, set up under the Naval and Military War Pensions Act, will be to make provision for the care of disabled officers and men after they have left the service, including provision for their health, training, and employment. The Committee would lay proposals before the Government, and, before formulating them, would consult all persons or bodies capable of rendering effective assistance.

Soldiers Medically Unfit.—Major Glazebrook, in a question on January 10th, asked if men known to be medically unfit were often retained with their units for a considerable length of time before receiving their discharge, and asked whether steps would be taken to accelerate discharge and save upkeep, and so increase the productive power of the country by returning them to their civilian occupations. He also asked whether instructions would be given in the case of groups shortly to be called up to reject without delay after a thorough medical examination those whose fitness was doubtful. Mr. Tennant said that it was obviously desirable to discharge from the army any men permanently unfit, and the Army Council was doing all that it could in that direction. Arrangements had been made for groups of men called up to be examined without delay as to their fitness by special recruiting medical boards, which would not pass or reject any man without a most thorough examination. Mr. Rowlands, by a supplementary question suggested that before a man was discharged to go to the munition works he might be kept for as long as two or three months, but Mr. Tennant did not agree that any specific time could be mentioned.

Sickness in Training Camps.—Sir E. Cornwall asked a question, on January 10th, as to sickness among troops in the Salisbury Plain district since the beginning of September, and whether, in view of the reports as to the condition of the camps, a small committee of the House could be appointed to visit them and report whether improvements were possible. Mr. Tennant, in reply, said that for the period September 1st to December 31st, 1915, the annual ratios per 1,000 for the Salisbury Plain district were: Admissions, 325.4; deaths, 1.88. As both these ratios were lower than those for peace time, he did not think there was any necessity for the appointment of a committee.

Night Noises in London.—On January 6th Commander Bellairs asked the Under Secretary for the Home Department whether, in view of the many sick, wounded, and convalescent soldiers now in London, he would take steps to reduce the noises of London after 9 p.m. Mr. Brace, in his reply, said that most of the noise of London was due to

the circulation of traffic, and could not be satisfactorily dealt with. Legislation would be required to restrict the whistling for taxicabs, but it was hoped that the publicity given to the matter and the good sense of the public would render such legislation unnecessary.

Duty on Alcohol for Medicinal Purposes.—Sir Philip Magnus asked the Chancellor of the Exchequer, on January 11th, what steps he had taken, or proposed to take, to give effect to his promise to remove the duty on alcohol used for medical or surgical purposes in hospitals. Mr. McKenna replied that it was proposed that the relief should take the form of grants from public funds. A committee had been appointed to advise as to the basis of such grants, and would report as quickly as possible.

Potash Salts.—On January 10th, in reply to Mr. Peto, who asked whether any steps were being taken to revive the industry of kelp burning in this country with a view to rendering agriculture less dependent on the importation of potash salts from Germany, the Parliamentary Secretary to the Board of Agriculture said that careful inquiries were made last winter as to the supplies of different kinds of seaweed on the coasts of England and Wales, but the results showed that there was no sufficient supply of seaweed suitable for kelp-making to encourage the Board to proceed further.

Vaccination in Ireland.—In reply to Mr. Patrick Meehan, on January 6th, Mr. Birrell said that he did not think there was any general demand at present for legislation with regard to vaccination in Ireland.

OUR BELGIAN COLLEAGUES AT HOME AND ABROAD.

DURING the Christmas vacation a number of Belgian pharmacists took advantage of a class arranged by the Pharmaceutical Society of Great Britain for instruction in English methods of dispensing and in the reading and translation of English prescriptions. The class, which was entirely gratuitous, lasted from 10 to 4 daily. Professor H. G. Greenish conducted the practical dispensing and Mr. H. S. Phillips the reading of prescriptions. We are glad to learn that the instruction given was much appreciated by the pharmacists who attended, Professor Greenish and Mr. Phillips being repeatedly thanked for the trouble they had taken in making and carrying out the necessary arrangements.

THE WEEK'S SUBSCRIPTIONS.

The subscriptions to the Belgian Doctors' and Pharmacists' Relief Fund received during the week have been as follows:

	Rs.
B.M.A., South India Branch (per Captain A. J. H. Russell,	
I.M.S., Hon. Treasurer)—	
Dr. Mary Alexander	15
Dr. Margaret McNeil	15
Major Chalmers, I.M.S.	50

Subscriptions to the Fund should be sent to the Treasurer of the Fund, Dr. H. A. Des Voeux, at 14, Buckingham Gate, London, S.W., and should be made payable to the Belgian Doctors' and Pharmacists' Relief Fund, crossed Lloyds Bank, Limited.

THE late Brigade Surgeon Lieutenant-Colonel Joseph Fleming, M.D., F.R.C.S., Army Medical Staff, of Castle-quarter, Inch, co. Donegal, left unsettled personal estate in the United Kingdom valued at £20,316.

ON December 22nd, 1915, Dr. T. J. Walker, of Peterborough, who completed his eightieth year in August, was presented with his portrait in oils, painted by Mr. Fiddes Watt, A.R.S.A. Its cost had been subscribed by 700 friends and neighbours. The presentation was made at a public meeting presided over by Mr. G. C. W. Fitzwilliam, and an address was given by Bishop Clayton. The gift was acknowledged in suitable terms by Dr. Walker, who referred with particular pleasure to the fact that among the contributors were forty ladies who had been nurses in the Peterborough Infirmary, with which he has been so long connected.

THE WAR.

THE PROBLEMS OF MEDICAL EDUCATION IN AUSTRIA AND GERMANY.

VIENNA.

In his opening address to students at the beginning of the winter session in Vienna, Professor Julius v. Hochenegg¹ delivered himself of some scathing remarks to his much reduced audience, which consisted largely of women students. In the previous academic year he had refused to lecture, and he said that it was with great reluctance that he foresaw having to give certificates of attendance to members of his class in this academic year. At the present time, when the great majority of students were fulfilling their duties in the field, and when only a negligible minority, consisting of the medically unfit and women, constituted his audience, he thought the wisdom of giving lectures was questionable.

The Government's Views on Medical Education.

He went on to say that when, in the autumn of 1914, soon after the outbreak of the war, the Austrian authorities decreed that the work of the University of Vienna should continue uninterrupted in every faculty, he had expressed his doubts as to the wisdom of giving clinical lectures, but he favoured the continuation of instruction in the first years of the medical curriculum. It was pointed out to him that the German universities had not discontinued their clinical teaching, and this example was followed by practically all Professor Hochenegg's colleagues, who continued lecturing in the winter term of 1914-15. The difficulties he had foretold became manifest, and the number of students was indeed so small that it was decided for the summer term of 1915 that only one course of lectures should be given on each subject. At a recent meeting of the College of Professors it was decided, in view of the Government's order, that clinical lectures in surgery should be given in Professor Hochenegg's hospital for the winter session. He had therefore to bow to this decision, but he did so under protest.

Military Hospital Work in Vienna.

Since the middle of August, 1914, his hospital had been devoted almost exclusively to the wounded, only two of his eight wards being reserved for civilians. Subsequently accommodation had been found outside his hospital for the wounded under his care, so that the number of beds devoted to the wounded was raised to 492. Before the outbreak of the war his staff consisted of six assistants, two demonstrators, and fourteen operating pupils. At the outbreak of the war he was left with only one assistant and three operators. With this much reduced staff he was expected to do the impossible, and he did not see how, in addition to all the new tasks imposed on him by the war, he could find time for clinical teaching. He could not follow the example of the German universities, where professors engaged in war work had delegated their teaching duties to their assistants. To follow this course in Austria would mean the recall from active service of his assistants, whose services in the field were indispensable.

The Anomaly of Teaching the Unfit War Surgery.

His male audience consisted exclusively of persons rejected for military service. For them only the surgery of peace time was of interest, and, owing to the war, he had not the necessary material on which to base instruction in peace surgery. The thought of using wounded soldiers as object lessons for his students was repugnant to him; for many soldiers the demonstration and discussion of their wounds would be most distressing. Indeed, the pain of these wounds and the risk of infection would in most cases contraindicate their handling by students. Again, the delicate, complicated operations referred to his hospital, including suture of blood vessels and nerves, extractions of deep-seated projectiles, plastic operations, etc., were unsuited for operative demonstration. Merely to look on at such operations afforded little instruction. The conditions for satisfactory clinical instruction were, therefore, wanting for pupil as well as teacher. The present stirring times created an atmosphere of unrest

which was fatal to mental concentration. It would therefore be misleading for him to issue certificates of attendance at the end of a session during which the acquirement of knowledge must necessarily have been below normal. With the war dragging on, it was possible for students to present themselves for examination whose instruction in surgery had exclusively been given under war conditions. It was obvious that their knowledge of surgery must under such conditions be very imperfect.

The Present and Future Supply of Medical Men.

In opposition to these views it has been urged that the war would greatly reduce the number of doctors, and that the gap thus formed would have to be filled. But neither the State nor the individual patient would be well served by ill-trained makeshifts. Indeed, it was not absolutely necessary at once to replace the medical men who had fallen. Before the war practically all the Austrian universities were complaining of a glut in the medical profession, and measures for the limitation of the number of medical students were under discussion. Professor Hochenegg considered that the over-production of the past years would be sufficient to cover the losses of the war. The present number of students was so small that it was negligible as a stop-gap, and this was an additional reason for not encouraging their hasty qualification. During this lengthy war the public had learnt to limit their medical requirements.

Conditions of Medical Practice after the War.

He anticipated that many doctors returning from the front after the war would experience difficulty in regaining their practices. Many would have to start life afresh, for they would find a practice, built up by patient work, lost to them. By teaching the medically unfit stay-at-home, and granting him a medical diploma, harm would be done not only to the medical student in the field, but also to the doctor on active service. Though he was opposed to conferring any benefit on the stay-at-home at the cost of the absentee, he was loth to count medical service in the field as a substitute for training at home; to shorten the medical curriculum, already reduced to a minimum, in this way would, in his opinion, be impossible. In Germany, where the medical curriculum had for a long time included a year of practical work, it was possible to count medical service in the field in this year.

The Duty of the Unfit Medical Student.

He advised his audience to volunteer their services in the many hospitals which were short of doctors and nurses. There they would learn much more than by attending his faulty and improvised lectures. As a student he had spent nine months helping surgeons in the Bosnian campaign; and he was convinced that this experience was the starting-point of his career as a surgeon. Similar experience was now being gained by medical students, male and female, in the present war. About 50 per cent. of the students wishing to attend lectures for the winter session were women. He would like to see nursing made compulsory for women. When he expressed this opinion some years ago it had aroused much opposition on the part of the other sex, notably women-doctors. He did not, however, think that the most sensitive of women would be outraged by his objecting to helping the woman student at the cost of the absent male student. His advice to his audience—that they should go and work in the hospitals rather than attend lectures—was meant to include both sexes. In conclusion, he told those students who failed to follow his advice, and insisted on pursuing their studies and attending his lectures instead of caring for the sick and wounded, that they would find him an exacting and relentless examiner at the end of the term.

URGENCY MEDICAL DIPLOMAS IN GERMANY.

We have already referred² to the steps taken by the German Government at the outbreak of the war to provide an additional number of medical men by granting special facilities to senior medical students. This action appears to have been ill considered and the result of a panic in the Government, which did not allow itself time to consult the medical profession. The Government's action involved the

¹ *Wien. med. Woch.*, November 13th, 1915.

² *BRITISH MEDICAL JOURNAL*, March 6th, 1915, p. 435, and April 17th, 1915, p. 691.

suspension of the "practical year" in the medical curriculum. Between August 6th, 1914, and March 31st, 1915, medical diplomas were granted to 1,273 medical students on urgency or war terms. The average number of medical diplomas granted every year in the period 1908-1914 in Prussia was 625. Had it not been for the war about 745 diplomas would have been given in Prussia, whereas 1,568 were actually given, this number including the medical students who had qualified under ordinary conditions. For the whole of Germany the number of diplomas given for the two years preceding the war were 1,232 and 1,447 respectively, whereas the figure for the last academic year was 3,747. An examination of the statistics for the various German universities before and during the war shows that the standard of efficiency has in many cases been so much reduced by the war that 100 per cent. of the candidates for diplomas satisfied the examiners. For the period 1908-14 only 89 per cent. of the students in Prussia satisfied the examiners. The Bavarian War Office has recently granted furlough to medical students in the field eligible to enter for examinations; the furlough was limited to the period of the examination, and did not include time for study.

BOOTS AND GAITERS.

"GAITER PAIN."

In a reserve hospital for officers in Neuhaus, Schüller¹ observed a number of cases in which the main symptom was severe pain over the tibiae. This symptom, to which he applied the term "gaiter pain," was usually unaccompanied by other symptoms, although occasionally pain in the knee and ankle joints was present also. The pain was bilateral, and, as a rule, equally intense on both sides. It was a tearing or dragging pain, which made itself felt at rest, but which was increased by movements of the legs to such an extent that the patient sometimes could not remain standing. The tibiae were not tender when pressed or struck, there were no abnormalities of the skin, joints, nerves, or muscles, there were no other sensory disturbances, and the cutaneous and tendon reflexes were unaffected. Schüller associated this condition with the wearing of leather gaiters or similar contrivances, but he avoided committing himself to a diagnosis by using the evasive term "gaiter pain."

Kronfeld,² who was attached to an infantry division, states that during the first six months of the war he frequently had the opportunity of observing this condition. The patients usually complained of unbearable "rheumatic pains" in the legs. He was dissatisfied with this diagnosis, but could suggest no alternative. The one to two hundred men suffering from this complaint were much overworked, and naturally anxious not to minimize their symptoms. At this time the claims on the army doctors were so numerous that it was impossible to individualize; and to have put all these men on the sick list would have brought trouble on the head of the certifying doctor. Accordingly, when drugs and other measures failed to banish this symptom, treatment by suggestion and other less gentle methods were applied. Though this Spartan procedure satisfied the authorities so long as the cases were sporadic only, it was neither justifiable nor adequate when the cases increased in number and severity as a result of the winter campaign in the Carpathians. Many cases of frost-bite were observed, but were quite unmistakable and distinct from cases of "gaiter pain."

Dr. Kronfeld observed two cases, which were peculiarly instructive, as he was able to follow them closely. One patient was an infantry officer, who was much debilitated by overwork. Otherwise he was perfectly well, and his limbs had in nowise suffered from frost-bite. The "gaiter pain" in his case could not be altogether dissociated from a history of syphilis. The other patient was a robust, industrious peasant soldier. For weeks he continued to make the same complaints, but repeated examination failed to show anything amiss. Salicyl, quinine, aspirin, embrocations, and massage all proved futile. At last malingering was suspected and, in spite of his complaints of pain, the patient was put on sentry duty. When Dr. Kronfeld inspected the sentries one cold and stormy night he found the patient at his post lying in the

snow, whimpering and groaning with pain. The patient was obviously not a malingerer. He was relieved of duty, and a neurologist, who examined him subsequently and learnt that the patient had been somewhat feverish a little earlier, came to the conclusion that he was suffering from post-influenzal neuritis. Both these patients had worn for months the regulation gaiters, and both cases were typical examples of "gaiter pain."

THE FOOT-WEAR OF THE AUSTRIAN SOLDIERS.

In the course of fourteen months' war, Dr. Kronfeld had travelled about 1,600 kilometres, some 1,200 of which he had walked. This experience had taught him that the best foot-gear was the heavy, hobnailed, watertight laced boot familiar to every tourist and alpine climber. The hobnails were clipped round the margins of the sole, and could not easily fall out. He wore two pairs of socks, and swathed his legs in coarse woollen cloth. To prevent moisture escaping down the tops of his boots he used a strap of cloth or leather, 60 by 10 cm., such as is familiar to every patron of "ski." He had little good to say of the Wellington boots worn by the Austrian sappers and pioneers. The high boots worn by the German "musketier" were no doubt in many respects useful in the bottomless mud of the Russian roads, but they kept out too much air and were difficult to pull off and on, particularly when wet. In his opinion the foot-gear of the Austrian infantry left much to be desired.

CASUALTIES IN THE MEDICAL SERVICES.

ARMY.

Died of Wounds.

LIEUTENANT OSCAR GLADSTONE MAGINNNESS, R.A.M.C., died of wounds in France towards the end of December. He was educated at St. Bartholomew's Hospital, and took the diplomas of M.R.C.S. and L.R.C.P.Lond. in 1913. Previous to the war he was serving in H.M.'s dockyard at Pembroke Dock. He took a temporary commission as Lieutenant from March 27th, 1915.

Died on Service.

Captain William Ernest Rielly, R.A.M.C.(T.F.), died at the Dardanelles on November 28th, 1915. He was educated at University College, London, and took the diplomas of M.R.C.S. and L.R.C.P.Lond. in 1891, and the degrees of M.B. and B.S.Durham, and the D.P.H.Camb. in 1894. After qualifying he acted as house-physician of the Consumption Hospital, Brompton, and prior to the war was in practice at Barnes. He served in the South African war, and held the Queen's medal with four clasps. He had the rank of honorary Lieutenant in the army, and a commission as Captain in the Territorial Force Reserve of the 3rd Battalion London Regiment from March 27th, 1901, but was transferred to serve as Captain and medical officer of the same battalion from September 26th, 1914.

Wounded.

Captain T. W. Wylie, R.A.M.C., Special Reserve (France).

Captain R. E. Walker, R.A.M.C., temporary (France).

Lieutenant G. A. Birnie, R.A.M.C.(T.F.), (France).

Lieutenant A. Wylie, R.A.M.C., temporary (Mediterranean).

Lieutenant L. A. O. Panton, R.A.M.C., temporary (Captain Canadian Army Medical Corps), (Mediterranean).

Lieutenant M. B. Swan, R.A.M.C. (temporary), France.

MEDICAL STUDENTS.

Lauder, Stanislas, Private 14th (London Scottish) Battalion London Regiment, killed in France on October 13th. He was a medical student at the London Hospital, and had passed all his examinations except the final. He served in the Turkish Italian war under the Turkish Red Crescent in Tripoli, and subsequently in a similar capacity in Montenegro in the late Balkan war. He took part in an attack by his regiment on October 13th, was severely wounded while giving surgical assistance to other wounded men, and died while being conveyed from the advanced dressing station to the field ambulance.

Sturridge, Ernest Arthur Leland, Second Lieutenant 8th Battalion King's Own Yorkshire Light Infantry, son of Mr. Ernest Sturridge, of 29, Wimpole Street, and Brondesbury, was recently killed in France. He was a medical student at University College Hospital, where he was prominent in Rugby football and in athletics. He got his commission in the 11th Battalion of the K.O.Y.L.I. on October 3rd, 1914.

¹ *Wien. med. Woch.*, August 28th, 1915.

² *Ibid.*, October 16th, 1915.

DEATHS AMONG SONS OF MEDICAL MEN.

Darbishire, Arthur Duckinfield, Private 15th Battalion Argyll and Sutherland Highlanders, was removed from Gales Camp, Irvine, to the Kilmarnock Hospital, Kilmarnock, on January 2nd suffering from cerebro-spinal meningitis, and died the same day, aged 36. He was a son of the late Dr. S. D. Darbishire, and was born at Oxford in 1879, and educated at Balliol College, taking the M.A. at Oxford with honours in zoology. He subsequently filled posts in the Museum, Oxford, in Manchester University, and in the Royal College of Science, South Kensington. In 1911 he was appointed lecturer on genetics (evolution and heredity) in Edinburgh University. In July, 1915, he enlisted in the 14th Battalion Argyll and Sutherland Highlanders, being transferred later to the 15th Battalion. We understand that he had been recommended for a commission, which he would shortly have received.

Gibbon, Montague Claude, Captain 67th Punjabis, youngest son of the late Lieutenant-Colonel G. C. Gibbon, R.A.M.C., was killed in Mesopotamia on December 9th, aged 51. He was reported at first as wounded and missing, afterwards found killed. He was born on May 9th, 1884, joined the army on January 21st, 1903, and the Indian army on April 10th, 1904, and was promoted to Captain on January 21st, 1912. He served on the North-west frontier of India in the operations in the Mohmand country in 1908, receiving the frontier medal with a clasp.

White, Leonard Hale, Lieutenant R.N., second son of Dr. Hale White, Physician to Guy's Hospital, killed by the explosion on board H.M.S. *Natal* on December 30th, 1915, aged 26. He was educated at Pretherne House and Bradfield College, and passed into the *Britannia* in July, 1904. On completion of his training he went for a cruise in the *Isis*, serving subsequently on the *Majestic*, *Venerable*, *Inplacable*, T.B. 18, *Erne*, *Prince of Wales*, and *King Edward VII.* While in the last ship he formed one of the international landing party which, under Sir Cecil Burney, went to Scutari in 1913. After his return he went through the gunnery course at Whale Island. When the present war broke out he was appointed to command the *Panther*, but was gazetted to the *Tiger* in September, 1914, and was severely wounded in the battle of the Dogger Bank in January, 1915. On his recovery he rejoined the *Tiger*, and served in that ship till December 16th, when he was appointed gunnery lieutenant of the *Natal*, which he joined on December 23rd, only seven days before the fatal explosion.

Combatant Officers Killed.

The list of medical men killed whilst serving as combatants, published in the JOURNAL of December 25th, has been revised and is printed at p. 94. We shall be glad to receive information regarding any whose names have been omitted. A name given for the first time this week is that of Dr. E. M. Ridge.

Edwyn Manners Ridge was born at Enfield in 1877, the son of the late Dr. J. J. Ridge, and was educated at Mill Hill School and at the London Hospital; at both he was well known as a Rugby football player. He took the diplomas of M.R.C.S. and L.R.C.P. Lond. in 1900, and after serving as house-surgeon at the London Hospital, and as prosecutor to the examining board of the Royal College of Surgeons, took the F.R.C.S. in 1902. He subsequently filled the posts of assistant house-surgeon at the Poplar Hospital for Accidents and assistant medical officer at Hoxton Asylum, and also held ophthalmic appointments at the London and Royal Western Hospitals, and served as assistant to his father at Enfield. On his father's death in 1908 he continued the practice in partnership with his brother, Dr. R. L. Ridge. In 1911 he joined the Royal Naval Volunteers Reserve as a Sublieutenant; in August, 1914, he was called out for service, accompanied the expedition to Antwerp on October 6th, 1914, and was killed in action there three days after his arrival. The thought cannot but occur that his death in action, though he fell gallantly doing his duty in the service of his country, was a waste of his scientific skill and knowledge, which might have been utilized to better purpose. He leaves a widow and a posthumous son.

LOST AT SEA.

The P. and O. ss. *Persia*, 7,974 tons, Captain W. H. Hull, which left London on December 18th, and Marseilles on December 26th, with the mails for the East, was torpedoed on December 30th off the south coast of Crete, and sank in five minutes, with great loss of life. She had on board 184 passengers and a complement of 317, total 501, out of whom only 166 (crew 101, passengers 65) were saved, and 335 lost. Among the passengers were two lady doctors—Miss Cook, who was saved, and Miss Impey, who was lost. The surgeon of the ship, Dr. Everett, was also among those lost.

Dr. William Everett was educated at Edinburgh University, where he took the degrees of M.B. and C.M. with honours in 1889, and the M.D. in 1893, subsequently filling the post of senior assistant medical officer in the Kent

County Asylum at Chatham. His address is given in the *Medical Directory* as the Headlands, Kettering, Northants.

Miss Elizabeth Stephens Impey was educated at Birmingham University, where she took the degrees of M.B. and Ch.B. in 1911. Afterwards she acted successively as house-physician of the General and Eye Hospital, Swansea, house-surgeon to the Birmingham Maternity Hospital, and to the Birmingham Children's Hospital, and resident surgical officer of the London Temperance Hospital. She had just joined the medical service of the Dufferin Fund in India, and was going out to take charge of the Lady Dufferin Hospital for Women at Lahore. She was the eldest daughter of Mr. Frederick Impey, J.P.

NOTES.

SUVLA AND ANZAO.

In his dispatch dated December 11th, 1915, issued by the War Office on January 6th, 1916, Sir Ian Hamilton makes the following reference to the work of the Army Medical Services:

A feature of every report, narrative, or diary I have read has been a tribute to the stretcher bearers. All ranks, from generals in command to wounded men in hospital, are unanimous in their praise. I have watched a party from the moment when the telephone summoned them from their dug-out to the time when they returned with their wounded. To see them run lightly across fire-swept slopes is to be privileged to witness a superb example of the hero in man. No braver corps exists, and I believe the reason to be that all thought of self is instinctively flung aside when the saving of others is the motive.

LORD FRENCH'S DISPATCH.

Professor Dixon, of Trinity College, Dublin, forwards the following names of members of that school mentioned in Lord French's dispatch of November 30th, in addition to those already noted under the medical services:

Panter, George William, Second Lieutenant 1st Battalion Royal Irish Rifles, third year medical student.

Colhoun, William Albert, Captain 4th Battalion Royal Irish Fusiliers, fourth year medical student.

Brook, Rev. Thomas, M.D., B.D., LL.D., Chaplain to the Forces, third class.

LOSSES AMONG GERMAN AND AUSTRIAN MEDICAL MEN.

In the *Morning Post* for December 29th, 1915, a report was published from its correspondent in Budapest dealing with the official casualties in the German and Austrian army medical services from the outbreak of the war till November 1st, 1915:

Germany.			Austria.		
Killed...	...	96	Killed...	...	101
Wounded ...	...	373	Wounded ...	...	315
Died of infectious disease	...	707	Died of infectious disease	...	971
Prisoners ...	...	215	Prisoners ...	...	331
Total ...	...	1,391	Total ...	...	1,718
Grand total for Germany and Austria ...			3,109		

These figures were given as official during a debate in the Hungarian Parliament. The deaths from infectious diseases appear to have been largely due to epidemics of cholera and typhus. The complaint was made in the Hungarian Parliament that promotion for Hungarian military doctors was too slow; it was said also that not a single professor in Budapest or Vienna, whose services had not been requisitioned, had volunteered for work at the front.

The total loss in the medical service of the German army down to September 22nd, 1915, was recently (see BRITISH MEDICAL JOURNAL, December 4th, 1915, p. 838) stated as 1,027.

GERMAN RED CROSS AND NEW HOSPITALS.

The Central Committee of the German Red Cross has addressed a communication to the management of the International Hotel Owners' Association in which the foundation of special convalescent homes and new institutions for the wounded is discouraged. It appears from this communication that many of these pseudo-philanthropic concerns have been erected and equipped by speculators. The communication proceeds: "The convalescent homes are undesirable for social, political and economic reasons. It is well known that many German baths and therapeutic establishments are hard hit by the war, and that many hotel owners are faced by economic ruin. It seems, therefore, unwise to create a new competitive factor and thus further to injure, however unintentionally, these interests by charitable collections. It is also undesirable to herd the sick, particularly elderly people of good family, in special institutions reminiscent

of barracks. It is not necessary to found societies for the care of combatants. Steps have already been taken to guard the interests of discharged soldiers requiring treatment and unprovided or insufficiently provided for by the military or insurance authorities. Arrangements have been made for the care of invalids in the various institutions and baths on cheap, satisfactory, and discriminating terms, which could not be secured either by new societies or by private persons."

MEDICAL OFFICERS WANTED.

2/1st Highland Mounted Brigade Field Ambulance.

Three medical officers urgently required for the 2/1st Highland Mounted Brigade now sending drafts of officers and men overseas, one regimental medical officer for the 2/2nd Lovat Scouts, and two for the 2/1st H.M.B. Field Ambulance. Full particulars of pay and duties from Captain Mowat, Officer Commanding 2/1st H.M.B.F.A., 2, Mount Street, Diss, Norfolk.

2/1st South-Eastern Mounted Brigade Field Ambulance, R.A.M.C.(T.F.).

Three medical officers are urgently required by this unit. They must be willing to take the Imperial Service obligation. Full particulars as to pay and allowances on application to Major Hamilton, Officer Commanding, 2/1st South-Eastern Mounted Brigade Field Ambulance, Cricket Ground, Canterbury.

2/2nd South Midland Mounted Brigade Field Ambulance.

Medical officers are urgently wanted for this unit, at present stationed at King's Lynn. They must be prepared to sign for foreign service. Applications to Major A. G. Magrath, Officer Commanding 2/2nd South Midland Brigade Field Ambulance, London Road, King's Lynn.

England and Wales.

AFTER-CARE OF CONSUMPTIVES.

MR. J. REDMAN ORMEROD, Vice-Chairman of the Lancashire Insurance Committee, in a letter to the *Manchester Guardian* draws attention to the fact that the Commissioners have decided, in response to representations, to abolish district insurance committees in the Lancashire area, but contends that it is desirable to have some bodies to take up some of the work of the district committees, especially so far as it related to the after-care of consumptives who have been discharged from sanatoriums. The district committees were undoubtedly hampered by two circumstances. In the first place, many of them had charge of areas so wide that it was almost impossible for them to keep in touch with the individual cases of tuberculosis, or, as Mr. Ormerod puts it, "local touch was lost, and local knowledge of and interest in cases was virtually impossible." In the second place, the powers of the district committees were, perhaps unavoidably, very restricted, and the constant reference that had to be made to the county committee was so irksome that the members of the district committees lost much of their interest in their work, and little of any practical value was done by them in Lancashire. Mr. Ormerod goes on to suggest that a better arrangement would be to make the after-care of consumptives the business of the various local health authorities which exist in every urban and rural area, with the addition to each such local body of direct and adequate representation of insured persons. Apparently Mr. Ormerod only includes under the term "after-care" the provision of such conditions of home life and employment as will help to make permanent a cure commenced in a sanatorium, the Insurance Committee continuing, as at present, to be responsible for sanatorium treatment and apparently for all treatment of cases not sent to sanatoriums. But it must be obvious that a considerable number of persons discharged from sanatoriums will continue afterwards to require medical treatment at home, and Mr. Ormerod does not clearly state whether he would have such medical treatment given by the Insurance Committee, as at present, or by the amplified local health authority. If the health authority is to give such medical treatment, then we should have two separate bodies giving treatment to the same person at different periods of his disease, and there would be an inevitable tendency for each body when short of funds to attempt to shift the responsibility to the other. On the other hand, if the local health authority is not to give medical treatment as part of its after-care, but to confine itself to providing proper home surroundings and suitable employment, it is difficult to see any advantage over a properly arranged

system of district insurance committees. Moreover, there is one advantage which the district insurance committees have which would be almost entirely lost on Mr. Ormerod's suggestion—namely, the co-ordinating and correlating influence of the County Insurance Committee. It cannot be said that the small urban and rural health authorities have in the country generally reached anything like a satisfactory state. They are too often ruled by petty local interests and by men who, with little or no knowledge of what should be included under after-care, would refuse to be guided by a few representatives of the insured. Anything like proper co-ordination of their work by the county councils has in practice always been beset with difficulties. On the other hand, the County Insurance Committee has full power to co-ordinate the work of its district committees, and in nothing is such co-ordination more important than when the difficult question arises of finding suitable employment for considerable numbers of convalescent consumptives. Mr. Ormerod agrees, "to a certain extent," that the idea underlying the formation of district insurance committees was a good one. So far it has not had a fair trial, and though in some parts of the country, such as Lancashire, the practical working has not been good, there is even less ground for believing that local urban and rural health authorities have as yet shown themselves satisfactory bodies for taking over a duty which every Insurance Committee out to carry out.

Ireland.

ULSTER MEDICAL SOCIETY.

THE second general meeting of the society was held in the Medical Institute, Belfast, on January 6th. Dr. T. A. Davidson, vice-president, occupied the chair. Three new Fellows and three new members were elected.

Dr. Calwell gave notes of a case of polycythaemia in a woman, aged 43. The extremities were deeply cyanosed; she was emaciated, there was some ascites, and the spleen extended 2 in. below the costal margin. The red corpuscles numbered 7,000,000, the white 16,000; a differential count showed 82 per cent. of polymorphonuclear and 16 per cent. of large lymphocytes. The abdomen was tapped to relieve the breathing, and friction was found over the spleen and in both pleurae; the heart showed enlarged right ventricle and deficient and fixed apex beat. The most probable diagnosis was a polyserositis with chronic indurative pericardio-mediastinitis. Dr. Darling (Lurgan) reported 8 cases of Caesarean section with survival of 7 mothers and 7 children. He emphasized the necessity of doing primary section, and not wait until the uterus had become contaminated by repeated vaginal manipulation. Dr. John Campbell, Sir Alex. Dempsey, Dr. Hicks, Dr. R. J. Johnstone offered remarks, and agreed with the main points in Dr. Darling's paper. Mr. Howard Stevenson read a paper on the open method of treatment of fractures, illustrated by a series of lantern slides. He showed the advantage of bringing the ends into apposition, and the impossibility of doing so merely by splints.

INSTRUCTION OF CRIPPLED SOLDIERS IN NEW TRADES.

It has been decided to open a dépôt for 4,000 wounded Irish soldiers in Tipperary, to which men of the eight Irish regiments are to be sent for post-hospital treatment, on the completion of which they will either return to service or be discharged from the army. Many of those men are unable to take part in the usual outdoor recreations, and in a large number of cases will be unable to return to their occupations. It has been decided to institute elementary instruction in wood and metal working, typewriting, and telegraphy. The Joint Technical Instruction Committee of Tipperary has been asked to co-operate in this work. There are two very fine classrooms in the Central Technical School which at certain hours are unoccupied, and the Committee has unanimously decided to grant every possible facility to the military authorities in the matter.

IRISH WAR HOSPITAL SUPPLY DÉPÔT.

The financial statement read to a recent meeting of the Executive Committee of the Central Irish War Hospital Supply Dépôt showed that it was receiving substantial public support.

Rules for the affiliation and guidance of sub-dépôts were approved.

The Committee of the Irish Farmers' Gift Day has allocated the sum of £250 for the supply of surgical dressings, and the dépôt staff will be kept busy for the next few weeks in getting these supplies ready for dispatch to the Near East. The first consignment has been already sent off, in a large lorry load of strong packing cases and boxes, representing two weeks' work of voluntary lady workers. The dépôt is now in full working order, seven large workrooms being used by the volunteers, of whom about 350 have already registered.

Scotland.

PROVISION FOR DISABLED SOLDIERS IN SCOTLAND.

THE Scottish scheme for providing permanently for soldiers disabled in the war has advanced another stage towards realization. As was stated in the JOURNAL for November 20th, 1915 (p. 763), the scheme originated with the Scottish Veterans' Garden City Association, and aims at enabling soldiers, whose economic value in the labour market has fallen on account of the loss of a limb or some other disability, to find homes and training in some useful work whereby they may supplement their pensions. The Earl of Wemyss, who presided over a meeting of the Association on January 7th in Edinburgh, explained that the movement was not a charity in the ordinary sense of the word, but was an effort in the direction of allowing maimed men to retain their independence on returning to civil life. It was reported that representative committees had been formed in several of the larger cities of Scotland and even in more distant places (America and India). It was announced that a suitable site was available at Longniddry. The first section of the plan which could now be proceeded with would embrace forty houses and two workshops, and extension could take place later. It was unanimously agreed to accept the offer of ground at Longniddry, and the Earl of Wemyss, Lord Salvesen, and Sir Henry Ballantyne were nominated as trustees.

Canada.

STERILIZATION OF WATER BY ULTRA-VIOLET RAYS.

THE use of ultra-violet rays for the sterilization of water was introduced last summer at the military camp at Niagara with most encouraging result, for not a single case of typhoid fever was contracted at the camp. Eleven cases of the disease occurred, but, without exception, the men had been in camp less than eleven days and had come from places where typhoid was present. The water used at the camp was taken from the Niagara River, which gave the usual counts of 5,000 per cubic centimetre, and frequently contained the colon bacillus in 100,000 c.c.m., and not infrequently even in 1,000,000 c.c.m. After exposure to the ultra-violet rays no bacteria were found in 50 c.c.m. of water, but as a precaution two subsequent exposures were made. Chlorination was used before installing the ultra-violet ray, and the high bacterial content of the water made it necessary to use from 1 to 1.4 parts per million, which at times gave an unpleasant taste to the water. Fifteen hundred gallons an hour running past three lamps gave an adequate supply of good water for the camp. The cost of installation was about 20 to 25 cents a head of soldiers in the camp.

THE PATRIOTIC FUND.

During the first year of the war—that is, from September, 1914, to September 30th, 1915, the sum subscribed by the Dominion to the Patriotic Fund for the support of soldiers' families was 5,350,000 dollars—an average of 70 cents a head. This year it is estimated that an average of 1 dollar a head, or a total of 7,500,000 dollars, will be required.

No. 7 OVERSEAS STATIONARY HOSPITAL.

The offer of a stationary hospital for overseas service was made some time ago by Dalhousie University, Nova Scotia, and was accepted recently. The personnel has been recruited from the province of Nova Scotia and the

unit is now in training at Halifax. The list of officers, several of whom belong to the medical staff of the university, is as follows: Lieutenant-Colonel John Stewart, of Halifax, officer commanding; Majors E. V. Hogan and L. M. Murray; Captains J. A. Murray, V. M. Mackay, F. V. Woodbury, E. Kirk Maclellan, John Rankin, Kenneth A. MacKenzie, S. J. MacLeod; Lieutenant K. F. Woodbury, dental surgeon; honorary Lieutenant and Quartermaster Walter Taylor; and honorary Lieutenant S. R. Balcom, dispenser. The non-commissioned officers and men have been recruited from all parts of the province, and include a number of students from King's College and the universities of Mount Allison, Acadia, and Dalhousie. An equipment fund has been opened and it is hoped to collect the sum of 12,000 dols.; a committee, of which Dr. G. B. Cutten, President of Acadia University, Dr. H. S. Mackenzie, President of the University of Dalhousie, Dr. B. C. Borden, President of Mount Allison University, are members, has been formed to direct the disposition of the funds subscribed.

Correspondence.

LEPROSY AND LEPER HOUSES.

SIR,—In your interesting review of Dr. Mercier's Fitz-Patrick Lectures, on p. 54, there appears a geographical error which I beg to point out, and which I have corrected in reviewing the same work in another journal. The "Shireburn Hospital in Yorkshire, for 65 lepers," should read the "Sherburn Hospital, Durham," to which institution the description applies. It is true that there was an ancient ecclesiastical foundation at the village of Shireburn, in Yorkshire, but it was only a very small one, and it was not a leper house. This institution, to which I have the honour of being the physician-in-charge, was founded in 1181 as a leper house by Bishop Pudsey. When leprosy died out in England towards the close of the Middle Ages, the hospital was devoted to charitable purposes, and later still the Charity Commissioners reconstituted it into a modern hospital for medical cases, curable or incurable, together with a large out-patient department, at which there are several thousand attendances annually. At the same time the ancient rule of master and brethren still persists, for there is accommodation for 15 "in-brethren," aged men of good character who have resided within the diocese of Durham, who are cared for in their declining years. There are also "out-brethren" and "out-sisters," as well as a system of educational scholarships. Thus, the Sherburn Hospital has transformed itself in accordance with the altered conditions of society, so that, as a modern chronicler has aptly put it, "the great traditions of the past can be wisely, happily, and usefully combined with the highest aspirations of the present and future."—I am, etc.,

G. NORMAN MEACHEN.

Sherburn Hospital, near Durham,
Jan. 8th.

STATE REGISTRATION OF NURSES AND THE RED CROSS SCHEME.

SIR,—The letter of Dr. Ferdinand Rees is to the point. The whole future of nursing hangs in the balance. Nothing but the immediate State registration of the fully-qualified nurse can ever safeguard the status of the nursing profession. The danger of the untrained V.A.D. worker should be recognized and met.—I am, etc.,

Whitley Bay, Jan. 9th.

NEVILLE A. EDDLESTONE.

THE TONSILS.

SIR,—In his letter on the question of tonsillectomy, appearing in your issue of January 8th, Mr. William Hill, whilst advocating total removal of the glands as the operation of choice in most cases, states that he, in company with most others, "would hesitate to eviscerate the entire tonsillar bed in trained singers and other professional voice producers, on account of the danger of altering the form and deranging the muscular mechanism of the fauces from post-operative adhesions."

I am not quite clear what Mr. Hill desires to convey by the words "entire tonsillar bed," but from the text presume

he alludes to a clean evisceration of the tonsils, and, if so, I would like to point out that, in contravention to the popular fallacy (both lay and medical) about this matter, I have many times totally removed septic tonsils by the blunt dissection method in professional voice producers, both teachers and trained singers, with the invariable result that not alone were the pharyngeal symptoms removed, but that the patient experienced improvement, and often marked improvement, of the voice.

I am ready to admit that the scar tissue which forms in the interfacial space subsequent to operation may, in a certain small percentage of cases, give rise to a slight sensation of tightness in the throat, but I have never known this symptom to be complained of for more than six weeks after operation. Further, it is perhaps conceivable that the patient might require a few lessons on the reproduction of his voice when the end-result of operation was apparent, but I have not yet met with such a case.

I therefore feel justified in contending that provided the surgeon possesses the necessary technical experience, and due care be taken to avoid injury to the surrounding tissues, the patient's profession as a voice user is an indication rather than otherwise for the performance of an otherwise necessary tonsillectomy.

With Mr. Hill's other remarks *re* the much debated questions concerning the tonsils I am in thorough agreement.—I am, etc.,

Cork, Jan. 10th.

JAMES B. HORGAN.

SIR,—Dr. William Hill's letter invites an answer from me, or rather an amplification of my previous letter.

I mean what I said, "the only operation applicable is enucleation." I do not except trained singers or other professional voice users, for the reason that I have never seen permanent derangement of the muscular movements of the fauces and palate follow a properly performed enucleation of the tonsils. One would, of course, be particularly careful in regard to this class of patient, both in considering the question of operative procedure and in carrying out enucleation; but that is all. It must, too, be borne in mind that in cases of chronic disease of the tonsils, especially in adults, there is a concomitant and dependent thickening of the pillars and firm adhesions between the capsule and the sheath of the constrictor muscle, and while any of the septic tonsil and the capsule remain the movements of the faucial muscles will suffer from these disabilities, together with others, not perhaps of a serious nature, such as mild attacks of pharyngitis and laryngitis. Adults, singers, clergymen, teachers, have told me how less easily their voices get tired, and how much less strain there is in singing or speaking since their tonsils were removed. There is another side to this question, and that is our attitude towards the tonsils in those who propose to have their voices trained. The same rule applies. It is not wise to leave part of a diseased structure in the throat. In this matter of trained voice users I am, I know, up against authority, but I am convinced that with our wider knowledge this question is ripe for reconsideration and discussion.

Dr. Hill then deals very clearly and very fairly with the methods of enucleation. First let me say that I do not approve of the method of removal of the tonsils employed formerly, and even at the present time, by some general surgeons, and commended in Dr. Mechan's paper, though I fancy Dr. Mechan's intention was to insist on complete removal of the tonsils, and not to commend a particular method. "According to general surgical principles," in this as in other special regions, has been used to cover much inferior surgery. It is probable that the introduction of the guillotine in the first instance had a double origin—the disfiguring and mutilating results of the general surgeon and the lack of knowledge of surgical procedure in the specialist.

Our aim being to remove the tonsil complete in its capsule, we should see that this result is definitely attained. To do this in every case some method of dissection is necessary. I am aware that in many cases—indeed, I may even allow that in the large proportion of cases in the hands of experts—some of the newer forms of guillotine may effect it. Where the result aimed at is not thus attained, experts like Dr. Hill will complete the operation by the aid of dissection. The dissection method, indeed, is the sheet-anchor after all. But the danger of

the guillotine is—and this is my point—that in the hands of the less expert the incomplete operation of tonsillectomy is perpetuated, though, of course, a tonsillectomy has been performed because an enucleating guillotine was used!

Why, then, use a guillotine at all? The dissection method is simple, can be easily taught, is definite in its result, and can be carried out so expeditiously that I myself almost invariably make use of chloride of ethyl anaesthesia in children. In adults I use either local anaesthesia—with a preliminary hypodermic injection of morphine, omopon, or some such narcotic—or chloroform. And here let me say that I think there is no need for the dangerously deep chloroform anaesthesia which some operators insist on. The method of enucleation I use is the one of combined dissection and snare. If it is desired to control the haemorrhage before removing the tonsil, the snare can be tightened and allowed to remain for several minutes before cutting through the hilum. In this way the result claimed for the haemostatic guillotine can be obtained.—I am, etc.,

Glasgow, Jan. 11th.

W. S. SYME.

The Services.

ROYAL NAVAL VOLUNTEER RESERVE. PRIZE MONEY.

THE Central Medical War Committee recently addressed an inquiry to the Medical Director, R.N., asking whether Surgeons, R.N.V.R., were entitled to prize money, and, as will be seen from the following correspondence, have received an affirmative response.

December 9th, 1915.

Sir,

At the meeting of the Executive Subcommittee of the Central Medical War Committee held on the 6th inst., we were instructed to submit to you the following questions affecting Surgeons of the Royal Naval Volunteer Reserve, with a request that you would be good enough to supply an authoritative answer which we can give to inquirers:

1. Are Surgeons R.N.V.R. to participate in prize money at the end of the war?
2. If not, are they to receive a bonus at the end of the war?

In regard to this latter question, it is understood that temporary R.N. Surgeons are to have a gratuity equal to two months' pay, and officers of the R.A.M.C.T.F. will also receive a gratuity.

We are, yours faithfully,

N. BISHOP HARMAN,
ALFRED COX,
Secretaries.

Surgeon-General Sir Arthur W. May, K.C.B.,
Director-General,
Medical Department of the Navy,
Admiralty, S.W.

No. 19107. Medical Department of the Navy,
Admiralty,
December 22nd, 1915.

Gentlemen,
I have to acknowledge the receipt of your letter of the 9th inst., and to request you to inform your Executive Subcommittee that Surgeons of the Royal Naval Volunteer Reserve will be treated in the same manner as Surgeons of the Royal Navy in connexion with prize money.

I am, Gentlemen, your obedient servant,
(Signed) ARTHUR W. MAY,
Director-General.

The Secretaries,
Executive Subcommittee of the
Central Medical War Committee,
429, Strand, W.C.

EXCHANGES DESIRED.

ROYAL ARMY MEDICAL CORPS.

LIEUTENANT in field ambulance in France, owing to impaired health, desires exchange to hospital at home or in France. Address No. 247, BRITISH MEDICAL JOURNAL Office, 429, Strand, London, W.C.

Major R.A.M.C., at present in field ambulance—second line—wishes to exchange. Hospital, field ambulance, or sanitary company going abroad preferred. Has public health qualification. Address No. 249, BRITISH MEDICAL JOURNAL, 429, Strand, W.C.

A captain (Territorial Field Ambulance), at present on sick leave from the Mediterranean, desires to exchange with an officer holding a hospital appointment in or near London. Address No. 250, BRITISH MEDICAL JOURNAL, 429, Strand, W.C.

THE King Edward VII Hospital, Cardiff, has received one thousand guineas from Captain David T. Lewis, R.A.M.C., to endow a bed in memory of his father, the late Alderman Richard Lewis, of Cartref, Pontypridd, vice-chairman of the Glamorgan County Council. In compliance with Captain Lewis's wish the bed will be used for wounded soldiers during the period of the war. The hospital has also received from Messrs. Watts, coal-owners, a donation of the same amount to endow another bed.

Obituary.

SIR FREDERIC WILLIAM HEWITT, Kt., M.V.O.,
M.A., M.D.CANTAB.,

ANAESTHETIST TO H.M. THE KING.

SIR FREDERIC HEWITT, who died at Brighton on January 6th, was the son of Mr. G. F. Hewitt of Badbury, Wilts, where he was born in July, 1857. He was educated at Christ's College, Cambridge, and began his professional career at St. George's Hospital in 1880. He came there after graduating at Cambridge, where he was a popular and successful member of Christ's College. At St. George's, by securing the Brackenbury Prize in Medicine as well as the Treasurer's Prize and by the distinguished manner in which he held various junior posts, he was marked out for more than ordinary success. His interest becoming early engaged in the subject of anaesthesia and an opportunity offering for favourably pursuing this branch of practice, he secured the post of anaesthetist to the London Hospital, which he held for fifteen years, filling during this period similar appointments at Charing Cross Hospital, the Dental Hospital of London, and the National Orthopaedic Hospital. At his old school (St. George's) the post of physician-anaesthetist was instituted in order to regain Hewitt's services, and he was also appointed Emeritus Lecturer on Anaesthetics at the London Hospital.

He made several important contributions to the literature of the subject. The first, a handbook for practitioners and students, entitled *Select Methods in the Administration of Nitrous Oxide and Ether*, appeared in 1888; it was a small but useful treatise. His chief book was *Anaesthetics and their Administration: A Manual for Medical and Dental Practitioners and Students*, which first appeared in 1893, and still maintains its reputation, the fourth edition having been issued in 1912. It is deservedly popular, as the author deals very clearly with the physiological and chemical questions involved. The use of apparatus is also well described. The author spent, he said, ten years in collecting material for this book, which was founded mainly on his own experience. References are relatively scanty but in all cases judiciously selected. Four years later he wrote a highly practical treatise on *The Administration of Nitrous Oxide and Oxygen for Dental Operations*. He urged that safe and thoroughly efficient anaesthesia for dental operations was of such importance that it behoved every dental practitioner to consider carefully whether the crude method of producing insensibility then in vogue should not be abandoned. In its stead, Hewitt urged the employment of his apparatus, which produced an anaesthesia absolutely safe when properly established. No doubt "properly" is a very important qualification; but though Hewitt, like any other experienced author of a book on a practical subject, could not impart his skill to the reader, he never failed to make his principles and practice perfectly clear. In 1889 Hewitt published a useful table showing points to be considered in selection of an anaesthetic, and in 1895 he contributed to Treves's *System of Surgery* an article on anaesthetics.

On December 8th, 1890, Hewitt communicated to the Royal Medical and Chirurgical Society some clinical observations upon respiration during anaesthesia, with special reference to the causes of embarrassed and obstructed breathing, in which he showed the danger of any marked deprivation of oxygen, such as may be caused by the incautious use of bag inhalers, in fat subjects, and persons with weak circulation or disease involving the respiratory apparatus. Temporarily suspended respiration was much less likely to be attended by symptoms of cardiac depression under ether than under chloroform. Hence chloroform was to be avoided wherever a great quantity of the anaesthetic was likely to be needed. In operations on the throat and nose where ether was inadmissible it was, Hewitt insisted, better to induce anaesthesia with A.C.E. mixture or nitrous oxide and ether, and to keep up insensibility with chloroform than to begin with the latter. The A.C.E. mixture, with a free supply of air, was also the best anaesthetic for beginning on a stout, plethoric, or muscular subject, the administrator continuing with ether from an Ormsby's inhaler when the respirations are becoming deep and uncontrolled.

In February, 1899, Hewitt read another communication before the same society on the effect produced in the human subject by the administration of definite mixtures of nitrous oxide and air and of nitrous oxide and oxygen, which led to an interesting discussion. Last March he took part in a discussion in the Section of Anaesthetics of the Royal Society of Medicine on the influence of preliminary narcotics on induction, maintenance, and after-effects of anaesthesia. He urged that the anaesthetist should see his patient some time before the operation, and insisted that this precaution was particularly demanded when preliminary narcotics were deemed necessary. He agreed that these narcotic drugs assured a quiet induction in a patient indifferent or asleep, a diminished consumption of the anaesthetic, and absence, or at least great diminution, of all deleterious after-effects. Atropine was very valuable in preventing nasal and oral secretions, but Hewitt had become rather shy of scopolamine except where definite pre-anaesthetic stupor was indicated. He was then inclined, provided there were no contraindications, to use morphine and atropine before operations, but considered that morphine was to be rejected when the patient was subject to respiratory difficulties, and in operations on the mouth, naso-pharynx, and throat in which bleeding was likely to occur unless the anaesthesia was light.

Sir Frederic Hewitt was President of the Section of Anaesthetics of the annual meeting of the British Medical Association in London in 1910. He was a member of the committee of the Medical Insurance Agency (429, Strand), and was much gratified by its success to which he materially contributed.

A memorial service was held in the chapel of St. George's Hospital at 2 p.m. on January 12th. It was attended by numerous past and present members of the hospital staff, and by representatives of many of the other institutions and associations with which Sir Frederic had been connected.

Dr. J. BLUMFELD, Senior Anaesthetist to St. George's Hospital, to whom we are indebted for much information included in this notice, states that Hewitt occupied himself most successfully with the instruction of succeeding generations of students. There was, Dr. Blumfeld writes, no part of his proficient work upon which his desires were more set than this to encourage the creation of a body of enlightened and experienced administrators of anaesthetics. He strove sedulously to inculcate the principle that the anaesthetist must approach every case of anaesthesia in the spirit of scientific clinical medicine, and choose and administer his anaesthetics according to the results of careful observation and estimation of all the factors involved in the physical and mental condition of the patient and the operation he is about to undergo. Not the least of Hewitt's merits was that by these endeavours he may be said to have really created a school of anaesthetists, and to have done very much not only to improve the general standard of anaesthetic administration, but also to heighten the regard in which that branch of practice is held. As an administrator Hewitt's chief merit, apart from this scientific as opposed to an empirical method of procedure, was the great care which he bestowed upon every detail. This enabled him to trace to their true cause and to treat in the most appropriate way various factors which may give rise to trouble during the inhalation of anaesthetic vapours. It was this care, allied with a natural kindness of disposition, that led very largely to Hewitt's wide popularity amongst patients, for any one who had undergone an operation for which he had given the anaesthetic was most likely to request his presence again if the second occasion arose. He became, of course, more widely known still to the public by his appointment as anaesthetist to King Edward VII, to whom he administered anaesthetics when Sir Frederick Treves operated for appendicitis in 1902.

Mr. G. R. TURNER, Surgeon to St. George's Hospital, sends us the following appreciation: Hewitt was most conscientious, thorough, and painstaking. He did more to elevate his particular speciality and to put it on a proper scientific basis than any of his predecessors. When operating on any case of his the surgeon had absolute confidence that no anaesthetic trouble or disaster would occur.

He liked to see his future patient if possible before the operation day, and on several occasions he has discussed this matter with me and urged the necessity of it whenever any grave operation was contemplated. As physician-anaesthetist to St. George's Hospital—the first to be appointed—he gave lectures to the students and supervised the department with extreme care and keenness. If ever a patient in the hospital died under an anaesthetic he was the authority to whom the inquiry was entrusted, and he presented always a very full analysis of the medical aspect of the case to the Medical School Committee. Hewitt was very insistent that no hot-water bottles should ever be in contact with a patient recovering from an anaesthetic; the bed was to be warmed by them before the patient was put in it, but none were ever to be allowed to touch him. He gave me an anaesthetic five or six times when I had a serious illness and operations about nine years ago, and I was never once sick afterwards. For this I am still grateful to him. In all school and hospital matters he did his utmost for St. George's, and was practically the founder of the St. George's Hospital Club; he was largely instrumental in getting the recreation ground for the students at Wimbledon, and was for some considerable time the backbone of the *Hospital Gazette*. In private life he was genial, humorous, and well informed, and his death will be deplored by a large circle of friends.

THOMAS BUSHBY, M.B. EDIN., M.R.C.P. LOND.,
MAJOR R.A.M.C. (T.),

HONORARY PHYSICIAN, LIVERPOOL NORTHERN HOSPITAL.

We regret to announce the death, at Leamington, on December 31st, 1915, of Dr. Thomas Bushby of Liverpool. He was born at Rainhill, near Liverpool, some fifty-seven years ago, was educated at Marlborough, and studied medicine at the University of Edinburgh, where he graduated M.B., C.M. in 1880. When he entered practice in Liverpool he became private assistant to the late Mr. E. R. Bickersteth, and remained in this position for several years. Mr. Bickersteth's private practice was an education to any young medical man, as it comprised every branch of medicine. Dr. Bushby's first public appointment was that of assistant physician to the Liverpool Hospital for Diseases of the Chest. He was also for many years surgeon to the Liverpool police, and was much esteemed by the members of the force. Dr. Bushby on his resignation was instrumental in securing an increase in the salary of police surgeons in the city, and in this respect earned the gratitude of the medical profession.

In 1897 he received the appointment of honorary physician to the David Lewis Northern Hospital, which is close to the docks, and receives, besides patients from the immediate vicinity, many seaborne cases of illness, including tropical affections. Dr. Bushby held this appointment till the time of his death, although latterly, owing to the state of his health, he was unable to visit the hospital as he would have wished. In addition, Dr. Bushby was a valued friend and physician to some of the Liverpool nursing institutions and philanthropic agencies. In medico-political matters Dr. Bushby did yeoman service. He acted as one of the Liverpool Representatives at the Representative Meetings of the British Medical Association. Dr. Bushby, quiet as he was by nature, revealed himself not only to be public-spirited, but thoroughly alive to the interests of his profession. His reports to the Liverpool Division of the proceedings of Representative Meetings were models, and those who listened to them felt that Dr. Bushby had given the Division a clear and concise account, lit up from time to time with a spark of humour, all the more agreeable because unexpected. He was also president of the Section of Medical Sociology of the annual meeting of the Association in Liverpool in 1912. Whoever dealt with Dr. Bushby, whether patients, practitioners, hospital colleagues, or directors of companies of which he was medical adviser—for example, Liverpool, London, and Globe, the London and North-Western Railway Company—all formed the opinion that he was a man of sound judgement, great kindness of heart, and straightforward in all his actions. About the beginning of the war his health began to fail, and it was a great grief to him that he could not do his share as Major, attached to the 1st Western General Hospital, in attending to the

sick and wounded soldiers. He felt himself compelled to resign, although it was anticipated that after a period of rest he would be able to resume his duties.

Dr. Bushby was of a rather shy and retiring disposition, and, to those who did not know him well, distinctly reserved. He was inclined to hide his light under a bushel, and did not always readily reveal his knowledge. He was a student in the true sense, and possessed an extensive knowledge of medical literature and the classics. For many years he acted as the local secretary to the New Sydenham Society, now defunct. Not only was Dr. Bushby a well-equipped physician, but he took great interest in diseases of the skin, and his opinion on an obscure case was generally sought. His wide experience gave him a sort of instinct in diagnosis and treatment of disease. When prevailed upon, he had many amusing anecdotes to relate, and very often these scored a point against himself. Dr. Bushby will be much missed by all with whom he was brought into contact, and not least by his colleagues. He held various posts in succession in the Liverpool Medical Institution, and was a vice-president at the time of his death.

The funeral took place at Leamington, and at the same time a memorial service was held in the David Lewis Northern Hospital Chapel. At this service his former colleagues, many of his professional brethren, and members of the Hospital Governing Board were present. An address was given by the Rev. T. Pemberton, M.A., chaplain of the hospital, who took his text from Revelations, chap. 14, verse 13.

Dr. Bushby was married to Mary Wimple, a niece of a well known and highly respected Liverpool merchant, Sir William Bowring, Bart. He leaves a widow and a grown-up son, at present at Sandhurst, and a daughter. The memory of an unselfish man, upright in all his dealings, and of unswerving rectitude, lives long; such a man was Dr. Thomas Bushby.

Dr. W. B. WARRINGTON writes: I was a colleague of Dr. Bushby for twelve years at the Northern Hospital, and should not like his passing away to remain without some small tribute to his memory from me. What impressed me constantly in our long co-operation in hospital work was his great unselfishness in any kind of activity that had to do with the reputation of the hospital or the efficient treatment of patients. One was always certain that his opinions were influenced by a single-minded desire to do the best. He was a courteous and most considerate colleague, and in judgement wise and temperate. We were, perhaps, unusually often associated together in professional work and consulted constantly at the bedside of each other's patients. For many years it was our custom to discuss, together with the students, the nature of the illness of some patient previously unseen by either of us. I think this was a very useful method of teaching; we freely asked each other questions and encouraged the students to do the same. So far as I have the knowledge or capacity to estimate Bushby's professional acquirements, they were very great. Thoroughness in examination and large common sense, illuminated by a most varied experience, were his chief characteristics as a physician. He had many interests in the varied branches of medicine, but I fancy that diseases of the heart and of the skin were rather a hobby with him. He introduced very early into the wards the modern methods of the graphic study of the heart, and was undoubtedly an authority on cardiac pathology. His early death at the maturity of his professional powers is very sad. A grateful and kindly memory will always be associated by his many friends with the name of Thomas Bushby.

GUIDO BACCELLI, M.D.,

SENATOR OF ITALY; PROFESSOR OF CLINICAL MEDICINE,
UNIVERSITY OF ROME.

GUIDO BACCELLI, who died suddenly of heart failure on January 10th, was a descendant of a well-known Florentine family, settled in Rome for more than two centuries, and was himself born in Rome on November 25th, 1832. He was thus in his eighty-fourth year. His father, Antonio Baccelli, was a physician of note, and there was a strong medical strain in his ancestry. In 1848 he entered the Ghislieri College at Pavia. He afterwards studied medicine

in the university of his native city, taking his doctor's degree in 1852. In 1855 he obtained by competition the post of assistant physician to the hospitals, and in 1856, again as the result of open competition, he was appointed to the chair of forensic medicine in the University of Rome. He also lectured on botany and on pathology. He resigned his position as professor of forensic medicine after two years on account of political differences with the Papal Government, and devoted himself to the study of morbid anatomy. When a chair of that subject was founded in the university Baccelli was appointed the first professor. In that capacity he had a great influence in turning the minds of his pupils in the direction of modern scientific methods. In 1863 he was appointed lecturer on clinical medicine, and in 1870, when Rome became the capital of Italy, he was appointed professor of clinical medicine, a post which he continued to hold till the end of his life.

His activity as a teacher and as a very busy consulting physician did not exhaust his abounding energy. In 1875 he entered the Italian parliament as one of the Deputies for Rome, and soon took a leading place as a politician. In 1881 he became Minister of Public Instruction, and held that portfolio four times in all, doing great service to his country by the promotion of far-reaching reforms both of primary and university education. To him Rome chiefly owes the Policlinico, a magnificent pile of buildings, fully equipped for the study of disease. He was also once Minister of Agriculture, Industry, and Commerce. He was prominent as a sanitary reformer, and was at one time President of the Board of Health. He took an active part in the sanitary improvement of the Campagna; for his efforts in that direction he received the thanks of the Italian Parliament. He was a Senator of Italy.

Baccelli was president of the Eleventh International Congress of Medicine held in Rome in 1894. Those who attended that meeting will remember his fine presence, his stately oratory, the dignity with which he discharged the duties of his office, and his princely hospitality. He could discourse in Latin of Ciceronian quality, and was no little proud of the accomplishment. In Grant Duff's *Notes from a Diary, 1889-1891*, there is the following passage: "Bunsen had been much struck by a scene at the great Medical Congress held this year (1890) in Berlin. When the representative of the Italian Government was called, up rose Baccelli—some six foot three high, and broad in proportion. In the deepest of voices he began: Vos medicos Latine alloquor, Latine quia Latinus sum!" On that occasion he conveyed the formal invitation to the Congress to hold its next meeting in Rome. The closing words of the invitation were as follows: "Scientiæ atque artis humanissimæ vexillum consertum in Capitolio, viribus omnigenis fraterno more conjunctis sæculis nationibus immortalæ fulgebit." These words have a melancholy sound at the present day when the banner of science and humanity, torn to shreds by murderous projectiles, stands bare, a grim reminder of a lost brotherhood.

Besides a monograph on Roman malaria, published in 1878, in which his views on the sanitary improvement of the Campagna were embodied, Baccelli was the author of many contributions to medical literature. The variety of his scientific interests is shown by the following imperfect list of his works: A treatise in four volumes on the pathology of the heart and aorta (1863 to 1867); clinical lectures on malaria (1869); subcontinuous fevers, containing his earliest researches on malaria (1876); true empyema (1868); primary cancer of the spleen (in Latin, 1876); a new method of treatment for aneurysm of the aorta (1876); a new symptom of ovarian tumours in general and of ovarian cysts in particular (1876); the transmission of sounds through endopleuritic effusions (1875 and 1877); and State medicine and clinical medicine in ancient and modern Rome (1879); and the paradoxical compensation of cardiac lesions (1894).

In the House of Commons on January 4th the sudden death of Sir G. SCOTT ROBERTSON on January 2nd was mentioned in connexion with a verbal amendment to the Munitions War Bill which stood in his name. Mr. Lloyd George, in moving the amendment, said that members of all parties would have heard with very great regret of the

removal of an honourable and gallant gentleman, who had won great distinction in the public service, and who was highly respected in every quarter of the House.

DR. JOHN MACRURY, well known to naturalists as the author of *The Birds of the Island of Barra and Notes on Ornithology in A Vertebrate Fauna of the Outer Hebrides*, died suddenly in a nursing home at Glasgow on January 4th. He was a Hebridean, born in Benbecula, and he graduated at Glasgow in 1877. After holding the appointments of house-surgeon and house-physician at the Glasgow Western Infirmary and assistant physician at the Glasgow Dispensary for Skin Diseases, Dr. Macrury began practice in Barra, in the Outer Hebrides, where he worked so hard that his health became impaired, and he took a voyage to New Zealand. On his return he settled in Millport, on the isle of Great Cumbrae, in the Firth of Clyde, where he gained an extensive practice among his fellow townsmen and visitors. He was a good shot, sportsman, and a keen golfer. He leaves a widow, and is survived also by his brother, Colonel Colin William Macrury, I.M.S. Dr. John Macrury will be widely remembered by ornithologists all over the world, as he was an authority on birds and possessed a fine collection of eggs.

THE HON. WILLIAM MACKAY, M.D., died at Reserve Mines, Nova Scotia, on November 8th, 1915, after a long, distinguished, and honourable career in the practice of medicine and in public affairs. He was born at Earltown, Nova Scotia, of Scottish parentage, was educated at Truro, and in 1873 received the degree of M.D. from Bellevue Medical College, New York. In 1886 Dr. MacKay was elected to the Nova Scotia House of Assembly, and was chosen leader of the Opposition. He was defeated in 1890, but re-elected in 1894, and chosen leader of the Liberal-Conservative party. In November, 1912, he was summoned to the Canadian Senate. Dr. MacKay continued to practise until a few days before his death. He was twice elected president of the Medical Society of Nova Scotia, and was one of the originators of the first Public Health Act of that province. His son, Major Daniel S. MacKay, M.D., is with his regiment in France.

Universities and Colleges.

UNIVERSITY OF LONDON.

The following candidates have been approved at the examination indicated:

FIRST M.B.—D. D. Anderson, Sarah E. Andrews, Marjorie M. G. Bardett, A. Bearblock, Margada R. Bensande, M. Z. Bochenok, Hylda G. Briscoe, J. L. McK. Brown, G. H. A. P. Clavier, S. Cohen, Alison M. Collic, Catherine A. Cowan, Beryl Dyer, Winifred M. Fawcett, Kathleen Field, P. J. Freilich, I. Frost, N. Gallant, Kate Glyn-Jones, J. Goldberg, Eleanor Graham, T. B. Händel, A. J. Harris, S. E. Harvey, F. Heber, R. W. P. Huxford, Doris M. Howard, Margaret G. Jones, H. C. V. Joy, R. Keene, Mary E. Kennedy, W. E. K. Kirby, Doris G. Knowles, C. P. Lake, Gidal-Leizer Levin, L. O. Lindsay, Mary Michael, Marjorie Pierce, C. A. Probert, J. O. Prohansky, W. M. Reeve, E. H. Richards, E. A. Roberts, M. V. Roberts, W. A. M. Smart, A. W. L. Smith, Sonia Strassman, Kathleen A. H. Sykes, A. W. Taylor, H. B. Thomas, R. Thurst, Nora R. Trouton, Madeline H. J. Umpleby, Dorothea C. Wigfield, G. M. Willey.

* Awarded a mark of distinction in Physics.

NATIONAL UNIVERSITY OF IRELAND.

THE NATIONAL University of Ireland, founded in Dublin by the Irish Universities Act of 1908, gives in its *Calendar* for 1915¹ all the information customarily to be found in the useful but somewhat dry publications of this class. The university has three constituent university colleges at Dublin, Cork, and Galway; in addition it has a recognized college, St. Patrick's, Maynooth. The book will naturally be indispensable to those for whom it is designed.

UNIVERSITY OF BOMBAY.

THE first volume of the *Calendar*² of the University of Bombay contains a mine of information about the regulations, the degrees, the 112 endowment funds, the benefactions, the 22 recognized colleges, and all the other subjects of interest to its present and future members. The second volume consists of many hundreds of examination papers set in 1913-14 for the

¹ Dublin: A. Thom and Co. Ltd. 1915. (Post 8vo, pp. 767.)

² Bombay: Government Central Press. 1915. (Post 8vo, pp. 1278 and 482.)

candidates in its 26 various branches of instruction. Invaluable to students in India, these volumes are of interest to the inhabitants of Great Britain as an indication of the thoroughness of the British Raj.

CONJOINT BOARD IN IRELAND.

The following candidates have been approved at the examinations indicated:

PRELIMINARY EXAMINATION.—I. W. Arnovitch, Lucretia H. H. Byrne, A. B. Clery, W. E. Colahan, R. M. Corbet, J. J. Clune, T. E. Donovan, A. B. Doyle, T. C. Doyle, A. C. Esmonde, M. W. Frazier, Roberta E. Fisher, W. A. Graham, S. G. Gilmore, T. M. Golden, T. Heffernan, J. Hewitt, Margaret Holiday, P. Killeen, J. J. A. Lord-Flood, T. J. McCormack, A. McLean, H. T. Macaulay, A. Martinson, P. Moylan, R. J. Ogden, P. J. A. O'Connor, T. L. Quinn, J. Rubenstein, G. E. Strahan, J. Sheil, R. T. Taylor, Mary E. Tempst, J. W. Tighe, H. E. W. W. Waters.

SECOND PROFESSIONAL EXAMINATION.—Miss H. G. Rea (with honours), S. H. Berwitz, J. P. Brennan, J. A. Cunningham, P. J. Filose, S. A. Gailey, Miss H. Gleeson, W. J. McElhinney, P. J. McGing, C. Murray, M. C. Myerson, J. C. Rutherford, R. T. Stoney.

THIRD PROFESSIONAL EXAMINATION.—Miss E. Budd, D. L. Crowe, I. B. Cuthane, F. Daly, E. H. H. Lloyd-Dodd, J. P. Doyle, P. J. Flood, H. Hurst, D. C. Kelleher, J. E. Lucas, T. P. McDonnell, M. T. McElligott, M. F. Murphy, M. M. Price, G. W. Pope, G. C. F. Roe.

SUPPLEMENTAL FINAL EXAMINATION.—J. Cohen, J. Dwyer, T. Farrell, O. J. M. Kerrigan, John F. Saunders Magner, T. J. Ryan, J. J. Walshe, P. W. Walshe.

FINAL EXAMINATION.—M. Burke, L. L. Davys, M. de Caestecker, J. A. Fretton, D. L. Kelly, T. F. Moran, V. A. Power, J. Ryan, C. W. C. Robinson.

SOCIETY OF APOTHECARIES OF LONDON.

The following candidates have been approved at the examinations indicated:

PRIMARY EXAMINATION (PART II).—*Physiology*: R. W. C. Ball, C. C. Bennett, T. G. D. Bonnar, H. G. Burford, N. Chena, A. E. Collie, L. Dinerstein, J. H. C. Eglinton, D. C. Farquharson, G. B. D. St. Gray, G. H. C. Harding, R. A. Hickley, G. H. Johnson, E. H. J. Le Clezio, H. O. Long, A. G. A. Miller, C. Moffatt, A. A. Osman, B. H. Parry, A. L. S. Payne, G. F. Peters, R. S. Ralph, A. H. Richards, S. H. Robinson, H. M. Savory, W. M. Savory, A. G. M. Severn, C. G. D. Siggs, W. H. Simmons, W. Skelly, J. Stephen, W. H. Stevenson, E. W. Terry, C. de B. Thompson, R. A. Walker, R. L. Walker, R. W. Warrick, E. R. Webb, S. A. Withers. *Anatomy*: R. W. C. Ball, C. C. Bennett, T. G. D. Bonnar, C. V. Brown, H. G. Burford, N. Chena, A. E. Collie, L. Dinerstein, J. H. C. Eglinton, F. K. Escriott, D. C. Farquharson, G. B. D. St. Gray, G. H. C. Harding, G. H. Johnson, W. A. Jones, E. H. J. Le Clezio, J. S. Lewis, H. O. Long, W. D. McRae, A. G. A. Miller, C. Moffatt, A. A. Osman, R. H. Parry, A. L. S. Payne, G. F. Peters, R. S. Ralph, A. H. Richards, S. H. Robinson, H. M. Savory, W. M. Savory, A. G. M. Severn, C. G. D. Siggs, W. H. Simmons, W. Skelly, W. H. Stevenson, E. W. Terry, R. A. Walker, R. L. Walker, R. W. Warrick, E. R. Webb, S. A. Withers.

Medical News.

THE Hon. Charles Rothschild, Sir Walter Lawrence, Bt., and Sir Francis H. Champneys, Bt., have been added to the General Council of King Edward's Hospital Fund for London.

THE Society of German Engineers has offered a prize of 10,000 marks, and other prizes amounting altogether to 5,000 marks, for the best artificial arm.

A MEMORIAL service will be held in the hospital church of St. Bartholomew the Less on Thursday next, at 1 p.m., in memory of former St. Bartholomew men and of students of the hospital who have fallen in the war during 1915.

THE names of Dr. T. H. Parke (Tideswell), Dr. C. A. Thorne (Dore), and Dr. W. H. Turton (Heanor) are among the newly appointed magistrates for Derbyshire.

AS Deputy Gresham Professor of Physic, Dr. Harry Campbell will begin a course of four lectures on dietetics at Gresham College, Basinghall Street, on Tuesday next, at 6 p.m.

THE Lettsomian lectures before the Medical Society of London will be delivered by Major F. W. Mott, M.D., F.R.S., R.A.M.C.T., on February 7th and 21st and March 6th, the subject selected being the effects of high explosives on the central nervous system.

PROFESSOR ARTHUR KEITH will begin a course of lectures on the anatomy of the body for first-aid and ambulance students in the theatre of the Royal College of Surgeons, Lincoln's Inn Fields, at 5.30 p.m., on Monday, February 14th. Further particulars can be obtained on application to the Secretary of the College.

AN advanced course of lectures on infant care for voluntary health workers, teachers, and mothers has been arranged by the National Association for the Prevention of Infant Mortality and the Welfare of Infancy (4, Tavistock Square, W.C.). The lectures will be given at the house of the Royal Society of Medicine (1, Wimpole Street), and the course will begin on January 24th.

It is stated that the Russians have transferred the University of Warsaw to Rostow on the Don. The German Government has re-established the University of Warsaw and created a new faculty of medicine.

AT a meeting of the executive committee and members of the Society for the State Registration of Nurses on January 8th, a resolution was unanimously adopted condemning the Red Cross scheme for a college of nursing. A meeting of the central committee for the State Registration of Nurses is to be held on Saturday, January 15th, to consider the matter.

THE Emperor of Japan has conferred the Third Order of the Rising Sun on Dr. William H. Welch, of Johns Hopkins University, and the Third Order of the Sacred Treasure on Dr. Simon Flexner, of the Rockefeller Institution, New York, in recognition of help and guidance given to Japanese students of medicine in the United States, and of their contributions to medical work in Japan.

A HERB-GROWING association, affiliated to the Women's Farm and Garden Union, has been formed to give advice on herb growing and preparation, and by co-operation to regulate the growing of different herbs, so that the market may not be overstocked. Information can be obtained from the Secretary of the Herb-growing Association, 45 (6), Queen Anne's Chambers, Westminster, S.W.

THE name of the firm of Studebaker is well known in this country as the maker of motor cars possessing many excellent qualities, which have been gradually evolved during many years of development. From a small book recently issued, it appears that the firm began some sixty years ago as a maker of wagons strong enough to stand the journey over very rough roads or tracks from the Eastern to the Western States. It is now turning out 60,000 motor cars a year in huge factories. The several processes are carried out in six divisions. The book contains a description of the growth of the system of manufacture and of its present methods. It illustrates four cars—two four-cylinder cars, a four-seated touring and a two-seated roadster, and two six-cylinder cars, a four-seated touring car, and a two-seated cabriolet. The price of the four-cylinder touring car is £295, and the four-cylinder roadster £285. Copies of the book can be obtained on application to the company at 117-123, Great Portland Street, London, W.

SOME time ago the director of the appointments bureau of the Harvard Medical School issued a schedule of questions to 900 medical practitioners who had graduated there since 1900. They were invited to state what they had done, the line of practice adopted, and the amount of their professional income. The object was to obtain suggestions that might help to improve the course of education and the conditions for doctors and the communities served by them. Six hundred answers were received. The average earnings of men who had been thirteen years in practice were given as £936, while the professional income of men in their fourth year was £367, and that of men in their first year was a little over £240. Of the whole number who replied, only 36 had confined themselves strictly to general practice; 134 had combined general practice with a speciality, and 142 were pure specialists. The last number included those who had given themselves up to laboratory work. Of the specialists, 90 were surgeons, 9 gynaecologists, and 9 orthopaedists. One conclusion drawn from the returns is that the local distribution of doctors is not satisfactory, too many choosing large cities for their sphere of work.

THE telegraphic addresses of the BRITISH MEDICAL ASSOCIATION and JOURNAL are: (1) EDITOR of the BRITISH MEDICAL JOURNAL, *Atiology*, Westrand, London; telephone, 2631, Gerrard. (2) FINANCIAL SECRETARY and BUSINESS MANAGER (advertisements, etc.), *Articulate*, Westrand, London; telephone, 2630, Gerrard. (3) MEDICAL SECRETARY, *Mediscera*, Westrand, London; telephone, 2634, Gerrard. The address of the Irish office of the British Medical Association is 16, South Frederick Street, Dublin.

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

	£	s.	d.
Seven lines and under	0 5 0
Each additional line	0 0 8
A whole column	3 10 0
A page	10 0 0

An average line contains six words.

All remittances by Post Office Orders must be made payable to the British Medical Association at the General Post Office, London. No responsibility will be accepted for any such remittance not so safeguarded.

Advertisements should be delivered, addressed to the Manager, 429, Strand, London, not later than the first post on Wednesday morning preceding publication, and, if not paid for at the time, should be accompanied by a reference.

NOTE.—It is against the rules of the Post Office to receive *poste restante* letters addressed either in initials or numbers.

THE SOLDIER'S HEART.*

BY

SIR JAMES MACKENZIE, M.D., F.R.S.,

LECTURER ON CARDIAC RESEARCH AT THE LONDON
HOSPITAL.

THAT the trying life of soldiers, exposed to many and varied vicissitudes, should put a strain upon the heart is what we all recognize. This strain inevitably finds out the impaired hearts, whether the impairment gives rise to physical signs of lesions or not. This is well understood, and, in treatment, presents no feature which has not been recognized in civil life, and about this class of case I do not intend to say anything.

These cases, however, form but a small percentage of the cases that are actually invalidated on account of their hearts. It has long been recognized, particularly since the instructive account published by physicians during and after the American Civil War, that there is a form of heart trouble to which soldiers are particularly liable, and which has gone under the name of the "soldier's heart" or the "irritable heart of soldiers."

Shortly after the outbreak of this war soldiers invalidated on account of heart trouble began to appear in my consulting-room. These were few at first, but as time went on they came in increasing numbers, and I took great pains to find out the circumstances and signs connected with their complaints. These observations brought to light what seemed to me the main cause of the illness which affected the soldiers, so that when I was asked to take charge of the inquiry into disorders of the heart for the medical history of the war, I had before me an object which would give our researches a very profitable aim.

In this work I have been associated with Dr. Wilson, and we have examined about 400 cases. In at least 90 per cent. of the cases that have been certified and treated as heart affections we find that they are not primarily heart cases, and that the principles of treatment applicable to these cases are widely different from those who suffer from heart failure.

SIGNS AND SYMPTOMS.

When we see the soldiers in this country invalidated because of heart trouble we find a good deal of variation in their appearance and symptoms. The face is often lined and drawn; many are spare and thin with a great vasomotor instability, as shown by the manner in which the peripheral circulation varies, the hands and fingers at times going pale and cold, at other times the fingers are thick and red, and the nose likewise becomes red and even blue with slight exposure to cold. If they have been treated for some months by rest and feeding, some become pale, fat, and want of breath.

The chief complaint is an absence of the feeling of being well; they often feel out of sorts—"rotten" is a term frequently employed. A sense of fatigue or exhaustion easily induced is common to all. Breathlessness on moderate exertion is frequent, and more infrequent is pain over the region of the heart. The physical signs are variable. The heart's rate is often not increased; in some it is persistently increased, as frequent as 120 per minute. More frequently, at rest the rate may be quite moderate, but exertion, sometimes slight, may produce an undue rapidity, and it is in consequence of this excitability that the term "irritable heart" has been used.

Murmurs, systolic in time and heard in different regions, are frequent, while an increase in size, usually slight, is not uncommon. In a few cases there is a slight oedema of the legs.

The mental condition is somewhat varied. Periods of depression are not infrequent, and the patients are often very irritable. They accept the view that they have something wrong with their hearts and readily yield to all restrictions, and are often content to lie in bed and brood over their woes.

These are the salient features in a great majority of cases, and you will recognize them as common in civil life. We find identical conditions, for instance, in people recovering from an exhausting illness, as typhoid fever or influenza, or after a severe surgical operation. We

see all these phenomena well marked in people who are suffering from some infective organism, and we also find them in people who have suffered a long mental and physical strain, particularly with insufficient sleep, as in a daughter who has for long periods nursed an ailing mother.

The recognition of the character of these complaints gives us a guide in seeking for the cause of the exhaustion in these invalidated soldiers, and in a great majority of cases we get a history pointing to an illness which preceded their breakdown.

Onset of Symptoms.

The account given of the onset of symptoms is peculiarly instructive. They will say they were in the trenches and felt well and fit until one day they felt seedy and ill, and this continued until they were compelled to seek medical advice, when they were found to have a raised temperature. A few days' relief was obtained, and they returned to their work still feeling far from well, and, after a few weeks of the strenuous life in the trenches, they collapsed, sometimes with loss of consciousness, breathlessness, or even pain.

The story of the onset varies. Sometimes it is an attack of diarrhoea, which persists for a time; sometimes it is after a definite illness, as measles, but most give a history which we can safely surmise as being due to an infection. In a few cases one cannot get such a definite account of the starting of the illness, but many do recognize the gradual onset of the trouble. That is the story of the majority of cases, but there are a number from whom we can get no suspicious history of infection, but where there is an account of a very strenuous life.

To grasp fully how this exhaustion is brought about we must understand the life in the trenches. The story of some of these soldiers is illuminating. One in December, 1914, suffered from appendicitis, and was operated on. He returned to duty three months after, and, in June, went to the front. Immediately on arrival he went into the trenches and was there a fortnight. Every night was spent in repairing the damaged parapets. They were constantly being shelled. He never slept at night, and occasionally got a few hours' sleep in the day, often being twenty-four hours without sleep. One day a shell exploded in the trench, knocking him partly unconscious. On regaining consciousness he stuck to his work for twenty-four hours, but had to give in, feeling weak and ill with pain over the region of the heart.

Effects of Strain during Infection.

So great is the mental strain and bodily exertion, with sleepless days and nights, while the trenches are frequently bombarded, that one might be disposed to consider that these factors would be sufficient to account for all the symptoms. But we find identical symptoms present in many who have never been to the front, and who have had no excessive bodily or mental strain, but who have suffered from some febrile infection. The majority also, as I have said, give a history of some previous illness, and it is necessary we should recognize the effects of strain or effort complicated by febrile illness. For that purpose I recite to you the following experience:

A young officer was training for a foot race, and every day spent some time running round a track. One day, while doing this, he collapsed, fell, and was picked up partly unconscious. A doctor was summoned, who said he had strained and dilated his heart, and that was the cause of his collapse. I was asked to see him, and, after getting this account, I recognized that a man who had taken a considerable amount of exercise the day before could not possibly suffer from heart failure, so I asked him if he felt quite well before he began to run, and he admitted that he felt rather seedy, but hoped to shake off the feeling with the exercise. The temperature was taken and found to be raised a few degrees, so I had no hesitation in stating that the cause of collapse was the toxic influence of some microbe invasion and that, with the subsidence of the fever and a few days' rest, he would be all right. That is what happened, and he was able to resume his training, and ultimately ran his race in perfect health.

The action of toxins produced in the body by bacterial invasions has not yet been clearly worked out, but so far as I have gone into the matter a clear and distinct group

* A paper read in opening a discussion in the Section of Therapeutics of the Royal Society of Medicine on January 18th.

of illnesses can be attributed to the toxins even when the organisms themselves do little damage. The phenomena I have described as characteristic of the soldier's heart will give you an idea of the point I want to establish—that the condition is one of general exhaustion, and the circulatory symptoms are but parts of a general manifestation. To appreciate this more clearly so that we may separate them from those in which there is an actual lesion of the heart, I will call attention to some striking differences between the symptoms of the poisoned heart and the symptoms of the infected heart (that is, where the organisms have invaded the heart) and of chronic disease of the heart.

1. *From Infected Heart.*—In some cases there may be doubt as to whether the condition may not be due to an infection of the heart itself. It may not be possible to settle the question while there is a rise of temperature, so judgement will have to be deferred until the fever subsides. If the temperature remains raised for a period of weeks, and no source of infection can be found, then the suspicion that there is an affection of the heart becomes strengthened. With the permanent fall of temperature, the heart can usually be assumed to have escaped infection and the abnormal manifestations (increased rate, systolic murmur, and increase in size) may be taken as the reaction of the heart to a toxin, or to the factors that produce a general exhaustion.

2. *From Chronic Heart Disease.*—The first sign of a failing heart affected by some old-standing lesion is invariably a subjective one—due to a distressful sensation arising when some effort is made which the individual used to perform with no distress. By far the most common sensation occasioned in this way is breathlessness, the next most frequent, pain. Both these may be associated with palpitation. These are sensations which everyone recognizes as indications of inefficiency of the heart. In the poisoned heart these are usually not the first signs, though they also appear—the first sign being the sense of exhaustion.

The Sense of Exhaustion.

This sensation is often taken as a sign of cardiac inefficiency, but it owes its causation to a different mechanism.

When people suffering from weakness consequent upon an infection, or after an exhausting illness, attempt to walk on the level until they are conscious of their weakness, the sensation by which they perceive their weakness is one of exhaustion or sometimes of giddiness. If they stop, sit, or lie down the sensation speedily disappears. If they attempt a more violent form of effort, as walking quickly or up a hill, or running upstairs, they may be pulled up by breathlessness or palpitation—sensations provoked by heart weakness. It is to the sense of exhaustion and its allied sensations, giddiness and faintness, that I wish to call attention, because the mechanism of production is different from that producing the sensation in patients with primary heart failure.

In people suffering from some toxic influence the central nervous system is always affected. This is shown by the sense of feeling ill, by depression, and irritability of temper. There is also evidence of vasomotor disturbances, as shown by susceptibility of the peripheral circulation—the hands and feet persistently cold, or made so by excitement. There is a persistent over-action of vasomotor influences, as the sense of chilliness that persists after a cold bath; at other times flushes of heat pass over the body, and warmth may tend to over-filling of the peripheral vessels. This is seen in people who faint when standing in a warm room, or who speedily become exhausted or even faint when exertion is made. In these the blood tends to accumulate in the peripheral veins of the limbs and in the large abdominal veins, with consequent anaemia of the brain. It is because of this anaemia of the brain that the sense of exhaustion and syncope is provoked.

I do not enter here into all the facts which support this explanation of the sense of exhaustion, as many observers beside myself have fully dealt with the subject. My purpose here in drawing attention to it is to emphasize the mechanism of its production and to show that it is produced in a different manner from the signs of cardiac exhaustion—breathlessness, palpitation, and pain.

The Character and Meaning of Cardiac Pain.

Another distinctive feature which is occasionally present is a sense of discomfort, amounting sometimes to pain even of a severe kind, felt over the region of the heart. The pain may be occasionally provoked by exertion, but more frequently it comes on when the individual is at rest. Its occurrence, not in response to effort, is characteristic of pain due to a poisoned heart, for angina pectoris due to disease in the young occurs when effort is made. While not absolutely diagnostic, the occurrence of pain, when this type of patient is at rest, is strongly suggestive of poisoning.

Heart Abnormalities are but a Feature in a General Condition.

Taking into consideration all the facts, it will be found that the condition from which certain of these soldiers suffer, who are usually understood to have acquired a heart affection, is not, properly speaking, cardiac in origin, but is the outcome of an injury to other systems as well as the heart, such as the central nervous system. Even when we find such marked abnormalities as increased rate, systolic murmur, and an increase in the size of the heart, the cause of these signs ought not to be looked upon as disease, but merely as part of the manifestation of general illness. The importance of this point of view will be realized when we consider the treatment.

THE CAUSE OF ILLNESS.

While the reason for attributing the majority of these cases to bacterial and toxic influences is so far purely clinical, good grounds can also be found from bacteriological evidence. As, however, bacteriology is outside my province, I will not touch on that evidence further than to point out that I have frequently met with these phenomena in civil life in people in whom the causative organism has been detected.

Here, however, I should like to point out that while the active agent producing these phenomena may be an organism or its toxin, or the products of physical exhaustion, some changes are produced in the economy—in the blood, central nervous system, or heart muscle—which impair the functional activity of these structures. I do not pretend to be able to decide which of these conditions is present, and in any case they do not materially affect the principles of treatment which have been found of value. It is possible, however, that where the illness is due to a microbe, vaccine therapy may be of value; but I am not qualified to speak of this.

NOMENCLATURE.

It is difficult to get a term which will convey clearly what the nature of the trouble is, so I use here the simple one of "general exhaustion."

It is a great misfortune that a custom has arisen that each sick soldier has to be certified as suffering from a definite complaint. Naturally, in the hurry and bustle of the earliest examination, the examining doctor has not the time to make a careful study of each individual. On their immediate breakdown the patients often present features of exhaustion in which the cardiac phenomena stand out most prominently, and the doctor who sees them naturally labels them by these phenomena. It is for this reason, no doubt, that so many of them are invalidated on account of "valvular disease of the heart," "disordered action of the heart," or "dilatation."

My description, like my nomenclature, is very general, and as we inquire deeper into the subject we may be able to distinguish separate groups, each with a definite cause.

TREATMENT.

I have dealt at some length with the diagnosis of these cases, because if we recognize the nature of the illness, then we can readily see on what principles treatment should be based. The lines are those we employ in civil practice. If the patient be the host of some microbe, the treatment should be devoted to increasing his power of resistance. If he be poisoned, treatment should be devoted to the elimination of the poison. Should certain tissues be injured by the invading microbe, or by the toxin or by physical strain, then treatment should be devoted to their healthy renewal.

These indications are practically those which should

guide us in treating individuals after an exhausting illness. We have, however, in addition, to consider the mental condition of the soldier whose experiences have depressed his mental faculties, and who has been told he has some heart trouble. This knowledge always tends to depress, and to make them extremely amenable to that form of treatment that is the worst for them—rest in bed or the avoidance of exertion. If we recognize that such cardiac phenomena as murmurs, increase in size, and variability of rate are but the experiences of an irritated heart, we shall see that too much rest is not beneficial. Every organ benefits by the judicious exercise of its functions, and the heart can also be beneficially stimulated.

The principles of treatment, then, should be devoted to increasing the health of the body as a whole in such a way as to increase the natural resistance to infection, to eliminate toxic influences, and brace up the whole man bodily and mentally. The best way to achieve this is by fresh air and judicious exercise in the fresh air. I need not labour the fresh air idea as it is evident to all, but I want to emphasize the question of exercise.

There is a notion deeply rooted that if there is anything wrong with the heart the patient must be restricted in the amount of effort, and medical men who are themselves afflicted are quite content to lie in bed or move gingerly about.

The line I have adopted with those soldiers who have consulted me is that which I have adopted in civil life. All those I have seen have already been told that their hearts were affected, and this knowledge tended to depress. They often feel miserable, so that there is a mental side to the case, which is aggravated by the supposition that there is something amiss with the heart. This aspect of the case has to be met, and consequently in our treatment this view has to be kept in mind.

When all fever has subsided, or when there is but an occasional rise of temperature, I encourage the patient to get up and go about. I find out the form of outdoor exercise which gives him most pleasure. In my private practice my patients have been officers, so I recommend them to start as soon as possible any form of sport or game which they can get—fishing, riding, shooting, golf, etc.

In recommending such exercise I have two objects in view. The first is the mental condition of the patient, and I need not insist upon the beneficial effects of occupation. The more interesting that is, the more likely is the patient to be taken out of himself. I have referred to the fact that the sense of exhaustion is the predominant symptom in these cases, and that it is probably vasomotor in origin, due to the irritation of the central nervous system. We know that the mental state may play a part in producing exhaustion, for we find that a boring form of exercise will readily produce it, while a form of exercise that is full of interest can be borne for long periods without any exhaustion. Therefore, this out-of-door occupation should be in an attractive form.

In recommending effort, I know it will be said that there is danger in this, just as there was when the soldier was employed in his military duties, particularly when such physical signs as murmurs and dilatation are present. If the true nature of these signs be recognized—that they are but the expression of a temporary enfeeblement of the heart muscle, and that the same measure for restoring a flabby leg muscle applies to a flabby heart muscle—we shall see the importance of exercise judiciously employed. No doubt injudicious exercise may do harm, but there is one precaution of a very simple kind which suffices to prevent any danger, and that is to instruct the patient to indulge in his exercise so long as it gives him pleasure and causes no distress nor discomfort, but to stop or slow down as soon as he experiences the sense of exhaustion, breathlessness, or pain.

This simple and easily comprehended dictum contains in it the whole philosophy of the therapeutics of exercise as applied to the heart, and may be used with safety in all obscure and doubtful conditions of heart weakness.

It will, however, be said that it is all well and good for officers who can afford such means of pleasurable occupation, but what about the private soldier cooped up in the wards? It is for him I wish to prescribe. I used the officer to illustrate the principle so that I may strongly urge that the same principles should be applied to the

treatment of the private. If the officer is depressed and makes but slow progress in his comfortable quarters, what of the private soldier in the gloomy wards, meditating on his troubles, or grouching with his fellows, with an occasional joy-ride in a motor-car? I want this argument for congenial exercise to be fully considered, not only for the pleasure of the sick man, but so that the soldier may speedily regain his health and return the sooner to his duties.

I know that already in convalescent camps the aim of interesting occupation with fresh air is being carried out, and I recommend the same principle to be applied in the so called heart cases. But in these exhaustion may arise too soon for the participation in mechanical occupation, and I would recommend that the same sort of mental stimulus which has been found beneficial in the officer should be employed—that is to say, games. Games absorb the attention and infuse a different spirit from any other kind of employment, and a selection of some games, as bowling, or quoits, or skittles, would add materially to our therapeutic resources.

As a practical outcome of these suggestions, I would recommend that the Government should provide a large hospital for the reception of soldiers who are supposed to be suffering from a heart affection; that these principles of treatment I have detailed should be employed for the recognition of the nature of the complaint, and the principles of treatment here recommended should be carried out.

As soon as signs of improvement are shown, the soldier should begin drilling—at first for a short time each day; and, as improvement goes on, the time increased until he was able to undertake a normal amount. In this way his preparation for fitness would begin early, and he would be rendered fit much sooner than under the present method of treatment.

I would also suggest that this view of the nature of the soldier's heart should be communicated to the medical officers, in order that the diagnosis should be in conformity with the actual condition, and in this way prevent the grievous injury that is done to the sick soldier by implanting in his mind the depressing idea that he suffers from an affection of the heart.

THE IRRITABLE HEART OF SOLDIERS.*

BY

R. McN. WILSON, M.B., CH.B. GLASC.

IN the course of my work as assistant to Sir James Mackenzie, in the inquiry conducted for the Medical Research Committee, I have examined upwards of 200 cases of the condition known as "the irritable heart of soldiers." Careful study of these cases has brought me to the same conclusions as those enunciated by Sir James Mackenzie. I have met what I can only regard as a definite clinical picture, sharply defined and differentiated. The cardinal symptoms he has indicated—great exhaustion after effort; breathlessness on slight exertion; a rapid pulse, which becomes much more rapid upon the slightest attempt at action; pain over the precordial region or along the left costal margin; and a vasomotor condition of greater or less stability—have been present in all my series. I have observed also the tendency to attacks of giddiness to which he drew your attention, the nervous symptoms, the generally high blood pressure, and the tendency to persistence of the condition so long as the soldier is kept confined to his bed.

I propose, therefore, to confine myself to a consideration of the history of the condition, and shall include under this heading the various theories regarding causation that have at one time or another been advanced.

In 1864 the British Government appointed a committee to inquire into the heart conditions prevailing in the army. The committee was assembled by Earl De Grey, and consisted of three generals and two doctors. It sat during the years 1864, 1865, 1866, 1867 and 1868, and issued four reports. In the last the question of infantry accoutrements was considered, and a recommendation was made that the

* Read at a meeting of the Section of Therapeutics of the Royal Society of Medicine.

principle of the brace should be adopted. The idea was that the old form of accoutrement restricted the heart's action. The committee described the condition of irritable heart, which it seems to have recognized clearly as "an extreme excitability of the heart, combined with some, but not great, enlargement. During rest a heart of this kind beats easily, but on the least exertion its action becomes irregular, and the man becomes breathless." The recommendation of the committee regarding the change of accoutrement was later on adopted.

The American Civil War meanwhile was furnishing a large number of cases of "soldier's heart," and in 1864 Henry Harthorne published a paper in the *American Journal of Medical Science* which, I venture to say, furnishes an exact picture of the condition as Sir James Mackenzie has described it to-day. Dr. Harthorne laid stress on the rapidity of the pulse, on the acceleration of the heart's movements on the slightest exertion, on the shortness of breath, and on the cardiac muscular weakness. He suggested that in the soldier the heart was injuriously affected by long-continued over-exertion with deficiency of rest and often of nourishment, and he pointed out that several months of rest and treatment in hospital failed to do more than improve without really curing a large proportion of well-marked cases.

Two causes had thus been suggested so far back as 1864—tight accoutrements and over-exertion. The tight accoutrements were done away with, but the irritable heart remained. I pass over here the contribution to the subject made by Dr. Arthur Myers, of the Coldstream Guards, in 1870, because his description is similar to that already given, and because he also regarded accoutrements as the exciting cause of the trouble. But I must call attention specially to the paper of Da Costa published in 1871 in the *American Journal of Medical Science*. It is the best known contribution to the subject. Da Costa saw upwards of 300 cases in a hospital in Philadelphia, and he affords the following striking picture:

A man, three months or so on active service, was seized with diarrhoea, annoying yet not severe, soon rejoined, and then noticed that he could not bear exertion as well as formerly. Out of breath and unable to keep up with his comrades; dizziness and palpitation; accoutrements oppressed him, yet otherwise he seemed well and healthy. Sought advice; was sent to hospital, where his persistent quick heart confirmed his story. Digestive disturbances, if present, passed away, but the irritable condition of the heart remained, and only very slowly did this get normal or it failed to do so.

Da Costa then proceeded to paint the same picture as that which has been shown to-day by Sir James Mackenzie. He mentioned, however, that he had noted that intercurrent attacks of fever caused the pulse to become less and not more irritable, and to slow down while the attacks lasted.

In 1876 a new phase of the subject was presented when, the change in form of accoutrement having failed signally to effect any improvement, Surgeon Arthur Davy suggested that what he called "setting up" drill was the cause. His theory was ingenious. Setting-up drill, he said, by over-expanding the chest, caused dilatation of the heart and so induced irritability. This view found support in 1880 from Brigade-Surgeon Veale, and again in 1896 from Surgeon-Captain J. B. Wilson, but the discontinuance of setting-up drill does not seem to have put an end to the condition. On the contrary, I have met it in cases in which this cause could be absolutely excluded, the patients having undergone little or no drill.

The theorists, therefore, are bankrupt; the disease remains. More recently we have been asked to view it from the bacteriological standpoint, and more recently still as a condition depending upon faulty action or excessive action of the thyroid gland. I am not in a position to discuss these views, but it is interesting to note in this latter connexion that I have observed that in some eighteen of my cases the thyroid gland was definitely enlarged, and that administration of thyroid extract seemed to exacerbate the symptoms. The application of *x* rays to the thyroid gland is said to have effected improvement in some cases. Let me say, however, that I have seen cases presenting very much the same clinical picture in which the administration of *x* rays did not help matters at all.

In view of the dangers which have attended the making of theories to explain this disease in the past, I am

strongly of opinion that we must preserve an open mind. There would appear to be but one sound method in regard to the condition—the method of prolonged observation and continuous study. Many tempting views suggest themselves, but few stand the test of further investigation.

On the other hand, a few facts seem to have emerged. One of these is that a cheerful atmosphere confers benefit, and a depressing atmosphere exaggerates the condition. The patients are always better when their minds are enlisted in some more or less congenial occupation.

A NOTE ON CERTAIN OF THE VASCULAR PHENOMENA OF CARDIAC DISEASE.

BY

BASIL PARSONS-SMITH, M.D.

THAT considerable importance should invariably be attached to a complete investigation of the blood vessels in all cases of heart disease has long been maintained, and, particularly from the point of view of prognosis, with obvious advantage, for the circulatory mechanism, in its dual constitution of heart and blood vessels, needs a careful and complete study if anything approaching accuracy in the forecast is to be obtained.

Whilst, therefore, every cardiac case that comes before us must undergo a minute examination of the heart itself, its size, rhythm, sounds, etc., our responsibilities do not stop there: we must go further and undertake a rather more generalized study of each particular patient, inquire into the condition of the kidneys and their excretive powers, form some opinion as to the condition of the arterial walls, estimate the blood pressure and pulse tension, and glean additional information from various of the graphic tracings taken from the large superficial vessels, from electrocardiographic records, and by the method of direct vessel auscultation.

The strides which have been made in these latter methods during the past few years are very extensive and widespread in their application; they render possible a diagnostic accuracy hitherto unknown, at the same time facilitating treatment and firmly establishing it upon a sound scientific basis.

With regard more especially to the particular physical signs evinced by the vessels a mass of interesting data is forthcoming; for the purposes of the present communication it is proposed shortly to consider the great venous and arterial channels at the root of the neck and detail a selection of the causes which warrant their very careful study.

In the first place we may conveniently discuss the value of simple inspection, and by so doing formulate a working comparison between the healthy subject and the victim of disease. Reference to the former need but be brief, for the normal neck presents remarkably few noteworthy features; careful inspection discloses results of a singularly negative character; arterial pulsation cannot be made out, and it is only on looking carefully that one can appreciate some slight amount of venous movement, either produced by the external jugular vein, which pursues a superficial course for the majority of its length—in fact, to the root of the neck, where, immediately above the mid-clavicular point, it perforates the deep fascia to join the subclavian vein—or by the internal jugular vein, which, lying rather more deeply in the neck on the outer side of the common carotid artery, may be noticed to visibly pulsate, especially if the overlying sterno-mastoid muscle be relaxed. While, however, this slight amount of venous pulsation may be perfectly obvious in the healthy subject, we must clearly realize that it is by no means a *sine quâ non*, for one frequently notices that it is entirely absent, and unable to be appreciated by naked-eye observation, especially in those normal adults who are possessed of necks nicely proportioned and free from hollows. It seems, therefore, from the foregoing that one must accept both slight venous pulsation and its complete absence as conforming entirely to the healthy state of the normal adult, and, as a general rule, it may be taken that the amount of subcutaneous fatty tissue is the determining factor in every case.

Following inspection one must proceed a step further and endeavour to become conversant with any auscultatory

phenomena which may be normally recognizable at the root of the neck. This question is one which can readily be proved to offer little difficulty: the second aortic sound is clearly heard when one listens over the common carotid artery, also the first sound, which, though perfectly definite, is less well conducted than the former; both sounds, moreover, are better heard on the right side than on the left, as one would naturally expect from anatomical considerations, and both undoubtedly suffer some diminution in intensity by reason of the fact that they invariably mingle to some extent, not only with the respiratory murmur, but also with the venous hum which can so often be detected, especially if the venous channels be large. It is, however, possible, by using gentle pressure, to compress the veins sufficiently to abolish this bruit, but great care must be taken, for if the pressure be excessive the arterial lumen will also be diminished, and a bruit in the artery itself will thereby be produced.

These few remarks explain sufficiently what one must expect, and provide for us a clear mental picture of the characteristics peculiar to health, so that there can be no difficulty in recognizing the various and significant changes which manifest themselves coincidentally with the onset of cardiac disturbances.

That the comparison is striking and self-evident one needs but call to mind the clinical picture which valvular disorders so often present late in their history: the jugular veins, overcharged with blood, stand out in prominent fashion, and over them passes a swift wave-like rippling movement, the visible indication of the state of affairs in the auricular chamber.

This venous pulsation is very frequently of value from the point of view of diagnosis, for its types are many and varied. To mention but a selection will suffice:

(a) The extremely irregular rhythm of auricular fibrillation.

(b) The break of an otherwise regular rhythm by the incidence of premature beats; of the latter, possibly the most evident are those originating in the atrio-ventricular region.

(c) The flickering undulation of high velocity which characterizes the paroxysms of true tachycardia and auricular flutter.

(d) The differing venous and arterial rates of auriculo-ventricular block, several auricular beats being recorded for every one of the ventricle, a physical sign which renders ordinary heart-block diagnosable by means of inspection alone.

One moment's consideration, therefore, will prove that venous pulsation at the root of the neck is by no means a rare phenomenon, being present in health to a slight degree, and in cardiac disorders frequently. Naturally, the extent of the pulsation and the particular amount of venous distension are variable factors and significant at times of widely differing conditions. More often than not a forcible deep inspiration will temporarily empty the distended veins, but there are conditions in which no such effect can possibly be produced, as, for instance, (a) pericardial effusion, if the amount of fluid be sufficient to effectively obstruct the onflow of venous blood to the heart; (b) adherent pericardium, the extreme fibrosis accompanying which spreads slowly and by degrees round the great vessels, tending in time partially to strangle these latter, an effect much exaggerated by deep inspiration; (c) aortic aneurysm, in which the venous overfilling assumes a more permanent quality, tends to be rather more prominent on one side than the other, and extends over a very wide area, possibly including the side of the face, the arm, and the chest wall in varying amounts; (d) new growth, probably a more frequent cause of permanent venous distension than any other.²

Such considerations, therefore, outline the importance attaching to over-distension of the veins. Equally important, however, is the other side of this picture, which, shortly expressed, may be taken to indicate a myocardial failure, the muscle being too weak to maintain even a small amount of venous plethora. This particular branch of the subject has been ably referred to by Stacey Wilson in certain of his recent lectures. He lays special stress upon the signs of heart weakness in later life, when the actual volume of circulating blood is cut down, the area of cardiac dullness is diminished, the loudness of sounds and

murmurs is lessened, the supraclavicular hollows are empty, and the cervical veins are maintained in a state of permanent collapse. Signs such as these, therefore, are the expressions of an enfeebled myocardium, whose mechanical powers have become curtailed to such an extent that a physiological rearrangement has become necessary—namely, an actual decrease in the amount of circulating blood, and a general vascular emptiness; memorable phenomena, in that they are so unlike the physical signs met with in cases of cardiac failure, where, in spite of a general venous distension, hepatic engorgement, oedema, etc., the cardiac muscle continues to contract in vigorous fashion, possessing, as often it does, abnormal powers of resistance.

THE ARTERIAL PHYSICAL SIGNS.

Under this heading it is proposed shortly to consider the diagnostic help which may be acquired by a careful inquiry into the conduct of the large arterial trunks at the root of the neck.

The carotid vessels, whose beat can be accurately located by palpation on a line drawn from the inner end of the clavicle to a point midway between the angle of the jaw and the mastoid process, are sufficiently deeply placed under fascial and muscular coverings that, under all ordinary circumstances, no pulsation is visible. With the presence, however, of certain diseases, notably aortic regurgitation, profound anaemia, exophthalmic goitre, etc., this obviously does not apply; one has only to call to mind an ordinary case of aortic disease to remember at once the intense pulsation visible in the neck in such a case, and, further, that the pulsation is of a peculiarly collapsing quality, an ill sustained wave, especially in the later stages of the disease, so much so that one is persuaded to adopt as a general working hypothesis the fact that the greater the amount of collapse present the greater the amount of regurgitation, and necessarily the greater the progress of the malady. This, however, does not apply to those cases in which the aortic stem and large arteries have become rigid with disease and possibly there may be a progressive stenosis superadded to the original disease; such changes would obviously militate against an excessive pulsation.

This latter subject—namely, exaggerated arterial pulsation—should under no circumstances be dismissed without remembering a fact which seems very self-evident, but which is none the less important—that, when present in consequence of an aortic lesion, it constitutes a bilateral feature, in contradistinction with its one-sided appearance in aneurysm of the carotid artery and also when on one side the normal carotid artery is displaced forwards by some such agent as a neoplasm which causes the vessel to take up a more superficial position. The differential diagnosis between these conditions offers no difficulty when one remembers the generalized implication of the vessels in the one instance and the purely localized signs in the others.

Proceeding next to direct vascular auscultation, and remembering that the heart sounds, both first and second, may be heard quite clearly in the arteries of the neck under normal conditions of health, it does not seem in the least surprising that murmurs may also, at times, become evident. First, the true systolic murmur, which, possibly, of all murmurs is the most readily conducted towards the periphery. This murmur may be produced in one of two ways—either by a true aortic stenosis, or by an aortic dilatation causing a condition of virtual valvular stenosis, with possibly the presence of rigid, rough valves; and with the first of these conditions, the seldom seen true stenosis of the aortic orifice, one hears a rough systolic murmur on auscultating the carotid or subclavian artery in the neck, a marked diminution in the loudness of the second sound, and palpation reveals the conduction of the systolic thrill into the same vessels. The second condition—namely, aortic dilatation with valvular roughening—also yields a loud systolic murmur with upward conduction; but in this case there is no thrill and the aortic sound is accentuated in loudness.

Deserving, moreover, of some attention in the present context are the upwardly conducted murmurs which result from some one of the large variety of congenital lesions—such, for instance, as (1) the murmur produced by pulmonary stenosis, which, resembling the pulmonary

dilatation murmur of anaemia, suffers conduction into the cervical vessels on the left side but not on the right; (2) the murmur of congenital aortic stenosis, and (3) the murmur of pulmonary stenosis, which, complicated as often it is by the patency of a ductus arteriosus, is conducted by the agency of the latter into the systemic vessels, and therefore can be heard clearly in the carotid arteries on both sides.

These considerations concerning the upwardly conducted systolic murmur, with brief reference to the arterial murmurs in exophthalmic goitre and anaemia, lead to an examination of the murmurs which are found in the diastolic interval. It will suffice for this present purpose if we make short mention of the murmur and some of the physical signs associated with incompetence at the aortic orifice.¹ In the writer's opinion, apart from a very natural study of the amount of dilatation present, and also the progress of the sclerotic changes in the heart and vessels in each particular case, one may form a very reasonable estimate of the progress of the malady by a careful investigation of the murmur itself and its routes of conduction. In the early stage one hears the typical murmur following the second sound, and seemingly preventing the valves closing with the usual snap; this murmur is conducted down the sternum apexwards, and auscultation in the neck reveals only the normal heart sounds, possibly the second being somewhat weakened. Stage II arrives with a conduction of the murmur into the vessels—the well known murmur of Duroziez, the first and second sounds being, however, still faintly heard. Stage III differs only from Stage II in that the murmur is more distinct in carotids and the second sound can no longer be detected. This departure of the second sound from the carotid, by preference the right carotid, where one is out of reach of the pulmonary sound, always marks a serious advance of the disease, as does the advent of Stage IV, when one is only able to hear a loud murmur in the vessels, possibly even the double aortic (bellows murmur), by reason of some certain amount of added sclerosis producing a narrowing of the aortic orifice, and the heart sounds are quite inaudible.

It seems valuable, therefore, to listen especially for the normal second aortic sound in the neck in patients with aortic incompetence; also to ascertain if the murmur is conducted into the vessels, its relative loudness in this situation and at the aortic cartilage, and to base one's prognosis upon the results of such an investigation, combined with the ordinarily careful physical examination.

THE VENOUS PHYSICAL SIGNS.

Under this heading we may range a varied and interesting group, the several members of which not only afford valuable comparison with the state of affairs normally obtaining at the root of the neck, but assume an importance equal in every respect to that attaching to the arterial physical signs just enumerated. Visible venous pulsation, so insignificant in the healthy, becomes with disease a striking feature, and may assume, broadly speaking, one of two great varieties—either the positive or the negative type. By these terms one distinguishes the pulsation observed in a vein which is filled during systole—as, for instance, when, with an incompetent tricuspid valve, every contraction of the ventricle reflects, quite unopposed, a wave into the proximal veins—from the opposite type, the negative pulsation, so called because, with the systolic phase, there is a definite venous emptying. As a rule it is quite impossible to differentiate these pulse variations by inspection alone, and, as we shall see later, one can only form an accurate diagnosis if aided by some instrumental method—either a graphic record of the excursions of the vein wall, such as can readily be furnished by any ordinary polygraphic machine, or by the more recently devised method of Parkinson,² who photographs directly the venous pulsation by seating the patient so that the neck is placed directly in the beam of light from an electrocardiograph. By this proceeding one overcomes the disadvantage which sometimes attaches to records obtained by the tambour process—namely, the instrumental delay and possible overswinging—and, in addition, one can simultaneously record the electrocardiogram, thus, for timing purposes, producing a combined tracing of the greatest possible value.

Naturally, however, one cannot invariably obtain these

venous pulse records. There are at times difficulties, as, for instance, with the excessive arterial pulsation of aortic disease, when the venous pulse is quite obscured; also at times of respiratory distress, when, all the accessory muscles of respiration being brought into play, it becomes quite out of the question to attempt any form of tracing at the root of the neck, and in the extreme venous emptiness which is known not only to result from severe heart weakness but also to accompany certain types of adherent pericardium, though in this latter condition one more usually finds a universal venous engorgement, somewhat approaching the condition observed in cases of aneurysm and pericarditis with effusion. These two diseases, however, are somewhat distinct, in that with them venous distension is quite continuous, not disappearing even when a deep inspiration is taken. Moreover, with the presence of pericardial adhesions, the fullness or emptiness respectively of the great veins being determined by the actual position and consistence of the adhesions themselves, one usually finds that the veins are also permanently distended and cannot be emptied, even by a forced inspiration. There is, however, another frequently occurring lesion which participates in the production of venous distension; it is tricuspid incompetence, and the progress of this particular valvular mischief may be very fairly judged by carefully examining the great venous channels connected with the right auricle. For our present purpose we may take the different stages which characterize the condition; its early course, as portrayed by means of ordinary phlebographic tracings, presents no features of note; in fact, the record appears normal. Fig. 1 is an example, and, taken from a

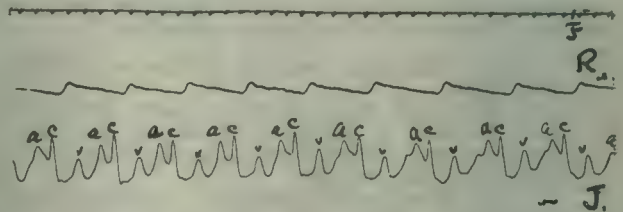


FIG. 1.

patient whose tricuspid valve had for some months been continuously leaking, amply supports the contention; the wave of auricular contraction is well marked, and occupies a normal situation in respect of *c*, the wave caused by the ventricular systole, and this latter is followed at a perfectly normal interval by the *v* wave, which results from the blood stagnating in the auricular chamber prior to the opening of the auriculo-ventricular valves.

When, however, the valvular incompetence progresses we soon begin to notice changes in the venous tracing; the auricle, which at ordinary times was filled solely by the onflow from the veins, is now, in addition, supplied by the regurgitant stream from the ventricle; hence not only is there an overfilling and distension of the upper chamber, but clearly also an auricular filling which is earlier accomplished than formerly it was, and, this being so, one is not surprised to notice that the *v* wave appears prematurely if the tricuspid valve has suffered much damage. To make quite apparent the foregoing remarks one has only to compare the relative positions of the *v* waves in Figs. 1 and 2,

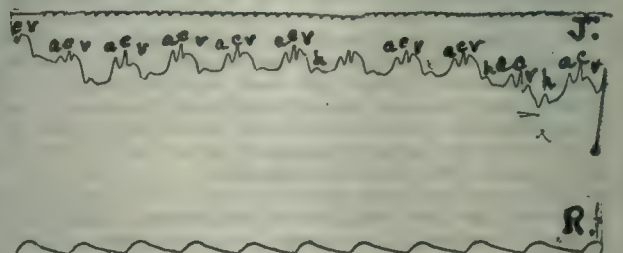


FIG. 2.

which are reproduced to illustrate the first two stages of the condition as recognized by polygraphy.

As time progresses the prominence of the *v* wave becomes more marked, and it merges gradually into *c* wave so that a composite wave is produced, itself ample evidence of the auricular engorgement; but later, and

possibly not until after the lapse of some years, the venous chambers become overtaxed and the auricular muscle, following the protracted period of stress and overstrain, capitulates completely, its wall ceases to contract co-ordinately, and frequently passes into a condition of fibrillation, which, though implying intrinsic activity, is to all intents and purposes useless for the onward propulsion of the blood stream.

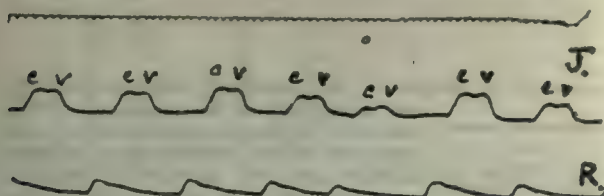


FIG. 3.

Fig. 3. is a tracing typical of this advanced stage in the history of tricuspid incompetence; we notice in it—

1. A complete absence of the auricular waves.
2. A fusion of the c and v waves.
3. A similarity between the arterial and venous tracings in that in both one observes a systolic filling and a diastolic emptying, a state of affairs entirely different from that observed at all ordinary times.

Bearing these observations in mind, and admitting that they are by no means comprehensive, but, rather, isolated facts which tend towards and amply warrant a careful study of the varied and widely differing phases which the great veins may assume, one would recommend their careful examination as a matter of routine, especially in cardio-vascular disorders, and, in conclusion, suggest that venous auscultation be not forgotten, for by its aid one gains additional advantages, abnormal sounds become audible—for instance, the well-known *bruit de diable*, characteristic of anæmic states, which, caused by loss of tone in the vein walls, is heard best when the patient is in the standing position, also the upwardly conducted venacaval murmur, the sounds resulting from the closure of the venous valves, and, lastly, the clicking sounds to which the rapidly contracting auricle of auricular flutter gives rise and which are aptly referred to by Morrison as jugular embryocardia.

REFERENCES.

¹ Bard, *Archives des maladies du cœur*, etc., May, 1915. ² Chapman, *Medical Society's Transactions*, vol. xxx, 386. ³ Parkinson *Heart*, vol. vi, No. 1.

THE HEART'S ACTION IN JAUNDICE.

BY

J. DAVENPORT WINDLE, M.D.,

SOUTHALL.

THE belief is prevalent that the pulse becomes unusually infrequent and at times irregular in rhythm in jaundiced patients. These changes in the pulse are said to occur commonly in catarrhal jaundice, although met with occasionally in jaundice from other causes. It is curious why there should be this difference if, as is stated, the slowing of the heart is due to the action of bile salts on the heart muscle and intrinsic inhibitory mechanism of the heart.

I have investigated the heart's action in a number of jaundiced patients; in some I have found the pulse infrequent, in some irregular, in others both infrequent and irregular, but I have not been satisfied in any case that the jaundice was responsible for the infrequency or the irregularity. It is said the pulse may fall as low as 40 a minute; if by "pulse" is meant rate of ventricle, this rate, then, must be rare. I have not met with an instance in over 100 cases of jaundice. Slowing of the ventricle to 40 or below, whether occasioned by disease or poison, is, with rare exception, due to partial or complete heart-block, and so far as I know heart-block in the course of jaundice has not yet been illustrated.

A pulse-rate about 50 and 55 a minute is not uncommon in patients with jaundice when free from fever and the patient is kept in bed, but this is not proof that the jaundice is the cause of the slow pulse; the patient's normal pulse-rate must be known, and how it behaves in

other conditions, because the pulse has a tendency to become infrequent in many non-febrile illnesses when patients are confined to bed. The slowest pulse-rate I have met with due to total bradycardia, in an adult with jaundice, was 50 a minute. The patient was a man aged 65, with severe jaundice from gall stone disease; his normal pulse-rate was about 72 a minute. A year after this attack of jaundice he had severe bronchitis with fever and a fast pulse. When he was getting better the pulse fell to 50 to 52 and kept at this rate until he got about again. I could relate many similar examples; on the other hand, in the vast majority of cases of jaundice in adults I have found the frequency of the heart about or above the normal.

In a number of cases I have found a pulse-rate of 40 and below; but the heart-rate has been double the pulse-rate, the infrequent pulse being due to an alternate premature beat of the ventricle too feeble to send a wave to the wrist. This is shown in Fig. 1.

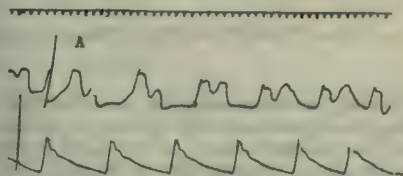


FIG. 1.—Showing two beats of the left ventricle to one of the pulse. A, Apex.

Cases of jaundice with this form of irregularity of the heart and pulse slowing have been published to illustrate the action of the bile salts on the heart, the assumption being that they increase the excitability of the heart muscle, and thus provoke the premature contractions; but there is no other proof advanced, and information is wanting as to the rhythm of the heart before the jaundice occurred and after it had passed off. My own experience indicates no proof that patients with jaundice are more liable to develop extra-systoles than are patients suffering from other toxic conditions. All the cases of jaundice with premature beats I have observed have occurred in persons past middle age; I have not met with any example in a child or young adult, whereas poisons—notably the digitalis group—which in very large doses may produce extra-systoles, do not show this selective action as regards age. In most of my cases of jaundice showing premature beats I know extra systoles were present in health. In some, in which premature beats were noted for the first time during jaundice, I found the extra-systoles persisted long after the patients were free of jaundice, and although this fact does not disprove the provocative action of the bile salts, nevertheless experience has shown that extra-systolic irregularity due to poisons ceases within a few days after the cause is removed. I do not contend that irregularity due to extra-systoles may not be favoured during jaundice—it may be; but I submit it is not because of any action of the bile salts on the cardiac muscle, but because the illness keeps the patient resting. This slows the heart, and premature beats, perhaps only occasional in health, tend to become more frequent with the slower heart action.

As already stated, the pulse is said to be affected more particularly in catarrhal jaundice. This is not a common ailment in adults, and I have notes of only four adult cases; in three of these there was nothing noteworthy in the pulse, in one case sinus irregularity was present. This patient was a woman aged 35; jaundice was marked. In the tracing (Fig. 2) is shown a waxing and waning in rate

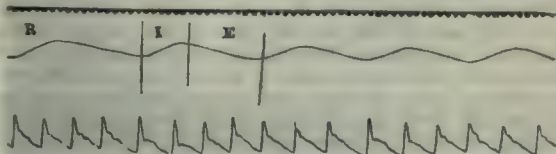


FIG. 2.—R, Respiration; I, inspiration; E, expiration.

of pulse, which is 65 per minute on the average. The variations in length of diastoles are independent of the respiratory movements. I have frequently noticed this relation in sinus arrhythmia induced by digitalis, and the irregularity in this case may be due to the jaundice.

I knew nothing of the patient before this illness, but since, I have taken several tracings at rest without finding any irregularity and an average of pulse of 75 to 80.

Catarrhal jaundice in young people is commonly associated with a slow pulse, the rate being often no more than 50 to 60 per minute. The slow pulse is always irregular, and in my experience the irregularity is always due to sinus arrhythmia.

Fig. 3 is a tracing from a boy, aged 13, with catarrhal jaundice; the rate of the pulse is about 52 per minute; the irregularity is of sinus origin. The pulse-rate in health was usually about 80 and irregular in the same way. A year before this record was taken he had scarlet

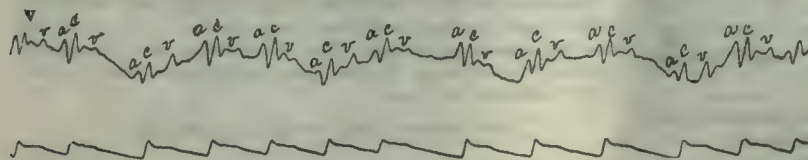


FIG. 3.

fever, and during convalescence his pulse slowed as much and became as irregular as it did during jaundice.

Fig. 4 is from another case, a boy aged 9; the rate is about 63 and sinus irregularity is present. This boy's pulse is usually about 80 and irregular. He had a pulse of 60 after measles two years later.

These tracings are exemplary of a number I have from similar cases. Sinus irregularity is present in about 80 per cent. of healthy children; those who show it usually have a slower rate of pulse than the average for the age, and there is a curious susceptibility in this rhythm for the pulse to become unduly infrequent under conditions which tend to lower the pulse-rate; during sleep, for example,

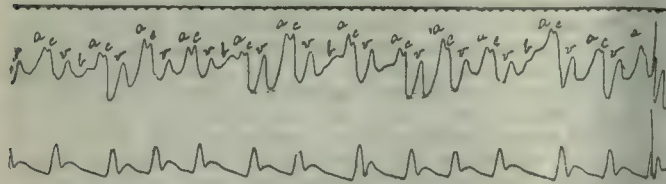


FIG. 4.

and after any febrile illness the pulse often becomes very slow and irregular.

In catarrhal jaundice there is usually fever with a rapid pulse before the jaundice appears; when the jaundice comes out the fever goes, and often the pulse suddenly

falls in rate—may be from 100 to 120 with regular rhythm to 50 to 60 per minute in course of a few hours—and

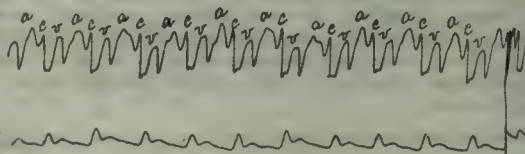


FIG. 5.

becomes very irregular. This naturally attracts attention, and is ascribed to the jaundice; it will generally be found, however, in such cases that sinus irregularity is present in health, and the pulse will behave in the same way in the same patient after any febrile illness; such at least has been my experience.

Poisons which slow the heart have also the power of causing heart-block or hindrance to the passage of a-v impulse through vagus inhibition of conductivity. As already stated, no instance of heart-

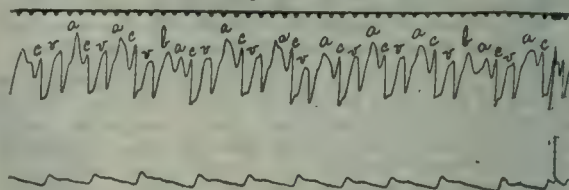


FIG. 6.

block during jaundice has been illustrated. In 1911 I had a case of catarrhal jaundice under my care, in which at first there was seemingly impaired a-v conduction, evidenced in the jugular pulse. The patient was a boy aged 13; Fig. 5 is the record taken on the fourth day of well-marked jaundice; the pulse-rate is 75 per minute; impaired conduction is suggested by the lengthened a-c interval, which measures about $\frac{3}{4}$ sec. Next day the rate of the pulse had fallen to 68; in the tracing (Fig. 6) there is an additional wave marked b with the slower beats; careful examination of this curve will show that the lengthening of the a-c interval is apparent only, being brought about by fusion of the waves b and a during the quicker pulse periods. I have illustrated this fallacy more fully in a paper published in 1912.¹

REFERENCE.

¹ Quarterly Journal of Medicine.

FROM THE VISIBLE TO THE GAMMA RAY SPECTRUM.

By SIDNEY RUSS, D.Sc.,

PHYSICIST TO THE MIDDLESEX HOSPITAL.

(With Special Plate.)

In the accompanying Plate (Fig. 1) is represented a chart of the wave lengths of rays ranging from the visible part of the spectrum to α rays and the gamma rays of radium. The numbers across the top of the diagram represent the number of octaves which the rays range over; the numbers across the bottom give their respective wave lengths in tenth-metres—that is, ten thousand millionth parts of a metre.

The limit of visibility at the red end of the spectrum is 7,594 tenth-metres, and is a convenient starting-point for the purposes of this article; the visible region of the spectrum is constituted by almost exactly one octave of radiation, for the wave length of the ray corresponding to the extreme violet is very nearly one-half that of the extreme red. Passing into the ultra-violet portion of the spectrum, it will be seen that rather more than two octaves have been investigated.

A region of about six octaves, which remains at present unmapped, separates the extreme ultra-violet from the commencement of very "soft" α rays. The most easily absorbed α rays whose wave lengths have been determined are the characteristic rays from aluminium with a wave length of 8.4 tenth-metres. As we pass up through

several octaves of α rays the limit indicated by H is reached; this represents the "hardest"—that is, the most penetrating α ray which has, so far, been produced. The line M represents an α -ray beam of "medium" penetrating power.

The gamma rays from radium are represented in wave lengths as extending between the two heavily dotted lines on the diagram, and it will be seen that the most penetrating gamma rays are of appreciably smaller wave length than the "hardest" α rays so far available. On the other hand, some of the gamma rays are of longer wave length, and therefore more easily absorbed than "very hard" α rays.

The two other lines marked Ca and Ag represent the characteristic α rays emitted by calcium and silver respectively.

One of the objects of this article is to put forward a plea for a more exact specification of the different types of radiation which are used in experimental investigations and therapeutically. It is submitted that the time has passed when it sufficed to record, for example, that exposure to hard α rays caused the disappearance of a malignant growth, or that a lethal effect was observed.

SIDNEY RUSS: FROM THE VISIBLE TO THE GAMMA RAY SPECTRUM.

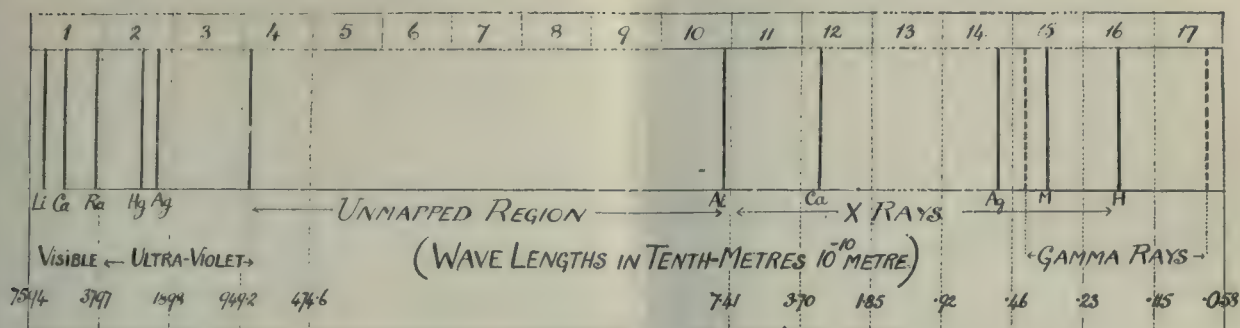


FIG. 1.

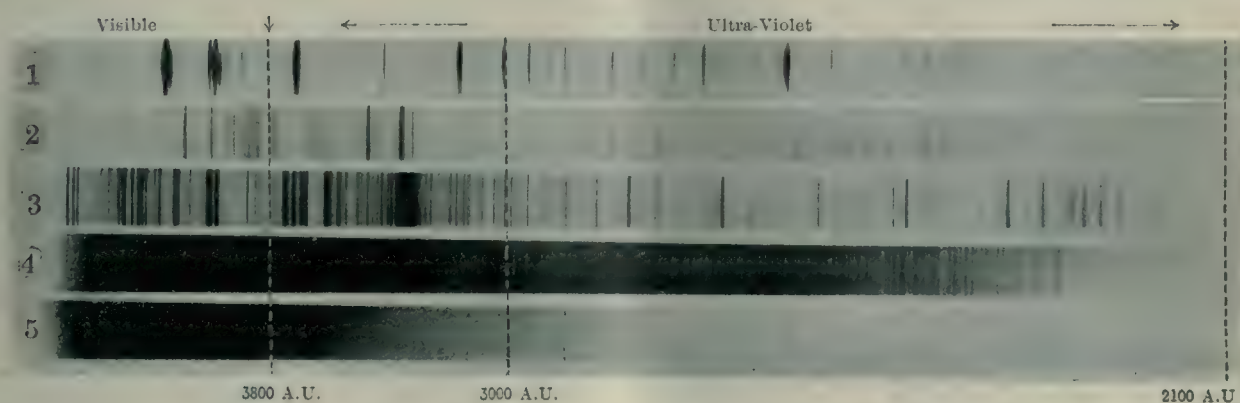


FIG. 2.—Sources of Ultra-Violet Light 1. Mercury arc. 2. Silver arc. 3. Copper arc. 4. Simpson arc. 5 Carbon arc.

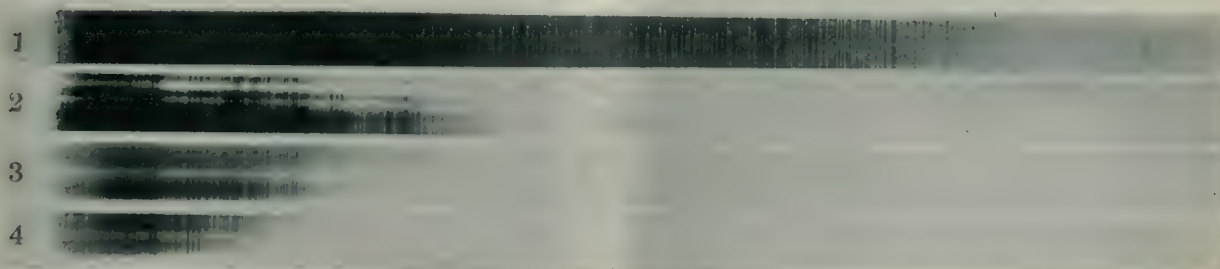


FIG. 3. Absorption of Ultra-Violet Light by Human Skin. 1. Unscreened radiation from the Simpson arc; exposure 5 seconds. 2. Screened by one tenth of millimetre of skin; exposure 2 minutes. 3. Screened by one-half of a millimetre of skin; exposure 8 minutes. 4. Screened by one and a half millimetres of skin; exposure 8 minutes.

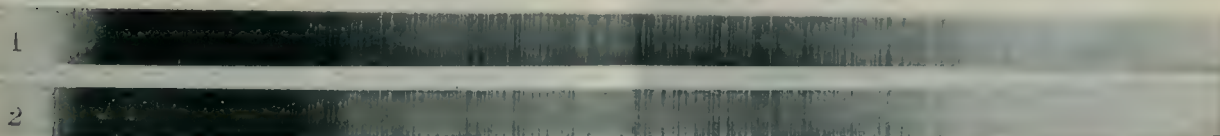


FIG. 4.—Ultra-Violet Spectra of Simpson Arc and Pure Tungsten Arc. 1. Simpson arc. 2. Pure tungsten arc.

upon some organisms by submitting them to ultra-violet light.

THE X-RAY SPECTRUM.

The data are at hand for introducing an added degree of precision in specifying the type of radiation which is utilized. The matter may be illustrated by an example selected at random. The term "hard x rays" is understood to mean x rays which have a high penetrating power; for the production of such rays a bulb would be run with a parallel spark-gap of about 20 to 25 cm. The radiation from such a bulb is, however, heterogeneous; a screen of aluminium 2 mm. thick will cut out the "soft" constituents, but the rays are not yet homogeneous, for an additional 1, 3 and 5 mm. will cut out various other components of the beam until it becomes practically homogeneous with a wave length of almost exactly 0.2 tenth-metres. The beam of "hard x rays" in these several cases may range over an octave of wave lengths, and different reactions are exhibited by tissues according to whether they are exposed to radiation at one or the other end of the octave. It is suggested that a statement of the range of wave lengths utilized would eliminate many of the uncertainties introduced by such terms as "hard," "medium," and "soft."

Reference may be made here to one difficulty that presents itself with regard to x rays. The question arises as to what regions of wave length are to be assigned to the radiation which is commonly known as "soft," "medium," or "hard." Reference to the diagram shows that x rays have been mapped over a region of about $5\frac{1}{2}$ octaves. The rays "characteristic" of aluminium (8.4 tenth-metres) are "very soft," for they are absorbed by a few centimetres of air; in fact, over the three octaves from this starting point the radiation might be termed "very soft." The next octave—namely, from 1 to 0.5—includes the characteristic rays from platinum and a good part of the unscreened rays from a "soft" bulb (5 to 10 cm. spark gap). The next octave would then comprise "medium" rays; any radiation of smaller wave length than 0.25 could safely be considered as "hard." This subdivision is quite arbitrary, and it is hoped that the Röntgen Society will make some definite recommendations on this subject in the near future.

We may briefly consider the remaining features of the diagram. It will be seen that a portion marked "unmapped region," which comprises about six octaves, separates the extreme ultra-violet from the very "softest" x rays. There are good reasons for believing that other vibrations in this region, that is, of wave lengths ranging from 900 to 9, are very easily absorbed by matter, and this is no doubt, in part, the reason why the other properties of these vibrations have not yet been investigated. Such radiations, however, should not be dismissed from our minds, for it is by no means unlikely that these six octaves of radiation play some part in the reactions of tissues, when they are exposed to the x rays or the rays from radium. If we may apply the information which has been gleaned from the x ray spectrum we might suggest that the amount of this "unmapped" radiation excited in tissues depends not only on the intensity of the beam of x rays, but to a very large extent upon the particular wave lengths utilized. The main chemical constituents of most tissues are essentially the light elements, and all the evidence goes to show that the secondary x rays given out by them under the influence of a primary beam would be very easily absorbed; these rays may even be so slightly penetrating as to be mainly absorbed within the cells from which they originate. Now it is safe to say that more of such radiation would be provoked by a beam of "soft" x rays than by a "hard" beam of equal intensity. Such a secondary process, initiated by the primary beam, may in fact play a dominant part in determining what is spoken of as the reaction of the tissues. The fundamental fact that the human skin when exposed to "soft" and "hard" x rays of equal intensity reacts in an entirely different manner has not, so far, received a rational explanation, and it may be appropriate in this connexion to invoke the above probability which is suggested by general considerations of the spectrum.

THE DANGERS OF X RAYS.

Let us now turn to a second aspect of this spectrum, which impresses one more and more of its potentiality for harm as well as for good.

D

When the first warning was sounded of the damage which x rays did to operators who were insufficiently protected from them, additional precautions were taken to obviate the dangers as far as these were known at the time. The range of ray which may be utilized has, however, greatly widened as the result of investigation, and this is especially the case for radiation of a high penetrating power. It may well be questioned whether the precautionary measures have extended simultaneously with the wider range of radiation utilized and with the more exacting conditions under which so much of the present x -ray work is conducted.

There are two main aspects of the application of x rays which may be briefly considered. When the rays are administered therapeutically it is a desideratum to be striven after that whoever dispenses the ray should receive no fractional part of the dose given. This becomes increasingly difficult to secure when the more penetrating rays are used, and it is precisely when the step is made from one phase of x -ray therapy to another, such as from the treatment of superficial conditions to what is known as deep-therapy, that it becomes necessary to reconsider the efficiency of methods of protection which, eminently suitable for the former, are inadequate for the latter. When it is borne in mind that "hard" x rays have a penetrating power so high that the intensity of a beam is only cut down to 10 per cent. of its intensity by going through about 12 or 13 cm. of tissue, the difficulty of adequate protection from such radiation will be apparent.

When we turn to the other aspect of the utility of the rays, namely, in radiographic and screen work, the dangers are of rather a different character, though no less real.

The conditions under which the radiographic work necessitated by military affairs is conducted are often very exacting, and this is particularly the case in screen work; such procedure involves the proximity of the operator to the bulb, and however efficient the protective devices may be, it is almost impossible to arrange that the operator does not become irradiated to some small degree. The protective devices cannot be pushed to the limits which are possible under other conditions, for the gloves worn by the operator must not be so cumbersome as to hinder his manipulations, the lead glass of the screen which protects his face must not be so thick as to interfere unduly with the visibility of the picture he interprets, and so on. Again, it has to be recognized that an installation which provides reasonable protection to any one engaged upon it for short or intermittent periods may be quite inefficient when use is made of it for periods of a good many hours per day.

In the light of our present knowledge it cannot perhaps be stated what is a safe limit for an operator to be the daily recipient of in the way of x radiation, but it would appear certain that unless stringent precautions are taken, damage—perhaps irremediable damage—will be done to those who are engaged in one of the branches of medical work the importance of which can hardly be overestimated.

ULTRA-VIOLET RADIATION.

Ultra-violet rays have been investigated over a range of rather more than two octaves. The first octave beyond the visible portion of the spectrum, with wave lengths from 3,800–1,900 A.U.,* is the region of therapeutic interest, for the radiation beyond this, and forming the second octave, is so easily absorbed by air that investigation of it has to be carried out in a vacuum.

In Fig. 2 are reproduced photographs of the ultra-violet radiation from various arcs taken by means of a quartz spectrograph. They are respectively (1) mercury, (2) silver, (3) copper, (4) the Simpson arc, and (5) carbon. It will be seen that the spectrum of mercury vapour does not extend quite so far as that of silver, which, again, has not so large a range as copper. The Simpson arc consists of pole pieces of wolframite, the main constituent of which is tungsten. The radiation from this arc is very rich in ultra-violet rays, and an examination of it shows that it consists of a large number of emission lines which do not vary locally very greatly in relative intensity from one another, although the photographic intensity of the rays gradually fades off toward the region of short wave lengths. The general character of the spectrum of the Simpson arc appears, therefore, to be one rich in ultra-violet radiation, which is graded fairly uniformly throughout the region

* A.U., that is, Angstrom unit, is one-tenth metre.

under consideration; this is in marked contrast to the arc spectrum of copper, which is seen to consist of groups of very bright lines, with considerable intervals between them. The carbon arc (5) is seen to have a somewhat restricted range of ultra-violet radiation.

THE PENETRATING POWER OF ULTRA-VIOLET LIGHT.

When any of the various sources of ultra-violet light are used therapeutically the question arises as to how far the rays are able to penetrate through the tissues. It has long been known that blood pigments are strongly absorbent of such radiation, and means were accordingly taken to prevent, as far as possible, direct access of the blood to the part receiving the rays.

It seemed desirable, however, to make some measurements of the extent to which the ultra-violet rays penetrate the skin. For this purpose skin removed from the human abdomen was used; it was cut parallel to the external surface in layers $\frac{1}{10}$ mm., $\frac{1}{2}$ mm., and $1\frac{1}{2}$ mm. thick by means of a large-sized microtome; these different thicknesses of skin were then placed in front of the slit of the spectrograph, to ensure that any radiation entering the instrument and affecting the photographic plate placed in position, would first have penetrated the particular thickness of skin.

The source of ultra-violet radiation selected was the Simpson arc. When this was placed about 20 cm. distant from the slit of the spectrograph an exposure of a few seconds was sufficient for a photograph of this radiation as far as wave length 3,000. In order to bring out the very short wave lengths the plate has to be rather over-exposed in the violet region (see Fig. 3, No. 1). The exposure in this case was 5 seconds.

It was soon found that skin was very absorbent for the ultra-violet radiation, and consequently the time of exposure had to be much increased in order to obtain any record on the photographic plate. Fig. 3, No. 2, shows the result of interposing $\frac{1}{10}$ mm. of skin in front of the slit of the instrument; the exposure was increased from five seconds to two minutes. No. 3 and No. 4 show the results for a thickness of $\frac{1}{2}$ mm. and $1\frac{1}{2}$ mm. respectively; the exposures were in each case eight minutes—that is, nearly one hundred times that of the unscreened radiation. In spite of this, however, a large portion of the spectrum is cut out.

It will be seen, therefore, that ultra-violet rays of wave lengths 2,100 to 3,000 A.U., the approximate positions of which are indicated in Fig. 2, are very easily absorbed by human skin; certainly less than one part in a thousand of this radiation penetrates to a depth of half a millimetre.

As we proceed to the region of wave lengths 3,000 to 3,800 A.U., which latter marks the onset of visible radiation, the rays become rather more penetrating, but it is doubtful whether as much as 1 per cent. of the radiation penetrates as deep as 1 mm. Fig. 3, No. 4, shows, however, that a small percentage of ultra-violet radiation penetrates $1\frac{1}{2}$ mm. of human skin.

THE SPECTRUM OF THE SIMPSON ARC.

The poles of the Simpson arc are said to consist of wolframite, a prominent constituent of which is tungsten.

In order to see to what extent tungsten contributes to the ultra-violet radiation from the Simpson arc, two electrodes of pure tungsten were obtained, and the arc spectrum photographed in the same way as indicated above for the Simpson arc.

In Fig. 4, No. 1 is a photograph of the spectrum of the Simpson arc, between wave-lengths 5,800 and 2,100 A.U. No. 2 is a photograph of the spectrum of a pure tungsten arc over the same region; the exposures were for five and ten seconds respectively.

Inspection shows that the two spectra are apparently identical. Whether there are differences in the relative intensities of the emission lines cannot be said without a more extensive examination.

THE last report of the librarian of the Harvard Medical School states that 3,100 volumes have been added to the collection during the past year. The library now contains 27,000 volumes and 46,067 pamphlets. The College of Physicians of Philadelphia has 105,540 volumes; the New York Academy of Medicine, 100,320; the Boston Medical Library, 83,107; and the Johns Hopkins Hospital, 17,000.

SODIUM HYPOCHLORITE IN THE TREATMENT OF SEPTIC WOUNDS.

BY

FLEET SURGEON FREDERICK J. A. DALTON, R.N.

IN September, 1915, a committee was sent to the Gallipoli peninsula in the naval hospital ship *Rewa*, by order of the Medical Director-General of the Navy, to report on the efficacy of hypochlorites in the treatment of infected wounds. The committee made two trips to the beaches in this ship—one to Anzac and one to Cape Helles. Unfortunately for their purpose, there was at this time very little attacking going on at the peninsula, and although 1,176 patients were carried in the two trips, the majority were cases of dysentery, enteric, and epidemic jaundice, and the proportion of wounded to sick was very small. The committee returned to England on October 18th.

Before leaving, Dr. H. D. Dakin, who was working in connexion with the Medical Research Committee, asked me to continue the investigation of the value of hypochlorites as opportunity offered on this ship, and this has been done.

In the past two months we have carried an additional 2,753 cases to Alexandria and Malta, but of this large number only a very small percentage have been wounded.

Every wounded patient received on board during this period, whose wound or wounds were clinically septic on arrival, has been treated with the special sodium hypochlorite solution prepared according to Dakin's formula. No other form of antiseptic was employed. Although this report is based on the small total of 57 cases, the results have been so uniformly and consistently good that I think it may be useful to publish it now, in order that the hypochlorite solution may be more generally used in the treatment of wounds than is the case at present.

Wounds that were clinically clean on arrival on board were also irrigated with the sodium hypochlorite solution and dressed with gauze soaked in the antiseptic. But these cases are not considered in connexion with this report since they would probably have remained clean and healed with any other form of customary dressing, and therefore cannot be counted as evidence in favour of hypochlorites being far superior to any other form of antiseptic that we have so far used on board this ship; that being the point I wish particularly to bring out.

Before employing the sodium hypochlorite antiseptic, my colleagues and I in this ship used various weak antiseptic lotions for the thorough irrigation of these large septic wounds, each fancying his own pet solution—be it carbolic acid, perchloride of mercury, etc.—gave the best results. My own predilection was for passing pints of ordinary sterile salt solution through the wound. Since making trials of the hypochlorite solution there has been absolute unanimity among us as to the preference for it, and we all now use it as our routine lotion.

Preparation of Hypochlorite Solution.

The antiseptic solution is made on board from dry carbonate of soda (United Alkali Co.'s best soda ash), bleaching powder of good quality, and boric acid, according to Dakin's directions given in the *BRITISH MEDICAL JOURNAL*, August 28th, 1915. The solution was made in large carboys holding about 40 litres.

Five hundred and fifty grams of the carbonate of soda were dissolved in a carboy half filled with fresh water; 800 grams of bleaching powder were then added, and the mixture thoroughly shaken for five minutes. The carboy was then filled up with fresh water, and, shaking the mixture once more, it was allowed to settle for half an hour. The clear fluid over the precipitate of calcium carbonate was siphoned off as completely as possible, and filtered into a second carboy by passing through a plug of cotton in the neck of a large funnel; 150 grams of boric acid were added to the filtrate, and the mixture was then ready for use. It was drawn off from the carboy as needed by means of a siphon.

The solution was never kept longer than a week, and any unused solution that had been made longer than a week was thrown overboard. This waste is a matter of no moment since the cost of the preparation is so extremely small.

Method of Use.

The usual surgical procedures were adopted for enlarging the wound, making counter openings, removing portions of detached bone, foreign bodies, including bits of clothing, fragments of shell, bullets, gravel, etc. Every portion of the wound was then thoroughly irrigated with large quantities of the hypochlorite solution. One or several rubber tubes, according to the nature of the wound, serving for the introduction of the hypochlorite solution, were then inserted, and strips of gauze arranged around the tubes and lightly packed into every portion of the wound. It is essential that this should be properly done, the idea being that the gauze strips function simply as wicks to convey fresh hypochlorite during subsequent treatment to every surface of the wound.

The outer surface of the wound is then dressed with gauze lightly wrung out in the hypochlorite solution. The ends of the rubber tube or tubes are brought out through the gauze dressings, a bandage lightly applied over all to keep tubes and dressing in position, and the ends of the tubes brought out through the bandage, to serve for the subsequent renewal of the hypochlorite.

In profoundly septic cases the hypochlorite solution is injected into the tubes, by means of a glass syringe, every two hours for the first twenty-four to forty-eight hours, and subsequently less frequently as the wound begins to clean up. In less severe cases we find by experience that syringing with hypochlorite at four-hourly intervals suffices. Each case should be treated, so far as frequency and quantity of hypochlorite administration is concerned, with regard to the size, nature, and septicity of the wound. The object aimed at is to supply every surface of the wound with a sufficiency of fresh hypochlorite solution as often as required.

In bad cases the gauze strips are renewed after the first twenty-four hours. With slighter wounds they may be left in for three to four days, and then usually do not need to be replaced by fresh strips, as the wound generally cleans up with simply occasional squirting of fresh solution into the tubes.*

NOTES OF CASES, ETC.

The cases were under the personal care of Staff Surgeon Fisher, R.N., temporary Surgeons Smith and Beaton, R.N., and Surgeons Gilbertson and Chitty, R.N.V.R. They comprise a great variety of bullet, shell, shrapnel, and bomb wounds, and a number of cases of gangrene following frost-bite. In addition, several stinking appendix abscess cavities were successfully treated with careful irrigation and swabbing with the hypochlorite solution.

It does not seem worth while to reproduce the case notes in full, since this would involve much needless repetition. A few typical cases are selected, to which are added the notes of the surgeons in whose care the patients were.

The use of hypochlorite in cases of frost-bite with broken skin, or where gangrene and sloughing have supervened, appears to be distinctly valuable. Sloughs are rapidly removed, and it accelerates the production of healthy granulation tissue. In gangrenous cases its deodorant action is very marked, but it is important that severe cases should be treated not less frequently than four-hourly. A single typical case is briefly noted at the end.

CASE I.

H. R. D. Gunshot wound of lip, neck and vertebrae, piercing first rib with exit over sixth dorsal spine. A haematoma of the neck was cleaned out and hypochlorite injected into the cavity at frequent intervals. After four days there was no sign of pus, and the hypochlorite dressings were applied only twice daily.

CASE II.

A. H. G. Septic wound of left buttock with cellulitis. Operation November 29th. Wound was opened up, leaving very dirty sloughy surface, 6 in. long, with foreign bodies in it. Hypochlorite was applied four-hourly. The cellulitis rapidly cleared up, and in four days the wound was covered with clean granulations.

CASE III.

M. R. Compound fracture of left upper humerus. The patient was admitted December 15th, after treatment on shore for one week. The wound was septic, with much pus and oedema of arm. The hypochlorite was given three-hourly.

* Information relative to the use of sodium hypochlorite for the early treatment of wounds before sepsis has developed will be found in the BRITISH MEDICAL JOURNAL, October 23rd, 1915, p. 609, and November 27th, 1915, p. 790.

December 16th, temperature 98.6° to 99.4°. December 17th, necrosed bone removed; much less pus. December 19th, temperature 99.2° to 99.4°. December 21st, almost all trace of pus disappeared, with wound surfaces clean. The counter opening was healing, and granulations were felt to be covering the bone surfaces.

CASE IV.

M. M. Rifle bullet wound of left leg. Very septic when received, October 29th, with iodine vesication and much inflammation. Hypochlorite was used twice daily. On November 2nd the wounds were clinically clean, and all inflammation and swelling had subsided.

CASE V.

A. W. O. Compound comminuted fracture of right ulna in upper third. When received on board, the wound had been thoroughly opened up, but was extremely septic, with much inflammatory oedema of the part. The superficial areas were dirty, and thick yellow malodorous pus drained out in large quantities. A large rubber tube was inserted, and surrounded with light gauze packing. Hypochlorite solution, 20 c.cm., was injected every two hours. Within a week the clinical appearance of the wound was absolutely healthy. The pus was replaced by a clear mucoid secretion, and the surfaces were covered with red healthy granulations. The swelling and oedema entirely disappeared, and the wound progress was most satisfactory.

CASE VI.

G. J. Rifle bullet wound of left arm above elbow-joint, involving the ulnar nerve and the external condyle of the humerus. An operation had been performed on shore before the patient was received. The bullet and fragments of bone had been removed, but the wound had been closed. Within a day of admission the arm was much swollen, and inflammatory oedema extended from the joint upwards. The forearm was much swollen also.

The wound was opened up, and a rubber tube inserted, passing to the site of the fracture. Hypochlorite, 20 c.cm., was given every two hours. The pus, which drained at first rapidly, changed to a mucoid secretion, and the inflammation and oedema rapidly diminished, and had disappeared at the end of five days. The tube was then removed and a simple dressing applied. The wound granulated perfectly, and at the end of ten days there remained only an area the size of a threepenny piece to be covered.

CASE VII.

A. B. Bomb wound of right leg. Received on board October 29th, three days after injury. Perforating wounds of calf, entry and exit 2½ in. apart; much pus present; temperature 104°. The wounds were incised; a pocket extending upwards was opened, and the whole freely irrigated with hypochlorite. The following day the temperature fell to 98° and did not subsequently rise above 99°. Three days later the wound was clean, with no discharge, and all swelling and inflammation had gone.

CASE VIII.

A. W. Bomb wounds of left leg received October 26th. Treated on board October 29th. Several severe wounds, all septic; one over external malleolus, penetrating the bone; a second on dorsum of foot, midway between two malleoli; a third in the middle of the leg, between the tibia and tibialis anticus muscle; and a fourth below and behind the head of the fibula.

The wounds were very dirty, but when opened up fragments of bomb were only found in the fourth wound. Hypochlorite dressings and injections by tube were used freely. After three days all the wounds appeared clean with the exception of the wound in the dorsum of the foot, where there was some cellulitis. It was explored, and a small pocket opened and emptied of pus. A tube introducing hypochlorite was inserted, after which marked improvement took place until the patient was discharged.

CASE IX.

A. H. Shrapnel wound of left leg received October 26th. Compound comminuted fracture of tibia in the lower third. The patient had been operated on ashore, and was received on board October 30th. The dressings were stinking, and the surface of the wound extremely dirty. Free irrigation with hypochlorite and subsequent injections were employed. The wound was far from being in a satisfactory condition when this case was discharged three days later, but, considering the state of the wound on admission, the improvement was really wonderful.

CASE X.

D. M. Perforating bullet wound entering right malar bone and emerging just below the angle of the jaw, causing a large neck wound, and plunging up the surface of the trapezius muscle for 3 in. at a depth of 1 in. Temperature on admission 104°. The wounds were cleaned, dressed with gauze soaked with hypochlorite, and carrying tubes for its renewal. On discharge, five days later, the temperature was normal and the wounds in the cheek and trapezius muscle were clean. The wound in the neck was suppurating slightly with some inflammation of the submaxillary gland.

CASE XI.

T. B. Compound comminuted fracture of right femur caused by shrapnel bullet. The wounds on the front and back of the thigh were freely incised, but no bone was removed. Rubber tubes were inserted to carry hypochlorite to the bottom of the wounds and the cavities lightly packed with gauze. The hypochlorite was renewed every two hours at first. The wound remained clean and did well.

CASE XII.

A. J. H. Shrapnel bullet wound over right frontal bone. Depressed fracture; trephine necessary when depressed bone removed with piece of bullet. Dura-uninjured. Temperature on admission 102°. On discharge, five days later, temperature was normal and the wound almost healed.

CASE XIII.

G. A. N. Compound fracture of left humerus, received October 26th. Musculo-spiral nerve exposed and partly divided. The whole track and wounds of entry and exit were very foul and stinking, with redness and oedema of the whole upper arm, when the case was received on board on the 29th. The wounds were enlarged, drained, and irrigated four-hourly with hypochlorite. No spread of sepsis occurred and redness and oedema rapidly subsided, as did the offensive odour. When discharged, four days later, the wound was lined with healthy granulations and there was only a trifling discharge of pus.

CASE XIV.

G. T. Compound fracture of jaw and shell wound of right arm. The fragment of shell had entered at the tip of the right shoulder and emerged above the external condyle of the humerus. All the wounds were horribly offensive. They were irrigated with hypochlorite under anaesthesia, and many loose fragments of jaw and detached teeth were removed. Four-hourly irrigation with hypochlorite was adopted, and the patient was given a chloramine mouth wash. On discharge, four days later, the patient's mouth was remarkably clean, but the external jaw wound was still discharging though relatively clean in appearance. Sloughs had all separated. The arm wounds were clean and lined by healthy granulations.

CASE XV.

W. C. When received on board the right foot was gangrenous as regards the soft tissues up to the base of the metatarsals; its appearance was black with an intense zone of inflammation of the higher part of the foot. The left foot was gangrenous to the base of the proximal phalanges, with similar signs of intense inflammation. The odour was appalling. Hypochlorite baths were used and at once removed the odour. In two or three days the dead soft tissues had softened and could be quite easily removed. The wounds took on a healthy aspect, and the granulations were red and clean.

CONCLUSIONS.

The advantages we have observed in the employment of the sodium hypochlorite solution in the treatment of septic wounds may be briefly stated as follows:

1. The simplicity and cheapness of preparation of the antiseptic.
2. Being non-toxic and non-irritating to the tissues when properly prepared according to Dakin's formula, the hypochlorite solution may be safely used in large quantities over long periods of time without ill effects.
3. The deodorant action of the solution is remarkable. The fetor from gangrenous tissues usually disappears in twenty-four hours.
4. The rapidity with which sloughs separate and clean granulation tissue is formed in a wound under its influence.
5. The infrequency of redressing required by cases treated as described with hypochlorite, compared with the constant change of dressings required in large wounds with other forms of antiseptic.
6. The fact that injections of the hypochlorite solution into the rubber tubes used in the dressings may with safety be entrusted to very imperfectly trained orderlies without fear of ill results, once the case has been adequately dealt with by the surgeon.

The facts referred to under (5) and (6) are very important considerations in war surgery, as cases frequently arrive in large numbers at varying intervals.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

TYPHOID PERFORATION: OPERATION:
RECOVERY.

THE following case of perforation in a man suffering from unsuspected typhoid (no doubt modified by inoculation) is, I think, of interest as emphasizing the importance at the present time of a strict investigation into all cases of pyrexia, even when unaccompanied by other marked symptoms. It is also worth recording from a surgical point of view, since recovery took place in spite of the fact that operative measures were unfortunately not taken until some eighteen hours after the accident.

Pte. C. was admitted to the Reading War Hospital on

September 17th, 1915, having been wounded in Gallipoli on August 24th. On admission he had a small healed entrance wound in the buttock and an irregular open wound, about an inch in diameter, on the inner aspect of the thigh, where the bullet had emerged. He appeared in good health. He stated that he had been inoculated against typhoid in November and December of the previous year (two inoculations).

On September 28th it was noted that there had been some pyrexia since he had been in hospital, the temperature ranging from 100° to rather over 101°, though frequently down in the morning to normal. The man said that he felt perfectly well except that now and again he suffered from headache. His bowels had on several occasions been somewhat relaxed. No abnormal physical signs could be detected in chest or abdomen, and the tongue was clean. The pulse had varied with the temperature from 90 to 112. The wound had nearly healed.

On arrival at the hospital on the morning of October 1st I was informed that the patient had complained the previous afternoon of sudden severe pain in his stomach, and now appeared to have serious abdominal mischief. I found him with a temperature of 103.4°, a pulse of 136, and all the signs of an acute abdomen.

He was at once taken to the theatre and laparotomy performed. There was general peritonitis, with a quantity of free pus; the lower part of the ileum was covered with masses of lymph, and a perforation a quarter of an inch across, evidently the result of typhoid ulceration, was present in this portion of the bowel. I closed the hole with some difficulty, on account of the condition of the gut, and drained by means of a large tube passed down into the pelvis. The usual after-treatment for general peritonitis was adopted, and the patient made an excellent recovery, the only trouble being some suppuration in each breast where he had received subcutaneous saline infusion. He had fairly typical typhoid stools for about ten days after the operation, but by October 19th the temperature was normal. There was a short relapse from October 31st to November 11th. The patient is now (December) nearly well.

Bacteriological examination of the stools shortly after the operation showed the presence of a non-lactose fermenting bacillus, typhoid or paratyphoid (the exact identity not determined). On November 7th it was found that the blood agglutinated *B. typhosus* up to 1 in 500 dilution, but had no effect on *B. paratyphosus* A or B.

Reading.

W. BERNARD SECRETAN, M.B., F.R.C.S.

A SECOND CASE OF COMPLETE INVERSION
OF UTERUS.

Mrs. R., aged 30, was confined early in September. She looked very delicate and fragile, and the pains were weak from inertia of the uterus. A little chloroform was given, and the delivery was very easily effected by forceps. The placenta caused no trouble, and the uterus contracted normally. All went on well for fourteen days. The nurse then assisted the patient to stool, when on pressure a pain was felt, and "something seemed to come down." On my arrival I found the fundus uteri well outside the vulva and still being extruded; there was no bleeding. An hour later Dr. MacLagan gave chloroform, and reduction was accomplished after some patient work in ten minutes or less. As in my previous case (BRITISH MEDICAL JOURNAL, 1910, vol. i, p. 260), the method by direct pressure on the fundus was not successful and was not long persevered with, whereas the other method was very readily effective. I reduced the bulk of the tumour into the vagina followed by the right hand, grasped the neck of the mass with the finger tips surrounding, and worked at it exactly as one would reduce a hernia. The patient made a good recovery. I venture to record this case on account of its very great rarity, and, after my experience, would suggest to any one who may be unfortunate enough to encounter this formidable accident that the method I have attempted to describe will most readily be successful.

C. L. FRASER, F.R.C.P., F.R.C.S. Ed.

Berwick-upon-Tweed.

DR. CHARLES RICHET, professor of physiology in the University of Paris, who is now serving in Russia, has been elected an honorary member of the University of Moscow.

Reports of Societies.

GUNSHOT WOUNDS OF THE CHEST.

At a meeting of the Medical Society of London, on Monday, January 17th, the President, Dr. W. PASTEUR, being in the chair, a discussion took place on gunshot wounds of the chest.

Colonel Sir J. ROSE BRADFORD, who opened the discussion, said that the material from which his paper was constructed was provided by the base hospitals in France from October, 1914, to the present time. Many hundred cases had been seen, several of which were very severe. Some had arrived at the base hospitals within two or three days after the injury, but the interval was usually longer. Some had been seen at the casualty clearing stations within twenty-four hours. The cases had been studied in collaboration with Major T. R. ELLIOTT and Captain Hubert Henry. Sir J. Rose Bradford said that haemothorax might follow a wound in some part other than the chest, such as one of the arm or neck. In these circumstances the chest condition might be overlooked, and mistakes might easily arise. Among the results which might follow gunshot wounds of the chest were haemoptysis, haemothorax, pleurisy, empyema, and pneumothorax. Haemoptysis might be a consequence of infarction after bruising, when there was therefore no proof that the missile had penetrated the lung. The haemothorax was not different from the ordinary variety of the condition, but was frequently infected. The pleurisy was often streptococcal, and frequently progressed to empyema. Pneumothorax was not infrequently accompanied by a large opening in the chest. When a large gaping wound was found in the lower half of the chest the lung was often clearly visible, and was not often completely collapsed. Despite the severity of the injury such cases might progress very favourably. When the wound occurred in the upper part of the chest a counter-opening was usually necessary.

He then considered the subject of penetrating wounds of the chest and lung. Haemothorax and even pneumothorax might be found on the side opposite to the wound in the chest. Such cases were often very puzzling at first. Sometimes a bilateral haemothorax was encountered when the bullet penetrated the thorax transversely. This occurrence was not uncommon with or without the lodgement of the missile. The pericardium was occasionally wounded, and recovery might even occur after so severe a result as haemopericardium. Surgical emphysema often accompanied haemothorax; it was usually limited, but was occasionally very extensive, and in one case had been general. The peculiar percussion note which it produced might suggest the presence of pneumothorax, and the sharp crepitations heard over it might cause it to be confounded with pleurisy. The haemothorax was infected in 25 per cent. of the cases.

Sterile Haemothorax.

The degree of collapse of the lung in sterile haemothorax varied with the amount of haemorrhage. In many cases the lower or middle lobes were collapsed, whilst the upper lobe was over-distended to an extreme degree, and floated on the upper surface of the blood. This was a very characteristic feature. The bloody fluid in the pleura was really defibrinated blood containing in some cases an added exudate from the pleura. The method which had been recommended for determining the degree of dilution of the blood by the number of red blood corpuscles he considered quite misleading, for it took no account of the number bound up in the clot. Regarding the advent of clotting, it had certainly taken place by the fourth day, and probably much earlier.

Symptoms.—Dealing with the symptoms, he spoke of the distressing cough and anxiety in the early stages. Haemoptysis occurred in a large proportion of the cases. It was sometimes deferred for three or four days, probably when due to bruising, and there was therefore an early and a late variety of this symptom. It was very seldom fatal; he had only met with one example of death from it in well over 1,000 cases. Cough was usually very troublesome. Dyspnoea was slight after the onset. Very slight icterus might occur after the first week, but not to such an extent as after haemorrhage into the peritoneal cavity.

Usually a slight fever was detectable, but this was as high as 103° or 104° F. only in exceptional cases. According to the temperature three groups of cases were recognizable: (1) Those in which the temperature fell immediately after paracentesis; (2) those in which it did not fall in this way although no infection was present, but fell slowly after two or three weeks—such cases were not very common; (3) those in which a sudden pyrexia appeared after two or three weeks and disappeared after paracentesis; these cases were exceptional.

Physical Signs.—The signs were not those merely of pleural effusion. At first there was a remarkable absence of definite signs; the percussion note might be only slightly impaired, and numerous râles and rhonchi might be heard. Twenty-four hours later most obvious signs might appear. The degree of displacement of the heart was not dependent upon the amount of effusion. The area of skodaic resonance above might be very marked. The breath sounds might be tubular or even amphoric and bronchophony and pectoriloquy were frequent. The diaphragm on the affected side was extraordinarily high, and it was not unusual for the stomach resonance to merge into the skodaic resonance above. Points of distinction from pleural effusion were the tubular breathing, bronchophony and pectoriloquy, and the more marked skodaic resonance. The heart's apex beat often underwent a peculiar change in position. It might at first be displaced considerably and then return towards the normal position in a day or so. Retraction of the affected side might be rapid if aspiration were not performed, and was more marked than in pleural effusion. Collapse of the lung played a greater part in the development of physical signs than it did in pleural effusion. The presence of vocal fremitus did not exclude haemothorax. In one group of cases the signs resembled those of massive collapse of the lung, and cleared up in a few days except at the extreme base, where was situated a small haemothorax.

Diagnosis.—A common error, he said, was to confuse haemothorax with pneumonia, and to label the case "traumatic pneumonia." Pneumonic consolidation on the side of the lesion, he thought, must be extremely rare. Another distinction which had to be made was between haemothorax and pneumothorax or pneumohaemothorax. The position of the apex beat was of considerable service. As to the determination of the size of the effusion, it appeared that 2 or 3 pints usually caused dullness as high as the middle of the scapula. The presence of infection of the haemothorax could only be determined accurately by a bacteriological examination of the fluid, but it might be inferred by the general state of the patient and his degree of illness and of pyrexia.

Treatment had at first been by the expectant method, but although the patients did well the condition was protracted and they ailed for some time. With the employment of aspiration combined with oxygen replacement, the lung rapidly re-expanded and the pyrexia quickly subsided. The collapse soon cleared up, and the period of invalidism was measured by weeks rather than by months as before. This treatment was very successful, and no case of secondary haemorrhage occurred. Indeed, secondary haemorrhage was only met with in one case, and in that instance aspiration had not been used. No re-accumulation of fluid followed.

Infected Haemothorax.

Infection occurred in 25 per cent. of the cases; it arose from the lung in 20 per cent., and from the exterior in 80 per cent. In such cases removal to the base was advisable towards the end of the first week, otherwise valuable time was lost. Only by an examination after exploratory puncture could a definite diagnosis be made. Sometimes the patients were very ill, but this was not always true at first. With anaerobic infections symptoms closely simulating haemorrhage occurred, and also with this infection a cracked-pot note was obtainable by percussion. Cases with streptococcal infection were usually very seriously ill, and contralateral pleurisy was more commonly met with.

Pneumothorax.

He spoke very briefly of pneumothorax. It was very uncommon in this connexion in his experience. Only 12 examples were diagnosed in nearly 500 cases, and its

presence was proved in only 4. It was almost always right-sided, perhaps because the left-sided cases were fatal before the patients were transferred to the base. He thought that good results had been obtained by aspirating the air-containing space first, and opening the pleura afterwards, when the lung had partly expanded.

Pathology and Bacteriology.

Captain H. HENRY, R.A.M.C., spoke of the pathology and bacteriology. He said that his data had been derived from three sources: (1) *Post-mortem* examinations in 100 cases; (2) routine laboratory examinations of the fluids removed, and (3) experiments upon animals. It had to be remembered that his investigations concerned a particular group of cases—those which arrived at the base hospitals. In 6 of the fatal cases death was due to injury to the vertebrae and spinal cord only. Of the remaining 94, 78 had haemothorax and 16 had not. In only 8 at most of the cases with haemothorax was death due to simple bleeding; the remaining 70 were complicated—26 cases by damage to viscera, and 44 by sepsis. Captain Henry then described the typical *post-mortem* appearances of fatal cases of haemothorax. He said that primary coagulation of the effused blood and a deposition of fibrin occurred in a few hours. Afterwards exudation followed, which induced secondary clotting. The lung submerged in the extravasated blood collapsed; the stages of this collapse were more rapid and its degree more complete than occurred with pleural effusion. The unsubmerged part of the lung was voluminous from the high grade emphysema which affected it. The line of demarcation between the haemothorax below and the emphysema above varied greatly in obliquity. The shifting over of the mediastinum and its contents was due at first to the collection of blood, but later to inflammatory change after it had become encysted. In septic haemothorax, the pleura and lung became covered by a secondary generation of fibrin, which, moreover, might spread throughout the pool of blood. In anaerobic infection the haemothorax often had a foul odour, but this was not constant. Sometimes there was little evidence of infection in the haemothorax itself, and search had to be made further afield, as on the pericardium, etc., to reveal it. The naked-eye appearances of the fluid were no guide as to the presence of sepsis, nor was the nature of the cellular constituents. Anaerobic organisms and streptococci accounted for the great majority of the infections.

Experiences in England.

Lieutenant-Colonel W. HALE WHITE said that in his experience if the patients were well enough to be sent to England they usually progressed favourably. He had seen some fifty, none of which ended fatally. In a large number of cases of bullet wounds of the chest the patients suffered little from their effects. The dyspnoea seen in many cases was altogether out of proportion to the physical signs. He thought that in some cases it was at least partly "functional" in origin. Haemoptysis was an uncommon symptom of the condition as seen in this country. It had not recurred except in one case. He had been struck by the fact that after the fluid had been aspirated in haemothorax the heart did not return to its normal position. It was difficult to give an opinion as to when aspiration should be performed; he thought that certainly every case in which the fluid amounted to over 20 oz. should be so treated. A point which was often forgotten was that the chief trouble was connected with the collapsed lung, and the patient was not instructed as to the manner by which it could be re-expanded. It was a question whether this should be by breathing exercises or by short walks uphill.

Dr. MURRAY LESLIE thought a great advance had been made in the attitude adopted towards aspiration in haemothorax. It was very different from that which was in vogue during the South African war. He endorsed Colonel Hale White's remarks as to the importance of breathing exercises or walking uphill to re-expand the lung.

Mr. CORTLANDT MACMAHON, in describing exercises suitable for such cases, said that the main objects were: (a) To prevent pleural adhesions forming, and to break down existing adhesions by careful and gradual movements; (b) to enable lungs which had collapsed to regain

their normal condition; (c) to reduce haemothorax and pneumothorax; (d) to restore the normal shape of the chest walls, which had fallen in owing to collapse of the lungs; (e) to assist the discharge of pus by increasing lung inflation; (f) to improve the general condition by the tonic effects of the exercises, and especially to overcome breathlessness on exertion. The procedure on which he laid greatest stress was that the body should be bent laterally away from the side of the injured lung; the uninjured lung being thereby partially collapsed, the lung on the injured side was made to inflate more definitely. To help this inflation a pressure of 30 lb., increased to 60 lb., was put upon the uninjured side by the operator's hands and the abdomen made to contract with the breath held.

Dr. F. J. POYNTON referred to cases of wound of the chest with, perhaps, some fever, the cause of the illness being obscure. He spoke of the importance of not being in a hurry in such cases to resort to surgical treatment. Caution was an important factor in the treatment of such chronic cases, which often cleared up with a little patience.

Captain MORRISTON DAVIES, R.A.M.C.T., also spoke.

THE SOLDIER'S HEART.

At a meeting of the Section of Pharmacology and Therapeutics of the Royal Society of Medicine held on January 18th, the President, Lieutenant-Colonel W. HALE WHITE, being in the chair, Sir JAMES MACKENZIE opened a discussion on the soldier's heart. His paper, and that of Dr. McN. WILSON who followed, are published at pages 117 and 119.

Dr. POYNTON thought that at present a broad view was the most helpful. He pictured a group of symptoms predominantly cardiac, prone to arise in presumably healthy men at a vigorous time of life under the exigencies of military service. He thought the causation was complex, and would consider the following points: (1) Latent infection; (2) the cases which seemed to him classical; (3) the importance of prevention; (4) nerve shock and strain, and the possibilities of recovery; (5) hyperthyroidism; (6) heat-stroke.

1. *Latent Infection.*—This view had been again insisted upon in a recent memorandum by Drs. Cotton, Lewis, and Thiele, describing the discovery of streptococci and staphylococci in the urine of such cases. As indirect support, he would state that a streptococcus obtained from acute rheumatic cases could experimentally produce cardiac failure, with or without notable dilatation, and from the urine of these animals the streptococcus could be recovered. In man also there was a group of rheumatic cardiac cases in which, without endocarditis or pericarditis, the heart wall was weakened, and his study of them led him to see in such many of the symptoms observed in soldier's heart. It was clear, if the suggestion of these writers was established, that to the already well-known causes of latent infection there would be added an important group which for the moment he would term "septic."

2. Nevertheless, latent infection did not appeal to him as furnishing the really classical examples; these he had seen, during the ten years preceding the war, in privates in the Guards regiments. They were adolescents of great stature and with big frames, usually a little anaemic. The symptoms commenced early in their training. At first there was great fatigue at the end of the day; then thumping of the heart at night occurred, then dyspnoea and palpitation on exertion, finally a "fall out" on march, dead beat, or a sudden syncope with or without slight convulsion. The thumping, ineffectual heart beat was very evident in these cases. He did not believe that latent infection was a factor, though he could not prove this. He looked upon the cardiac weakness as either congenital or much more frequently acquired. The large unconsolidated frames had outstripped the cardiac development. Strain was produced by limited diaphragmatic excursion and hard physical exertion carried on with needful routine. Tobacco and possibly beer were adjuncts. Indigestion was frequent and nervous symptoms were soon superadded.

3. The importance of the possibility of latent infection at present was very great. We had a large number of

convalescent cases of dysentery, enteric, and other infections now, and presumably they might form the nucleus of an army of "soldiers' hearts." Fortunately, an unforeseen remedy had appeared. These infectious cases required elaborate tests, and the time taken over them gave us splendid opportunities for controlling these most rash of convalescents until they had shaken off their weakness, and braced their potential "soldiers' hearts." The lines of treatment, if infection was made the predominant factor, were clear, and were preventive—namely, (a) accurate histories; (b) treatment of obvious foci of infection in tonsils, teeth, etc.; (c) patience in the convalescent stage of infections. When a case was in the broken-down stage, rest and a progressive forward policy in exercise were essential. His opinion was that a man with a severe breakdown, though eventually recovering, would not see active service again in this war. For what he called classical cases he would again from his experience emphasize prevention. Were we careful enough of young, overgrown recruits? Barrack life could not be converted into a preparatory school, but he would venture to submit that some tactful form of supervision on routine lines would be valuable. When symptoms occurred he took an unfavourable view of severe examples of this group, and believed they would not make soldiers.

4. *Nerve Shock and Strain.*—He looked upon the heart as so intimately connected with the nervous system that in considering heart strain he could not clearly differentiate the muscular and nervous symptoms. In this group he put nerve first, muscle second; in the preceding, muscle first, nerve second, but both were involved. He had seen striking cases from shell shock, and should like to hear what the section thought of their prognosis. One case of his bore on this. An officer at Ypres developed, after shell shock, these cardiac symptoms, and was treated, with progressive improvement, by the speaker for some months. Eventually, without his knowledge, the officer returned ten months later, and in his first heavy fighting collapsed at once with all his old symptoms aggravated. Dr. Poynton's views on their treatment mostly coincided with those of previous speakers. "Short of fatigue" was the keynote to exercise, but he did not, except from the point of view of research, favour the grouping together of these cases either in wards or in convalescent homes.

5. He attached importance to the suggestion of hyperthyroidism, seeing that it introduced a new line of treatment in the shape of x rays, but he wished to learn the right perspective, for his personal experience was against the frequency of this explanation, though he was absolutely open to conviction.

6. Lastly, heat-stroke was an obstinate and difficult factor in some of these cases, and in his opinion their outlook unfavourable. In the group due to nerve shock and strain, a cheery doctor, a minimum of complete rest, cheerful companionship, with pleasing exercise short of fatigue, and time, were his mainstays. Drugs which corrected dyspepsia, and were gently soothing to the nervous system, were useful.

Dr. R. W. MITCHELL said that when the soldiers suffering from heart symptoms were removed from the front he had found that the cases of right ventricular failure settled down, whilst those with the "irritable heart" did not. He could corroborate the occurrence of an intense feeling of suffocation. It was very real and accompanied by change in the patient's colour and shrinking of the skin, and was followed often by the passing of a large quantity of urine, even as much as two quarts at once. There was often tenderness with a dilated heart, but none with the "irritable heart." The patient became very sensitive to the action of his own heart. The first result of exercises was to fix the chest, not to expand it, and a stage was soon reached in which the chest became immobile and the respirations were entirely abdominal. Dr. Mitchell thought that this limited movement of the chest was connected with the production of an irritable heart. As, in spite of the great stress and mental strain of work in the trenches, comparatively few soldiers developed heart affection, he did not attach much importance to these factors. He believed, however, in the influence of poisons and of exhaustion.

Dr. P. HAMILL thought the condition described by Sir James Mackenzie a very definite one. Most cases could

be traced back to some undue exertion during some febrile disorder. The proportion of cases in which a history of antecedent diarrhoea could be obtained was very large. Electrocardiograms failed to demonstrate any primary heart disorder. Any little excitement caused such hearts to beat at a rapid pace. The condition was very liable to relapse. As to the treatment by moderate exercise, fresh air, and pleasurable surroundings, he quite agreed with Sir James Mackenzie. Briefly, the heart was strained whilst in a partly poisoned condition, but a psychological factor in the causation must not be lost sight of. The severely affected hearts were probably damaged permanently, but whether this were so it was for the next generation to decide.

Dr. ALEXANDER MORISON said that he was entirely in accord with Sir J. Mackenzie as to the methods by which such cases should be treated. There was nothing amiss with the size, rhythm, or mechanism of the heart, yet the patients were incapable of the usual amount of exertion. It occurred among the young and those of a neurotic type. Any disturbance which arose was attributable to the nervous system; there was no evidence of primary cardiac disorder. The utmost caution was required in attempting to foretell what would happen to such cases. He thought that the chances of such patients being afterwards of use as soldiers were negligible.

Dr. O. LEYTON thought it possible to distinguish cases in which the heart muscle was affected from those in which the vasomotor system was chiefly at fault, by noting the ratio of intensity between the basal and apical sounds. In cases in which the heart muscle was much affected by toxic causes he had noted a difference in the ratio from the normal. In others, complex in origin, when the vasomotor system was at fault, there was no change in this ratio.

Dr. FLORENCE STONEY thought that the associated signs showed that "irritable heart" was one of the symptoms of Graves's disease. The activity of the thyroid gland could be regulated to any required extent by x rays, and the condition could thereby be cured. A tendency to thyroid derangement occurred in families, and this derangement followed on the overstrain and toxic influences to which these patients were subjected. It was important at the commencement of treatment to give attention to the possible influence of pyorrhoea. The improvement obtained by x-ray treatment was slow in some cases, but astonishing in others.

Dr. T. R. BRADSHAW said that in not a single case which he had seen at the Western General Hospital among soldiers who had been sent back as suffering from valvular disease of the heart had he detected a murmur. It was unfortunate that the diagnosis of valvular disease should be made if there was any doubt, for when known to the individual it affected his whole career. The questions of importance were whether these men would again become efficient soldiers or become fit for home service. If there was no prospect of their returning to duty they should be invalided out of the service.

Dr. BEZLY THORNE said that the condition was not confined to soldiers, but was met with commonly in civilian practice among children and adolescents, and it sometimes persisted until middle life. He had ventured to name it cardio-vascular atony. He believed that the cause was toxic in the great majority of cases, but the patients could be made well without bacteriological treatment. A difference which he had noticed in the condition as it occurred amongst soldiers who returned from the trenches was that they showed more fibrillary tremor of the fingers and were more jerky. He considered the Nauheim treatment, especially the baths, valuable; in about two months in every case the patient was restored to permanently good health.

PROFESSOR GIUSEPPE SANARELLI, the distinguished Italian hygienist, has been appointed editor of the *Avenire Sanitario*, a journal which has done good work in the promotion of sanitary reform and in the defence of the interests of the medical profession.

COUNT DELLA SOMAGLIA, president of the Italian Red Cross, has set up a central propaganda committee in Rome to make known to the public what it is doing in the war, and enlisting active sympathy and co-operation in the work. Affiliated committees have been formed in the principal cities of Italy.

Rebueluz.

RADIUM AND X RAYS.

COLWELL and SIDNEY RUSS, in publishing a book on *Radium, X Rays, and the Living Cell*,¹ state that their object is to describe some of the main experimental facts which have been established as to the effects of the α rays and the rays from radium upon living cells. When innumerable papers are appearing day by day in medical journals all over the world (a few scientific, but by far the larger proportion merely personal records of cases and results), it is well to have a clear and lucid account of the chemical and physical properties of these radiations, and a rational exposition of their effects on living cells, with a scientific explanation of the manner in which these effects are brought about. With these objects in view the authors have produced a work which should do a great deal towards placing α ray and radium therapeutics on a more scientific basis than has hitherto been possible. In the first chapter an important point is emphasized in dealing with the measurement of α rays, a point which is by no means commonly known even amongst so-called experts. The change of colour in a prepared pastille is a common method of measuring an α -ray dose, and yet by a simple experiment this method can be shown to be very inaccurate. The authors point out that a "soft" tube in a certain time will change the pastille to the standard tint; then harden the tube, readjust the primary current, and a new pastille suffers the same colour change in the same time. The dose, as measured by the two pastilles, is the same, yet the clinical effects upon the tissues, seeing that the tube condition is quite different in the two cases, must be profoundly different. The early chapters on α rays, secondary α rays, the transmission of α rays through matter, the ionization effects, and other similar matters should be of great value to α -ray therapeutists. They are followed by chapters on the radio-active substances and their emanations, written on similar lines. Dealing with the standard of radio-active quantity, it is pointed out that the maché unit has been much abused by its too general use, and that its use for cases other than that for which it was originally intended—namely, the measurement of very small quantities of emanation in waters—is to be deprecated. Part II starts by describing the chemical action of radium and of α rays, and then follow chapters on the effect upon certain low forms of animal life. The diagrams showing the restriction of development following radium irradiation of the ova of triton are remarkable; a description of the histological examination of a human fetus after exposure to α rays is of great interest. Next we have the results of experiments on the growth of plants and of bacteria, and note that the authors have omitted to refer to the experiments carried out by Abbe. The latter part of the book, well illustrated by reproductions of photomicrographs, deals with the histological changes brought about in various organs, such as the skin, the blood and the blood vessels, the various glandular structures, the nervous system, and other tissues. A full account of the changes in malignant cells follows, and emphasis is laid on the fact that the administration of the type and intensity of the radiation most appropriate to any particular growth is a matter of great difficulty. The data may at present be insufficient for any sure basis of radio-therapy, yet a large number of facts are being gleaned which should render this possible in the near future. Short chapters on the production of malignant disease by the rays, idiosyncrasy and dosage, the physiological effects, and the selective and differential action of rays, form the concluding part of the work. Two features add to the value of the book—namely, that a very complete bibliography follows each chapter, and that the authors in each section have placed side by side the chapters on radium and α rays. This method of arrangement makes it easy to follow and to compare results, and adds greatly to the value of the book for reference.

Many textbooks, large and small, have been published on radiography during the past twenty years. It is not

saying too much in praise of Dr. ROBERT KNOX's book, entitled *Radiography, X-Ray Therapeutics, and Radium Therapy*,² to describe it as being the best which has as yet been published on these subjects in the English language. The first part deals with α -ray diagnosis; the chapter on instrumentation and technique is very complete, and if any criticism is to be made on the general scope of the book, it would be that perhaps too much space has been allotted to this part of the subject. The whole field of α -ray diagnosis is admirably dealt with, and there are singularly few, and these somewhat unimportant, omissions. For the student the very clear description of diagnostic possibilities will be very valuable, and the short descriptions of methods and technique which precede each chapter add to the value from this point of view. The chapters which describe the application of the method to the thorax, the stomach, and the kidneys are of special merit. The illustrations of this division of the book are very good. A feature of them and an innovation in α -ray illustration, is that side by side are shown reproductions of the plate and the print from the plate, of the same radiographs. The artistic merit of the reproductions is very high, and this double method of showing α rays is of value as a help to learning to read α -ray pictures. A further good point is that common and everyday radiographs are reproduced, and not those of rare and unusual conditions. The chapter on the localization of foreign bodies is well and clearly written. It deals with the simple and more useful methods, but this part of the book, owing to the importance the subject has at the present time, might with advantage have been extended. Part II, which deals with α -ray and radium therapy, is practical, and whilst describing the scope of treatment in a large number of diseases, is restrained and critical as regards results. This part of the subject is well illustrated by photomicrographs of pathological interest, and numerous photographs of cases before and after treatment. The concluding portion, on radium physics, written by Phillips, is altogether admirable, as it possesses the two great merits of lucid description and simple language. The medical practitioner will find this a useful book of reference, and the beginner in α -ray work a valuable textbook.

NEUROLOGY.

THE first edition of CHURCH and PETERSON's well-known American textbook of *Nervous and Mental Diseases*³ came out in 1899. The eighth edition, now before us, preserves the character of the previous editions, and has been brought up to date by what the authors describe as "one hundred and fourteen sizable interpolations" and over two hundred minor alterations. The first 626 pages of the book are by Dr. Church and give an account of nervous diseases divided into eight sections. In one of these, headed "Diseases of the Nervous System without known Nervous Anatomical Basis," are included a number of pathological conditions, such as myxoedema, exophthalmic goitre, tetany, and various forms of dyspituitarism, that are now generally recognized to be disorders connected with abnormalities in glands with internal secretions. This section also contains a chapter on what Dr. Church calls the "Infection Neuroses"—namely, tetanus, hydrophobia, and chorea—which are said to be "not marked by known changes in the neural apparatus." Such views may perhaps be characterized as unduly conservative and in need of revision. In his account of the bacteriology of chorea (p. 561) Dr. Church gives only four references to the literature of the subject, the latest dated 1899. At the end of the volume Dr. Peterson gives an account of mental diseases extending to 230 pages, clearly written, concise, and well arranged. The book is well printed, the illustrations are good, and there is an adequate index at the end of the volume. It is well written, not unduly abstruse or scientific, and devotes a good deal of space to the important subject of treatment throughout. It may be recommended to medical practitioners and students who are in search of a sound practical textbook of diseases of the nervous system.

² *Radiography, X-Ray Therapeutics, and Radium Therapy*. By R. Knox, M.D. Edin., M.R.C.S. Eng., L.R.C.P. Lond. The Edinburgh Medical Series, General Editor, J. D. Comrie, M.A., B.Sc., M.D., F.R.C.P.E. London: A. and C. Black, Ltd. 1915. (Roy. 8vo, pp. 426; 64 plates, 245 figures. 25s. net.)

³ *Nervous and Mental Diseases*. By A. Church, M.D., and F. Peterson, M.D. Eighth edition, thoroughly revised. Philadelphia and London: W. B. Saunders Co. 1914. (Roy. 8vo, pp. 940; 338 figures. 21s. net.)

¹ *Radium, X Rays, and the Living Cell*. By H. A. Colwell, M.B. Lond., D.P.H. Oxford, and S. Russ, D.Sc. Lond. London: G. Bell and Sons, Ltd. 1915. (Med. 8vo, pp. 334; 61 figures, 2 plates. 12s. 6d. net.)

Dr. CAMPBELL THOMSON's book on *Diseases of the Nervous System*,⁴ now in its second edition, gives a clear and fairly brief account of the subject that should be of great utility to the medical student. The subject matter is divided into six sections, of which the last, dealing with diseases of the brain and diseases of general origin, occupies nearly half the book, and illustrates the fact that the classification of the diseases called nervous is far from having reached finality. Dr. Thomson writes clearly and concisely, and the illustrations, many of them taken from cases in his own practice, serve excellently to illuminate the points at issue. The text is well up to date, and there is a good index. We can recommend the work to practitioners and students of medicine who are in search of a sound and tolerably short manual of nervous disorders.

Six years ago a review of the excellent textbook of nervous diseases edited by Dr. CURSCHMANN was published in the *BRITISH MEDICAL JOURNAL* (1909, ii, 987). The book was well up to date, complete from the point of view of the German literature of the subject, and well illustrated. An authorized English edition of the work, edited by Dr. C. W. BURR of Philadelphia, has now been issued.⁵ The translation has been done tolerably carefully, and has been lightened or diversified by the introduction of a number of American colloquialisms and slang terms. The text is not free from misprints, for example, "Tringeminus," on p. 23, should be "Trigeminus"; "polyneuritis psychosis," on p. 168, should be "polyneuritic psychosis"; on p. 481 "a diadocokinesis" should be "adiadocokinesis"; the oft-quoted names of "Wickmann" and "Déjérine" should be "Wickman" and "Dejerine." The German original contained 289 illustrations in the text; these have been cut down by Dr. Burr to 246, and appear with their German notation, where such notation is, in the English translation. Not a few of the blocks from which they have been printed seem to be unduly worn. It does not appear that anything has been done to bring the book, originally published in the summer of 1909, up to date. Even in the account of acute anterior poliomyelitis—a disease that has been so brilliantly investigated by Flexner and other American workers during the last few years—we look for a mention of Flexner's name in vain.

GUY'S HOSPITAL REPORTS.

THE editors of *Guy's Hospital Reports*⁶ inform the subscribers, in their preface, that though many of the articles in the present volume were already in print by August, 1914, their publication has been delayed, every member of the staff of Guy's Hospital having been so fully engaged with extra work arising directly or indirectly out of the needs of the sick and wounded, that little, if any, time has been available for the writing of papers or reports. Dr. Pembrey contributes an excellent article on the advantages of physical games over gymnastic work. He argues that there is a medicinal flavour in set exercises—some are called nutritive, others corrective, and others depletive—but most of them cause undue fatigue, lack interest, and are monotonous. On the other hand, resistance to disease is increased by the outdoor life associated with games, and in the long run it is cheaper to provide playing fields than gymnastic instructors. Dr. Pembrey admits that games may have one serious drawback, and that is when they are played for notoriety or gain, and not for pleasure. Mr. Higgins contributes an interesting and amusing paper on charlatans and "miracles." Drs. Eason and W. Johnson write on four cases of pituitary tumour, and the volume includes some other clinical and scientific contributions. We must congratulate Mr. C. H. Golding-Bird on his very complete obituary notice of Thomas Bryant, the last link that bound the modern school of

surgery in Guy's Hospital to that of Astley Cooper, Key, and Birkett. Beyond the limits of the Borough, Thomas Bryant was best known when in his prime for his textbook on surgery, much needed in the seventies, as Mr. Golding-Bird rightly reminds us.

NOTES ON BOOKS.

A THIRD edition of the popular little work by Sir PARDEY LUKIS and Lieutenant-Colonel BLACKHAM has appeared under the slightly changed title of *Tropical Hygiene for Residents in Tropical and Subtropical Climates*.⁷ The text has been carefully revised, enlarged, and brought up to date. Among the matter added are a full description of hookworm disease and its prevention, a dissertation on goat's milk and undulant fever, and two entirely new chapters—the first dealing with the sanitation of camps in the tropics, the second with hydrophobia. In their preface the authors state that the second edition was exhausted in less than a year. This, better than anything, speaks for the popularity of the work, and this edition, just as the previous one, can heartily be recommended.

Lieutenant-Colonel BIRDWOOD's laboratory manual for students of tropical medicine⁸ and practitioners in hot countries has now reached its second edition. It contains eighty-nine short chapters, each giving precise numbered directions how to carry out such operations as blood-staining, blood-counting, vaccine formation, examination of urine, and the like. It is based on the author's extensive experience in the teaching of Indian students, and appears to contain all that is required, in an easily assimilable form. The book is interleaved with plain paper, so that notes may be added as required. The first edition of the book was exhausted in a year; we wish the second an equally rapid and happy exit.

The address delivered at the University of Leeds Medical School on October 1st, 1915, by Sir WILLIAM OSLER, Bt., on *Science and War*, was noted in the *JOURNAL* for October 16th, 1915, p. 572. It has now been published in the form of a pamphlet⁹ by the Clarendon Press, and may be warmly commended to the attention of general and medical readers.

⁷ *Tropical Hygiene for Residents in Tropical and Subtropical Climates*. By the Honourable Surgeon-General Sir Pardey Lukis, K.C.S.I., V.D., and Lieutenant-Colonel R. J. Blackham, C.I.E., R.A.M.C. Third edition, revised and enlarged. Calcutta and Simla: Thacker, Spink, and Co. London: W. Thacker and Co. 1915. (Cr. 8vo, pp. 302; 52 figures. 4s. 6d.)

⁸ *Clinical Methods for Students in Tropical Medicine*. By G. T. Birdwood, M.A., M.D., D.P.H., Lieut.-Colonel I.M.S. Second edition. London: W. Thacker and Co. Calcutta: Thacker, Spink, and Co. 1915. (Pott 8vo, pp. 260. Rs. 2.8.)

⁹ *Science and War*. By Sir W. Osler, Bt., M.D., F.R.S. Oxford: The Clarendon Press. 1915. (Demy 8vo, pp. 39. 1s. 6d. net.)

MEDICAL AND SURGICAL APPLIANCES.

Plates for One-armed Men.

DR. A. E. SHIPLEY, Master of Christ's College, Cambridge, has devised a couple of plates for the use of soldiers and sailors who have lost an arm. One is a soup plate, with a depression in the centre, from which the last two or three spoonfuls of soup can easily be removed. The other is a plate for solid food, which has vertical sides and an overhanging rim; against this pieces of meat or pudding can be pushed without any risk of their toppling over the edge

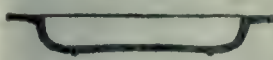


FIG. 1.—Section of meat or pudding plate.



FIG. 2.—Section of soup plate.

of the plate. "For convenience of commerce," Dr. Shipley continues, "it has been suggested that the plates should be named, and 'Unimanus' has been suggested (Cf. *Livy* 35, 21 and 41, 21), but it seems simpler and certainly shorter to call them 'manchet' plates," *manchet* being the French word for a one-armed man. The plates are being made by Messrs. Goode, 16, South Audley Street, London, who are solely responsible financially and have consented to devote rather more than 20 per cent. of the profits to the Serbian Relief Fund.

⁴ *Diseases of the Nervous System*. By H. Campbell Thomson, M.D. Lond., F.R.C.P. Second edition, revised and enlarged. London: Cassell and Co., Ltd. 1915. (Cr. 8vo, pp. 570; 120 figures. 10s. 6d. net.)

⁵ *Text-book of Nervous Diseases*. Authorized English edition, edited by C. W. Burr, B.S., M.D. In two volumes. Philadelphia: P. Blakiston's Son and Co. 1915. (Roy. 8vo, pp. 1158; 246 figures. 12 dols. net.)

⁶ *Guy's Hospital Reports*. Edited by F. J. Steward, M.S., and Herbert French, M.D. Vol. lxxviii, being vol. liii of the Third Series. London: J. and A. Churchill. 1914. (Demy 8vo, pp. 223. Terms to subscribers, 6s.; to non-subscribers, 10s. 6d.)

MEDICAL REGISTRATIONS AND MEDICAL STUDENTS IN 1915.

WE referred briefly last week to some statistics issued by the President of the General Medical Council showing the number of medical practitioners whose names had been added to the *Medical Register* in 1915, and the number of medical students registered in the same year. The following is the detailed statement showing the number in each of the three kingdoms in 1915, and the annual average during the previous five years:

Medical Practitioners Registered.

	In 1915.	Annual Average during the Five Years 1910-14.
England	863*	591
Scotland	412	384
Ireland	251	197
Total	1,526	1,172

Medical Students Registered.

	In 1915.	Annual Average during the Five Years 1910-14.
England	754	620
Scotland	694	517
Ireland	470	304
Total	1,918	1,441

* This number includes 269 practitioners with colonial and foreign qualifications.

These statistics will give much food for thought, and we confess that at present their meaning is not clear.

The increase in registrations of practitioners is remarkable, in that after all deductions are made it is above the average. The increase in registrations in England is partly to be accounted for by the large number of practitioners registered with colonial and foreign qualifications. In 1914 the number was 77, this year it is 269. It would appear, therefore, that the number of English medical practitioners added to the *Register* by registration in England in 1915 was about 70 above the average during the five years 1910-14. In Scotland the number was 28 above the quinquennial average, and in Ireland 54. A large part of this excess is probably due to earlier qualification of fifth-year students anxious to join the R.A.M.C. The figures obtained from the medical schools by the President of the General Medical Council last year suggested that there was a shortage of from two to three hundred among fifth-year students. The policy adopted by the War Office, on the advice of the medical authorities, of requiring senior students who had enlisted in various capacities to return to their schools with the view of qualifying, is probably the chief cause that the expected shortage has disappeared and has been replaced by an actual increase. Altogether it may be estimated that, apart from practitioners registered with colonial and foreign qualifications, some 350 more practitioners were registered during 1915 than the figures furnished by the schools last year appeared to authorize us to expect. The return of the fourth-year student from the ranks will tell in the present year in a similar way. Pessimism, therefore, about the immediate future of the supply of medical men seems to be discounted.

With regard to the more distant future, matters are very much more uncertain. It is true that the number of medical students registered in 1915 is in all three countries in excess of the annual average during the five years 1910-14 (the total excess amounting to 477), but this increase has, we believe, occurred outside London, Cambridge, and Oxford. It is partly to be accounted for by the increase in the number of women students. Until the figures have been submitted to more detailed analysis it is impossible to say what proportion of the increase is thus to be explained, but probably the number of women students will not be found to exceed 200. This conclusion is perhaps confirmed by the increase in the numbers entering the Scottish, Irish, and northern English schools, which admit women students on the same terms as men. It seems safe to assume that the number of male entrants this year is at least 250 above the average for the five years before the war. In connexion with the preference shown for the northern schools, it may be noted that the Scottish student passes his preliminary examination

in general education on the average about a year earlier than the southern English student, so that there are more first-year students under military age than usual. Parents are probably becoming conscious that the medical profession offers better prospects in the future than hitherto, but as they have to study economy send their sons or daughters to the medical school which is nearest and also less expensive. At the same time the figures as to the number of medical students registered in 1915 are open to the fallacy that though these students have registered they either already belonged to an officers' training corps, or will join one; hence, as was the case last year and the year before, very many are receiving commissions, and are therefore withdrawn from the actual study of medicine.

ROYAL MEDICAL BENEVOLENT FUND.

(Continued from page 97.)

THE following is a continuation of the summary of cases relieved by the Committee at its meeting on December 14th, 1915:

Daughters, aged 64 and 66, of M.D.Leyden who practised in London and died in 1858. Applicants' only certain joint income £28, which they supplemented by taking in boarders. Owing to the war the boarders have entirely ceased and they are in difficulties. Helped by the Fund twenty-years ago. Voted £12 and the elder sister recommended for an annuity.

Widow, aged 63, of M.D.Dub. who practised at Cambridge and died in 1904. Applicant had managed to live by taking in resident pupils, but owing to the war has practically lost them all. Rent paid by relatives, but now in temporary difficulties, owing to the loss of above, and illness. Voted £10 and referred to two other organizations for help.

Widow, aged 58, of L.S.A.Lond. who practised at Bourne-mouth and died in 1913. Applicant was left totally unprovided for. Has a pension of £26 per annum from another society, and during the last year has only received £5 from lodgers. Health very unsatisfactory, and unable to let more rooms. Relieved once, £12. Voted £12 in twelve instalments.

Daughter, aged 53, of M.R.C.S.Eng. who practised in London and died in 1880. Applicant's health is very bad and she is quite unable to work. Lives with a widowed sister, who finds home but cannot do more. Relieved six times, £64. Voted £10 in two instalments.

Daughter, aged 58, of L.R.C.P.Lond. who practised at Brierley Hill and died in 1872. Applicant suffers from chronic ill health, and recently fractured her ankle. Only income an annuity of £35 from another charity, and a little help from friends. Relieved eight times, £53. Voted £12 in twelve instalments.

Widow, aged 54, of M.R.C.S.Eng. who practised at Yelverton and died in 1908. Applicant endeavours to make a living by taking in boarders, but does not get sufficient to make it pay. Relieved nine times, £107. Voted £12 in twelve instalments.

Widow, aged 42, of M.R.C.S.Eng. who practised in North Wales and died in 1910. Applicant was left quite unprovided for, with two children now aged 6 and 9 years. Has free rooms in return for services, and makes a little by selling goods on commission, but not sufficient to meet expenses. Relieved four times, £40. Voted £10 in two instalments.

M.R.C.S.Eng., L.R.C.P.Lond., aged 49, who practised in Lancashire and abroad. Applicant is married, with three children, now aged 9, 14, and 16 years, and he has become totally blind. Wife and children are cared for by relatives. The applicant is now studying massage in London, and hopes shortly to be qualified and earn his living. Only income £12 per year from a charity for the blind, and a little from friends. Relieved once, £10. Voted £10, and referred to the Guild.

Daughter, aged 49, of M.R.C.S.Eng. who practised at Gillingham and died in 1911, and was for some years an annuitant of the Fund. Through ill health the applicant not able to earn her living, and receives her food in return for looking after a child during the day. Has to pay rent for her room. Relieved twice, £17. Voted £12 in twelve instalments through the Guild.

Widow, aged 64, of M.B.Glasg. who practised in South Wales and died in 1913. Applicant's only income £16 per year, and her three children, all married with families, unable to help. Health very bad. Relieved three times, £24. Voted £12 in twelve instalments.

Daughter, aged 56, of M.R.C.S.Eng. who practised at Rotherhithe and died in 1879. Applicant is suffering from chronic glaucoma, which prevents her from working as a nurse. Only income from investments and friends £24 per year. Relieved seven times, £67. Voted £12 in twelve instalments.

Widow, aged 59, of L.R.C.S.Edin. who practised on the West Coast of Africa and died in 1907. Applicant has two sons who are abroad and unable to help, and one daughter, aged 36, who is an invalid, lives with her mother. Applicant has recently broken her ankle, and is incapacitated from doing any work. Only income a little occasional help from friends. Relieved four times, £48. Voted £12 in twelve instalments.

(To be continued.)

British Medical Journal.

SATURDAY, JANUARY 22ND, 1916.

TWO SCORE AND FIVE TO THREE SCORE AND TEN.

THE duty of medical men of military age and capacity—that is to say, those under 45 and physically fit—is now well defined, and the personal letter addressed by the Central Medical War Committee to all such men who have not yet applied for a commission, printed in the SUPPLEMENT for this week, and the scheme of the Scottish Medical Emergency Committee, published in the SUPPLEMENT for January 1st, explain the steps each should take. What are the duties of medical men over 45 years of age at this crisis in their country's need?

This question has hardly been mooted as yet; but the time appears to have arrived when some attention should be directed to the subject. From time to time it has been pointed out that war is a "young man's game," and catastrophes have occurred showing the unwisdom of the elderly Territorial officer whose *esprit de corps* and sense of patriotism have led him to volunteer for service abroad with his unit rather than to make way for a younger man. The duty of the medical man over 45 years of age lies in this country. If he is between the ages of 45 and 55 and physically fit, if he can be easily spared from the work in which he is engaged, and wishes to take uniformed service, it is open to him to apply for a commission in the R.A.M.C. for home service only. Though for the moment there is not much evidence that large numbers of such men for home service are required, yet it seems quite clear that the development of home service by those above military age forms one of the methods by which the strain on the civilian community and the difficulties of younger men, who may lose everything by joining the army, may be met. There must be a large number of men between 45 and 55 whose worldly position makes the sacrifice of some portion of their practice comparatively easy, whose work could be managed by their less fortunate brethren, and whose temporary withdrawal would not unduly affect the medical attendance on the community in which they live. When organization is sufficiently advanced, there should be an opportunity for employing these men as commissioned officers at home, thereby setting free younger commissioned men for service at the front, and possibly relieving from military duty some younger men who cannot well be spared. There can be little doubt that shortly a register of men between 45 and 55 must be made, and they must be enrolled. But they must remember that they will be required to engage for whole-time service, and be willing to be sent to any part of this country where their services are required.

The position of those medical officers of Territorial general hospitals described in the *Army List* as "available for service on mobilization," but often spoken of as *à la suite*, is exceptional. These hospitals were organized before the war as parts of a general scheme of the medical service of the Territorial Force, and the members of the staffs were commissioned under conditions which do not preclude

them from continuing their private practice or from attendance at the local civil hospitals, of the staffs of which they may also be members. The large increases which have been made in the number of beds in the Territorial general hospitals have in many instances rendered it necessary to take up buildings at such distances that certain members, in some instances we believe the majority, are in fact, if not in theory, altogether withdrawn from private and civil hospital practice. Further, part-time work is obtainable in many areas by men who are employed as "civil medical practitioners" without a commission; the opening for this class of work is limited at present, but it is not unlikely that further developments will become necessary.

With regard to those for whose services in any military capacity there is, by reason of age, no demand, there are two directions in which the path of duty needs mapping out: First, there is the need of making every effort to set free younger men for service; and, secondly, of taking care that those who join the army suffer as little loss as possible in consequence of their patriotism. In both these matters there is much that should be impressed upon the medical profession. Quite a number of the older men feel resentment because they are not employed in some military or semi-military capacity. They appear to think that they are being prevented from doing their duty to their country. Yet if they would only bear in mind that the military need is for younger men, and that the setting free of a younger man for service is of far greater value than paying visits to convalescent soldiers, they would find work of the highest importance. They should enter their names with the local Medical War Committee as willing to carry on the practices of absentees; wherever possible they should register themselves with the Central Medical War Committee as willing to act as locumtenents for as long a time as they can be spared from their own work; they should assist in the formation of central clinics, bureaux, or dispensaries in any area where the local committee adopts these methods for meeting the shortage of doctors; they should agree to canvass younger men and to show them how their interests can be safeguarded, wherever there seems to be any reluctance on the part of the younger men to enrol. And in the matter of safeguarding the interests of those on service there is much that needs recognition. It is not enough to agree to attend a particular man's patients for some reduced fee. It should be acknowledged that the patients of every man who has left his practice to join the army are no longer available for increasing the connexion of the man who remains at home. In every case in which a new patient presents himself for treatment it is the duty of the practitioner consulted to inquire who was the former attendant. If the patient was under the care of a man who is now serving, and if the patient for some reason declines to go to that doctor's substitute, then the practitioner newly consulted should make it clear that he only attends in the capacity of substitute; that the attendance is for the duration of the war only; and, if possible, that all accounts will be rendered by the representative of the absentee. Such a plan is perfectly workable, except, perhaps, in the case of practices among the very poorest class, in which individuals seem to change their doctor so frequently that it is impossible to decide whose patients they really are. Unfortunately, it happens that the lay community is by no means alive to its responsibilities in the matter. It is for those who remain behind in medical practice to see

that a proper view is instilled into the minds of the public, and not to permit, under any conditions, injury of the interests of those who are risking their lives as well as their fortunes.

Some of the suggestions we are now making have already been put forward in these columns. There is evidence that they have not yet fully borne fruit; and hitherto the Central Medical War Committee has been so greatly occupied in more urgent work that it has not, perhaps, been able to emphasize its opinions on matters affecting primarily the profession itself. Medical men have responded nobly to the call, but a further response is required. The call to serve with the army has now to be made on those whose difficulties in responding are possibly greater than in the case of some of the earlier recruits. It is for those whose age unfits them for active service to recognize in what directions they may best take a hand in providing the services with the medical officers required.

SERUM TREATMENT OF BACILLARY DYSENTERY.

As long ago as 1907 Kruse and Shiga independently proposed the use of serums made from the bacilli known by their names for the treatment of dysentery, and good results were said to have been obtained. In later years, however, so many other species of bacilli have been found to produce symptoms of bacillary dysentery that it has become necessary, in the absence of definite bacteriological research, to use serums called polyvalent made from several varieties of such germs. In 1910 Ruffer and Willmore prepared such a polyvalent serum, the constituents being the following bacilli: (1) Shiga-Kruse No. 1; (2) El Tor No. 1; (3) pseudo D. (Kruse); (4) Flexner, including pseudo A. (Kruse); and (5) some as yet unidentified strains. At the same time a monovalent serum against the *Bacillus dysenteriae* El Tor No. 1 was made also. In using these serums for treatment the general practice of the authors was to give an initial dose of 40 to 60 c.cm. in mild cases, of 80 c.cm. in severe cases, and of 100 to 120 c.cm. in desperate cases. These doses were repeated as required, as much as 320 c.cm. being given in twenty-four hours. The injections appeared to have a beneficial effect, manifested in from four to twelve hours after the first injection. In all cases the most striking phenomenon was the improvement in the patient's general condition; the pulse became fuller and slower, the heart sounds of better quality, the temperature fell to within normal limits, and abdominal pain disappeared. A remarkable effect upon the patient's mental condition was observed also. These striking changes in the general condition were not usually accompanied by a corresponding improvement in the character of the stools, which often became more abundant and fetid and contained more sloughs; the number passed, however, was usually diminished.

In 1913 Willmore and Savage gave a short account of the treatment of 227 cases in which the presence of bacillary infection was demonstrated. In this series it was often noted that the patient exhibited marked improvement for a few hours following the injections, only to relapse again when presumably the effect had worn off. In such cases the injections had to be repeated until the improvement became permanent. Between November, 1912, and January, 1913, the number of pilgrims that passed through the quarantine station at El Tor was 16,551. Of these 75 were admitted into hospital with dysentery

and 9 died. Out of 26 cases in which bacillary dysentery was present, 22 were treated with serums, with 2 deaths, a mortality of 9 per cent. The percentage of deaths among pilgrims in Egypt attacked by dysentery has been reduced since the introduction of serums from 53, and even from 70, to 12.

Similar satisfactory results have apparently been obtained in Japan and Fiji, as well as in France, Russia, and Germany. The notes on the treatment of diarrhoea and dysentery issued by the Advisory Committee for the Prevention of Epidemic Diseases in the Mediterranean Force¹ say of the serum available for the force that there is no doubt that in many cases it is of great value, and that the earlier it is given the better; a dose of 20 c.cm. administered by subcutaneous injection is, as a rule, sufficient, but, if deemed necessary, as much as 60 c.cm. may be given at the outset, or the smaller initial dose may be repeated. Shiga is responsible for the statement that since the introduction of anti-dysenteric serum the case-mortality from bacillary dysentery has fallen from 35 per cent. to 9 per cent. Many serums are now to be obtained, including those of Kruse, of Shiga, of the Lister Institute (Todd), and of the Pasteur Institute (Vaillart and Dopter). Shiga's rules for the administration of his polyvalent serum are: In mild cases to inject one dose of 10 c.cm.; in cases of medium severity to inject two doses of 10 c.cm. at intervals of six hours; in severe cases to inject 10 c.cm. twice a day, at intervals of six hours, for two or three consecutive days. Castellani and Chalmers state that a polyvalent serum, such as that of Shiga, is to be preferred for the treatment of cases in which a complete etiological diagnosis of the malady cannot be made. The serum, in their experience, should be given in large doses—that from the Pasteur and Lister Institutes in 20 c.cm. doses twice daily, and in very severe cases four times daily. The injection can be made intravenously or under the skin of the abdomen or flank, using ordinary aseptic precautions. Such injections, they believe, as a rule need not be continued after the second or third day. In some instances the injections cause a slight rise of temperature or even urticarial-like eruptions and pains in the joints. According to their experience the serum has a marked effect upon the disease, hastening the cure, ameliorating the symptoms, and reducing the mortality.

Other observers have not perhaps met with such good results, and it is a fact that there are cases in which the serum appears to fail. The cause of these failures may quite well be that the individual case of the disease is due to some species or strain of bacillus not contained in the serum that has been used. This is a possibility which must not be lost sight of.

Again, it is quite possible that in the past amoebic cases may have been so treated, as well as cases of diarrhoea and bowel troubles not necessarily connected with dysentery, and the Mediterranean "notes" from which we have already quoted say that "in cases of doubtful etiology there should be no hesitation in employing a combined therapy of emetine and polyvalent serum." The diagnosis of the various forms of dysentery is not easy, and until this has been put on a more scientific basis much confusion must necessarily exist as to the treatment most suitable for each individual type. On the whole, however, the bulk of the evidence is in favour of the use of serums in bacillary dysentery. It is important that records should be carefully kept of all cases so treated, as the statistics so obtained will be of the greatest use in the future.

¹ Journ. B.A.M.C., November, vol. xxv, p. 478.

THE SOLDIER'S HEART.

THE war has emphasized the importance both of an appreciation of the physiological variations in the action of the normal heart and of a knowledge of the means by which temporary or slight cardiac disturbances may be distinguished from those of greater moment. The subject is one on which opinions vary widely, and in which finality has not yet been attained. Knowledge of cardio-pathology has increased so rapidly during the last few years, and so largely by the employment of technique which is beyond the reach of most, that it is not surprising that by some medical examiners recruits have been rejected or soldiers invalidated for reasons which subsequent examiners have considered inadequate.

To meet these difficulties as far as may be, a memorandum was drawn up by Sir James Mackenzie and circulated by the War Office to those whose duty it is to examine recruits. This memorandum, which was published in our issue of October 16th, 1915, enjoins the need for gauging the functional efficiency of the heart by ascertaining how it responds to effort. Physiological murmurs, it states, are always systolic in time, and it advises that murmurs should be held to be negligible if the candidate's response to effort is normal and his heart is not increased in size. After assuming that irregularities indicating serious disorder would be associated with such diminution of the functional efficiency that their possessors would not seek to recruit, it deals more particularly with two other forms of arrhythmia—"the youthful type" and that accompanied by extra-systoles. The former, which varies with respiration, is regarded as of no importance since it occurs with perfectly healthy hearts. The latter should lead to the candidate's rejection only if the heart's efficiency is impaired and its size abnormal. It is also pointed out that during examination those who are perfectly healthy may suffer from palpitation or excited action of the heart, the beat becoming forcible and rapid; sometimes a systolic murmur may be heard. If such a candidate be told to lie down and breathe slowly and deeply for a few minutes the cardiac action becomes less violent and the rate slows during expiration. Contributions from subsequent writers showed that the data laid down in this memorandum were not entirely acceptable to all.

A study of "soldier's heart," or "the irritable heart of soldiers," approaches the subject from another standpoint, and was the basis of a discussion held at a meeting of the Section of Pharmacology and Therapeutics of the Royal Society of Medicine on January 18th, to which Sir James Mackenzie and his collaborator, Dr. R. McN. Wilson, contributed the opening papers. The disorder attracted much attention during the American Civil War, and was exactly described by Henry Harthorne in a paper published in the *American Journal of Medical Sciences* in 1864. In the same year the British Government appointed a committee to inquire into the heart conditions prevailing in the army. It sat for five years, and came to the conclusion that the form of accoutrement then in vogue, by restricting the heart's action, caused its "irritability." One of its recommendations was that the principle of the brace should be adopted, and this was afterwards acted upon, but the irritable heart remained. Another theory, initiated by Surgeon Arthur Davy in 1876, has proved equally fallacious. In his opinion "setting up" drill was the cause. It acted, he said, by over-expanding the chest and thus dilating the heart. But, as Dr. Wilson points out, cases are now met with among soldiers who have had

little or no drill in circumstances where this cause could be excluded.

The observations of Sir James Mackenzie and Dr. Wilson suggest that the malady should be regarded in an altogether different light. They have examined about 400 soldiers who have been certified and treated as having heart affections. In their opinion, in at least 90 per cent. of these the heart is not primarily at fault, and the treatment suitable for them is widely different from that appropriate for patients suffering from heart failure. They consider the condition one of general exhaustion, and the circulatory symptoms but evidences of a general state. In the majority of the cases the onset of the exhaustion was found to be connected with an infection; in a few, a history of a very strenuous life preceding the symptoms was alone obtainable. These observers make a clear distinction between the symptoms arising from infection of the heart and from cardiac failure on the one hand, and those of the "poisoned" heart, as they term the "irritable heart" of soldiers, on the other. The principles of the treatment which they recommend are a natural corollary of this conception of its etiology: they are directed to increasing the general health of the body in such a way as to increase the natural resistance to infection, to eliminating toxic influences, and to bracing up the patient bodily and mentally. They therefore advise fresh air in plenty and judicious exercise in the fresh air, and disapprove of the way in which such patients are often kept in bed for long periods under depressing circumstances. That exercise should be selected which gives the man most pleasure, and should be indulged in so long as it causes neither distress nor discomfort. It is clearly of great importance that this view of the nature of "soldier's heart"—a view with which the sense of the meeting was in general agreement, though several speakers attached importance to the existence of hyperthyroidism in a certain proportion of cases—should be known to medical officers in order that the soldier may be safeguarded from the depressing effect which a diagnosis of "heart disease" engenders.

WAR PENSIONS.

The first meeting of the Statutory Committee of the Royal Patriotic Fund Corporation constituted by the Naval and Military War Pensions Act, 1915, was held at St. James's Palace on January 17th, under the presidency of the chairman, the Prince of Wales, who, in opening the proceedings, said that the Committee was empowered to deal with the pensions and allowances granted not only to those who had been engaged in this, the greatest war the world has ever seen, but also to their wives, their families, their widows, and dependants. The Committee would be able to deal sympathetically with the cases of widows and dependants who might need more individual treatment than could be given under the necessarily somewhat rigid system of Government departments. The Committee was not only authorized to supplement in exceptional cases the scale of State pensions, but also to take into consideration the position of dependant persons not hitherto recognized by the State. Another class to whom the sympathy of the whole nation went out, and who might count upon the hearty consideration of the Committee, were those who in the prime of manhood and vigour of health had been permanently disabled. They would receive substantial pensions from the State, but the duty of the Committee would be to initiate schemes of training and means of finding employment for them, so that they might be enabled to feel that they were still active members of the community. The Committee contains representatives of

many of the voluntary associations which have already done so much to ensure the sympathetic treatment of the families of men with the colours and of the widows and orphans, and the Prince expressed the hope that they would cordially co-operate with the Committee. Much quiet unselfish work had, he said, been done since the beginning of the war by thousands of men and women to make certain that, as far as possible, men fighting our battles should be free from anxiety as to the well-being of their families at home, but it would be the duty of the Committee to see that this good work was adjusted and developed. The Prince concluded by intimating that it would not be possible for him during the continuance of the war to carry out fully his duties as chairman, and in fact he returned to the British army in France on the following day, but he expressed his confidence that the vice-chairman, Mr. Cyril Jackson, could count upon the loyal and implicit confidence of all the members. Afterwards the Committee appointed three subcommittees: organization and general purposes (8 members); finance (6 members); pensions, grants, and allowances (12 members). The chairman, vice-chairman, and Mr. Hayes Fisher, Parliamentary Secretary to the Local Government Board, will be *ex officio* members of all committees. Mr. Hayes Fisher informed the Finance Committee that the Chancellor of the Exchequer would recommend Parliament to place a State grant of £1,000,000 sterling at the disposal of the Statutory Committee. Until a secretary is appointed, Lieutenant-Colonel Alfred Welby, Secretary of the Royal Patriotic Fund Corporation, will act, and in the meanwhile the work will be carried on at the offices of the Corporation, 17, Waterloo Place, S.W., where all letters should for the present be addressed.

GRANTS TO UNIVERSITIES AND UNIVERSITY COLLEGES.

THE Board of Education has issued in two bulky volumes its report for the year 1913-14 on those universities and university colleges in Great Britain which are in receipt of grants from the Board. The grants to English universities and colleges for the financial year 1913-14 amounted to £149,000, and those to the three colleges in Wales to £25,500. The volumes also contain reports from other universities and constituent colleges of universities in receipt of aid. Among these are included for the first time reports from the Medical Department of the University of Cambridge and the Medical School of St. Bartholomew's Hospital (University of London). Owing to the war the issue of these volumes was delayed by the pressure of work caused by the absence of many members of the Board's staff either serving with the military and naval forces or temporarily transferred to other departments, and the Board does not intend to publish volumes of reports for the year 1914-15. From the beginning of this year the influence of the war became more and more disturbing, and it was soon clear that the teaching centres would suffer severely from the decrease in the number of students. In the autumn of 1914 preliminary inquiries were made to ascertain the extent of the financial loss which might be anticipated, and as a result the payment of a special grant to university institutions was recommended. The Treasury, recognizing the justice of these claims, made provision accordingly in the estimates for 1915-16. It is hoped that in this way something may be done to prevent any permanent decrease of efficiency of university education. But it cannot be denied that the war has inflicted irreparable losses on education, and that the year 1913-14 will for a long time to come represent the high-water mark of educational achievement in this country. The report is therefore of more than usual interest, as it relates to the last academic year before the outbreak of the war. During the past year the vital dependence of industry upon the higher branches of scientific research

has been very clearly shown, and it is recognized that university institutions will play a great part in providing the scientific needs of industry on a scale calculated to put this country on equal terms with the best-equipped rival. The Board has recently put forward a scheme for the organization and development of scientific and industrial research. Under this scheme a Committee of the Privy Council, responsible for the expenditure of the funds provided by Parliament for the purpose, has been established, and also an Advisory Council responsible to the Committee of Council and composed mainly of scientific men with knowledge of industries dependent on research. Sir William McCormick is Administrative Chairman of the Advisory Council and also of the Board's Advisory Committee on University Grants, so that it is hoped to ensure harmony of action between the Research Council and the Universities Committee. Attached to the report are numerous tables showing the income, expenditure, and number of students of the various teaching centres, which are divided into two main groups, according as they are in receipt of "Exchequer" grant, or of grants not falling under this heading. To this latter category the Cambridge and St. Bartholomew's medical schools now belong. In England the income of institutions in receipt of "Exchequer" grant showed an increase in this last year before the war of over £6,000 from fees, an increase of more than £5,000 from endowments, and an increase of nearly £5,000 from grants by local authorities. The expenditure of institutions in receipt of "Exchequer" grant in England showed a rise of about £18,000. The total expenditure of the medical schools in London, excluding St. Bartholomew's, showed an increase of £3,000 over the previous year. The cost of maintenance of premises fell by £1,000, while the expenditure on teaching, salaries, and laboratory maintenance rose by £4,000. In England the total number of full-time students in institutions receiving "Exchequer" grant numbered 7,756, as compared with 7,666 for the year 1912-13, the increase being equivalent to 1.2 per cent. of the total. It was due to a marked rise in the number of university students, for there was a fall in the number of training college students. The total number of part-time students showed an increase of about 300. The number of full-time students at institutions not in receipt of "Exchequer" grant (and for this calculation the statistics for Cambridge and St. Bartholomew's were not available) had risen from 1,810 to 1,921. The medical schools in London showed an increase of 95, the London School of Medicine for Women leading with an increase of 34 students. It is interesting to find that while the number of students of arts and pure science in England had continued to fall, the number of students in medicine, engineering, technology, and agriculture had risen, the rise being greatest in medicine. In two years the total number of medical students had increased by 283, or nearly 11 per cent. In 1912-13 this increase was practically confined to the medical schools in London. In England the percentage of students admitted under 17 had decreased from 4.9 to 3.2; in Wales, however, it had risen from 1.6 to 2.9.

INHALATION OF STONE DUSTS.

THE Explosions in Mines Committee has issued a report¹ by Dr. J. S. Haldane, F.R.S., on the effects of inhaling dusts applicable for stone dusting in coal mines. In previous reports experiments bearing upon the effects of inert dusts in preventing or limiting explosions in coal mines were detailed, and while it is impossible to say to what extent the use of incombustible dust will render explosions impossible, there is a belief that the number of explosions will thereby be diminished and their violence limited. Questions, however, have arisen as to whether the distribution of such fine dust as silica may not be

¹ Cd. 8122. Price 2d.

injurious to the lungs of the miners. Professor Beattie, of Liverpool, has found that the dust of argillaceous shale is innocuous. Since the publication of his report Mr. A. Mavrogordato has carried out fresh experiments which confirm the opinion. If there is danger at all it is more likely to come from flue dust, and this should certainly be interdicted. The amount of pulmonary phthisis among the tin miners of Cornwall is still far too high. Their death-rate compares most unfavourably with that of coal miners. It is inadvisable, therefore, to introduce into a coal mine any form of dust which, while possibly preventing explosions, might yet become a cause of pulmonary disease. The dust of uncombined crystalline quartz has been found to be dangerous. In fact, it is to the presence of quartz in the gold mines of South Africa that the large amount of silicosis in the Transvaal is attributed. The granite cutting industry also is an unhealthy occupation, owing to the fact that granite contains quartz and the silicates mica and felspar. In steel grinding it is difficult to say how much of the lung disease is due to the steel and how much to the grindstone. Animal experiments have shown that intense exposure to dust produces fibrosis of the lungs, and later on there is always the possibility of tubercle becoming engrafted upon the affected lung. The opinion is expressed that shale dust when inhaled is no more deleterious than coal dust, but that under all circumstances it is well to reduce to a minimum the inhalation of dust of all kinds.

HOSPITAL CONSULTATIONS AND THE PRIVATE PRACTITIONER.

THE Massachusetts General Hospital is about to open a consultation clinic for the benefit of people of limited means. On two days in the week, the *Boston Medical and Surgical Journal* states, patients referred by their own doctors will be received in the out-patient department for "consultation and diagnosis only." Doctors are requested, if possible, to accompany their patients. When a practitioner is unable to do this he will be expected to send a letter referring the patient to the hospital. The doctor will in due course be informed as to the diagnosis made, and treatment will be suggested. An admission fee of £1 will be charged. When an x-ray examination is needed an additional fee of 8s. to 12s. will be charged. For certain other laboratory tests charges not exceeding 4s. will be made. This covers any further visits which may be necessary for a diagnosis. The result of this experiment will doubtless be closely, and even jealously, watched. Our Boston contemporary, while admitting that "judged by a conservative standard it is an encroachment by the hospital upon the territory of individual physicians," says that "from a more enlightened point of view it is a further step towards improving the service which the medical profession as a whole renders the public." The beneficial effect "will not be due to successful individual diagnoses alone. It will follow, later on, that people will demand more accurate diagnoses, and the application in their own cases of some of the more scientific diagnostic methods such as they or their friends have seen employed at the hospital." The Boston journal thinks it improbable that the clinic will injure the general practitioner. "He will be aided in his management of the case; and, if the disease is one which he is unsuited to treat, the sooner he learns that fact the better for his reputation." This seems to us a somewhat Olympian way of regarding an innovation which may have very far-reaching social and professional consequences. There are, of course, certain obvious advantages to the practitioner in the scheme if it is worked by the hospital staff in a spirit of professional loyalty. If he goes to the clinic with his patients these visits will help to keep him abreast of the progress of knowledge. But great care will be necessary if friction is to be avoided, and the scheme is doomed to failure unless his cordial co-operation is secured.

INDUSTRIAL LIGHTING.

THE lighting of factories and offices—which will in due course be the subject of legislation based on the recently published report of the Home Office Committee—is at present in a transition stage. Until quite recently local illumination held the field, but there is now an increasing tendency to abandon the lamp over the individual machine or desk, and to substitute powerful light sources with suitable reflectors placed high up near the ceiling. This plan has the advantage of avoiding inconvenient shadows, although local lighting is still essential in a comparatively small number of cases where the work is of a specially delicate or complicated character, or where, in the manipulation of fabrics, a great deal depends upon the play of light and shade. In clothing factories local lighting is already being widely replaced by general illumination, and in one of the very latest factories, now working on khaki material, general lighting with half-watt lamps has been adopted. One circumstance which has helped to bring general lighting into favour in factories is the simplification of machinery and the diminution of shafting and belts owing to local electric driving. Overhead shafting renders general lighting impracticable, owing to the interruption and flickering caused thereby. One point which was brought out in the course of the discussion on this subject at a recent meeting of the Illuminating Engineering Society was the supposed physiological preference for local as against general lighting. The Chairman, Mr. F. W. Goodenough, said that in cases in which the work demanded concentration of attention for long periods the workers found it restful to glance up from their brightly illuminated surfaces to the subdued surroundings. The lighting in the sorters' department of the General Post Office has been modified in response to a demand of this kind on the part of the men. The physiological basis of this problem, however, is still obscure, and requires further study. Another point of importance which was insisted upon by the opener of the discussion, Mr. J. S. Dow, was the value of reflected light from the surroundings. This reflected light is most useful in strengthening the illumination in parts of the room furthest from the lamps and keeping it above the minimum necessary for safety. In addition to this, it is now recognized that most objects cannot be completely seen unless they are illuminated from many different directions, and in some American factories the floor and non-moving parts of the machinery, as well as the ceiling and walls, are painted in a light colour.

THE MEDICAL EXAMINATION OF RECRUITS.

ATTENTION has been called to an article which appeared in the *Sunday Chronicle* for January 9th, headed "£80 a Week," stating that a number of correspondents had written to the editor enclosing cuttings from newspapers which state that in the last big rush of recruiting many doctors charged 2s. 6d. for each recruit examined, and that in some cases individual doctors were charging as much as £80 a week. After some gratuitous remarks about the attitude of doctors towards the Insurance Act, the editor adds, "It seems that the Government had a short way with these gentry, and cut down their charges to a maximum of two guineas per day." Some of the correspondents are said to have waxed sarcastic at this exhibition of "patriotism," and asked if these particular medical men have any right to criticize Welsh miners or Clyde engineers, and the editor of the *Sunday Chronicle* says in reply, "We do not think they have the right, but are quite certain that they will be very prominent in exercising it." In the issue of the *Sunday Chronicle* for January 16th a letter appears signed by Dr. Joseph Jones of Leigh, Lancashire, pointing out that it is all nonsense to talk about doctors charging £80 a week,

as they knew quite well beforehand what the rate of payment was and the maximum for any day. As was stated in these columns last September, the rate paid before the war was 2s. 6d. a man, but when recruiting on a large scale began in September, 1914, it was arranged that the total paid should not exceed 24s. for any one day. Since March 12th, 1915, the rate paid in most, if not all, commands is on a sliding scale. For one to four men it is 2s. each; for five to nine it is 10s.; for ten to nineteen 20s.; for twenty to twenty-nine 30s.; and for thirty men or more 40s., which is the maximum. The sum allowed to county associations for the medical examination of recruits of the Territorial Force is 1s. a head. Dr. Jones in his letter points out that doctors have at times during the rush of recruiting been in attendance at the recruiting offices from the opening in the morning until 11.30 p.m., not because they expected to be paid, but because they knew the country wanted the work to be done, while at other times doctors have hung about the recruiting offices all day and only had perhaps one or even not one recruit to examine. In a note to this letter the editor says: "It is a fact that some doctors sent in accounts for £50, £60, or £80, for examining recruits during the last week of the Derby scheme. Our correspondents only referred to these particular cases and made no imputation at all upon the patriotism of the general body of medical men. If they had done we should not have published their letters." It would, perhaps, have been better to have ascertained the facts with regard to the authorized scale of payment. The medical examination of recruits is thankless work, and though it may be well to correct evident mistakes, the doctor-baiters are perhaps best left severely alone to pursue their hobby.

Medical Notes in Parliament.

The Central Medical War Committee.

MR. TENNANT has made written answers to three questions by Mr. Shirley Benn (January 12th). The first question was why the medical profession is not starved, since a doctor represented a skilled worker who was not easily replaced and whose training occasioned considerable outlay and occupied a long period of time. Mr. Tennant's reply was: Special arrangements have been made with regard to the recruitment of the medical profession with a view to ensuring all adequate attendance on the troops without unnecessarily dislocating the medical needs of the civil population. The question of starring does not arise.

The second question was, under whose authority the Central Medical War Committee, now occupied in recruiting doctors to the Royal Army Medical Corps, was chosen; by whom were its powers defined; what were those powers; and by whose nomination had its members been selected.

Mr. Tennant replied as follows: The Committee referred to in the question was, I am informed, appointed, and its terms of reference settled, by the British Medical Association at its Annual Representative Meeting in July last; it was not confined to members of that Association, and the Committee co-opted five additional members representative of universities and colleges and of other medical bodies. One of the members of the Committee, being a member of the War Office Medical Advisory Board, was named by the Director-General to represent the Army Medical Service on the Committee. The terms of reference are as follows:

To organize the medical profession in England, Wales, and Ireland in such a way as will enable the Government to use every medical practitioner fit to serve the country in such a manner as to turn his qualifications to the best possible use; to deal with all matters affecting the medical profession arising in connexion with the war; and to report to the Council (of the British Medical Association).

After a conference at the War Office with the Director-General of the Army Medical Service, the Committee was informed on August 9th, 1915 (in a letter which has been published) that the Director-General hoped to receive from the Committee much help in his work of providing officers

for the Royal Army Medical Corps, and was glad to recognize the Committee as a medium for dealing with the great problem which faced the medical profession—namely, how to supply medical officers for the forces and at the same time to protect the needs of the civil population; and the Committee was accordingly authorized to make appeals to the profession with the object of securing these needs.

A further conference took place at the War Office with the Director-General of Recruiting on November 5th last on the same subject, and to the same effect. As a result of these conferences, this Committee, which has local committees in all parts of the country, has been endeavouring to procure and to co-ordinate offers from members of the medical profession of service in the Royal Army Medical Corps. Applications for such commissions are decided upon by the War Office after they have been referred to this Committee for consideration in relation to the medical needs of the civil population in the area concerned in each case, and after consultation with the Insurance Commission and, where necessary, with the Local Government Board and the Board of Education. Analogous arrangements exist in regard to Scotland. I should add that the War Office have received, and are receiving, very valuable assistance from these committees.

Mr. Benn's third question was whether the Government had sanctioned the recruiting, through the agency of the Central Medical War Committee, of medical men up to the age of 45, the limit of age for the rest of the nation being 41. Mr. Tennant answered as follows: The age limit referred to in the question relates to medical men applying for commissions in the Royal Army Medical Corps, and not to recruits for the combatant services in which the age limit of 41 applies.

War.

Medical Students.—Mr. Tennant, in a written reply to Mr. Shirley Benn (January 12th), who asked as to the risk of cutting off at its source the supply of medical aid both for the army and for the civil population incurred by recruiting first and second year medical students, has stated that the present policy was undertaken after most careful consideration. He added that the statistics bearing upon the matter were being further examined.

Recruits Physically Unfit.—Several questions have been asked with regard to the disposal of recruits found physically unfit. Mr. Tennant stated on January 12th that men already rejected for military service or discharged from the army on account of wounds or ill health who presented themselves for attestation would be included in the number of medically rejected. Such men, if they had not thought it necessary to attest, would not be called upon to serve in any event if their physical disability still rendered them unfit for any form of military service. On January 13th Mr. Tennant said that he hoped shortly to be able to state what arrangements it was proposed to make to give some distinctive badge to men discharged from the army as medically unfit.

Hammer Toes.—On January 13th Colonel White asked whether a considerable number of young soldiers were pronounced unfitted for drafts or were discharged from the service owing to their suffering from hammer toes or similar disability, and whether he would consider the advisability, in the less aggravated cases, of having these men fitted with surgical boots which might render them fit for service, in any event with a non-combatant unit. Mr. Tennant said that in the opinion of his medical advisers the issue of surgical boots to the men mentioned was not likely to render them fit for service; even if such boots were issued it would be quite impossible to replace them if they were lost or worn out on service.

Discharges for Physical Incapacity.—In reply to questions addressed to him by Mr. Hogge (East Edinburgh), Mr. Currie (Leith Burghs), and others, in regard to men discharged from the army with disease alleged to have been contracted before enlistment, Mr. Tennant has stated that each case is judged on its merits, the fullest consideration being given to each by the Commissioners of Chelsea Hospital and the army medical authorities. The suggestion that all disease subsequently manifesting itself in a man who had passed the doctor as a recruit should be regarded as due to military service could not be accepted. It was not possible for the military department to take responsibility in the case of men who had not contracted

illness in the service of the State, even if they had passed the medical examination when recruited. It was possible that the disease might not then have been detected; there might have been previous illness. Asked by Mr. Currie with regard to the case of men who had some latent disease which emerged owing to the hardships of military service, Mr. Tennant said that, speaking generally, it would be for the military authorities to state whether they considered that the actual service of the State had been the reason for the breakdown; if it had been, the man would receive the pension to which he was entitled. On January 17th Mr. MacCallum Scott asked whether officers holding temporary commissions invalidated out by a medical board after serving during the present war would be liable to enrolment under the Military Service (No. 2) Bill, and whether single men honourably discharged on medical grounds from the army during the present war would be liable to enrolment under the bill. In reply Mr. Tennant said that individuals invalidated out of the service, whether officers or men, would, *prima facie*, be eligible for exemption under the bill.

Australian Medical Corps.—Captain Amery asked the Under-Secretary of State for War whether Lieutenant-Colonel J. W. Barrett, Australian Medical Corps, occupied the Imperial appointment of Assistant Director of Medical Services on the staff of the Director of Medical Services, Egypt, and consulting oculist to His Majesty's forces in Egypt; whether he was removed from these offices without inquiry by the Australian Government on a recommendation of the Army Council, which the General Officer Commanding in Egypt subsequently pointed out was due to a misunderstanding; whether a court of inquiry had been held, and what was the finding of that court; and whether, if that report is favourable, the Army Council is prepared to reinstate Lieutenant-Colonel Barrett, or whether he is prepared to make any statement with regard to the value of the work done by Lieutenant-Colonel Barrett. Mr. Tennant: I believe the facts as stated in the first two parts of the question are substantially correct. A court of inquiry was held in Egypt in October last year, and in its finding the court exonerated Lieutenant-Colonel Barrett, and spoke in the highest terms of his work. The High Commissioner of the Commonwealth was informed that there was no objection to Lieutenant-Colonel Barrett being employed in Egypt or elsewhere, provided the Government of the Commonwealth concurred.

Recruits' Eyesight.—Mr. Tennant has returned written answers to a series of questions by Sir John Rolleston as to the examination of recruits for defective vision. Mr. Tennant said that special ophthalmic surgeons were available in all commands, to whom would be referred all cases of doubt or difficulty, and cases in which it was thought that the defective vision could be corrected by glasses. The certificates of medical eye specialists were treated in the same way as certificates from any other medical men. They might aid the medical examiner of recruits, but could not absolve him from his responsibility in passing or rejecting the recruit.

Vaccination.—In reply to Mr. P. White, the Parliamentary Secretary to the Local Government Board, on January 13th, stated as follows: The number of successful vaccinations for which vaccination officers receive certificates at all ages in England and Wales was, in 1913, 430,470, and in 1914, 404,616, and the number of declarations of conscientious objection to vaccinations in 1913, 308,235, and in 1914, 321,313. I cannot give the actual number of children vaccinated, nor the figures for 1915, which are not yet available. It appears from the criminal statistics for the year 1913 that 146 persons were proceeded against in that year for offences against the Vaccination Acts. The statistics for 1914 and 1915 have not yet been published.

Madras Medical Council.—In reply to a question by Sir J. D. Rees as to the feeling alleged to be aroused among Ayurvedic physicians and hakims in the Madras Presidency by the action of the Madras Medical Council under the Madras Medical Regulations Act, 1914, in respect of Dr. Krishnaswamy Iyer's alleged covering of an Ayurvedic physician, and whether it was proposed to amend the Madras Act so as to bring it into line with the Bombay Medical Act, 1912, Mr. Chamberlain said that he had no official information on the subject.

THE WAR.

GENERAL AND STATIONARY HOSPITALS.

(From a Correspondent in Northern France.)

The differences between casualty clearing stations and other hospitals are well marked; those between general and stationary hospitals may more easily be overlooked. In certain instances in France they are almost undiscernible. They do, however, differ as a rule very considerably in point of size, and in any case the theoretical or official distinction between them should not be forgotten by students of army medical administration.

Speaking metaphorically, it may be said that general and stationary hospitals are brothers, and the casualty clearing stations their distant cousins. Of the two brothers the elder is a portly citizen who lacks nothing that wealth can provide, and lives as a rule in the very best part, that is to say, at some military base. His guests, like himself, are supposed to be always persons of importance—in other words serious cases—and he is invariably prepared to receive at least 520 of them; also, whatever their number, he is able to provide them with all sorts of luxury in the way of up-to-date treatments. Finally, he is in a position to re-equip them completely in the matter of clothing; and, on the termination of their visit—if this has been a success—he can hand them over to one of his satellites, a convalescent camp. He is, in short, almost the military equivalent of a leading hospital in a medical centre at home.

The younger brother—the stationary hospital—often receives the same kind of guests, but is much less imposing in appearance. Even though he chance to be the immediate neighbour of his relative and to be really quite as well-to-do, he maintains an establishment which is much less elaborate in point of equipment and also smaller (200 beds). Likewise he is supposed to be a person of more democratic tastes and hardier constitution. Consequently he usually lives in a poorer part than his brother. His natural habitat, in fact, is some spot on the lines of communication, where he can afford temporary accommodation for important persons or receive guests of a humbler sort, that is, men likely to recover from their wounds or sickness with rapidity, and whom it is consequently desired not to remove further than need be from their own units. His nearest equivalent in civil life is perhaps a county infirmary.

The third of the group is quite a different kind of person. A dweller in the byways, he reckons little of appearances. Provided he has room for 200 guests and as many more as happen to arrive he is content with the mere necessities of life in the matter of food and furniture and all other items. Many of his guests are more distinguished than any of those received by his cousins, but whatever their character he always passes them on to the latter as soon as circumstances permit.

All three are war-time institutions; in other words, they do not exist when the army is on a peace footing, but are ordered by the regulations regarding the Expeditionary Force (as revised and published in 1914) to be created on mobilization in the proportion of 2 general hospitals, 2 stationary hospitals, and 1 casualty clearing station to every division in the field. As the same regulations also direct that accommodation on hospital ships (220 cots per division) and on ambulance trains (room for 100 lying down cases per division) shall be simultaneously mobilized, it will be seen that the total accommodation provided is well over 10 per cent. of army strength.

This being the case, any one who has followed the debates in Parliament, and therefore knows the approximate strength of the British forces in France, can calculate for himself the vast total accommodation which the medical authorities in France would have been justified in raising had they chosen to act strictly in accordance with the regulations. Fortunately, however, for the taxpayer, for the medical profession, and for the civil population in Great Britain, this has not been their attitude. What they have done in reality is to comply, not with the letter of the regulation, but with its spirit. They have, in short, from beginning to end kept their accommodation in medical units of all kinds down as low as the position immediately in view seemed to justify. The enormous

economy thus effected in the way of personnel and all other directions will be realized only when and if the precise figures are published. For the present this, for obvious military reasons, is not likely to be done.

The immediate outcome of this attitude towards the general problem of how to secure that there shall never be any shortage of beds or other accommodation in France, without trenching too far on home resources, has been that instead of raising new general and stationary hospitals for every division that has arrived, the desired proportion of beds has more often been secured by expanding the accommodation of existing units.

This expansion has naturally not been level throughout, so there are a good many stationary hospitals whose accommodation is not obviously less than that of a general hospital. This is one circumstance which has tended to obscure the difference between the two types of institution, but there are others, perhaps of more importance. For example—the lines of communication are, practically speaking, quite short; it has been unnecessary to string out the stationary hospitals along them; they are commonly to be found at bases in the immediate locality of the general hospitals where they are housed on identical lines.

Another circumstance is the siege-like character of the military operations during the last fourteen months. This has enabled the medical authorities to avoid moving hospitals as frequently as would otherwise have been the case, so that many stationary hospitals have occupied the same site for many months; some for over a year. Their commanding officers have thus had time to beg, borrow, or steal all sorts of extra equipment and so bring up their hospitals to the level of a general hospital, both internally and externally. The zeal in this respect of the commanding officers, both of general and stationary hospitals—that is to say in regard to striving constantly towards perfection—is beyond all praise, and the hopeful spirit they exhibit is often quite remarkable. Many, for instance, start elaborate gardens, if they have any ground, around their huts and tents, and some have done so with much success. These things they do notwithstanding their consciousness that even if their hospital is not suddenly moved on elsewhere, they themselves may be transferred to another sphere of activity and leave the harvest to be reaped by a brother officer. Nor are such endings to their efforts by any means rare. It would sometimes seem, indeed, as if Nemesis kept a special watch for commanding officers who are too successful in the directions indicated.

A third factor is the importance that the medical authorities in France attach to the utilization of scientific methods. It has led to their gradually providing almost all stationary hospitals with annexes, such as the regulations would seem to imply shall be attached, as a rule, only to general hospitals—for example, x-ray departments, and often pathological laboratories.

A further circumstance which has had the effect of helping to eliminate the difference between the general and stationary hospitals in France is that some of the latter have been told off to do special work, and have thus acquired an importance which they would otherwise not have possessed. For instance, one stationary hospital began at quite an early date to deal exclusively with cases of infectious disease, and little by little has developed into an institution with nearly 1,000 beds. A second, which receives none but officers, has converted itself into the equivalent of a first-class nursing home; while a third, which has expanded despite the great success of its work, devotes its energies to the rapid restoration of their military efficiency to men suffering from venereal disease.

These are the circumstances which have mainly contributed to render the difference between general and stationary hospitals less discernible than it was in the first months of the war, and some of them have had a corresponding effect on the casualty clearing stations as a class. It is not common for any of these to remain in the same place very long, but some of them are housed in excellent buildings, and have managed to get hold of a sufficient number of bedsteads and other fittings to secure that at any rate one or two of their wards shall not be distinguishable from those of a stationary hospital of the more elementary kind. What is still more important, they all now include in their staffs members either of Queen

Alexandra's Imperial Nursing Service or of the other nursing bodies which are now sharing its labours.

The net result is eminently satisfactory. There are few hospitals in France which could not give points to any of those which came into existence in South Africa during the last great war, and the general level in respect of the comfort of patients and of facilities for doing professional work of the best kind falls little if at all short of that of permanent civil hospitals in Great Britain.

Nevertheless, the official distinction between the three types of institution still remains, and should a general and prolonged advance take place it may be expected to become once more plainly visible. In other words, a casualty clearing station is officially only a hospital so long as it cannot pass its patients down the lines of communication; it is also expected to do this as quickly as possible, not keeping its patients longer than their condition renders imperative, or performing any operations other than those of necessity. Beyond mattress cases, it has little ward or allied equipment other than what it can carry in its own field panniers, and it is expected to keep ready to move at almost a moment's notice. Of this fact some commanding officers of casualty clearing stations remind themselves by keeping the motor lorries allotted to them within direct view and making a point of using them daily for some purpose or other.

Despite its name, mobility is also expected of a stationary hospital; for this, too, is a field unit. It possesses a good deal more equipment than a casualty clearing station, but its beds and bedding are only of barrack-room type, and it is self-dependent in the matter of medical comforts and surgery requisites. That is to say, it must carry everything it requires for any reasonable period in panniers, and it must never be surprised if asked to move on to some place at a distance from any centre at a notice of twenty-four hours or so.

The position of a general hospital, on the other hand, is considerably different. Its normal equipment is not essentially dissimilar to that of a civil hospital, and includes ordinary bedsteads, hair mattresses, bedside tables and the like, as well as plenty of surgical desiderata. It also has the advantage of knowing that if it is ever required to move it is likely to receive plenty of notice, and that in any case it will never be sent to a place at which it cannot obtain forthwith any stores or extra equipment that it may require.

All three types of hospital possess tents and marquees, but are expected to utilize permanent buildings if suitable ones be available.

TREATMENT OF ACUTE DYSENTERY.

At a meeting at Alexandria on October 17th, 1915, Surgeon-General BARTIE, V.C., Principal Director of Medical Services Mediterranean Expeditionary Force, Egypt and Malta, being in the chair, a discussion took place on the treatment of acute dysentery.

Lieutenant-Colonel Sir RONALD ROSS, who opened the discussion, after a short historical survey, drew attention to the relatively greater severity of the disease among the troops from Britain, Australia, and New Zealand compared to that among those from India. Emetine hydrochloride appeared to have proved very successful, but a certain percentage of cases remained refractory. Such were "running dysenteries," due probably to post-amoebic colitis. In older cases, especially of "running dysentery" not cured by emetine, he was still partial to ipecacuanha powder. Subsidiary treatment, oral and rectal, was by no means to be despised. Bismuth seemed to have proved distinctly useful. Oils appeared to be suitable *a priori* grounds, and olive oil had for long been used extensively in Italy. Much difference of opinion existed as to the value of rectal injections in acute dysentery; in chronic dysentery they were often essential. He could testify to the value of hot hip-baths in cases with severe tenesmus. Regarding diet, his personal feeling was against too much broth, meat extracts, and eggs, and still more against large volumes of fluid of any kind, especially in "running dysentery." In conclusion, he pleaded that the complications should not be forgotten—chronic dysentery, often with stricture and a life of misery, and hepatic abscess. Rogers had found that in the British army in India more than 14 per cent. of cases developed the latter. (The report of Sir Ronald Ross's lecture before the Royal Society of

Medicine on December 20th, 1915, will be found in the BRITISH MEDICAL JOURNAL of December 25th, p. 927.)

Major McCARRISON, I.M.S., said that dysentery had accounted for slightly over 9 per cent. of the total Indian casualties from the Mediterranean. The mortality had been *not*, and the cases had usually been mild. In a considerable number cure had rapidly resulted from rest, castor oil or salines, and appropriate diet alone. Emetine had only been necessary for a minority. The majority of the cases were amoebic in origin. He was of opinion that large doses of emetine were not indicated; half a grain twice daily for one week, and once daily for a few days longer, was sufficient and safe. If the condition of the patient appeared to require its more extended use, it could be administered orally. He combined this treatment with a preliminary dose of castor oil and the subsequent use of salines or calomel, preferably the latter. Thymol or calomel, or, better, a combination of the two, were most effective in assisting in the disappearance of the cysts from the stools, and in dealing with carriers. Quinine injections did not destroy the cysts. Thymol should be given finely powdered and in doses of 30 grains daily. Oils, alcohol, vinegar, butter and ghee, being solvents of the drug, should be excluded from the dietary. With regard to diet, he emphasized the importance of resting the inflamed gut as much as possible; this rest was best secured by a diet consisting solely of tepid albumin water and water. Milk should only be given if the tongue were clean. Malaria and scurvy were frequent complicating factors among the Indian patients, and required their appropriate treatments. It should also be borne in mind that typhoid fever might complicate or simulate dysentery, and might render the diagnosis difficult.

Captain KERR, R.A.M.C.(T.), said that of 661 cases of dysentery under his observation 27 had died. Twenty-four *post-mortem* examinations indicated that the infection was amoebic in 20 and bacillary in 4. The stools of 363 cases of suspected dysentery were examined, and in 312 cases amoebae or amoebic cysts were found. Roughly 50 to 60 per cent. of the cases were shown to be amoebic. The routine treatment in cases of suspected dysentery had been to give a course of emetine ($\frac{1}{2}$ grain morning and evening for six to ten days, according to the severity of the symptoms and the result obtained). In many cases an initial dose of castor oil or salts was given. Afterwards, when the blood and mucus had disappeared, the stools being still loose, the emetine was stopped and a drachm of a bismuth salt was administered three or four times daily until the diarrhoea ceased. At the end of two to four weeks 2 or 3 more grains of emetine were given, or powdered ipecacuanha was continued for a week or two. Throughout the treatment the bowel was occasionally cleared by magnesium sulphate or castor oil. In more urgent cases, with excessive purging, collapse and exhaustion, antidysenteric serum (20 c.cm., repeated two to five times) was combined with the emetine and proved very satisfactory in many cases. It was frequently found necessary to employ intravenous saline infusions in addition. He was quite convinced of the great value of emetine, and administered it in normal saline solution by the deep subcutaneous method. Since extreme exhaustion followed severe dysentery, and heart weakness was common, prolonged rest in bed was essential. He advised that such patients as had gone through a severe attack of amoebic dysentery should be prescribed a monthly course of emetine (1 grain for three or four days) for a few months as a preventive measure against liver abscess. He did not favour lavage of the large bowel; it had not proved satisfactory in his experience. Rectal flushing did, however, ease those cases in which thick mucus was an urgent symptom. Appendicostomy had been of benefit in one case.

Lieutenant Colonel A. H. LISTER, R.A.M.C.(T.), said that at the hospital with which he was connected every case of dysentery received a four days' course of emetine injections ($\frac{1}{2}$ to 1 grain twice daily). After four days' interval a second similar course was given. If all straining or bleeding had been relieved the emetine was then stopped. He spoke of the great efficiency of the drug. Antidysenteric serum was employed if no improvement followed the emetine, 40 c.cm. being given subcutaneously, followed by 20 c.cm. next day. It had proved of definite value in a few instances, but its results were not uniformly good. Perhaps the cases which reacted were bacillary in origin,

or the horse serum itself might have benefited the patients. Milk was excluded from the diet in acute cases, the substitutes being albumin water, whey, arrowroot, and barley water. It was thought advisable to exclude meat extract. Perhaps the outstanding feature in serious cases was vasomotor collapse, the systolic blood pressure falling to the seventies or even to the sixties in fatal cases. In some cases good results followed the subcutaneous infusion of one to one and a half pints of saline. Hypertonic saline infusions were more painful, and he was not sure that they were particularly advantageous. The infusion was combined with 10 minims of adrenalin solution (1 in 100) every four hours, injected hypodermically. Some cases were given brandy and champagne, some pituitary extract, some strychnine, but adrenalin appeared the most reliable. Pain was relieved by morphine and atropine given hypodermically. For tenesmus, after a dose of castor oil or enemata to empty the bowel of sloughs and debris, an enema of 3 or 4 oz. of warm olive oil containing a drachm of ichthyol was beneficial in some cases. An injection containing adrenalin and astringent was very successful in others. Castor oil (10 to 15 minims) or paraffin in half-ounce doses every few hours had been found of some service. For hiccup—*a sign frequently of fatal significance*—atropine had sometimes given temporary relief. For post-amoebic colitis bismuth and salicylates, astringents, chlorine water, and other antiseptics had been followed by uncertain results. Weak iodine, quinine, and silver preparations given by the bowel had only a qualified success. Careful dieting—for instance, the addition of curds or of soured milk, and of beaten-up eggs for the acute form, with the cautious trial of more solid foods, such as fresh fish or custard—was of real importance. Cereal soup might be of service. With this careful dieting, bismuth, liquid paraffin, and enemata of ichthyol and olive oil were used with favourable results. Many cases relapsed when taken off the special diet. When bleeding was serious adrenalin enemata, 1 drachm of the 1 in 1,000 solution to the half-pint of water, might be useful. Lime salts might be tried, and injection of horse serum seemed to have a good effect in exceptional cases. The possibility of a scorbutic element should not be forgotten. For the sequelae—asthenia, lassitude, backache, and tendency to recurrent diarrhoea—he was of opinion that convalescence would be hastened by change both of climate and of subjective outlook.

Major T. S. NOVIS, I.M.S., spoke of the value of 2-grain doses of ipecacuanha given every second hour with an equal quantity of tannic acid. He disagreed with the practice of giving 30 grains after a dose of opium, and the application of a mustard plaster to the epigastrium, because of its depressant effect and the continued vomiting it often produced. Intramuscular injections of emetine ($\frac{1}{2}$ grain) twice daily was the most successful treatment. He had seen very good results follow concentrated solutions of magnesium sulphate in cases presumably of bacillary dysentery, and in a few cases antidysenteric serum had been beneficial. The indications were rest and cleanliness of the bowel. The former could most nearly be obtained by starving the patient for two or three days and afterwards dieting with a food which left little residue. The bowel could be kept clean by large enemata of normal saline run in very slowly. Appendicostomy could scarcely be adopted for acute dysentery. Perforation was most frequent in the region of the caecum, and not uncommonly the extravasation became localized, necessitating drainage. After operation the edges of the wound might become gangrenous, a process which had been checked in a few cases by injection of emetine and the local application of carbolic acid. A course of emetine during or after convalescence would lessen the liability to hepatic abscess.

Captain F. OPPENHEIMER, R.A.M.C.(S.R.), had found that a very light diet was unsatisfactory. All but exceptional cases were put on such a diet as fresh milk, three eggs, custard, one pint of beef-tea, bovril or chicken broth, one pint of arrowroot or cornflour, clotted milk, cocoa for supper, and three lemons. The eggs were beaten up in the milk or, unless the patient were seriously ill, lightly boiled. Meat juices or extracts did not appear to aggravate the condition. After using sodium sulphate (3j hourly until a clear motion was obtained) he had abandoned it as

no improvement was observed and depression was caused. The practice was continued, however, in certain early bacillary cases. Enemata of quinine sulphate (1 in 2,000 to 1 in 500) had been used chiefly for the more severe amoebic cases. Such good results as had been obtained he attributed chiefly to their mechanical effect. When there was much tenesmus he usually followed this with a small starch and opium enema. He began by using emetine in half-grain doses twice daily for ten days. Since the amoebae did not always disappear from the stools he increased this period to fourteen days, using 1 grain daily in one dose. The results were very satisfactory. Later the course was increased to twenty-one days; three fatalities occurred. After intramuscular injections many cases had marked pain and stiffness two or three days later. From among about 3,000 injections about 30 cases had red and swollen arms, in one case a small slough formed, and in two suppuration occurred. *Ipecacuanha* had been used without favourable results as it was difficult to take effective steps to prevent vomiting. Quinine sulphate had been followed by some benefit in amoebic cases with a persistent high temperature, due to secondary infections of the colon. Dover's powders had been given freely at night to produce sleep and to relieve nocturnal diarrhoea. A stock mixture of bismuth, catechu and chalk had been used freely. For the griping pains he relied chiefly on hot fomentations and chlorodyne. The results obtained with serum in the bacillary cases had been good but not persistently so. Usually 50 to 100 c.cm. had been injected as an initial dose and followed by 40 c.cm. on alternate days for as long as appeared necessary. In the most severe cases the first dose was given intravenously. No ill effects had been observed. Intravenous hypertonic salines were very beneficial in collapsed cases.

Colonel TUBBY, A.M.S., thought that no surgeon could consider appendicectomy advisable during an attack of acute dysentery. He did not advise it in chronic dysentery; there was danger of peritonitis following, due to the lack of adhesions.

Lieutenant J. A. DELMEGE, R.A.M.C., gave a summary of observations on the treatment of 84 cases. Sixty per cent. were admitted during the second week of the disease, and 34 per cent. during the third week. Fifty per cent. were passing twenty motions in the twenty-four hours, with blood and mucus. For the remainder the average number of motions in the twenty-four hours was between eight and fifteen, with blood and mucus. All cases were treated with emetine intramuscularly ($\frac{1}{2}$ grain on the first day, then 1 grain on each successive day). Forty per cent. were so treated till the total dose was 15 grains; 60 per cent. until it was 4 grains. No difference in the general condition of the two sets of cases was observed. A few complained of dryness in the throat, and 5 per cent. had vomiting, necessitating the discontinuance of the drug. *Ipecacuanha* (5 grains) in powder, with 5 grains of Dover's powder was given to twenty-four patients after emetine had been omitted. Twenty of these patients vomited after each dose, and it was discontinued. Up to 40 c.cm. of antidysenteric serum were given in 15 cases: 2 improved, the result was doubtful in 3, no improvement followed in 8. Fifty per cent. of the cases were treated with emetine and bismuth salicylate (30 grains t.d.s.) and the remaining 50 per cent. with emetine and quinine sulphate (5 grains in tablet t.d.s.). No difference was noted between the two sets of cases. Morphine ($\frac{1}{4}$ grain sublingually) had proved most efficacious for abdominal pain. Tinct. chlorof. et morph. co., combined with bismuth, had been used for acute cases, and tinct. opii (m x), combined with astringents, for chronic cases, but in neither instance with noteworthy effect. Paraffin seemed to prevent the reappearance of streaks of blood in the stools, when used at the stage when the patient passed two or three hard motions in the twenty-four hours. He had been unable to convince himself that irrigations of potassium permanganate, followed in some cases by silver nitrate (30 grains to 3 pints of water), cut short the acute stage of the disease or prevented its chronicity. It soon became noticeable that cases kept on a low diet for a comparatively long period improved more rapidly than those whose food was increased more quickly. Roughly speaking, whole milk was not given till the patient passed only six motions or so a day with very little mucus, and bread-and-butter and

eggs were not added till he was passing three or four motions a day with little or no mucus.

Professor S. KARTULIS, after referring to the great prevalence of and high mortality from dysentery in Egypt before the discovery of its causation, spoke of the good results following the irrigation of the large bowel with a 0.5 per cent. solution of tannic acid. He testified to the very great value of emetine, but it often failed and sometimes did not act at all upon the living amoebae in the intestine, even in repeated doses. Perhaps in one-tenth of the cases treated by emetine the amoebae remained alive for a long time. He had not found that quinine injections into the cavities of liver abscesses was satisfactory. Afterwards the amoebae were found dead, but a few days later they appeared again in a living condition. An injection into the abscess of 0.5 per cent. of tannic acid also gave negative results. The same solution injected hypodermically proving also unsatisfactory he tried stronger solutions, and on three occasions used one of 20 per cent. The amoebae after three or four injections disappeared from the pus, and the abscesses soon healed. He had applied similar injections against amoebic dysentery itself, and found that the results were the same as those of emetine; the injections of tannic acid even proved effective when the emetine had failed. It was not always infallible, however. In 1913 he had examined the stools of about 80 cases treated by both methods, and on the whole the results were good. Further progress was made when he combined emetine injections with tannic acid enemata. The latter were constituted according to the formula: Tannic acid 4, iodoform 3, sodium chloride 6, arrowroot 25, aq. destillata 1,000; the mixture to be used in two enemata in the twenty-four hours. Oral medication was necessary to combat such symptoms as anorexia. His procedure was to inject at once $\frac{1}{2}$ grain of emetine intramuscularly, if possible, twice a day, and to order two enemata in twenty-four hours of this tannic iodoform mixture. The enemata must be kept in the large intestine for fifteen to twenty minutes. He only used purges such as castor oil or calomel in exceptional cases. The injections and enemata must be continued for three or four days. Usually severe symptoms disappeared on the fourth day, the patients becoming free from pain, tenesmus, and frequent motions with blood and mucus; amoebae were not to be found. Afterwards he continued for a week to inject the emetine and to employ the enemata once in every twenty-four hours. Two or three injections of emetine a week were given for another two weeks. For the first three days he permitted only small quantities of diluted milk in weak tea, or, better, slimy soups prepared with fresh butter. Two to four lemon drinks were allowed in the day. On the fourth day he added, once or twice a day, macaroni, rice, or arrowroot, well boiled in water, with fresh butter. Light, solid food was allowed after a week, but only if the stools were normal and free from amoebae. At the same time jams and marmalade might be given. In the early stages, when severe pain was present, he ordered linseed poultices to the abdomen and sometimes injected morphine. For diarrhoea he had used for the last three years, with excellent results, uzara in tabloid or liquid form. Two or three tabloids, or 20 minims of the liquid, should be given every two hours. He had treated by this method about 400 cases with no fatal result. The whole number of cases of amoebic dysentery treated by the old and new methods in the thirty-two years of his practice among private patients was about 3,000. Only four deaths had occurred, and these were treated by the old method.

Lieutenant H. CREAN called attention to the possible value of eusol as an injection into the bowel in certain cases. Eusol was a preparation which more than any other antiseptic was bactericidal without injuring the tissues, and it occurred to him that such a solution should be useful when the acutest stage was over and a secondary infection remained. The solution was made of equal parts of hot saline (2 per cent.) and normal eusol. The solution caused no pain. It had been usually given once a day for four days, and was retained for fifteen to forty-five minutes. Most of the cases reacted well, as shown by the reduction in the number of stools and the subsidence of the irregular fever. He recorded a case in which it appeared that a patient not previously exposed to infection

manifested the symptoms of dysentery forty hours after landing at Alexandria, and in whose stools amoebae were found.

Colonel GORDON HALL said that in the fatal cases which occurred after emetine he could see no evidence that emetine was the cause of death. The men died some days after the emetine had been withheld, and had had less emetine than many others. The death was probably due to post-dysenteric heart failure. Since the introduction of emetine there had been fewer cases of hepatic abscess, and even when this had commenced emetine could cure it. If emetine caused pain he considered that the technique was faulty.

Colonel C. W. HEALY referred to the three cases which had ended fatally from sudden heart failure after emetine had been employed. Two similar cases had been described by Dr. Milton Grendiropoulos. Emetine was a powerful agent whose dosage, and the length of time during which it should be administered, had to be considered carefully. The depressing effects of the drug, if given in 1-grain doses daily for some time, became very marked, the noticeable features being general lassitude, lowness of spirits, disinclination to make an effort, rapidity of pulse, loss of appetite, nausea, and in some cases difficulty in swallowing and a feeling of constriction about the throat and chest. The question of idiosyncrasy and the fact that symptoms of collapse appeared three or four days after the drug had been discontinued had to be considered. There could be little doubt that emetine, if administered continuously, depressed the heart, for the signs of cardiac depression improved quickly when the drug was omitted. Allan found that a 4-grain dose caused nausea. Baermann and Heensmain found that 2 to 2½-grain doses repeated led to weariness and loss of appetite, and that an intermission removed these symptoms. Colonel Healy suggested that the dose should be from ½ to ¾ grain daily, and that this should be continued until 5 grains had been given. The treatment should then be stopped for seven days, and might then be renewed if not contraindicated until 3 more grains had been given. When under emetine treatment patients should remain in bed, and an accurate record should be kept of the pulse-rate. If this definitely increased, the drug should be omitted until the heart resumed its normal condition. Convalescents who had received emetine should only be allowed up gradually, and should return to bed if the pulse-rate increased considerably. The diet should be fluid—albumin water, whey, milk and barley water or soda water, arrow-root at first thin and gradually thickened, and Benger's food. In severe cases the food should be given every two hours, about 4 oz. at a time, and neither hot nor cold. Milk diet was of the greatest benefit in chronic dysentery. Return to solid food should be made slowly. Fruit must be avoided for a long time.

Major HALL, R.A.M.C.(T.), gave details of the three fatal cases. One case was quite convalescent and had been up and walking for four days. He complained of a sensation in the throat; collapse appeared and death followed nineteen hours later. In neither of the others had there been any cause of alarm. *Post mortem* cardiac degeneration was found in all. The dysenteric ulcers were healed in two and healing in the third. As a routine ½ grain of emetine had been given twice daily for seven days; later, ¾ grain once daily. Second courses were given because of the continued presence of amoebae, and later still the drug was injected over long periods, with the idea of avoiding liver abscess. The symptoms noted were faintness, lassitude, tremor of muscles, and difficulty of swallowing in 3 or 4 cases and one of the fatal ones. There seemed no reason to suspect any particular variety of the drug. The amounts given in the fatal cases were 21 grains, 12½ grains, and 17 grains respectively. Symptoms arose respectively three, four, and four days after cessation of the drug. In 94 other cases 21 had had over 20 grains of the drug and 14 over 15 grains. In one case 28½ grains had been given. Of the 21 who had had over 20 grains 4 showed signs of cardiac weakness—rapidity of pulse, similarity of the cardiac sounds, and lack of the muscular element in the first sound. None showed "back pressure" symptoms. Emetine was obviously a protoplasmic poison, having a selective action on some forms of protoplasm, like quinine. He suggested that the

difficulty in swallowing and sensation about the throat might prove to be due to some change in the medullary nuclei, and advised general rules for the administration of emetine similar to those mentioned by Colonel Healy.

Surgeon-General BASTIE noted with satisfaction the unanimous opinion as to the value of emetine. If given with skill and care its risks became very small.

Notes on the subject were also submitted by Dr. C. EKINS, Lieutenant D. FORDE, and Lieutenant F. DUNN, R.A.M.C.

THE EAST AFRICAN CAMPAIGN.

We referred last week to some of the more important diseases which prevail in East Africa, and by which unacclimatized soldiers are very likely to be attacked unless they fully understand the nature of the precautions which ought to be taken. We are now able to announce that the Army Medical Department has prepared, for the use of soldiers, a pamphlet, entitled *How to Keep Fit in the African Tropics*, on the insect pests and diseases likely to be met with by an expeditionary force operating in British East Africa. It is a very excellent production, and cannot fail to be of the greatest use in the campaign.

The first part contains some brief geographical notes, and the second gives particulars of the climate of the various regions, which, as is well known, varies extremely, from most unhealthy tropical conditions to those prevailing in the highlands of East Africa, where the climate suits white men excellently. This part contains also a section on heatstroke and sunstroke, in which the irritating effect of even indirect sunlight on the bare skin is noted.

The next part gives a short account of the nature and habits of insect pests and the best methods of dealing with them. Particular attention is, of course, directed to the mosquito, to tsetse flies, and to ticks, but there are useful notes also on lice, and on bed-bugs and flies. As a precaution against lice the use of a powder made of naphthaline, iodoform, and creosote is recommended, which, dusted on the underclothing and rubbed between the seams of the coat and trousers, is said to have a marked preventive effect. One-third of an ounce is stated to be enough to clear the clothing of one soldier, but the treatment must be repeated once a week. "Crude oil emulsion," by which we understand an emulsion of crude petroleum oil with soft soap, is also recommended to be rubbed into the hair and on the insides of stockings, boots, or puttees, on the seams of clothing, and on the neck and wrists. As the proportion of soft soap is considerable it can be used when bathing and for washing clothes. It is also valuable against the bug and for washing furniture. It is added that bed-bugs may be prevented from climbing up by rubbing it on the legs of the bedstead. After a note on the common flea, particular attention is directed to the jigger flea, which lives in the sand of floors or dusty places where natives congregate; originally confined to America and the West Indies, it has spread to Africa and has now reached India. The soldier is recommended if he has an itch spot on the foot to show it at once to the nearest native servant. "If he nods and says 'jigger' give him a clean needle. The boys are usually very clever at removing the jigger, which is now like a little bag or bladder about the size of a small flea." Tobacco is very poisonous to these insects, and it is recommended to soak the boots and shoes in an infusion of native tobacco now and then.

The next section deals with diseases, including bowel complaints, fevers, and those due to worms.

Under the head of "fever" the first place is given to malaria, and the importance of remembering that most natives in a malarious country, and especially the children, carry the parasite in their blood, is mentioned. The importance of the daily prophylactic dose of quinine is well brought out, but though the value of the mosquito net is mentioned it is not much insisted on, and the soldier may be led to conclude that its use is impracticable. As we pointed out last week, the French and Belgian soldiers have learnt its value, and regard it as an indispensable part of their kit. We are inclined to believe that mosquito

net drill and mosquito net inspection should be matters of routine in all tropical campaigns.

Short notes on dengue and sandfly fever are followed by a longer note on tick fever. While it is true that it is best to prevent the fever by taking means to avoid being bitten by the tick, we do not altogether subscribe to the statement that no cure is known, for salvarsan is as effective in this disease as in syphilis, if not more so. The next section deals with sleeping sickness. Nyasaland sleeping sickness is distinguished as a separate form, due, it is strongly suspected, to *Glossina morsitans*, and it would have been well to have inserted a cross reference to the account of the nagana of animals, since the same insect is one of the flies which most commonly carries it, and its habits differ very much from those of *G. palpalis*, the carrier of the sleeping sickness of East Africa. The statement under the head of sleeping sickness, that lumps in the neck occur after the fever has developed, is too absolute; enlargement of the glands generally develops, but not invariably.

The diseases due to worms mentioned are those produced by ankylostoma, bilharzia, filaria, and guinea-worm. Finally there is a short section on diseases of animals, containing notes on "horse sickness," which also affects mules but not donkeys, due to some parasite as yet unidentified; on nagana, which affects not only horses and mules but also donkeys, oxen, and dogs, due to a trypanosome; and on the East Coast fever of cattle, due to a piroplasm carried by ticks, but chiefly by the common brown tick.

The pamphlet, as we have said, is generally most admirable, and if its recommendations are loyally carried out the effect on the health of the troops ought to be striking; but it must be recognized that while it is important that soldiers of all ranks should understand the dangers and the means of their prevention some of the most important directions can only be taken if the need for them is fully appreciated by general officers, staff officers, and commanding officers, including commandants of small detachments on special duty. For instance, the recommendations that in order to avoid heat-stroke in hot moist climates the men must march light, and not after a heavy meal, are matters entirely within the control of officers. It is a little unfortunate that the direction with regard to wearing coats and shirts open at the neck is ambiguously expressed. It is said that the cause of the condition of heat exhaustion is "want of evaporation from the skin; this is encouraged by moving about with coat and shirt open." It is, of course, the evaporation and not the heat exhaustion that is encouraged by wearing the clothes open. Another point is a recommendation that in malarious countries camps should never be made at the margin of small streams and lakes or pools. This, again, is a matter as to which the rank and file have commonly very little say.

HONOURS.

THE *London Gazette* of January 14th publishes a list of honours conferred on officers and men for services in the war, containing over 3,400 names, and filling three whole pages of the *Times*. The names of the medical officers in the list are given below. The list also contains the names of many non-commissioned officers and men of the R.A.M.C. and members of the military nursing services upon whom distinctions have been conferred.

C.B.

Surgeon-General R. W. Ford, D.S.O.

Colonels.

B. B. Grayfoot (I.M.S.).	W. C. Beevor, C.M.G.
J. Maher.	H. M. W. Gray (T.F.).
M. J. Sexton.	Sir B. E. Dawson, K.C.V.O.
J. J. Russell.	M. W. Russell.
E. G. Browne.	

C.M.G.

Colonels.

W. W. Pike, D.S.O.	C. A. Young.
C. E. Nichol, D.S.O.	S. Macdonald.
B. M. Skinner, M.V.O.	G. T. Rawnsley.
F. Smith, D.S.O.	C. S. Wallace (temporary).
G. D. Hunter, D.S.O.	H. Alexis Thomson (T.F.).
J. Atkins (temporary).	M. MacLaren (C.A.M.C.).
W. T. Lister (temporary).	

Lieutenant-Colonels.

R. Pickard (T.F.).	F. S. Penny.
A. B. Soltau (T.F.).	J. W. Leake.
J. A. Hamilton (I.M.S.).	F. J. Brackenridge.
A. D. Sharp (T.F.).	A. Chopping.
H. A. Hinge (temp. Colonel).	H. E. M. Douglas, V.C.
A. Milne-Thomson (T.F.).	L. N. Lloyd, D.S.O.
A. W. Hooper, D.S.O.	T. M. Martin (A.A.M.C.).
G. A. Moore.	G. G. Nasmith (C.A.M.C.).
J. R. McMunn.	A. E. Ross (C.A.M.C.).
C. K. Morgan.	W. H. Parkes (N.Z.A.M.C.).
F. Kiddle.	Temporary Hon. Lieut.-Colonel
W. H. S. Nickerson, V.C.	C. G. Watson, F.R.C.S.

Majors.

W. B. Mackay (T.F.).	W. W. Jendwine (I.M.S.).
H. M. Cruddas (I.M.S.).	P. Davidson, D.S.O.
W. Riach.	

D.S.O.

Majors.

R. B. Ainsworth.	N. Low.
E. B. Booth.	A. A. Meaden.
G. H. J. Brown.	R. A. Needham (I.M.S.).
J. P. Brown (T.F.).	M. B. H. Ritchie.
B. B. Burke.	F. E. Roberts.
J. H. Campbell.	W. F. Roe (T.F.).
R. G. Easton.	J. S. Y. Rogers (T.F.).
P. J. Hanafin.	E. Ryan.
D. L. Harding.	F. C. Sampson.
J. A. Hartigan.	A. B. Smallman.
A. E. S. Irvine.	R. J. C. Thompson.
C. L. Kerans (I.M.S.).	C. H. Turner.

Captains.

J. Downie (T.F.).	E. M. O'Neill.
J. W. Houston.	F. Worthington.
W. P. MacArthur.	

Lieutenant J. F. Steven (temporary).

MILITARY CROSS.

Captains.

J. W. Anderson (T.F.).	J. R. Marrack (temp.).
D. C. G. Ballingall.	W. H. L. McCarthy (S.R.).
H. C. Bazett (S.R.).	C. McQueen.
F. A. Bearn (S.R.).	G. Miller (temp.).
E. C. Beddows.	S. Miller (S.R.).
L. G. Bourdillon (temp.).	T. M. Miller (S.R.).
J. E. M. Boyd.	J. Murdoch (T.F.).
N. G. Chavasse (T.F.).	G. E. Neligan (temp.).
A. G. W. Compton (S.R.).	R. B. Nicholson (I.M.S.).
H. S. Cormack (I.M.S.).	J. J. O'Keefe.
R. E. Cree.	W. C. Paton (I.M.S.).
C. G. Douglas (temp.).	G. Petit.
J. C. A. Dowse (S.R.).	R. C. Robertson (temp.).
P. G. M. Elvey.	H. B. Sherlock (S.R.).
R. Errington (T.F.).	T. V. Somerville (temp.).
E. A. C. Fazan (T.F.).	S. H. Smith.
J. H. Fletcher (temp.).	C. W. Sparks (S.R.).
W. Foot (temp.).	O. W. D. Steel (T.F.).
R. Forgan (S.R.).	E. A. Sutton.
A. J. Gilchrist (S.R.).	F. T. Turner.
O. Hairsine (S.R.).	Q. V. B. Wallace (S.R.).
T. Hampson (S.R.).	J. R. M. Whigham (temp.).
F. D. G. Howell.	C. A. Wood (I.M.S.).
H. R. Knowles (temp.).	T. W. Wylie (S.R.).
S. D. Large.	R. F. Young.
H. Lightstone (T.F.).	J. E. Dods (A.A.M.C.).
E. F. W. Mackenzie (temp.).	R. N. Guthrie (N.Z.A.M.C.).
J. MacMillan (T.F.).	

Temporary Lieutenants.

P. Cagney.	A. B. Roche.
J. D. Driberg.	H. A. Rowell.
H. C. Godding.	A. C. S. Smith.
J. T. Kirkland.	W. N. Watson.
R. H. Macgillcuddy.	A. F. Wright.

Assistant Surgeons.

W. J. S. Maine (I.S.M.D.).	E. H. Boilard (I.S.M.D.).
----------------------------	---------------------------

INDIAN ORDER OF MERIT, SECOND CLASS.

Subassistant Surgeons.

Ram Singh (1/4th Gurkhas).	Pargan Singh (6th Jats).
----------------------------	--------------------------

INDIAN DISTINGUISHED SERVICE MEDAL.

I.S.M.D.—Subassistant Surgeons Pohlo Ram (1/9th Gurkhas), Kishan Singh (113th Indian Field Ambulance), Mathura Parshad Sarswit (57th Wilde's Rifles).

SPECIAL PROMOTIONS.

Lieutenant-Colonels to be Brevet-Colonels.—A. J. Macnab (I.M.S.), J. M. Sloan, D.S.O.

Majors to be Brevet-Lieutenant-Colonels.—H. Boulton (I.M.S.), G. Browne (I.M.S.), F. G. FitzGerald.

Captains to be Brevet-Majors.—M. G. Dill, C. N. Draycott (T.F.), C. H. S. Frankau (T.F.), R. G. H. Tate.

Quartermasters and Honorary Lieutenants to be Honorary Captains.—M. Cohen (T.F.), C. H. Cooper, G. W. Harris (T.F.), J. Keogh (T.F.), J. H. Maunder (T.F.), H. C. Okill (T.F.).

OPERATIONS IN GERMAN NEW GUINEA.

On January 11th the Admiralty published an order upon the operations for the reduction of German New Guinea by a force from Australia, sixteen months ago, in the early days of the war. The D.S.O. was conferred upon Lieutenant T. A. Bond, of the Royal Australian Naval Reserve, and fourteen other officers were commended for services in action in the same operations. Among them was Captain Brian Colder Ampill Pockley, of the Australian Army Medical Corps, who, as recorded at the time, was killed in action.

CASUALTIES IN THE MEDICAL SERVICES.

Died of Wounds.

LIEUTENANT WILLIAM WILKIE DEANS, R.A.M.C., was reported in the casualty list published on January 13th as having died of wounds in the Mediterranean. He took the Scottish triple qualification in 1901, and received a temporary commission as Lieutenant in the R.A.M.C. on September 10th, 1914.

Wounded.

Lieutenant-Colonel G. A. Marshall, Australian Army Medical Corps (Dardanelles), May 6th (accidentally omitted at that time).

Lieutenant-Colonel W. Ranson, R.A.M.C. (T.F.), France.

Captain J. A. Sinton, I.M.S., Mesopotamia.

Lieutenant N. S. Joshi, I.M.S., Mesopotamia.

DEATHS AMONG SONS OF MEDICAL MEN.

Murray, J. B., Lieutenant-Commander R.N., third son of the late Dr. W. B. Murray, of Tarbury, Worcestershire, lost in H.M.S. *Natal*, blown up on December 30th.

Scott, A. G., Second Lieutenant 2/3rd Battalion Duke of Wellington's Regiment, elder son of Dr. G. H. Scott, of Sheffield.

NOTES.

THE COLONIAL MEDICAL SERVICES.

IN the article on the Medical Services in 1915, published in the JOURNAL of January 15th, it was inferred that the only colonial medical service which had officially served in the war was the West African medical staff. It should have been added that the East African medical services—those of British East Africa, Uganda, Northern Rhodesia, and Nyasaland—have also been concerned in the war, some of their members having been on service, though fortunately there have been no casualties. It might also be mentioned that the medical staff of General Botha's successful campaign in German South-West Africa consisted of South African medical men. They also, we think, escaped without casualties. But they do not belong to a colonial medical service; these services are employed in the Crown colonies only, not in the self-governing Dominions.

THE VALUE OF ANTITYPHOID INOCULATION.

The Research Defence Society issued a leaflet on protection against typhoid fever about fifteen months ago; it has now added a statement, dated January, 1916, in which it is reported as follows:

Among our Expeditionary Force in France and Belgium about 95 per cent. have been protected against typhoid fever, the annual average being about 90 per cent.

The annual admission ratio per 1,000 is more than nine times greater among the non-protected than among the protected. Among the non-protected it is 9.1 per 1,000. Among the protected it is 1 per 1,000. The death-ratio is thirty-one times greater. Among the non-protected it is 1.84 per 1,000. Among the protected it is 0.06 per 1,000.

The figures for Gallipoli have not yet been thoroughly analysed and criticized; but they leave no room to doubt the value of the protective treatment.

The addendum also deals with the suggestion that the statistics are worthless because typhoid fever and paratyphoid fever are often confused. The leaflet points out that this suggestion is false.

If the cases of paratyphoid fever are added to the cases of typhoid fever, the annual admission among the non-protected is 11.3 per 1,000. Among the protected it is 3 per 1,000. The death ratio among the non-protected is 1.90 per 1,000. Among the protected it is 0.09 per 1,000.

Copies of the leaflet can be obtained free of charge on application to the Honorary Secretary of the Research Defence Society, 21, Ladbroke Square, London, W.

INDIAN SOLDIERS' FUND.

Surgeon-General Sir R. Havelock Charles, G.C.V.O., Sir John Hewitt, G.C.S.I., and Mr. C. C. McLeod have gone to Egypt on behalf of the Indian Soldiers' Fund to see what additional

comforts and hospital equipment the Fund may properly supply for the benefit of Indian troops in that country. The hospitals for Indian troops at Brighton have been closed, but the Lady Hardinge Hospital at Brockenhurst will be continued for the present. We gave some account of this hospital last March (p. 438). It is well designed and well equipped, and has been admirably administered.

MEDICAL OFFICERS WANTED.

2nd Line Welsh Border Mounted Brigade.

Medical officers willing to serve abroad are required for this brigade. Pay and allowances as in regular army. Promotion to captain after six months' service. Applications to Lieutenant-Colonel D. C. Leyland Orton, S.M.O., 2nd Welsh Border Mounted Brigade, Morpeth.

2/1st South Wales Mounted Brigade.

A regimental medical officer is urgently required for a Yeomaniery regiment in this brigade now on the East Coast. Particulars may be obtained from the S.M.O., Head quarters, Yoxford, Suffolk.

England and Wales.

MEDICINE IN SOUTH WALES.

AT a meeting of the Board of Management of the Edward VII Hospital, Cardiff, last week Colonel Bruce Vaughan said that within the last seven years the hospital had received many princely donations, which had enabled it to provide a new wing containing 100 beds at a cost of £50,000, and a fund of £100,000 for their maintenance. The income of the hospital from invested funds during the period had been increased by £10,000 a year, but Colonel Bruce Vaughan accepted these great results as an encouragement to ask for more. The immediate needs of the hospital were, he said, in order of urgency: (1) An extension of the children's hospital; (2) addition of beds for eye cases; (3) the completion of the maternity department; (4) the provision of an orthopaedic department; (5) the provision of beds for male and female tuberculous patients for the purposes of observation and treatment; (6) the provision of extra surgical beds to meet the necessity of the waiting list; (7) an additional operating theatre; (8) the extension of the board-room, with separate rooms for study for the resident medical officers, and a chapel. At present there were 55 beds for children, and he suggested an addition of 25. He mentioned the fact brought out in a recent report by Dr. Newsholme, the medical officer of the Local Government Board, that Wales compared very unfavourably with England in regard to maternal mortality. With the full concurrence of the medical board it was desired to establish and equip maternity and child welfare departments. An orthopaedic department was also badly needed; four years ago something was done in this direction, but a well-organized department was necessary, with at least 14 beds and an operating room. It was desired also, in co-operation with the King Edward Memorial Association, to establish two wards for cases of tuberculosis—one for eight women and the other for ten men—where the cases could be thoroughly studied from the clinical, pathological, and bacteriological standpoints. Research must be undertaken, he said, jointly by the great hospitals and the medical schools, and this rendered all the more urgent the establishment on a proper footing of the Welsh National School of Medicine. The hospital was ready for it and Sir William James Thomas had provided money for complete modern laboratories, but, owing to the action of the Board of Education and the Treasury, the work had been delayed. The reason given was the necessity for reorganizing the University of Wales, but he did not consider that sufficient ground for hanging up a definite and much-needed scheme for the building of the medical school. Permission had been obtained to proceed with the erection of the physiological block, which would be completed early in the next year, but he called upon all men of influence in Wales to take their share in inducing the Treasury to remove its embargo on the establishment of a complete National School of Medicine for Wales. The appeal was supported by the Lord Mayor of Cardiff (Dr. R. J. Smith) and by Dr. Ewen Maclean, who said that the provision of a new maternity department would not only make the institution complete, but would serve the urgent need, day and night, of the whole community. It is announced that in response to the appeal an anonymous

gift of 10,000 guineas had been made, and that Sir William James Thomas has promised to equip the plaster room in the orthopaedic department as soon as it is established.

Scotland.

QUEEN'S NURSES.

THE twenty-seventh annual report of the council of the Scottish Branch of the Queen Victoria's Jubilee Institute for Nurses, which provides trained nurses for the sick poor in their own homes, states that the number on the roll is 413. There are 266 nursing associations in affiliation with the Scottish Branch, but the regular work of many districts has only been accomplished with great difficulty, and in some districts has had to be temporarily suspended owing to the fact that 147 nurses are on military duty; 90 are serving at home, 35 in France, Malta, Serbia, the Balkans, and Egypt, and others with Red Cross hospitals.

WAR AND INSANITY.

The annual report of Dr. Henry Carre, medical superintendent of the Glasgow District Mental Hospital, Woodilee, Lenzie, shows that the number of patients admitted (436), was greater than last year by 92 (69 males and 23 females). The increase, which is 117 over the average annual admission rate for the past ten years, is to some extent accounted for by the large number of senile cases admitted after Stobhill Hospital was taken over by the military authorities. The transference from Stobhill to Barnhill Hospital of the old people upset many of them so much that they had to be certified and sent to the two asylums under the Board. Dr. Carre states that as far as it is possible to determine there have only been 9 cases (4 males and 5 females) whose mental breakdown could be ascribed to circumstances occasioned by the war. Only one man was actually in the fighting line, one broke down in the excitement of mobilization, and two during military training. In the cases of five women the exciting cause of the mental breakdown was ascribed to anxiety regarding relatives in the fighting line.

THE WORK OF AN ABSENT M.O.H.

On account of the departure of Dr. G. Gray Buchanan, M.O.H. for East Lothian, on war service, Dr. Alexander Robb, Midlothian, has been appointed medical officer for the county *pro tem.*, with Dr. W. R. Martine, Haddington, and Dr. A. S. Miller, Trenant, as deputy medical officers for the western district of the county, and Dr. D. R. Macdonald, Dunbar, for the eastern district.

Correspondence.

THE CAUSE OF THE DIVULSIVE EFFECT OF PROJECTILES.

SIR,—Sir Anthony Bowlby's Bradshaw Lecture, published in your issue of December 25th, 1915, is most interesting and instructive. There is one statement, however, which admits of another explanation. Under the paragraph heading, "General Character of Gunshot Wounds," Sir Anthony says:

It has been shown that the injury caused by a bullet is largely due to the wave of compressed air which the bullet drives in front of it, and which expands within the tissues.

Can it be that compressed air is the cause of the "divulsive and expanding nature" of these wounds?

Professor Worthington demonstrated by means of photographs¹ every phase of the phenomena of a splash, from that of a drop of water into water to that of a modern projectile perforating modern armour plate.

Between the fluidity of an armour plate and that of water there are innumerable degrees. The human body as a whole represents one of these degrees, its several constituent tissues represent subdivisions of the degree. The ultra-instantaneous method of photography devised by Professor Worthington is necessary to secure permanent records of the splash of a drop of water falling into water, but a projectile striking an armour plate leaves a

permanent splash which differs in no essential from the water splash. A wound represents the "splash" caused by a projectile entering the human tissues. Professor Worthington's work appears to supply a perfect explanation of all the effects, both local and remote, which are the result of modern gunshot wounds.

There is the same tendency of the tissues to form "the bubble stage" of the splash. The thickened ring of up-raised tissues will follow Plateau's law and break or tend to break into fragments or "drops," explaining the "divulsive effect." The wound must be uneven, as a "rough" splash will be inevitable; a projectile or bullet may be of any size or shape: it may spin, wobble, or trip over itself at any velocity or angle, but the general phenomena at the moment the wound is being made will, considered generally, be the same; any stone thrown into any pond will convince of this—there will be details of "pattern" at the point of entrance of the stone, but the concentric waves will still travel to the confines of the pond. The microscopic appearances found at a distance from a wound compare with the effects of the concentric waves on the surface of the pond, or on an armour plate after a projectile has struck it.

The "concentric effects" of a projectile striking the forearm would not be found in, say, the rectus abdominis, but might conceivably be found in the deltoid of the same side. It would be interesting to know whether the "concentric effects" of a projectile wounding the forearm, when the whole arm is horizontally level with the shoulder, could be found in the deltoid of the opposite limb.

Towards the end of his lecture Sir Anthony instances blows on the abdomen which have produced grave internal injuries without any external wound. Surely not through the agency of compressed air?

Again, is the greater shock experienced when a limb is blown off high up due to the more intense action of the concentric waves because of the closer proximity of the centre of disturbance to the central nervous system?

Professor Worthington's photographs show that air follows a projectile, but does not precede it. This following column of air obeys Plateau's law, and breaks into bubbles the moment its length is greater than $3\frac{1}{2}$ times the diameter. This would imply a contracting of the column of air rather than a "divulsive and expanding force." Leaving the effects of sepsis out of consideration, there must be two kinds of sloughing in a wound—one very superficial, caused by the actual contact of the tissues with the projectile, the other deeper and more extensive, caused by the tendency of the thickened rim of the "bubble of the splash" to break into drops, because Plateau's law holds both for columns of air in liquid and for columns of liquid in air. The columns behave in this fashion whether vertically straight or circular and horizontal. If the projectile were perfectly spherical, perfectly smooth, and entered the body exactly at right angles, one would expect to find a ring of fairly even-sized regular tears round or in the wound; but as projectiles are never polished (in Professor Worthington's sense), never spherical, and rarely strike at right angles, the effects will always be different, but the wounds must present the characters associated with an internal explosion. When a stone is thrown into a pond, the drops of water which rise above the surface are not blown up by compressed air carried in either before or after the stone. The column of air dragged in after the stone breaks into bubbles, which rise gently to the surface.

The human body consisting of such different substances as muscle, bone, fat, fascia, nerves, brain, etc., all bound up in a tangled mass, would lead one to expect a very complicated and modified form of splash, just as happens when a stone is thrown into a pond, the surface of which is covered with floating and semi-submerged articles of different size and specific gravity.

The subject is full of interesting speculations, but Sir Anthony's compressed air theory reminds one of that other conjecture as to how many angels can stand on the point of a needle.

I venture to think a perusal of Professor Worthington's work would make the form of modern gunshot wounds more intelligible.

By the way, there is another book which will pass an idle hour at the present time—*Commentaries on the Surgery of the*

¹ A Study of Splashes. Longmans, Green. 1908.

War, by G. J. Guthrie, F.R.S., etc., President Royal College of Surgeons 1833, 1841, 1854, etc., covering the wars of the period 1808 to 1855. The treatment of wounds by chlorides of lime, soda, and zinc, hæmorrhage, sloughing, sepsis, gangrene, and every other accident or illness of the battlefield will be found there, as well as the same old grumbles at the War Office.—I am, etc.,

LIONEL F. WEST, M.R.C.S., L.R.C.P.

Birmingham, Jan. 14th.

SHERBURN HOSPITAL.

SIR,—Dr. Meachen is no doubt right in saying that there is an ancient hospital at Sherburn in Durham, and I accept his assertion that he is the physician-in-charge as conclusive evidence of its existence. I knew of his hospital, which is said by Dugdale to have been founded by Hugo de Puteaco, which I take to be the Latinized form of Hugh Pudsey, Bishop of Durham. It does not follow, however, that there was no leper house at Shireburn in Yorkshire, and Dr. Meachen admits that there was a hospital there, though he says it was not a leper house. He accuses me of spelling the name wrong, and says that my Shireburn in Yorkshire ought to have been Sherburn in Durham; but in the seventeenth century, when Dugdale wrote, people spelt according to their own fancy, and acknowledged no obligation to spell the same name always in the same way; and sometimes one, sometimes another, of these variants has been accepted and adopted. The place now called Sherborne in this county of Dorset was spelt by Dugdale Shireburne. I think, therefore, we may conclude that, while Dr. Meachen is right, I am not wrong; in fact, he is right, and I am right, and all is right as right can be.

Allow me in conclusion to thank you for your very handsome and interesting review of my lectures.—I am, etc.,

Parlstone, Dorset, Jan. 15th.

CHAS. A. MENCHER.

THE TONSILS.

SIR,—In the correspondence under this title it is accepted that, when there is any question of removing the tonsils, these glands should be removed *in toto*. The two points which are giving rise to discussion appear to be the following: (1) Is there any risk in carrying out complete enucleation of the tonsils in singers? (2) Should this enucleation be carried out by dissection or with the guillotine?

I have never had any complaint from a singer after this operation, for the very good reason that I have never ventured to perform it on a trained artist. With students of singing—those who are just "learning to sing," and in whom the operation is indicated—I have never seen any but satisfactory results, the improvement and development of the voice being sometimes very noticeable. But many other observers have had experiences which should put us on guard. Hudson Makuen thinks it is safer, in the case of singers, to leave the tonsil capsule, and possibly some portions of the tonsil.¹ Bryan D. Sheedy examined a series of one hundred throats, three to ten months after operation by the modern method of enucleation; about 5 per cent. of the patients complained of difficulty in using certain words, and had nasal intonation six months after operation. Four of the whole number had practically lost their singing voice.² It is, to say the least, unwise for any one with the necessarily limited experience of his individual practice with this operation amongst professional singers to stigmatize this possible risk as a "popular fallacy."

As to the method of operating: Enucleation of the tonsils by dissection, as I have seen it carried out by its chief exponent, is a neat and thorough operation, leaving the throat in a satisfactory condition. As evidence that I have no prejudice against it, I may point out that as long ago as 1901 I called attention to the inadequacy of the guillotine in certain cases of submerged and adherent tonsils, and recommended in such instances removal by dissection.³ Later on I learnt to use the guillotine to effect excision of the tonsil with its capsule by

using a tractor to draw both gland and capsule well through the ring of the guillotine. Specimens illustrating the completeness of this method were shown before the meeting of the British Medical Association in London in 1910, and are figured in my textbook. About the same time, as Dr. W. Hill has pointed out, Whillis and Pybus in this country and Sluder in America demonstrated that, instead of using traction, the tonsil and its entire capsule could be impressed through the guillotine ring by manipulation with the forefinger or by crowding the mass against the alveolar eminence of the lower jaw. No special "tonsillectomy guillotine" is required for this, as Dr. Syme appears to think. In my own clinic all tonsils are enucleated with the form of guillotine which was slightly modified by Mr. Charles Heath at the Throat Hospital more than twelve years ago. Until he left for the front, these enucleations at King's College Hospital were carried out rapidly, completely, and safely by my colleague, Mr. C. W. M. Hope, who formerly practised and advocated the dissection method. Many others have likewise discarded the method of dissection since learning that an equally good, if not better, operation can be executed with the guillotine. It is the method which is employed in many throat clinics in London and largely in America.

The correspondence columns are not the best place for studying and comparing the advantages and drawbacks of the two methods of enucleation. This can be done much better in our operating theatres and by demonstrations of patients and specimens before our medical societies. It is sufficient here to protest against Dr. W. S. Syme's statement, in regard to the removal of the tonsil complete in its capsule, that "to do this in every case some method of dissection is necessary." Enucleation of the tonsils by dissection is certainly not the only way. It has still to be shown that it is the safer, speedier, easier, or better way.—I am, etc.,

London, W., Jan. 17th.

STCLAIR THOMSON.

SIR,—All who have contributed to the discussion in your columns regarding the surgery of the tonsil are agreed as to the superiority of enucleation over the older methods, but there is some difference of opinion as to the technique of the operation. The following guiding principles may, therefore, be worthy of consideration. (1) In children the procedure introduced by Whillis and Pybus, that is, enucleation by means of the reversed guillotine, or, as I prefer to call it, the "new guillotine operation," gives uniformly good results. (2) In adults, and especially in those who have suffered from quinsy, firm adhesions bind the tonsil to its bed and render the above operation impossible. The ideal method for such cases consists in dissection with scissors and snare under local anaesthesia.—I am, etc.,

Edinburgh, Jan. 18th.

DOUGLAS GUTHRIE,
Lieutenant, R.A.M.C.

We cannot continue this correspondence.

Universities and Colleges.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

A QUARTERLY Council was held on January 13th, when Sir W. Watson Cheyne, President, was in the chair.

Earlier Closure of the Library.

The Library will be closed at 6.30 p.m., instead of at 7 p.m., during the next three months. The Common Room will be closed during the war.

Contribution to British Red Cross Fund.

The Council recommended that the College should contribute 50 guineas to the funds of the Joint Committee of the British Red Cross Society and the Order of St. John.

Court of Examiners.

Mr. H. J. Waring was re-elected to the Court of Examiners.

Removal of a Member.

A member's name was removed, and a notice to this effect be sent to the Registrar of the General Medical Council.

Hunterian Oration for 1917.

Sir George Henry Makins was appointed to deliver the Oration for 1917.

¹ Trans. American Laryngol. Assoc., xxxiii, 1911, p. 222.

² Trans. Amer. Med. Assoc., Section of Laryngology, lxiv, 1913, p. 180.

³ Trans. Medical Society, London, xlv, 1901, p. 392.

Obituary.

HERBERT WILLIAMS, M.D.LOND.,

M.O.H. PORT OF LONDON.

WE regret to have to record the death, on January 16th, at the age of 53, of Dr. Herbert Williams, M.O.H. for the Port of London. He had recently been operated upon for appendicitis, and death was due to cardiac failure. He was the son of the late Alderman T. H. Williams of Weymouth, and received his medical education at St. Bartholomew's Hospital. He graduated M.B.Lond. with honours in medicine and physiology in 1888, and M.D. in 1890. He acted as assistant house-surgeon to the Metropolitan Hospital and house-physician to St. Bartholomew's. He was appointed assistant port medical officer (London) in 1892. In the following year he took the degree of M.D.Lond. in State Medicine and also the D.P.H. of Cambridge. In 1901 he succeeded Dr. W. H. Collingridge (who had been appointed medical officer to the City of London) as medical officer of health for the Port of London. The area under the jurisdiction of the Port of London Sanitary Committee extends from the high-water mark at Teddington Lock to Warden Point in the Isle of Sheppey, and includes the lower part of the Medway and innumerable streams, creeks, and harbours. One of the matters with which Dr. Williams had to deal was the possible danger of the introduction of plague, and it is stated that even to day the average number of rats killed every year is about 50,000. Among the duties to be discharged by the department over which Dr. Williams presided with so much ability, in addition to the inspection of ships for the prevention of exotic diseases, are the inspection of imported meat and foods generally, and of shellfish layings in the Thames estuary. He was also medical inspector under the Aliens Act and lecturer on port hygiene in the London School of Tropical Medicine. Dr. Williams was adjutant of the 1st Kent Royal Garrison Artillery Volunteers during the South African war, and afterwards held the rank of major in the corps. He was a man much given to outdoor sports, and was a good golfer and oarsman.

A life-long friend writes: By the death of Dr. Herbert Williams the profession has lost one of its most able experts in public health, and it is no exaggeration to say that the ability, tact, and energy he displayed during the fifteen years for which he occupied the important position of medical officer to the Port of London have rarely been excelled. Perhaps more than all others the Port of London involves powerful interests, many of which are more or less in conflict; but Herbert Williams possessed in such a high degree the qualities of firmness, tact, and a strong sense of justice, that he was generally able to carry out the sanitary regulations of the port to the satisfaction of all. The importance of his work as medical officer to the Port of London will be understood when it is stated that on him rested the duty of inspecting and passing, as fit for consumption, all the food brought to London by ships, in addition to that of preventing the ingress of contagious disease. Williams had a deep practical acquaintance with port conditions, combined with medical ability and a shrewd knowledge of mankind, and those who knew of these qualities were perfectly satisfied that the sanitary welfare of the great city was in safe and capable hands. Except to the few experts, his great work at the Port of London was almost unknown, for Herbert Williams had a contempt for self-advertisement. He knew his own worth, but was careless as to whether those outside the great Corporation he served were acquainted with his abilities. Those who knew him intimately will sadly miss his cheery personality, his capacity for forming firm friendships, and his high feeling for justice and right.

CHARLES HENRY FOX, M.D., F.R.C.P.E., M.R.C.S.,

FORMERLY OF BRISLINGTON HOUSE ASYLUM, BRISTOL.

WE record with regret the death of Dr. Charles Henry Fox, who died, aged 78, on Christmas Day at his residence in Edinburgh, to which he had retired after relinquishing practice at Brislington House, near Bristol. He was the

fourth son of the late Dr. Francis Ker Fox of Brislington Asylum, and a brother of the late Dr. Edward Long Fox of Bristol, and was born on June 7th, 1837.

Charles Henry Fox was educated at Shrewsbury and Highgate College, and entered at St. George's Hospital in 1855. He took the diploma of M.R.C.S. in 1859, and, after a further year at Edinburgh Medical School, he graduated M.D. at St. Andrews. He joined his father at Brislington House Asylum, and became a partner in 1873. He remained there until 1894, at first with his father and afterwards with his half-brother, Dr. Bonville Bradley Fox. When he relinquished practice he retired to Edinburgh, where he had many friends and old associations that he valued highly. He became a Fellow of the Royal College of Physicians of Edinburgh in 1900, and also a Fellow of the Botanical Society, and of the Society of Antiquarians of Scotland. He always described his earlier life in Edinburgh as his happiest year, and never regretted his return to that city to spend the last twenty-one years there, though for the last twelve years he had suffered from ill health, and had been a complete invalid for several years before he died. Ever courteous, kindly, and of a most generous and lovable disposition, he leaves behind him many relatives and friends who mourn his loss.

THE LATE COLONEL E. O. WIGHT, R.A.M.C.—A correspondent who was present sends us the following tribute to the memory of a dead comrade which was addressed to his officers by Colonel H. N. Thompson, D.S.O., at a recent fortnightly conference of the medical officers of an army corps serving in Belgium:

Brother officers, I ask you to rise while I remind you that this is our first meeting here since the passing of our brother Colonel E. O. Wight. I have no doubt that his striking personality and genial presence is vividly with you all at this moment, as it is with me. He was ever a loyal colleague and wise organizer and adviser. He possessed such wonderful energy that he had always been everywhere and seen everything throughout the division, and only spoke of what he knew. To those of you who had the great privilege of serving under him in the 49th Division he was the ideal chief, and I well know how he had won the affectionate respect—I may almost say reverence—of every one of you. Colonel White was proverbial in the corps as being a man devoid of fear, one devoted heart and soul to his work, and to the interest and care of the soldiers committed to his charge. He was an officer of the very best type which our corps produces, a conscientious worker, a good sportsman, and a gentleman to his finger tips. It was inconceivable that anything sordid or mean could ever find a place near him. In his career he set a bright example, and taught us how best a man should live, and, finally, how he best should die. I think his was the death which he would have most wished to die. Killed on the field of honour in the cause of his country and his King, the death most fitting such a gallant gentleman. *Requiescat in pace.*

WE regret to have to announce the death last week of Dr. EDWARD DANIEL O'NEILL, Resident Medical Superintendent of Limerick District Lunatic Asylum, after an illness which did not take an acute form until within a few days of his death. He was born sixty-three years ago. He was a student of the Carmichael School, Dublin; he took the diplomas of L.R.C.S. (1872), L.R.C.P. (1878), and M.R.C.P.I. (1884), and from 1881 to 1886 he was assistant medical superintendent at Richmond Lunatic Asylum, whence he was promoted to be resident medical superintendent of Castlebar Asylum, where he did duty for a period of four years. In 1890 he succeeded to the charge of Limerick Asylum, and during his long tenure of that office won the recognition of the inspectors, the committee of management, and the public for his thoughtful and capable administration and the kindness he showed towards the patients under his care. His death is greatly regretted, and the committee of management at its last meeting passed a vote of condolence with his family.

Dr. HENRY LAWRENCE, who died at Capetown on July 20th, at the age of 86, was the oldest member of the profession in South Africa. He was present at the first administration of chloroform in London, at University College, during an operation performed by Liston. He was born in England. He began his professional education as apprentice to a practitioner in a western county. In October, 1847, he entered at University College; he took the diplomas of M.R.C.S. and L.S.A. in 1850, and for three

years practised in London; he went to South Africa in 1854, and received an appointment in the Convict Department then mainly engaged in road making. Subsequently he practised for many years at George. He retired in 1880, and lived afterwards at Capetown. All Dr. Lawrence's four sons entered the medical profession. Dr. T. G. Lawrence, first in practice in George, went to Johannesburg in its early days and died in the Eighties. The remaining sons, Drs. Alfred, Norman (Major R.A.M.C.), and Arthur Lawrence, are still in the Cape Province. Two of Dr. Lawrence's grandsons are doctors—Dr. Ruthven Lawrence of Claremont, at present serving with the South African General Hospital in England, and Dr. Cyril Wilson, late Surgeon, R.N., more recently in practice in South Africa, and now serving with the Royal Army Medical Corps. The *South African Medical Record* describes Dr. Lawrence as a man of fine presence, who until lately retained all his vigour; only three years ago he underwent suprapubic lithotomy, and walked about, as though nothing had happened, within a fortnight. Dr. Lawrence was well read, as he never neglected general learning. His social qualities were high, and he charmed his friends by his conversational powers.

THE HON. WALTER HUMPHRIES MONTAGUE, M.D., of Winnipeg, died of apoplexy on November 15th. He was born at Adelaide, Ontario, in November, 1858, and was the son of a farmer. His career was remarkable; he began as an errand boy in a country store. He took a teacher's certificate at Woodstock College, and afterwards entered the Toronto School of Medicine, going from there to Victoria University, Cobourg, where he obtained his degree. He was admitted to the College of Surgeons and Physicians of Ontario, and to the Royal College of Physicians of Edinburgh. For several years Dr. Montague practised at Dunnville, Ontario. In 1883 he was an unsuccessful candidate for the Ontario legislature, and was first elected to the House of Commons in 1887. The election was voided, but he was re-elected the same year; that election was also voided by the Supreme Court of Canada. In 1889 he was an unsuccessful candidate at a by-election, which also was declared void, and in 1890 he was again elected. He was re-elected in 1891 and 1896, but was defeated in 1900. In December, 1894, Dr. Montague entered the Bowell administration without portfolio, and in 1895 became Minister of Agriculture, which office he retained under the Tupper Government until July, 1896. In 1908 Dr. Montague removed to Manitoba, and in 1913 was appointed Minister of Public Works. He retained that office until the resignation of the Roblin Government some months ago. Dr. Montague leaves a widow, two daughters, and two sons—Captain R. J. Montague, who is Staff Captain for General Ketchen, and Captain F. Montague, A.D.C. to General Turner.

The Services.

EXCHANGES DESIRED.

A CAPTAIN R.A.M.C. (T.F.) Field Ambulance, at present in England, wishes to exchange with an officer doing duty in a hospital or casualty clearing station. Address No. 350, BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C.

Captain (T.F.), at present serving in Mounted Brigade Field Ambulance at home, wishes to exchange with officer in Field Ambulance or Casualty Clearing Station abroad or about to proceed abroad. Address, No. 349, BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C.

THE late Dr. J. W. N. Mackay, of Elgin, left personal estate of the total value of £13,269.

THE Police Commissioner of New York has taken action for the prevention of unnecessary noises, and has issued an order enjoining a strict enforcement of the regulations.

UNDER the presidency of Professor Sanarelli a national league for the hygienic well-being of soldiers in the field has been formed at Rome. Its object is to supply whatever is needed to make life in the trenches and fighting line generally more comfortable for the men, to improve their physical condition, and increase their power of resistance to disease. Branches of the league will be formed in different cities for the special purpose of arranging for the transmission of gifts for the troops.

Medical News.

THE *Journal de Médecine de Bordeaux* states that at the opening of the academic year 1914-15 there were still some students too young for military service, but the successive calling up of the 1915 and 1916 classes quickly thinned their already depleted ranks. At present Saint André, the principal clinical hospital, has only two residents; both are doctors of medicine, and one is a woman. Eleven externs are doing duty as residents. The other hospital workers (*stagiaires*) comprise a few young men medically unfit for military service with some women students and a sprinkling of foreigners. In the early months of the war there was a marked decrease in the number of ordinary patients. The total number for the third quarter of 1914 was 1,351. In 1915 the figures became almost normal; the number of patients in the third quarter was 1,883, higher by 532 than that for the corresponding period in 1914. A noteworthy point is the change in the nationality of the patients. Whereas before the war the wards were filled with Portuguese, Greeks, Dutchmen, Danes, and Norwegians, lying side by side with Moroccans come to Bordeaux to work on the quays, now their place has been taken by French men and women and by Belgian refugees. The scheme for uniting the four teaching hospitals—Saint André, the Children's Hospital, that of Le Tondu and the Pellegrin Hospice—into one vast general hospital, which was on the point of being carried into effect, has had to be held in abeyance till the end of the war.

IN some notes on insecticides published in the *Journal of Tropical Medicine and Hygiene*, Drs. Castellani and Jackson state that for use against lice on a large scale the best powder is naphthaline. It has a lower destructive action than kerosene oil, guaiacol, iodoform, or anise preparations, but has a less unpleasant odour than the first three named, and is much cheaper than the last. Of liquid insecticides kerosene appears to be the best. Where price is not a matter of consequence menthol powder is to be preferred to naphthaline; it not only repels lice and fleas, but mosquitos also. For bugs kerosene oil is the best insecticide, and next to it guaiacol and pyrethrum powder.

LAST February the *Field* published a very remarkable special supplement, written by Dr. Arthur Tacquin, Physician-in-Ordinary to the King of the Belgians, giving an account, with striking illustrations, of some of the deeds of the Germans in Belgium. The editor of the *Field* now announces that a special shilling number of that paper will be published on January 29th, giving a further account of the crimes of the Germany army. Among other matters it will deal with the murder of women and children, and the murder and wounding of civilians in France, with corroborative evidence from German sources; the use of civilians as screens, with German admissions that this had been done; and with the killing or mutilating of wounded, again with German admissions. The long preliminary table of contents, of which we have given only a brief outline, includes also outrages on the Red Cross and the poisoning of wells, and ends with the significant words, "more to follow."

THE China Inland Mission has issued a report by Dr. G. Whitfield Guinness (London: Morgan and Scott, 1915. Price 3d. net), of the medical work done in Kaifeng, the capital of Honan, under its auspices. The death (from typhus fever contracted in the course of his work) of Dr. Sidney Carr in 1914 made the running of the hospital there very difficult, but Dr. Guinness has since been joined by Drs. Jessie McDonald and D. M. Gibson. Medical training is carried on, and although Kaifeng Mission Hospital is not a medical school with power to grant a doctor's degree, the curriculum is a practical one and turns out men who are able to do a large number of operations with skill. These hospital assistants are divided into three classes: Student assistants, ward nurses, and ward coolies. The women's work is now under the charge of Dr. Jessie McDonald, who is a graduate of Toronto. In 1904, when the work was begun, there were 1,476 out-patients' attendances; in 1913 the number had risen to 15,021, and there had been a further increase in 1914. The number of in-patients in 1913 was over 600; and the 1,600 operations included 505 for enteritis, 175 for fistula in ano, 372 for various abscesses, 157 tooth extractions, and a few serious operative procedures. Local anaesthesia was used in 950 cases, no anaesthetic at all in 567, and chloroform in 133.

Letters, Notes, and Answers.

CORRESPONDENTS who wish notice to be taken of their communications should authenticate them with their names—of course not necessarily for publication.

AUTHORS desiring reprints of their articles published in the *BRITISH MEDICAL JOURNAL* are requested to communicate with the Office, 429, Strand, W.C., on receipt of proof.

THE telegraphic addresses of the *BRITISH MEDICAL ASSOCIATION* and *JOURNAL* are: (1) EDITOR of the *BRITISH MEDICAL JOURNAL*, *Antiology*, Westrand, London; telephone, 2631, Gerrard. (2) FINANCIAL SECRETARY and BUSINESS MANAGER (advertisements, etc.), *Antiology*, Westrand, London; telephone, 2630, Gerrard. (3) MEDICAL SECRETARY, *Medisecra*, Westrand, London; telephone, 2634, Gerrard. The address of the Irish office of the *British Medical Association* is 16, South Frederick Street, Dublin.

Queries, answers, and communications relating to subjects to which special departments of the *BRITISH MEDICAL JOURNAL* are devoted will be found under their respective headings.

QUERIES.

INCOME TAX.

"TAX" has been assessed in respect of a temporary War Office appointment at the full—that is, unearned—rate of income tax, and inquires whether there is any right of appeal.

* * We presume that "Tax" refers to the year of assessment ending April next. The Finance (No. 2) Act, 1915, Sec. 29, abolishes the time limit for claiming the earned income relief, and though the date of the Act (December 23rd, 1915) is probably subsequent to the assessment, the Act refers to the whole of the taxation for the year 1915-16, and we think that the section quoted would enable our correspondent to lodge a claim to the relief now. He should communicate with the assessor or the surveyor of taxes, quoting the reference given above, and filing—if he has not already done so—a statement of his total income for the year. If the relief is still refused, he might be well advised to write to the Board of Inland Revenue, Somerset House, W.C.

"TEMPORARY OFFICER" inquires whether allowances from which the ordinary income tax has been deducted in the usual way are liable to super tax.

* * According to Section 66 (2) of the Finance (1909-10) Act, 1910, the "income" for purposes of super tax is to be "estimated in the same manner as the total income from all sources is estimated for the purposes of . . . abatements under the Income Tax Acts." It follows from this that income liable to income tax is also liable to super tax, but in the latter case the liability is in respect of the following year.

T. inquires as to the basis of calculation of (1) the statutory abatement, and (2) the allowance for cost of motor car, etc.

* * The amount of the abatement depends on the total taxable income. On the figures quoted, "T.'s" total income appears to be £400 earned plus £120 private income—that is, £520—and the abatement appropriate to the total is £100 on the new scale. With regard to the motor allowance, it has to be remembered that the cost of the original car or cycle represents capital outlay, and that it is only the expense of repairs, etc., and the ultimately inevitable "replacement" that are allowable. Apparently, no allowance is due in respect of the motor cycle, as no replacement cost has yet been incurred; on the other hand, an allowance is due for the renewal of the car, and it is understood that the amount due is taken by the officials concerned at the net cost of the original car—that is, £300, less £88 10s. allowed on purchase of the new car—provided that that sum is not less than the cost of the new car. It is, of course, assumed that no deduction has been made in the past by way of estimated depreciation allowance.

HERPES OF THE PENIS.

A CORRESPONDENT in the Far East reports an inveterate case of simple herpes localized to the right side of the body of the penis, which heals but recurs on the slightest irritation. Local applications, ionization, and drugs are without permanent benefit. Our correspondent asks if division, section, or stretching of the nerve supplying the affected part would be of service as similar treatment has proved efficacious in old-standing cases affecting the supraorbital region (Malcolm Morris, *Diseases of the Skin*, 5th ed., p. 179).

* * This case is apparently, as our correspondent implies, an instance of neuralgic herpes which not only affects the seat of eruption but is also felt along the nerves which supply the affected region. It is a form of zona or herpes zoster,

distinct from herpes of external origin (Gaucher and Marshall). Head and Campbell, who have enjoyed exceptional opportunities of investigating cases of herpes zoster in which death occurred from other causes, found that in common "shingles" there was always evidence of some lesion in a posterior spinal ganglion, while in instances in which the eruption appeared in the head the Gasserian or geniculate ganglia were involved. The lesion was usually a haemorrhage, but cancer and injury have also been noted (Norman Walker, *Introduction to Dermatology*). As these lesions lie so high up it is questionable if division of the involved nerve would effect a cure, and since, as our correspondent notes, branches of the ilio-inguinal nerve, as well as the dorsal nerve of the penis, are distributed over that organ, it would not be easy to determine in this case which nerve was at fault. The cause is certainly obscure. Norman Walker notes that prolonged dosing with arsenic predisposes patients to zona, as was proved in a celebrated beer-poisoning epidemic. Perhaps our correspondent's patient may, unawares, have taken food containing some poisonous element.

HIGH HEELS AND FLAT-FOOT.

"PES" asks for information or reference as to the effect of high-heeled boots or shoes in flat-foot. He thinks it difficult to defend the use of heels raised even moderately except on the ground of long-continued custom; but adds that although for a normal foot a boot with a high heel stands condemned under ordinary conditions, yet it is of course conceivable that it may be of service in the case of a foot already flat, or in one likely to be subjected to conditions favourable for the development of flat-foot. The mechanico-physical forces coming into action when the human body is in a state of balance in the upright position or during locomotion, or when the foot is turned in or turned out, as in "pigeon-toe" or "splay-foot," appear, he thinks, to be intricate.

ANSWERS.

A. R. B.—There are many excellent books on the subject, and our correspondent is recommended to consult the dean of his medical school.

PETROL DUTY.

LT.-COL. R. A. M. C.—The allowance for petrol duty is made by way of repayment or "rebate," and amounts to one-half of the duty. It is restricted to motor spirit used for a motor car kept by a duly qualified medical practitioner (and now also veterinary surgeon) "while it is being used by him for the purposes of his profession." The evident intention is to relieve the medical and veterinary professions as such, and if the uses to which our correspondent puts his car are not substantially different from those to which other non-medical military officers put their cars, we fear he may find considerable difficulty in making good the claim either to the motor spirit rebate or to the similar allowance of licence duty.

THE LUTETIN TEST.

MAJOR V. E. H. GATT will find a description of the technique and results of the lutetin test in the following works: Noguchi's *Serum Diagnosis of Syphilis*, third edition (J. B. Lippincott Co., London, 1912, price 12s. 6d. net). Marshall's *Syphilology and Venereal Disease*, third edition (London: Baillière, Tindall, and Cox, 1914, price 10s. 6d.). McDonagh's *Biology and Treatment of Venereal Diseases* (London: Harrison and Sons, 1915, price 25s.). Noguchi's original articles are in the *American Journal of Experimental Medicine*, 1909 and 1911. So far as we know, lutetin is not on the English market, but it might be obtained from Dr. Noguchi at the Rockefeller Institute for Medical Research, New York.

LETTERS, NOTES, ETC.

PARAFFIN IN DYSENTERY.

A CORRESPONDENT writes: I have advised, I need not say in an entirely friendly way, the use of refined paraffin in some cases of acquaintances returned home from Gallipoli suffering from dysentery and slowly convalescent. I prescribed a tablespoonful or less at bedtime in hot water or hot milk, and the results were extremely good.

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

	£	s.	d.
Seven lines and under	0 5 0
Each additional line	0 0 8
A whole column	3 10 0
A page	10 0 0

An average line contains six words.

All remittances by Post Office Orders must be made payable to the *British Medical Association* at the General Post Office, London. No responsibility will be accepted for any such remittance not so safeguarded.

Advertisements should be delivered, addressed to the Manager, 429, Strand, London, not later than the first post on Wednesday morning preceding publication, and, if not paid for at the time, should be accompanied by a reference.

NOTE.—It is against the rules of the Post Office to receive *postes restantes* letters addressed either in initials or numbers.

Observations ON TREATMENT OF GUNSHOT WOUNDS OF THE KNEE-JOINT.

BY
CAPTAIN A. L. LOCKWOOD, R.A.M.C.(T.C.).

WHILE the saving of the man's life is the most urgent consideration, the preservation of a useful limb ensures his position as a competitive wage earner, and relieves the State of an additional burden. Successful surgery of the knee-joint demands the soundest judgement and most skilled and particular attention to detail.

Injuries to the knee-joint have always obtained the greatest respect from surgeons—in fact, have been regarded with great dread. Surgery of the knee-joint has always been, and is still, a serious and anxious undertaking, but the treatment of wounds of the joint along the lines which I am going to describe has, in very great measure, reduced our dread of knee-joint infections.

In fact, the knee-joint responds most satisfactorily when treated fairly and rationally. No longer, in these circumstances, do we have great fear of death from sepsis, amputation is rare, ankylosis has been reduced to a minimum, and a movable, useful knee is, in a great majority of cases, obtained.

GENERAL PROCEDURE.

A man comes into a base hospital with a gunshot wound of, or about, the knee-joint. Almost before his clothes are removed his dressing applied in the field ambulance or casualty clearing station is taken off, and the joint examined with the following points in mind.

1. *Date of Injury.*—Usually from two to seven days previously.

2. *The Amount of Effusion about the Joint.*—Be careful to determine whether the effusion is into the joint or not. Practically every injury which either penetrates or bruises the synovial membrane produces a blood-stained effusion into the joint.

3. *The nature of the wound*, whether a tunnelling, perforating, or an open, penetrating wound, and the exact site of the entrance and exit wound.

4. *Temperature and Pulse.*—(a) Usually the temperature is from 99° to 101°, with a pulse from 80 to 100; (b) a temperature over 101° and a pulse varying from 90 to 120 implies an already purulent condition of the joint or a virulent infection.

5. *The Condition of the Leg Above and Below the Knee.*—(a) Presence of wounds or foreign bodies favouring a general septic condition of the leg; (b) whether fracture or not, into or close to the joint.

6. *The Probable Nature of the Projectile.*—(a) Hand or rifle grenade fragments; (b) shrapnel bullets; (c) distorted rifle bullets or shell fragments. The difference in the infective abilities of these are not great. Jagged rough metal acts as the best carrier of infective material. (d) Undistorted rifle bullets. In only a small percentage of cases does one find an acutely infected joint following a rifle bullet wound, especially if early immobilization has been secured, whether a tunnelling, perforating, or more open wound, even when the bullet is retained in the joint.

7. *The amount and kind of interference* there has been with the joint since he was wounded, such as the dangerous policy of placing tubes into the joint following the track of the foreign body for transit to base.

8. *The Patient's General Condition.*—One must be guided by the patient's ability to stand a long convalescence in determining the treatment of already seriously septic joints, especially where combined with fracture of the bones.

9. *Splinting.*—If the knee is not efficiently fixed in a splint, this should be done at once. In most cases a long gutter "fracture" splint (Jones) is quite sufficient until after operation.

Having determined these factors, if there is effusion into the joint, it is at once tapped, the fluid withdrawn, and, if

blood-stained or perceptibly purulent, 2 drachms of either 2 per cent. formaldehyde in glycerine (made up at least twelve hours before and not more than one week old), ether and iodoform, pure ether, or 5 per cent. saline are injected into the joint at once. A tunnelling wound produced by an undistorted rifle bullet usually requires nothing more except immobilization on a Thomas's splint. The joint must not be allowed to become tense from recurring effusion.

The fluid is sent at once for a bacteriological report from a slide and from culture.

The knee is bound on a pillow and at once screened or skigraphed in planes at right angles to each other. The patient is returned to his ward and prepared for immediate operation if an open wound is present.

An acute infective condition of the knee-joint demanding immediate operation usually presents the following:

1. Wounded from two to five days.
2. The joint is swollen, red, and tender. The patient complains of a throbbing pain in the joint.
3. Temperature not always high, usually varying between 99° and 101°.
4. Pulse usually rapid.
5. The effusion is blood-stained in about 96 per cent. of cases, and in about 56 per cent. perceptibly purulent.

METHOD OF OPERATION.

Preparation of Case.

The skin is carefully shaved for 6 in. to 7 in. above and below the knee, cleaned with petrol or ether, and painted with iodine. Omnopon and scopolamine, one full dose,* is given one hour before operation. The patient is sent to the theatre on a splint. Open ether is administered in preference to chloroform, so as not to increase any tendency to acidosis. In some cases the operation can be done under local anaesthesia. The splint is removed, and the knee-joint supported in a partially flexed position on a sandbag. The area is again painted with iodine.

Operation.

The first step is excision *in toto* of the wound or wounds down to the capsule. Then with another knife and forceps the capsule is excised and this knife and forceps at once discarded. Absolutely no necrotic tissue must be left. Further treatment depends on the conditions found.

A Tunnelling Wound: No Fracture.

After total excision, including the wound of the capsule unless effusion is exceptionally foul, and after having carefully removed all particles of dirt, cloth, etc., the cavity is thoroughly irrigated with 1 per cent. saline until all blood clot and pus is cleared out, the leg being very gently flexed and extended at the same time. The capsule is stitched up with fine catgut, care being taken not to leave a knot of catgut inside the joint. A small tube is left down just to, but not into, the capsule, and the tissues may possibly be stitched about it with fine catgut.

The skin is approximated with silkworm gut and a mastisol and gauze dressing (two layers of gauze stretched taut) applied. The skin is cleaned up thoroughly away from the site of the wound and the joint injected as before.

It does not make much difference which preparation is injected, but I prefer either the saline or the glycerine and formaldehyde, and of the two, the latter, because:

- (a) It is nearer the specific gravity of normal joint serum;
- (b) It is mildly antiseptic; and
- (c) Its mechanical oily nature seems more adaptable to a movable mechanism such as the knee-joint.

The knee is immobilized in slight flexion on a gutter splint and a Thomas's splint with slight extension. If the infection is confined to the front of the joint the extension should be omitted.

Open Penetrating Wound.

Such a wound with the foreign body still in the joint is treated in exactly the same way, except that the foreign body must be carefully localized beforehand, and removed with the minimum of trauma to the joint surfaces.

* Omnopon gr. 3, scopolamine gr. 1½.

A Wound with Localized Fracture of the Bones forming the Joint, with, possibly, the Foreign Body imbedded still in the Bone.

Such a wound is treated in exactly the same way, except that the foreign body and loose particles of bone and all soft and pulpy and possibly infected medulla must be carefully removed.

If there is much haemorrhage from the medulla, it is checked by packing the cavity with gauze wrung out of saline solution or with gauze and salt tablets.

If it involves the bone so that the capsule can be closed, this should be sutured so as to exclude the cavity in the bone from the joint. If at all possible, the synovial membrane should be closed. If it is not possible, the capsule should be carefully approximated as much as possible without tension and the wound packed with gauze and tablets, a small tube being left down just to the capsule. The plugging should be left in the bone at least five to eight days unless there are urgent reasons for removing it. The tube may be removed after two days if there is no effusion. The surface of the gauze pack and the skin around should be painted with iodine at least every second day. The superficial dressings should be changed daily at first, later only when soaked.

A Gunshot Wound of the Knee-joint where a Great Part of the Joint is Laid Open.

(a) If the patient's general condition will permit it at all, the wound is excised *in toto* exactly as in a small wound, irrigated, and possibly stitched up, leaving a small tube down to the capsule. It is preferable in all

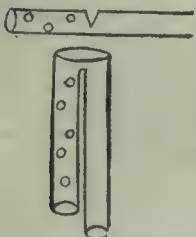


FIG. 1.—The upper diagram shows the piece of drainage tube as cut, and the lower as bent for insertion in the wound.

such cases to leave two small tubes cut as shown in Fig. 1, which, if need be, act as a two-way catheter. In such cases it is particularly important to procure absolute fixation. If this is done, and the deep packing left *in situ* till loose, it usually happens that the rest of the joint does not become seriously infected.

(b) If the general condition is bad, temperature high (over 102°), pulse rapid (110 or over), the face flushed and anxious, complete arthrotomy, preferably subpatellar, is performed, both lateral ligaments, ligamenta mucosa, and the crucial

ligaments being also incised or cut away, and the semilunar cartilages removed.

The leg is supported, flexed to less than a right angle, on a pillow or backsplint, preferably on a splint of Captain Hepburn's type, and continuous irrigation with 5 per cent. saline started at once.

Barnard's method of draining the suprapatellar pouch and the two lateral pericondylar pouches, with their diverticula posteriorly, should never be used unless modified in the following way, when it may very rightly be tried, in the type of case in which pus of a very low degree of virulence is found in the joint, accompanied with slight rise of temperature, slow pulse, and a good general condition. In such cases tubes may be placed just down to the joint, but not traversing it. Where there is a tendency for the pus to collect in the suprapatellar pouch, a small tube about the size of a lead pencil may be inserted across the pouch, but all these tubes should be removed as early as possible.

Post-operative Treatment.—Where the small tubes are left just down to the capsule, they are wiped out or aspirated daily. The skin around the tubes is wiped with saline and then with iodine. With mastisol and gauze, the dressing is very much simplified. These tubes are removed if possible within the first forty-eight hours. The plugging is left in the cavity of the bone as long as possible until loose. Usually it can be left from five to eight days, and often longer. The joint is watched carefully for increasing effusion. If it tends to increase, and the temperature and pulse start to go up—

1. The joint is aspirated with a needle, and injected as before with the glycerine-formaldehyde, ether, or saline preparations.

2. If this be not sufficient, a large needle is inserted and the whole joint washed out with saline 1 per cent. till the saline returns clear.

3. If pus still persists in forming, two large needles

are inserted and saline is run continuously through the joint for from twelve to forty-eight hours, and repeated if necessary, care being taken not to admit air to the joint. The patient's general condition is carefully watched, as is also the area above and below the knee, lest pockets of pus form; support posteriorly by the "fracture" splint tends to prevent this. Especially are the popliteal space and the calf of the leg watched. Pressure on the large vessels and nerves about the knee is avoided. After arthrotomy continuous irrigation with 5 per cent. saline is used at first, then saline and glycerine dressing. The knee is closed down on a Thomas's splint with slight extension at the earliest moment, after the surfaces are covered with healthy granulation. If the component bones of the joint are badly comminuted, resection is performed, but it is not advisable to be in a hurry to do this until all signs of infection have cleared up, lest a fresh outburst be lighted up.

Amputation should be performed only as a last resort to save the life of the patient; then a quick circular operation should be done.

Sodium bicarbonate gr. xx every four hours and barley sugar *ad lib.* are given as routine where a septic condition may develop or is present.

SUMMARY.

The points on which I would lay most stress are:

1. That all foreign bodies, whether metal or loose bone, should be removed from the knee-joint at the earliest possible moment.
2. Perfect immobilization is absolutely necessary. Do not start passive movements too early; wait at least three weeks after the inflammation has subsided.
3. Absolutely complete excision of all necrotic or even oedematous tissue.
4. The capsule should be closed at the first operation if at all possible.
5. Antiseptics, other than the ones I have mentioned, should not be introduced into a joint.
6. Tubes should never traverse the joint surface as in Barnard's method.
7. Patients should not be moved till one is satisfied that infection has been successfully combated.

STATISTICS.

Space will not permit of complete tabulated statistics of all the cases treated in the last fifteen months, which I hope to publish later. I will simply give the results of 60 cases treated as described with what may be called the new method, and which remained entirely under my care until they were sent to England.

Death.

There was one death. In this case both the femur and tibia were badly comminuted, and the joint very purulent on admission. The patient was a cachectic, cadaverous-looking man, with no resistance, and he died in spite of early amputation.

Amputations.

There were three amputations. In two cases there was bad comminution of both tibia and femur, with the joint full of pus, and the general condition of the patient was not good on admission. In one case the amputation was done at once; in the other after five days in hospital. In the third case a hand grenade had absolutely shattered the joint and filled it with pieces of metal and dirt. Gas gangrene was present, and the leg was amputated at once.

Movement.

The results as to movement were as follows:

Ankylosis ...	...	...	...	3
Limited movement ...	...	...	...	4
Free movement ...	...	...	...	49

Fracture of one or both bones existed in 53 per cent., bloody effusion in 96 per cent., and pus perceptible to the naked eye in 56 per cent. of cases. The bacteriological reports on 42 cases showed that organisms were present in 76 per cent.

I wish to thank the nurses and officers that have assisted me during operations, and especially am I indebted to Colonel Gray, consulting surgeon, to whom the credit of the new method of treating gunshot wounds of the knee-joint is largely due, for his most valuable advice and assistance in these cases.

The notes of three cases of average severity with drawings made from the skiagrams are appended.

CASE I (FIGS. 2 AND 3).

Private M. Admitted June 3rd, 1915. Wounded four days before. On admission, temperature 100.1°, pulse 90. Knee-joint was very much distended with fluid, tender on pressure, and the patient complained of a continued throbbing pain through the joint. There was a jagged wound on the inner aspect of the knee-joint 2 in. above the articular surface of the internal condyle of the femur and on a plane about the middle of the condyle. On aspiration, the joint fluid was

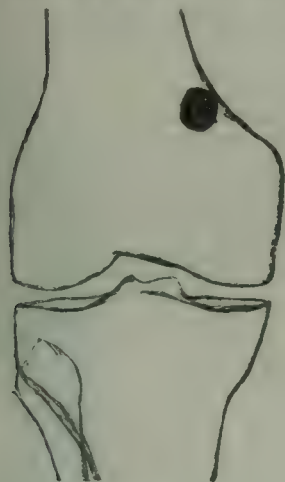


FIG. 2.



FIG. 3.

deeply blood-stained. Bacteriological report was that *E. coli* and streptococci were found.

Operation.

June 4th. Temperature 100.7°; pulse 96. The wound was widely excised in a funnel-shaped manner down to the femur. The torn capsule was excised, and particles of khaki were found along the tract, even in the cavity of the femur. The hole in the condyle (about the middle of the internal condyle) was enlarged, the shrapnel bullet (distorted) removed, and all the soft, discoloured, and affected medulla removed, leaving a cavity about the size of a walnut. A double fracture was present in the internal condyle, extending into the joint, but it was fairly solid and the periosteum was intact, so the place was left. Thoroughly irrigated the joint cavity with 5 per cent. saline, sutured up the capsule with catgut, packed the cavity of bone with gauze and salt tablets, also the excised area in the tissues. Fixed a small two-way tube down just to the capsule; injected into the joint cavity 2 drachms of formaldehyde and glycerine and immobilized the leg on a Thomas's splint with a perforated zinc back piece in slight flexion and with a little extension. Packing in bone cavity was left eleven days. The packing in the tissues was left four days without changing, and then changed about every two or three days when soaked.

On June 6th the temperature was 99°, and the pulse 90. Passive movements started on July 2nd, and two days later the patient went to England with a perfectly movable joint.

CASE II (FIG. 4).

Private T. Admitted on May 27th, 1915. Wounded five days. On admission temperature 99°, pulse 80. A jagged entrance wound just below and external to the patella. The knee-joint was very much distended with fluid, and very painful and held in partial flexion.



FIG. 4.

The least movement elicited most severely the fluid was negative, but the effusion was deeply blood-stained.

Operation.

Local anaesthesia (novocain 1 per cent.) was used, administering only a whiff of ether when examining the articular surfaces. The wound was widely excised; the bullet carefully extracted with forceps; the joint thoroughly irrigated with 1 per cent. saline; the capsule and tissues sutured, leaving a small tube down to the capsule; 2 drachms of formaldehyde and glycerine were injected into the joint. The joint was immobilized on a

Thomas's splint, with a posterior gutter splint flexed at an angle against the knee and with slight extension.

On May 29th there was very little pain, the temperature was 99° and the pulse 78.

On June 15th passive movements started, and on June 20th the case was sent to England on a posterior gutter splint.

The result was a perfectly movable knee.

CASE III (FIGS. 5 AND 6).

Private C. Admitted on June 24th, 1915. Temperature 101°, pulse 96. Two small, dirty wounds of the knee, one externally, just above the head of the fibula, and the other in the middle

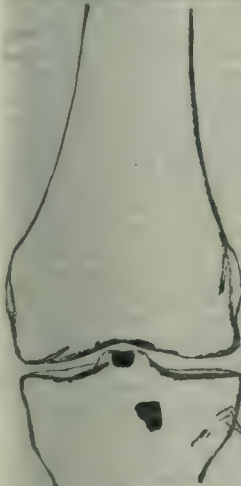


FIG. 5.

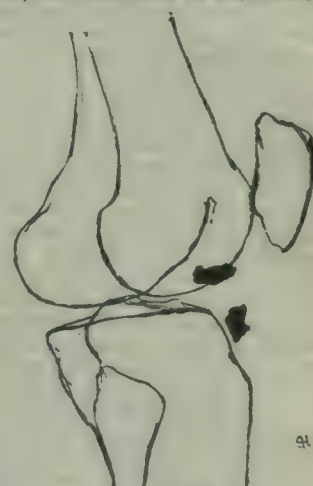


FIG. 6.

line in front, just above the tubercle of the tibia. The knee-joint was very much swollen, red, and very tender, and the patient complained of a continued throbbing pain through the joint. Bacteriological examination of the fluid showed (1) staphylococcus, (2) *B. coli*. The fluid was perceptibly purulent.

Operation.

June 25th. The temperature was 101° and the pulse 100. The wounds were excised widely. The fragments of shrapnel were carefully located and extracted with forceps. A narrow grooved fracture of the external articular surface of the tibia was present. The joint cavity was very distended with a reddish-yellow fluid.

The joint was thoroughly irrigated and the capsule stitched up. A tube was left down to the capsule externally and the tissues and skin sutured about it; 2 drachms of glycerine and formaldehyde were injected in the opposite side of the joint and the joint immobilized (with slight extension) on a Thomas's splint with a posterior gutter splint slightly flexed. The tube was removed on the second day.

On June 26th the temperature was 101° and the pulse 96, and on June 29th they were 99° and 88 respectively. Passive movements were started on July 15th, and the patient went to England on a posterior gutter splint on July 21st.

The result was a freely movable knee.

HEPBURN'S KNEE SPLINT (FIG. 7).

The black strips are of heavy aluminium splinting material, measured to approximately fit the patient's limb.

The shaded strips are of the lighter aluminium material.

The strip A B on each side is put on after the splint has been moulded to the desired angle.

An additional pair of supports applied at the joints C D will increase the rigidity.



Method of splicing D-B when long strips are not available.

FIG. 7.

A small pad is placed over the strap in the popliteal space and the splint is then padded in two sections, leaving the area of the joint freely exposed.

Pad (1) C, F, E, A, and (2) D, B, K, H, G, and cover with jaconet.

The splint is moulded to the leg and thigh, and firmly bandaged.

The foot is packed into the boot part with cotton-wool.

The patient may lie on the back or on either side, and the limb can be comfortably suspended from the point C, D, B.

This splint facilitates the care of the back and the use of the bed-pan.

The tools required to make the splint are a pair of pliers, a pair of heavy shears, and a hammer.

EPIDEMIC CEREBRO-SPINAL FEVER:

THE PLACE OF THE MENINGOCOCCUS IN ITS ETIOLOGY.*

By EDWARD C. HORT, F.R.C.P. EDIN.,

HONORARY PHYSICIAN TO AND DIRECTOR OF BACTERIOLOGICAL LABORATORY OF THE ADDINGTON PARK WAR HOSPITAL.

THE theory that the meningococcus of Weichselbaum is itself the primary infective agent in epidemic cerebro-spinal fever is one, as I have recently shown,¹ that rests on the slenderest evidence. Indeed, the only evidence worthy of the name is derived from the facts that the organism in question occurs in large numbers of acute cases of the disease and in primary and secondary contacts, that it sometimes will agglutinate with the human specific serum, and that recovery may follow the injection of animal antisera. Mere constancy of presence of an organism in any given disease or in contacts is, however, worth little as evidence of direct etiological relationship, as is universally admitted—for example, in the case of the *Streptococcus conglomeratus* of scarlet fever, of the *B. exanthematicus* of typhus fever, and of the bacillus of Hoffmann in convalescing diphtheritis. And agglutinability of an organism by a patient's serum does not sustain a thesis of etiological relationship of a direct kind, but only of pathogenicity, which may apply to secondary invaders as well as to primary. And, finally, the evidential value of the fact that recovery may follow injection of a specific antiserum is gravely impaired by the number of recoveries that take place without such injection, by the absence of control injections of normal serum, and by the repeated failures of specific serums such as were experienced in the late epidemic in this country. It is true that the failure of an antimeningococcal serum may be due to lack of identity of the strain of meningococcus supposed to be causing the individual case with the strain used in the preparation of the serum. There is no question but that there are numerous strains of genuine meningococci. But until better evidence can be produced in other directions that any single strain is capable of reproducing the disease in man, multiplicity of strains offers an unsatisfactory refuge for those who uphold the etiological claims of the meningococcus of Weichselbaum. And in this connexion it is not a little surprising that the disease has not yet been recorded to have been reproduced in any animal by injection of any strain, the production of meningitis in monkeys by intraspinal injection being of course worthless as evidence that the meningococcus is the cause of a disease in which meningitis is only an inconstant event.

Critical analysis, therefore, of the evidence—bacteriological, serological, and experimental—would appear to justify the statement that the primary cause of the disease epidemic cerebro-spinal fever is still unknown, the claims of the meningococcus not having been yet made good, and no rival having been yet established. This is the conclusion I came to in previous publications on the subject, and as a result of further research since then I am more than ever convinced of the accuracy of the statement referred to.

In thus exposing, however, the fragility of the claims of the meningococcus, I was careful only to state that its case was not proven. I did not assert that the meningococcus is not the cause of the disease, because I was not then in possession of experimental data which would justify so dogmatic a statement. Still less did I assert that the meningococcus does not bear an intimate, albeit unknown, relationship to the true infective agent. On the contrary, I insisted that the search for carriers of this organism should in no wise be abandoned, since whatever its relationship to the true infective agent ultimately proved to be the fact of the frequent presence of the meningococcus in acute cases, and in primary and secondary contacts, is as yet our main guide to efforts at epidemiological control.

To-day, however, as a result of an extensive series of

observations in monkeys, I am in a position to adduce experimental evidence which strongly suggests that the meningococcus is not itself the primary infective agent in epidemic cerebro-spinal fever.

This evidence is partly derived from the fact that of four monkeys injected intraperitoneally with living cultures of meningococci not a single animal appeared to be affected by the procedure. The largest counted dose given amounted to 9,200,000,000 organisms. In previously recorded animal experiments with living cultures of the meningococcus via other routes than the meningeal it appears that cultures on synthetic laboratory media have been employed. Owing to the possibility of rapid loss of pathogenicity on such media the absence of pathogenic response in the animals injected is not conclusive evidence that the meningococcus is not pathogenic as it occurs in the blood or cerebro-spinal fluid. In the experiments here cited, therefore, loss of pathogenicity was as far as possible excluded by cultivation of the organism in the cerebro-spinal fluid itself, care being also taken to inject the cultures in the fluid within the few hours after collection necessary to ensuring—by incubation—a sufficient degree of multiplication. As already stated, the results of injection of these four animals were completely negative, and this fact, coupled with the precautions taken only to inject the cultures under conditions approximating as closely as possible to those of cultivation in the body, appear to suggest the conclusion that the meningococcus, when injected intraperitoneally, is not pathogenic to monkeys. And the consequent deduction that this organism is not itself the primary cause in man of the disease cerebro-spinal fever is also suggested by the additional fact that intraperitoneal injection of the fresh filtrate (Chamberland F) from the cerebro-spinal fluid of two acute human cases of the disease produced in one of two further monkeys injected a continued fever lasting for several weeks, accompanied by a herpetic rash on the face, and in the second animal death forty-eight hours after injection, preceded by coma and well-marked retraction of the head. As will be seen in the protocols of the experiments here quoted, which are being published in full elsewhere,² conclusive evidence was not obtained that the disease had been reproduced in these two animals by injection of fresh cerebro-spinal fluid filtrate. But the results obtained were sufficiently striking to justify further experiments with fresh filtrates, and in the meanwhile to make it clear that the cerebro-spinal fluid of acute cases may contain a highly infective virus which is certainly not, in view of the first four experiments quoted, the meningococcus.

Trial was then made of the pathogenic effect in monkeys of the intraperitoneal injection of incubated filtrate (Chamberland F) of cerebro-spinal fluid, incubation being allowed to proceed for one night after filtration. A series of four monkeys were injected with incubated filtrates from four different cases, one of the animals receiving an injection of the same filtered cerebro-spinal fluid as caused before incubation continued fever in the animal referred to above. In all four animals in this series the filtrate injected was turbid with the organisms described below, but in no single case was the slightest pathogenic effect observed. These results suggest that the infectivity of freshly filtered cerebro-spinal fluid may be entirely destroyed by incubation at body temperature for a few hours, a fact which, as will be seen, may in the future prove to have a direct bearing on the question of metamorphosis, and on the problem of determining the true etiology of this disease.

The stage which we have so far reached in our inquiry may therefore be thus defined:

1. There is no good evidence that the meningococcus is the primary infective agent in the disease epidemic cerebro-spinal fever.
2. On the contrary, I have produced experimental evidence which suggests distinctly that it is not.
3. And I have also shown that the cerebro-spinal fluid of acute cases, when filtered through a Chamberland F bougie, may contain, when injected fresh, a highly infective virus.
4. This infective virus appears to be present as such only in the fresh cerebro-spinal fluid, incubation, on the other hand, appearing to destroy its infectivity.

If the meningococcus is not the primary infective agent it must, according to modern bacteriological conceptions,

* This paper is, to some extent, an abstract of a fuller paper on the same subject which will appear in the *Journal of the Royal Army Medical Corps*. For the compilation of this abstract and for the fuller paper, as well as for the filtration and animal experiments referred to, and for the hitherto unpublished experiments in typhus fever, I am alone responsible. For the strictly bacteriological observations referred to I share the responsibility with my colleagues, Dr. C. E. Lakin and Dr. T. H. C. Benians.

be either a secondary invader, or its presence must be symbiotically necessary to the true infective agent, or it must represent merely a phase in the life-history of the true infective agent. Apart from the further possibility that it may be a contaminant—a suggestion which can be summarily dismissed—it is difficult to imagine any other possible explanation of the rôle of the meningococcus of Weichselbaum. In order, therefore, to present a clear idea of the nature of the problem presented by the etiology of cerebro-spinal fever, it is necessary, before summarizing the results of our bacteriological studies up to date, briefly to discuss two of these rival theories, the third theory—that of symbiotic necessity—being merely speculative.

THE THEORY OF SECONDARY INVASION.

The term "secondary invader" is one that in diseases of uncertain etiology should be applied with the greatest care, however suitable it may be in the description of such organisms as are liable to invade the blood stream in grave systemic infections primarily caused by other organisms whose etiological claims are beyond dispute. The chief characteristic of these genuine secondary invaders is their diversity in, and inconstancy to, any given disease in which they appear, as all who constantly make blood cultures will agree. In the case, however, of certain infections—such as typhus fever, scarlet fever, and, perhaps, cerebro-spinal fever, to mention only three—the essential characteristics of the so-called secondary invader in each of these diseases is not their diversity or inconstancy, but their remarkable constancy. We have, for example, constantly occurring in all parts of the world the *Bacillus exanthematicus* in typhus fever, the *Streptococcus conglomeratus* in scarlet fever, and the meningococcus of Weichselbaum in cerebro-spinal meningitis. And, be it noted, it is not only the constancy with which, in these diseases, the individual organism occurs (in the individual disease) that arrests the attention, but it is also the restriction of this organism to that disease and to no other. For example, the *Bacillus exanthematicus* of typhus fever has never been described in scarlet fever, nor the meningococcus in typhus, nor the *Streptococcus conglomeratus* in cerebro-spinal fever. None the less, the names of these organisms and of the respective diseases in which they constantly occur are as household words. It has already been insisted that mere constancy of presence of one type of organism in any given disease is not adequate evidence that such organism is itself the primary infective agent in that disease. But this constancy of presence of the so-called secondary invader in the three diseases mentioned is too striking to be a matter of accident. It is therefore not unreasonable to insist that there may be both genuine and spurious secondary invaders, and that spurious secondary invaders may prove to be modified primary invaders. The assumption that an organism is a genuine secondary invader is, in fact, in the present state of our knowledge of the etiology of certain diseases, often no more legitimate than the assumption—which we have seen in the case of the meningococcus is not justified—that it is the primary invader. Since we have not sufficiently reliable evidence that the meningococcus is either the primary invader or a genuine secondary invader, formulation of the theory that this organism merely represents a phase in the life-history of the true causal agent of the disease, at present unknown, requires no apology. On the contrary, the facts of the constancy of presence of this organism in cerebro-spinal fever and its apparent inability to reproduce the disease in monkeys, or, indeed, to exert any pathogenic effect whatever when injected by the intraperitoneal route, establish an *a priori* claim to necessity for formulation of the theory and investigation of its truth.

THE THEORY THAT THE MENINGOCOCCUS MERELY REPRESENTS A PHASE IN THE LIFE HISTORY OF THE UNKNOWN CAUSAL AGENT OF THE DISEASE.

The theory—that certain bacteria may possess a more complicated life-history than their study under the artificial conditions of laboratory culture might lead one to suppose—was formulated by Hort³ in 1914 as a result of prolonged morphological and cultural study of the infective agent in typhus fever.

That certain protistic organisms, to use Professor Herbert Henry's apt word,⁴ exhibit multiple phases in the

course of their development, phases essentially characterized by morphological dissimilarity, has long been known in the protozoa. And in the intermediate zone between the bacteria and the protozoa evidence is gradually accumulating that, in the case, for example, of the infective granule-shedding spirochaetes, the same principle of diversity of developmental form is at work. There is therefore nothing unreasonable in my thesis that the meningococcus, which itself appears to be relatively innocuous, represents merely a phase in the life-history of an unknown organism which is only capable of reproducing the disease in its earliest phases. And provisional acceptance of this theoretical possibility is to some extent favoured by certain considerations which have never yet been satisfactorily explained.

Here, for example, are three facts which are quite unintelligible if we accept the Teutonic concept that the meningococcus of Weichselbaum is itself the cause of the disease.

1. That the incidence of the meningococcus in carriers varies inversely as the incidence of the disease in such carriers.

2. That the organism in acute cases is a constant inhabitant—in this disease and in no other—of a fluid which, as we have shown, appears to be only infective when the presence of no meningococci can be demonstrated.

3. That a relatively large non-motile organism, such as the meningococcus, with an average diameter of about 1 micron, must be itself capable of freely traversing the meningeal filter-bed. This fact is not disposed of by the suggestion that the meningococcus is carried to the spinal canal by leucocytes, since we have no proof that this is so, and the meningococcus is frequently found to be extra-cellular in freshly drawn cerebro-spinal fluid.

If, on the other hand, the meningococcus is merely a modified primary invader, a small but dangerous ancestor of unknown morphology having been replaced by a relatively large but innocuous descendant of known morphology, all these difficulties disappear. And in the case of such carriers as do fall victims to the disease one has only to suppose that virulent ancestors and harmless descendants exist side by side.

Attractive, however, as such a theory is, and unsatisfactory as the present theory upheld by the numerous followers of Weichselbaum has proved itself to be, the onus of proof rests on those who believe that certain bacteria do in fact exhibit different morphological phases of development associated with different phases of pathogenic activity. And in this connexion it is only fair to point out that I only applied it to the study of the etiology of cerebro-spinal fever after showing that it appeared to have a strong foundation in fact in typhus fever, though I have since found additional evidence in the case of scarlet fever and in streptococcal infections associated with cardiac disease. Before, therefore, summarizing such bacteriological evidence as I and my colleagues, Dr. Lakin and Dr. Benians, have been able to collect, which would appear to justify further study of the theory as applied to cerebro-spinal fever, it is necessary briefly to recapitulate the facts which originally justified formulation of the theory in the case of typhus fever. Such digression, though not at first sight germane to discussion of the problems presented by the etiology of cerebro-spinal fever, is really necessary in order to make intelligible the general line of inquiry we have pursued in the latter disease. And the fact that some of the ensuing observations on the bacteriology of typhus fever have not yet been published seems to justify their appearance here for the same reason.

COMPARISON OF THE PROBLEMS PRESENTED BY THE ETIOLOGY OF TYPHUS FEVER AND OF EPIDEMIC CEREBRO-SPINAL FEVER.

In typhus fever a pleomorphic organism, known as the *Bacillus exanthematicus*, can frequently be recovered from the body fluids of acute cases. In some epidemics, indeed, the organism has occurred so frequently as to suggest to many observers in the past that it was the true causal agent of the disease; and this belief was strengthened by the facts that it would often agglutinate, and even deviate

complement, in the presence of the specific human serum; that it was found in typhus fever and in no other disease, and that it was more or less pathogenic to guinea-pigs and mice. Unaccountably, however, the claims of this organism to be regarded as the primary infective agent never found general acceptance even by those who upheld the claims of the meningococcus in cerebro-spinal fever on even less satisfactory grounds. The *Bacillus exanthematicus*, in consequence, came to be looked upon as a genuine secondary invader, though no explanation was forthcoming as to why the organism occurred in typhus fever and in this disease only; and up to the year 1914 the general view of the etiology of the disease remained in this somewhat unsatisfactory condition.

In that year, however, it was shown by Hort and Ingram* that the *Bacillus exanthematicus* had little or no claim to being considered either the primary infective agent or a genuine secondary invader, inasmuch as they found by injection of the organism in monkeys that it was incapable of producing pathogenic effects in these animals. Their cultures were obtained by incubating human citrated blood from acute cases of the disease, the specimens of blood injected containing large numbers of the organism in question. On the other hand, injection of uninoculated specimens of blood from acute cases of the disease produced in several animals the typical disease which is generally accepted as the analogue of human typhus in monkeys. They had, therefore, in this last set of experiments, an excellent control which is at present lacking in cerebro-spinal fever. For example, I recently injected intraperitoneally each of three monkeys with 6 c.cm. of a 1 in 8 suspension in citrate solution of blood taken from three acute cases of cerebro-spinal fever without provoking any material reaction, and the same negative result followed the injection of three further monkeys with the same quantities of citrated blood after incubation.

This demonstration of the total absence of recognizable pathogenic effect after injection of monkeys with the *Bacillus exanthematicus* naturally raises the question—If this organism is neither the primary invader in typhus fever nor a genuine secondary invader, what is it? To answer that it is a contaminant is no more justifiable than would be the assertion that the meningococcus of Weichselbaum is a contaminant in cultures from cases of cerebro-spinal fever. If, however, the *Bacillus exanthematicus* is itself neither the primary invader nor a genuine secondary invader, nor yet a contaminant, the problem appears insoluble. And at the time the experiments cited were undertaken no explanation suggested itself. However, after prolonged morphological study of the bacterial content of typhus body fluids in the fresh condition, supplemented by morphological study of their content after incubation, followed by plating, some interesting facts emerged which offered a reasonable solution of the mystery, though, as will be seen, absolute proof of the correctness of this solution is a matter of great technical difficulty, and has not yet been obtained.

The facts referred to were these: In many cases it was found that in the fresh fluids the pleomorphic *Bacillus exanthematicus* was present in considerable numbers, especially in the urine, side by side with very minute organisms, many of which were near the vanishing point of vision. In other cases the fresh fluids, especially the urine and the cerebro-spinal fluid, were found to contain these minute organisms in what appeared to be pure culture. On the other hand, it was found that those fluids which contained, or appeared to contain, when fresh, these minute organisms in pure culture contained after incubation only the large pleomorphic organisms. Obviously, therefore, these small organisms, the discovery of which has since been amply confirmed by W. W. C. Topley,⁶ working in Serbia, had either disappeared or else had developed into the *Bacillus exanthematicus*. Attempts were therefore made to determine which was the correct explanation by filtration of the fresh fluids containing mixtures of the small and large organisms, in the hope that the small organisms would alone traverse the Berkefeld and Chamberland bougies employed. These experiments were successful to the extent that the clear filtrates on two occasions showed on centrifuging small numbers of the minute organisms alone, whilst incubation of the same filtrates produced in a few days marked turbidity due to the presence of large numbers of the *B. exanthematicus*. And pure cultures of these in some cases appeared on plating.

Unfortunately the minute organisms referred to would never survive subculture on plates beyond the first culture, so that biochemical identification was impossible. But single colonies, which appeared by film examination to be pure, on further subculture always developed the pleomorphic *Bacillus exanthematicus*. It was, however, impracticable to attempt to prove metamorphosis by growth from a single organism, either by Barber's method, or by the use of small fragments of coverslips, because in picking up—by the latter method—one minute organism near the vanishing point of vision it could not be guaranteed that another organism beyond the range of vision would not at the same time be taken up. Moreover, owing to the fact that in its earliest forms these minute organisms often appeared to have become detached from the periphery of zoogloecic masses of organisms so small as to be of quite indeterminate morphology the application of serological tests for purposes of identification with the *Bacillus exanthematicus* was also out of the question. Recourse was therefore had to injection of monkeys with pure first cultures of the minute organisms on serum-agar. The procedure was, in all the cases tested, followed by the appearance, after an incubation period of a few days, of a disease accompanied by continued fever. This disease, beyond being of a somewhat shorter duration, suggesting that full pathogenicity had been to some extent lost by artificial cultivation, had as much claim to be considered genuine typhus fever as the disease produced in monkeys by the injection of fresh human typhus blood. From two of the monkeys injected with fresh human blood minute organisms morphologically identical with the minute organisms described were again recovered, as well as the *Bacillus exanthematicus*. Two of the monkeys injected with the serum-agar cultures were—after recovery from the disease following injection—several months later injected with fresh human typhus blood, but neither animal responded, though one of the unimmunized controls exhibited a typical fever curve. These two animals were, therefore, perhaps immunized. A convenient opportunity of repeating this observation has, however, not yet occurred. A further interesting experiment bearing on the question of metamorphosis was, however, made. A series of four fresh specimens of human typhus blood collected before the crisis were injected into four healthy monkeys, and in three of the animals the so-called "typhus classique" appeared and ran its course. Another series of four specimens of human typhus blood in citrate, three of which were collected also before the crisis, was then injected into another series of four monkeys after the blood had been kept in the incubator at blood temperature for periods varying from several hours to several days, but in no case was any reaction whatever observed. It will be necessary to repeat this experiment, when opportunity allows, by injecting monkeys with samples of the same specimens of human typhus blood before and after incubation, in order to be certain that insusceptibility of the individual animal recording a negative result does not come into play. But, even as carried out, the experiment suggests that, as in the case of the cerebro-spinal fluid in cerebro-spinal fever referred to earlier in this abstract, it is only the fresh body-fluid which is infective. And in view of the other experiments referred to it is legitimate to suggest that the results of this experiment lend some support to the view that the *Bacillus exanthematicus* represents a harmless phase in the life-history of the minute pleomorphic organism described by Hort and Ingram in 1914. Before leaving the subject of typhus it is necessary briefly to refer to the *Bacillus exanthematicus* of Plötz, recent accounts of which appear at first sight to affect the validity of what has been said. The organism of Plötz, which has lately been exploited as the true primary infective agent in typhus, mainly differs from the *Bacillus exanthematicus* in the fact that it is said to be only possible to grow it anaerobically. Its claim to be the primary infective agent appears to be mainly based on the statement that it may produce fever when injected into animals, and that immunization can in this way be obtained against the fever-producing effect of injections of human typhus blood. It was with some interest, therefore, that I recently examined a heated emulsion of Plötz's *Bacillus exanthematicus*, large quantities of which have been tested as prophylactic vaccines in Serbia. The specimen received was contained in a sealed capsule, and

presumably it was looked upon as a pure culture of Plötz's Gram-positive pleomorphic organism, which is morphologically indistinguishable from a strain grown aerobically in this country. The contents of the capsule were centrifuged, and a film from the deposit was stained with Gram and counterstained with dilute fuchsin. Examination of the film revealed, however, that it was not a pure culture, and that mixed with the *Bacillus exanthematicus* were considerable numbers of the minute Gram-negative organisms morphologically similar to those described by Hort and Ingram. The Gram-positive bacillus measured in its greatest diameters from 0.5 to 1.5 microns, whilst the minute organisms varied from about 0.2 to 0.6 micron, though organisms nearer to the vanishing point of vision were also seen. It is, therefore, not an unfair inference that the infectivity of Plötz's organism, and its reputed immunizing properties, on which the claims on behalf of this organism have been largely based, are in reality due to the presence of the minute coccobacillary organisms described, and the value of the serological reactions reported is also impaired for the same reason. Final determination of these points can, of course, only be effected by examination of living cultures, which will be carried out as soon as opportunity for so doing occurs. But, in the meanwhile, the original observations carried out by Hort and Ingram in this country hold good.

With these observations in mind as regards typhus fever, the following notes on the bacterial content of the body fluids in cases of cerebro-spinal fluid now become intelligible.

THE TRUE BACTERIAL CONTENT OF THE INFECTED BODY FLUIDS IN ACUTE CASES OF CEREBRO-SPINAL FEVER.

The necessity of determining whether the meningococcus is or is not usually the sole inhabitant of importance of the infected body fluids in cerebro-spinal fever is, of course, an essential preliminary to attempting to determine if this organism is or is not biologically related to organisms other than the meningococcus. In other words, demonstration that the body fluids in this disease are commonly sterile—apart from the meningococcus—would go far towards disproving the theory that the meningococcus represents only a phase in the life-history of the true causal organism. On the other hand, demonstration that the constantly occurring meningococcus is only one of two or more types commonly infecting the body fluids in this disease would constitute a good case for inquiry, provided that the meningococcus was itself shown to be inert—as regards reproduction of the disease—and that the fluids originally containing it were in the fresh condition possessed of pathogenic properties. And both of these provisos we have shown to be fulfilled.

Before, however, recording the results of examination of the body fluids in cerebro-spinal fever it is necessary briefly to note that in order to determine the true bacterial content of any body fluid the ordinary method of judging of sterility by recording the results of inoculating laboratory media with these fluids in the fresh state or with their centrifuged deposits is often inaccurate. For example, as has recently been shown by Hort,⁷ neglect to incubate normal urine, before inoculation of the laboratory medium selected as an indicator of sterility or infection, often leads to serious fallacies. In the case of normal male urine, hitherto believed to have been proved to be sterile because in many cases no growth occurred on solid laboratory media inoculated with the fresh urine or its deposits, it was shown that if the specimens were first incubated not one out of 128 samples derived from several healthy individuals was in reality sterile. And control experiments done in parallel, in a small number of cases, completed the exposure of the fallacy involved by trusting to readings of the results obtained by inoculation of laboratory media with fresh urine. And it has since been shown by Hort and Ingram⁸ that in the case of the urine of subjects of systemic infections—such as lobar pneumonia, influenza, scarlet fever, mumps, measles, cerebro-spinal fever, infective endocarditis, typhus fever—and in convalescing urinary carriers of the enteric group, as shown by Hort,⁹ the same principle holds good. Similarly, in attempting to estimate the true bacterial content of the blood in any systemic infection, one is not justified in declaring the blood as sterile until examination has been made of laboratory media inoculated with

incubated blood, for which purpose suspension in solution of citrate or oxalate is better than defibrination, since loss may occur by entanglement in the fibrinous mesh produced by this procedure. And in all pathological cases, whether of urine or blood, it is always advisable to examine the fluids themselves after incubation as well as the laboratory media inoculated therefrom, as it sometimes happens that organisms will grow freely in the natural medium, but will resolutely decline to adapt themselves to the alien environment of a synthetic medium, even when a liquid medium is inoculated. And, finally, by application of this principle to the cerebro-spinal fluid in acute cases of cerebro-spinal fever, my colleagues and I found, as recorded in April, 1915, that not only may the meningococcus be missed if the ordinary routine be adopted, but also that it is in many cases impossible, otherwise than by incubation, to estimate the true bacterial content of specimens of cerebro-spinal fluid in this disease as regards organisms other than the meningococcus. These results, in so far as they concern the meningococcus, have since been amply confirmed by Captain Gaskell,¹⁰ working in Cambridge. It is, indeed, apparently the absence of this precaution of preliminary incubation which appears to be responsible for the number of specimens reported to be innocent of the meningococcus when in reality they are often not so, and, on the other hand, for the excessive attention which has in the past been paid to this organism as the reputed causal agent of the disease. In all cases, therefore, both for purposes of demonstration of the presence of the meningococcus and of determining what other organisms are likewise present in a given sample of this fluid, it is wise to make preliminary incubation a routine procedure—in parallel if desired—with the ordinary method.

SUMMARY OF BACTERIOLOGICAL EXAMINATION OF INFECTED BODY FLUIDS IN ACUTE CASES OF CEREBRO-SPINAL FEVER.

Full details of the results obtained by bacteriological examination of the specimens of infected body fluids we were able to obtain previous to April, 1915, are given in the two papers already referred to.

In the notes recorded in these papers reference is made to the examination of 10 specimens of cerebro-spinal fluid, 17 specimens of citrated blood, and 19 specimens of urine, several of which were catheter specimens.

Filtrates of these specimens were examined in five instances, the cerebro-spinal fluid supplying 1 filtrate, the blood 2 filtrates, and the urine 2 filtrates. In the case of the cerebro-spinal fluid, and in the case of one specimen of urine, two new Chamberland F bougies were employed. In the case of the two specimens of blood, and of the remaining specimen of urine, three new Berkefeld V bougies were employed. In numerous specimens of the unfiltered fluids submitted to complete examination the following organisms were described as occurring in the same specimens:

- (a) The meningococcus of Weichselbaum.
- (b) The meningobacillus (previously referred to by us as the "biscuit" bacillus).
- (c) Clusters of very minute organisms, sometimes diplococcal or diplobacillary in form, at other times of quite indeterminate morphology.
- (d) Jaeger's diplococcus.
- (e) Involution forms, diphtheroidal forms, and large bacillary forms.

The biochemical and cultural characteristics of the meningobacillus, which ferments the same sugars as the meningococcus, and of Jaeger's diplococcus are given in full in the protocols already published. In the case of the filtrates, whether the filter employed was a Berkefeld bougie or a Chamberland bougie, the results were the same, with the exception that the organisms which morphologically resembled the meningococcus were not submitted to identification tests.

These findings, in filtered and in unfiltered body fluids from acute cases of cerebro-spinal fever, were subsequently confirmed in their morphological details by five sets of workers independently of each other and of ourselves, as judged by their published papers.^{11 12 13 14 15}

From the occurrence of these several different types of organism in filtered and in unfiltered fluids, in many of

which from the application in parallel of the ordinary methods of examination without preliminary incubation the existence of pure cultures of the meningococcus was suggested, it was at first difficult to resist the conclusion that contamination must have occurred. And the presence of the involution forms, and of organisms of a diphtheroidal form, made this conclusion doubly difficult to resist. Increasing experience, however, of the value of preliminary incubation of the body fluids in cerebro-spinal fever before inoculation of laboratory media—in attempting to determine their true bacterial content—soon enabled us to refute the frequently made suggestion of contamination as being merely the outcome of inexperience of the method. And this conviction was greatly strengthened by finding that the same types of organisms simultaneously occurred again and again in increasing numbers of cases, and this largely irrespective of whether the fluid examined was cerebro-spinal fluid, blood, or urine. Moreover, the apparent existence of pleomorphism, although, as we have said, not absolutely proved by culture from single individuals, showed itself so constantly in subculturing from single colonies as practically to exclude the possibility of perpetually recurring contamination with the same organisms.

And, finally, the suggestion of contamination we have again found to be quite inadequate to explain the results obtained by repeating the observations with a fresh series of 18 specimens of cerebro-spinal fluid in the summer of 1915. Of these 18 specimens 6 were submitted to filtration, a new Chamberland bougie being in each case employed, and in the majority of the specimens, filtered and unfiltered, submitted to complete examination the same essential results were obtained, and may be seen by reference to the full paper now in the press. The total number of specimens examined amounts, therefore, to 64, of which 11 were filtrates, a Chamberland F filter being employed in 8.

The stage, therefore, we have now reached is this—that the true bacterial content of the body fluids in this disease is by no means adequately represented by the meningococcus. On the contrary—provided that these fluids are thoroughly examined by (1) study of the morphology of their deposits in fresh and in incubated specimens, both filtered and unfiltered; (2) supplemented, after plating, by cultural and biochemical study in, or on, laboratory media inoculated with incubated material, filtered and unfiltered; (3) injection of monkeys with the fresh filtrates—ample justification will be found for directly attacking the problem of the true ancestry of the meningococcus. And I therefore propose to make this the next stage in the investigation of the etiology of the disease side by side with further experimental observations in monkeys.

CONCLUSIONS.

1. There is at present available no adequate evidence to show that the meningococcus of Weichselbaum is itself the causal agent of the disease cerebro-spinal fever.
2. On the contrary, the experimental evidence here recorded distinctly suggests that it is not.
3. The fresh filtrate of cerebro-spinal fluid in the two cases examined contained a virus which was highly infective to monkeys.
4. The true bacterial content of the body fluids in this disease can only, as a routine procedure, be satisfactorily determined by, in the first instance, using the fluids themselves as the optimum medium of growth; combined with injection into suitable animals in the fresh condition.
5. Incubation of the body fluids, infective to monkeys in the unincubated state, appears to destroy their infectivity and, in so doing, to throw some light on the ancestry of the meningococcus.

INFLUENCE OF CONCLUSIONS ON THERAPEUTIC AND EPIDEMIOLOGICAL CONTROL OF THE DISEASE.

1. Although the meningococcus appears itself to be incapable of reproducing the disease, the search for and isolation of carriers of this organism should, for the present, be vigorously pursued as heretofore, since its presence is a valuable danger signal that the true infective agent is, or has been, present.
2. Attempts to prepare antiserums to the meningococcus, whether multiple strains are used or not, do not

appear likely to lead to effective therapeutic control of the disease.

3. Confirmation of the infectivity of fresh cerebro-spinal fluid would justify the preparation and trial of effective antiserums thereto in the treatment of the disease.

4. Attempts to destroy the meningococcus in the naso-pharynx of contact carriers, as a means of epidemiological control, would appear to be less valuable than an attempt to determine what the true infective agent of the disease really is.

5. In order to discover the true infective agent, whether biologically related to the meningococcus or not, further research is imperative, attention being particularly directed to filtrable organisms in the naso-pharynx and the cerebro-spinal fluid of acute cases.

REFERENCES.

- ¹ Hort, Lakin, and Benians: Epidemic Cerebro-spinal Fever, *BRITISH MEDICAL JOURNAL*, March 27th and April, 1915. ² Hort, Lakin, and Benians: Epidemic Cerebro-spinal Fever, *R.A.M.C. Journ.* (in the press). ³ Hort: The Recognition of Haemic Infections of the Urine, British Medical Association meeting, Aberdeen, July, 1914. ⁴ Henry, Herbert: A Consideration of the Infective Granule in the Life-History of Protist Organisms, *Journ. Path. and Bact.*, October, 1913, p. 250 et seq. ⁵ Hort and Ingram: The Bacteriology of Typhus Fever, *BRITISH MEDICAL JOURNAL*, July, 1914. ⁶ Topley, W. W. C.: The Etiology of Typhus, *R.A.M.C. Journ.*, August, 1915. ⁷ Hort: The Sterility of Normal Urine in Man, *Journ. of Hygiene*, vol. xiv, No. 4, December 23rd, 1914. ⁸ Hort and Ingram: Haemic Infections of the Urine, *BRITISH MEDICAL JOURNAL*, November, 1914. ⁹ Hort: The Carrier Problem at Home in Time of War, *R.A.M.C. Journ.*, November, 1915. ¹⁰ Gaskell, Captain, R.A.M.C.: Epidemic Cerebro-spinal Fever, *R.A.M.C. Journ.*, September, 1915. ¹¹ Shaw, T. B.: *BRITISH MEDICAL JOURNAL*, April 17th, 1915. ¹² Donaldson, R. A.: Contribution to the Study of the Etiological Factor in so-called Cerebro-spinal Fever, *Lancet*, June 26th, 1915, p. 1333 et seq. ¹³ Treadgold, C. H.: *R.A.M.C. Journ.*, 1915, pp. 228-230. ¹⁴ Sutherland, Halliday: *Practitioner*, January, 1916, p. 19 et seq. ¹⁵ Landie, Thomas, and Fleming: *Lancet*, September 25th, 1915.

STUDIES IN ANTISEPTICS (II) :

ON CHLORAMINE: ITS PREPARATION, PROPERTIES, AND USE.

BY

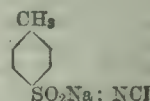
H. D. DAKIN, D.Sc., J. B. COHEN, F.R.S.,

AND

J. KENYON, D.Sc.,

THE UNIVERSITY OF LEEDS.

REFERENCE was made in a paper on the use of certain antiseptic substances for the treatment of infected wounds, recently published in this JOURNAL,¹ to a number of compounds containing chlorine linked to nitrogen and possessing strong germicidal properties. Substances containing this type of linkage were studied because analogous compounds were believed to be formed by the action of the actively germicidal hypochlorites upon proteins and some other nitrogenous cell constituents. After studying a very large number of substances of the type referred to, a selection has been made of the one which on the whole seemed to possess the greatest number of desirable properties and which experience showed to be practically useful. The substance chosen is para-toluene-sodium-sulphochloramide, and possesses the following structure:



The systematic name of this substance is somewhat unsuitable for general use, so that it has been decided to assign the more convenient name "chloramine" to the compound, thus indicating its membership in the group of substances containing the NCl linking. If, in future, other members of the group should come into use, it is suggested that the present compound should be known as chloramine-T to indicate its relationship with toluene.

Properties.

Chloramine, the preparation of which is described in a later section of this paper, is a white solid, crystallizing in prisms containing three molecules of water of crystallization. The solid has a very faint chlorous odour, while solutions of it are without smell. It is freely soluble in water, a saturated solution at room temperature containing

^{*} This investigation was carried out on behalf and with the support of the Medical Research Committee.

about 15 per cent. of the salt. It may be dissolved in two parts of boiling water. The aqueous solution reacts faintly alkaline and has a bitter taste. It is an extremely stable substance, and in solid form may be preserved indefinitely, while aqueous solutions show no significant decomposition after keeping for several months.

Chloramine has no corrosive action even in concentrated solutions. It neither precipitates nor coagulates proteins such as blood serum, a property which is of great practical importance in the treatment of infected wounds. Chloramine is practically non-toxic, guinea-pigs and rabbits tolerating as much as 1 gram per kilo given subcutaneously, with no symptoms other than a moderate local reaction due to the injection of a strong solution.

The germicidal action of chloramine is intense, and when tested against the ordinary organisms found in infected wounds it is found to be about as powerful as an equal weight of sodium hypochlorite. The molecular weight of chloramine is about four times that of sodium hypochlorite, so that the germicidal action of one molecule of chloramine is about four times as great as that of a molecule of sodium hypochlorite. In addition, it is much less irritating than the latter substance, and may be used safely at a concentration five to ten times as great.

Table showing the Germicidal Action of Chloramine on Several Common Organisms.

Two drops of a fresh culture of the organisms were suspended in 5 c.cm. of fluid, either water or 50 per cent. horse serum, and the antiseptic was allowed to act two hours at room temperature. In comparison, a few figures for sodium hypochlorite and phenol are added.

	Chloramine.	Sodium Hypochlorite.	Phenol.
Staphylococci in water ...	1: 500,000 - 1: 1,000,000 +	1: 500,000 - 1: 1,000,000 +	1: 250 - 1: 500 +
Staphylococci in serum ...	1: 1,500 - 1: 2,500 +	1: 1,500 - 1: 2,000 +	1: 50 - 1: 100 +
<i>B. pyocyaneus</i> in water ...	1: 200,000 - 1: 400,000 +	1: 100,000 - 1: 1,000,000 +	1: 200 - 1: 400 +
<i>B. pyocyaneus</i> in serum ...	1: 1,250 - 1: 2,000 +	1: 2,500 - 1: 5,000 +	1: 25 - 1: 50 +
Streptococci in water ...	1: 1,000,000 - 1: 2,500 - 1: 5,000 +		
Streptococci in serum ...			
<i>B. capsulatus</i> in water ...	1: 10,000,000 - 1: 2,500 - 1: 5,000 +		
<i>B. capsulatus</i> in serum ...			

Complete sterilization is indicated by -, while + indicates that organisms survived.

Practical Uses.

Chloramine has already been used as an antiseptic for a variety of purposes with decidedly satisfactory results. It is not proposed at the moment to do more than outline some of its applications, leaving the detailed records of clinical results to others.

First of all a series of fresh but badly infected shell wounds containing dirt, clothing, and shell fragments were studied. The wounds were exposed, cleaned mechanically in the usual fashion, and lightly packed with gauze, leaving a narrow rubber tube or tubes passing to the bottom or recesses of the wounds. By means of these tubes 10 to 15 c.cm. of a 3 to 4 per cent. solution of chloramine was squirted at frequent intervals into the wounds by means of a glass syringe so as to moisten the whole surface of the cavity. The results were clinically similar to those observed in the early treatment of infected wounds with sodium hypochlorite,² with the exception that sloughs are dissolved somewhat more rapidly by the hypochlorite than by the chloramine. The majority of these wounds, though undoubtedly infected at the start, could be rendered aseptic after three to five days when treatment was commenced early. The wounds so treated were severe cases, including a number of fractures of the femur and humerus.

But the properties of chloramine seemed to indicate that it might find a more valuable application in cases where the more generally used antiseptics were either too irritating or too feeble. Accordingly it was used in a large number of cases of jaw and mouth injuries which are so apt to become extremely foul. Chloramine was used in 1 to 2 per cent. solution as a mouth wash, and a 2 per cent. solution was also squirted into the external wound cavities through short rubber tubes lightly sur-

rounded by gauze packing. The results were very encouraging. Some of these cases have been described by Surgeon Fisher, R.N., of H.M.H.S. *Reva*, in a recent issue of this JOURNAL. As an antiseptic mouth wash 1 to 2 per cent. chloramine has been found to be of value in a variety of septic mouth cases.

In addition chloramine at 0.5 per cent. has been used for the irrigation of bladder and uterus in septic cases and the results are stated to be encouraging. A few cases of chronic urethral infections which had been unsuccessfully treated with silver preparations did well with injections of 1 to 2 oz. of chloramine four times daily, beginning at 0.5 per cent. strength and then increasing later to 1.5 to 2 per cent.

A practical point which may prove to be of value is the fact that gauze may be readily impregnated with large quantities of chloramine. It is possible, for example, to get as much as 10 grams of chloramine in a four-fold roll of gauze 1 yard by 4 in. The use of this impregnated gauze for packing infected wounds is being investigated at the present time by Sir Berkeley Moynihan. There are very few substances of high antiseptic value which can be successfully used for impregnating gauze. Chloramine gauze obviously should not be moistened before use or the antiseptic will dissolve out. It can be used dry for lightly packing and subsequently moistened if necessary when in position.

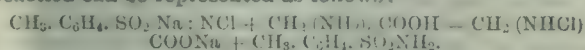
Preparation and Cost.

Toluene-sodium-sulphochloramide (chloramine) was first prepared by Chattaway³ by the action of sodium hydroxide upon toluene sulpho-dichloramide, a substance obtained by the action of acetic acid on toluene sulphonamide dissolved in bleaching powder solution. A more economical method for its preparation consists in dissolving p-toluene sulphonamide (1 mol.) in a 5 per cent. cold alkaline solution of sodium hypochlorite (1.2 mol.), warming gently if necessary, filtering, and adding 1½ volumes of saturated brine. The chloramine crystallizes out of solution as a white shining meal of crystals, and is filtered off, washed with brine, and dried in the air.

The toluene sulphonamide necessary for the preparation is prepared by acting upon para-toluene sulphonic chloride with ammonium carbonate. The sulphonic chloride is a by-product in the manufacture of saccharin, and in ordinary times can be obtained very cheaply. But even when made directly from toluene, the finished chloramine should be a relatively cheap antiseptic, especially when its high germicidal action is considered. The cost of a 2 to 3 per cent. solution such as is commonly used should be considerably less than that of 10 volume hydrogen peroxide. It is anticipated that the manufacture of the substance on a commercial scale will be undertaken shortly by some British firm.

Mode of Action.

In its chemical and biological reactions chloramine closely resembles the hypochlorites in many respects. Its antiseptic action, while largely due to its contained chlorine, is not simply due to the liberation of sodium hypochlorite from the chloramine, for its antiseptic action is four times as great as that of the hypochlorite which could be obtained from it. It is believed that the antiseptic action of hypochlorites is due to their capacity for attacking proteins and related bodies, with formation of substances containing chlorine linked to nitrogen. Chloramine itself appears to act in the same way, for when brought into contact with proteins, such as blood serum, or with peptones or amino-acids, it parts with its chlorine, which attaches itself to the nitrogen of the second substance. With the simplest amino-acid, glycine, the reaction can be represented as follows:



In this particular case the chloramino-acetic acid formed is unstable, and breaks up to give formaldehyde and other products.

Practically, the matter may be stated as follows: Chloramine represents an active antiseptic containing a store of chemically combined chlorine in a form which is quite stable and non-irritating under ordinary circumstances. But when brought in contact with proteins and similar cell constituents containing basic (NH_2) groups, it acts as a chlorinating agent losing its chlorine to the basic

substances, and thereby exerting its antiseptic action as needed.

Chloramine, being a highly reactive substance, should not be mixed with other antiseptics. Both alcohol and hydrogen peroxide are decomposed by it.

REFERENCES.

¹ Dakin, BRITISH MEDICAL JOURNAL, August 25th, 1915. ² Tuffler, BRITISH MEDICAL JOURNAL, November 27th, 1915, p. 790; also Carrol, Dakin, Daufresno, Dehelly and Dumas, *ibid.*, October 23rd, 1915, p. 609. ³ *Trans. Chem. Soc.*, 87, p. 153, 1905.

GASSING ACCIDENTS FROM THE FUMES OF EXPLOSIVES.*

By LOUIS G. IRVINE, M.A., M.D. EDIN.,
JOHANNESBURG.

CASES of gas poisoning account every year for a good many deaths in the mines of the Rand, and for a considerably larger number of cases of temporary disablement and loss of working time.

The irritant acid fumes, commonly known as nitrous fumes, consist of a mixture of oxides of nitrogen. They belong to the group of respiratory irritant poisons in which chlorine, the vapours of bromine and ammonia, sulphuretted hydrogen and sulphurous acid, are also included. All of these cause, when inhaled, a somewhat similar train of symptoms. Fatal poisoning by nitrous fumes has occurred when persons have inhaled the acid fumes from a vessel containing nitric acid, which has been accidentally broken. In mines, poisoning from this source only occurs after the use of explosives in cases where the detonation has been imperfect, and particularly where burning of explosives has taken place. Nitric oxide (NO) is first formed, but this gas is rapidly oxidized, and nitrous fumes consist chiefly of nitrogen peroxide¹ (NO₂). This again quickly reacts with water vapour to form nitrous acid. What is actually inhaled is mainly a mixture of nitrous and nitric acids. Nitrous fumes are the red irritant fumes with the smell of which most miners are familiar. The smell is that of fuming nitric acid. The gas is intensely poisonous, and of all mine gases it is the most treacherous. We do not know the downward limit of its toxicity. Exposure to as little as 0.05 per cent. of nitric oxide for half an hour was found by Haldane to cause death in mice after about twenty-four hours, with the typical sequence of symptoms, and the symptoms were the same whether nitric oxide or the fumes of burning dynamite were added to the air. It was found that with small percentages of nitrous fumes the haemoglobin was normal at the time of death. With higher percentages (and more rapid death) the blood was found to be more or less chocolate coloured, and to contain methaemoglobin. Under the latter circumstances nitrous fumes act like carbon monoxide by disabling the haemoglobin, and may in concentration produce rapid death. Where the exposure is to small amounts death is due solely to the lung inflammation and its immediate consequences.³ It is with this latter form of poisoning that we are locally familiar. Half of the amount mentioned is the highest figure (0.026 per cent. reckoned as NO₂) found by Mann in mine air after blasting,² but the presence of the gas in poisonous amounts is probably not so very uncommon in ordinary blasting practice. I shall give some evidence for this statement later. What is certain is that quite a brief exposure to small quantities of nitrous fumes is sufficient to produce serious and even fatal poisoning. Air which contains enough nitrous fumes to cause feelings of irritation in the nose or air passages is very dangerous.

Dr. D. Macaulay was the first to direct attention to the important part played by nitrous fumes poisoning in gassing accidents on the Rand, and to give an adequate account of its symptoms and treatment.⁴

SYMPTOMS.

The symptoms of poisoning by nitrous fumes are very characteristic. At the moment of exposure they are slight. A man who inhales nitrous fumes has a sense of

irritation in the nose and throat, and of constriction, and perhaps pain, in the chest. There is headache, smarting of the eyes, and there is coughing. The latter is a characteristic sign. But these immediate irritant effects may not be severe, and commonly pass off altogether in a short time. The man may feel quite well and may continue work. He leaves the mine, has his supper perhaps, and goes to his room. Then, in from perhaps four to eight hours afterwards (very rarely later), acute symptoms suddenly come on, and progress with alarming rapidity. In a typical severe case there is marked and increasing distress in breathing, with coughing, and often severe pain in the chest. The cough is at first dry, and auscultation may at this stage reveal no moist sounds. But this condition is speedily followed by the expectoration of a copious frothy, rather fluid, blood-stained spit. The lungs become waterlogged, and auscultation now reveals copious moist sounds. There is cyanosis and marked dyspnoea and distress, followed, unless the case is promptly treated, and very often in spite of all treatment, by collapse, unconsciousness, and death within a few hours. Dr. Macaulay states that "the temperature is at first normal or subnormal, but, if the gas goes on for several hours, a rise takes place." I well remember the first case of this condition which I saw, now more than ten years ago. A miner was taken ill suddenly in his room on one of the mines at 11.30 p.m. I saw him at 1 a.m. He was cyanosed and in much distress. His lungs were full of moist sounds and one base was dull. The wooden floor of his room was covered with a blood-stained fluid expectoration. He died at 5 a.m. I could not reconcile his condition with that of any form of acute pneumonia which I have seen, but it agreed at every point with the published descriptions of nitrous fumes poisoning. It is probable, I think, that a certain number of cases returned as "pneumonia" amongst underground workers are really cases of nitrous fumes poisoning.

The typical sequence of symptoms in nitrous fumes poisoning is therefore this:

1. Initial symptoms of irritation occurring at the moment of exposure and usually comparatively slight. Nitrous fumes never, in our experience of ordinary gassing accidents, produce partial or complete unconsciousness at the time of exposure, as does carbon monoxide, although they may do so if present in massive amounts, and cases of rapid death from the concentrated fumes of burning explosives may be partly due to this cause.

2. A latent period of several hours' duration, during which the patient may and commonly does feel quite well.

3. The sudden onset after that interval of acute symptoms, due to a rapidly progressive inflammatory oedema of the lungs. The appearance of this well marked symptom sequence is of great diagnostic significance.

The post-mortem signs are also definite. There is an intense injection of the trachea and bronchi, which is characteristic. The lungs are intensely oedematous, often enlarged and tense with oedema. A copious frothy, blood-stained fluid exudes from them on section, and may be seen to occupy the air passages. There may be patches of incomplete consolidation, subpleural haemorrhages may be observed, and blood-stained fluid in the pleural cavities or the pericardium. The right heart and the great thoracic and abdominal veins are engorged with dark, thick, sometimes almost tarry, blood. The abdominal veins especially are often very greatly distended.⁴

There is one other point. Miners from time to time complain that after slight exposure to blasting fumes—perhaps from blasting at some distance from their working place—they are attacked the same night with difficulty of breathing, and perhaps slight spitting of blood, which pass off in a few hours. The affected man thinks he has had an attack of "asthma" or "bronchitis." He has really had a slight attack of nitrous fumes poisoning. The most sedulous care must be taken that, if any casual blasting has to take place before the end of the shift, the water blast shall be invariably employed immediately after, and that the fumes are thoroughly dispersed. Precautions must be taken, also, in the general blasting at the end of the shift, in order to obviate the risk of inhalation of drifting fumes of this dangerous gas by men waiting on the stations before being "hailed" up the shaft.⁵

Finally, I may state that the intensely irritating character of nitrous fumes has suggested that the repeated

* Extracts from a paper on accidents from poisonous or asphyxiating gases in mines, dealing generally with the subject, and also with the organization of the use of rescue appliances in mines, read before the Witwatersrand Branch of the British Medical Association, and published in full in the *Medical Journal of South Africa*.

inhalation of small quantities of this gas may, by maintaining a catarrhal condition of the air passages and lungs, be a contributory factor in the development of miner's phthisis.

The accidents under review fall into two groups: A. Those due to exposure to the fumes of explosives after blasting — the ordinary "gassing" accidents. B. Those due to explosives being accidentally set on fire and burned.

A. ACCIDENTS CAUSED BY THE FUMES OF EXPLOSIVES AFTER BLASTING.

I found it desirable to subdivide this group into two classes:

1. Cases in which the Exposure was Immediately or Shortly After Blasting.

These accidents occurred when persons returned too soon to the working places after blasting, or where they were affected by the fumes of explosives arising from blasting taking place in other parts of the workings. I found that in such cases either carbon monoxide or nitrous fumes poisoning might result, but that the latter type was considerably more common.

Whether the one type of poisoning or the other occurs under these circumstances is due in part to the character of the explosion, since if definite partial burning of the explosive takes place the risk of nitrous fumes poisoning is especially great. But the result will depend also on the duration of exposure. Unless carbon monoxide is present in large amounts, it takes time to produce its effects. On the other hand, the records abundantly show that quite a brief exposure to even small quantities of nitrous fumes is sufficient to produce serious or fatal poisoning from this source.

For the same reason drifting fumes from blasting will typically cause nitrous fumes poisoning, and persons may be "gassed" in this way by the fumes from blasting which has taken place at some considerable distance. Sometimes one or more of a party working in close proximity may be affected, while others escape.

Mixed poisoning must sometimes occur, but the number in which the evidence points to the probability of such a conjunction is surprisingly small. One or other type is almost invariably markedly predominant. I know of no case in which a man who had been rendered unconscious by carbon monoxide and had then recovered, developed later on signs of nitrous fumes poisoning. On the other hand, it is probable that carbon monoxide may co-operate in some cases of nitrous fumes poisoning in aggravating and prolonging the initial symptoms.

Another interesting point is this: It appears from the evidence that the danger from nitrous fumes exists only for a comparatively short time, perhaps an hour or so, after blasting. The longest interval observed between the occurrence of blasting and the occurrence of exposure, in this type of poisoning, was two hours, and this was exceptional. This circumstance, I would suggest, is probably due to the fact that nitrous fumes are very soluble in water, and that mine air is always highly charged with moisture, and also to the circumstance that these fumes are not often present in large quantity after blasting.

Let me now quote a few typical instances of accidents of this sort. These will suffice to indicate the circumstances in which these emergencies occur, and the general nature of the evidence on which I have relied. Some are drawn from the cases originally investigated, some were of more recent occurrence.*

CASE I.—Exposure Immediately After Blasting: Poisoning by Nitrous Fumes: Three Deaths.

The following interesting case was described by Dr. D. Macaulay. It was amongst the first in which the part played by nitrous fumes poisoning in gassing accidents was clearly recognized.

Two white men and three natives were working at the end of a drive, with a crosscut leading off it about a hundred feet from the face. The miners in the crosscut blasted at 3 p.m., before the party in the drive had left, and without giving them warning. The latter were imprisoned in the end of the drive for three-quarters of an hour. They felt that they were being gassed and turned on the compressed air. When the smoke had cleared they left the drive and went to the surface. The white men washed, changed, had their evening meal, and went

to their quarters. Acute symptoms of respiratory distress came on in both at 10.30 p.m., and when seen by Dr. Macaulay at 11 p.m. they were so ill that doubt was entertained by him whether it was possible to move them to the mine hospital a few hundred yards away. Both eventually recovered under energetic treatment. Nothing was reported at the time regarding the natives. They went as usual to the compound and did not report sick. Next morning one was found to be dead and another moribund. The third was very seriously ill, and he also eventually succumbed.

A post-mortem examination on these natives, made by Dr. Macaulay, at which I had the opportunity of being present, showed the typical signs of acute inflammatory oedema of the lungs, and great engorgement of the heart and venous system with dark blood.

CASE II.—Exposure Immediately After Blasting: Poisoning predominantly by Nitrous Fumes: One Death.

A white miner blasted the cut in the face of a drive. He did not use the water blast. He then returned with two natives to charge and blast the round, turning on the compressed air when doing so. As three holes of the round did not explode (there was therefore probably imperfect detonation and partial burning), he returned a second time to refire them. The natives stated that both times they returned "the smoke was too thick," and one failed to reach the face the second time. The white man did not say anything, but they saw that he was affected by the smoke. All left the mine together, apparently at 8 o'clock or a little after. The white miner felt ill on arriving at the surface, and waited for some hours in the change house. Afterwards he set out to walk home, then he telephoned for a cab. He walked from the cab into his house, reaching the latter after midnight. The medical officer of the mine was sent for to see him at 1.30 a.m., and found him "suffering from the effects of gassing usually ascribed to nitrous fumes." The man was too ill to be moved to hospital. He died at 2 p.m. the following day.

This case is an amazing example of a man throwing away his life, through sheer recklessness and contempt of the regulations which govern, or should govern, blasting operations.

In this case the prolonged character of the initial symptoms suggest a mixed poisoning, and the circumstances of the accident render this probable. The later symptoms were typical of nitrous fumes poisoning.

Post mortem the lungs were found to be tense ("ballooned") and oedematous.

The district surgeon, Dr. T. B. Gilchrist, states that the blood was somewhat chocolate coloured, but that after an hour's exposure to the air it became more red. No carboxyhaemoglobin was found in the blood.

2. Exposure Delayed until Several Hours After Blasting.

These cases occurred when the working places were entered on the following shift. They were caused by the stagnation of blasting fumes in close places owing to defective local ventilation, due either to the miner responsible having neglected to use the means of ventilation provided, or less commonly to the fact that the means of ventilation provided were inadequate. In every instance in this class carbon monoxide was the predominant cause of death, no doubt with carbon dioxide co-operating in some cases. Nitrous fumes poisoning never occurred under these conditions. It is only caused when the exposure occurs immediately or shortly after blasting, or after the actual burning of explosives.

B. ACCIDENTS DUE TO EXPLOSIVES BEING ACCIDENTALLY SET ON FIRE AND BURNED.

The number of observations which have been made on the composition of the fumes actually evolved when nitro-glycerine explosives are burned in air is not large. Recorded results vary considerably, and the actual result which occurs when accidents from this cause happen underground also probably varies between rather wide limits. Dr. James Moir considers that, if the supply of air locally available in places where explosives are burned is sufficient to allow of vigorous combustion, the amount of carbon monoxide generated may not be greater, and may be less, than when the explosive is detonated. On the other hand, if the supply of air is insufficient, as may happen in a confined space, the amount of carbon monoxide will be increased in direct proportion to the degree of deficiency of air, and that of carbon dioxide correspondingly diminished.

In either case, however, but especially in the latter circumstances, large quantities of nitrous fumes will be evolved, within limits, varying according to the particular conditions present, from 1 to 5 cub. ft. per lb. of explosive burned, blasting gelatine being taken as the type. The latter figure agrees with that of Cullen and Greig.⁶

* I have to thank Mr. R. N. Kotzé, Government mining engineer, for permission to publish these illustrative cases.

Dr. Moir has supplied me with the following figures, which represent the behaviour of blasting gelatine in the several conditions specified in the table:

Table showing Quantity in Cubic Feet of Gases produced by 1 lb. of Blasting Gelatine under Different Circumstances.

Conditions.	CO ₂	N ₂	CO	NO
A. Perfect explosion, without wrapper ...	6.2	2.9	—	—
B. "Practical" explosion, with wrapper ...	5.5	2.9	0.9	?
C. Burned without wrapper in excess of air ...	5.7	2.3	0.7	1.2
D. Burned <i>in vacuo</i> ...	—	—	6.0	5.0

When burning takes place in the dead end of a drive or similar place combustion might be expected to begin as in C, and to finish as in D, according to the available air. The calculations are for pressure and temperature at a depth of 1,500 feet.

These being the determining conditions, one might conclude that nitrous fumes poisoning would be the type of gassing most frequently met with when explosives are set on fire underground, but that carbon monoxide poisoning may also occur. Experience shows that this is actually so, but a rather closer description of what happens is perhaps desirable.

1. When large quantities of explosives, say from 50 to 100 lb., are set on fire, their ignition is frequently followed by their explosion, and this fact introduces an important complication. I have therefore subdivided this group of accidents into two classes, according as explosion did or did not follow ignition. The former class includes one appalling disaster which happened on the Rand some years ago. Happily no accident of similar magnitude has occurred since.

CASE III.—Ignition of 100 lb. of Blasting Gelatine, followed by Explosion: Sixty-one Deaths.

In this case a miner, apparently, so far as the evidence goes, through sheer carelessness, set fire to the explosives in his explosives box at a shaft station. Three other boxes were near by, the four containing perhaps 100 lb. of gelatine, and the whole quantity was involved in the violent explosion which almost immediately followed. The station on which it occurred was completely wrecked, and much damage was caused for a considerable distance up and down the shaft. A large number of natives and some white men were in or near the shaft at the time waiting to ascend to the surface. Three whites and many natives were killed outright or succumbed before the rescue parties could reach them, perhaps an hour later. Many of the bodies were severely burnt; some had sustained other gross physical injuries. In those out of this number who survived the immediate effects of the concussion, shock, and burning caused by the explosion, carbon monoxide poisoning was probably the main cause of rapid death. Other whites and natives died later on from the after effects of fumes, shock, and burning, but, in the absence of fuller information, one cannot push the analysis further.

I have therefore included the whole number under the heading "Indefinite." The eventual toll of deaths was six whites and fifty-five natives. Many members of the rescue parties were temporarily overcome by the fumes, but fortunately none died.

In a smaller accident of the same character perhaps 30 lb. of gelatine was set on fire and exploded, and involved in the explosion a similar quantity of gelignite 20 ft. away. A 6-gallon tin of paraffin was also ignited. Five coolies died later from the burning and battering of the explosion. They were not "gassed," as the fumes did not reach them. But a white miner who encountered the fumes 1,200 ft. away died the same night from acute oedema of the lungs.

2. If we eliminate accidents complicated in this manner, the preponderance of nitrous fumes poisoning in accidents due to burning of explosives becomes at once apparent. Out of fifteen such accidents, carbon monoxide (or mixed) poisoning was the cause of fifteen deaths in one (Case IV), and of one death in a second accident, although in this case other individuals were affected by nitrous fumes. In the other thirteen all the deaths were due to nitrous fumes poisoning.

What appears to happen is this: If the amount of explosives burned is large, and the fumes are met with in great concentration near the site of burning, a rapidly fatal massive poisoning results, which is certainly mixed, but in which carbon monoxide is probably the predominant factor. Or in these circumstances, and in the same acci-

dent, out of a number of persons in close proximity to each other some may be rapidly killed in the way described, while others die later with the typical signs of nitrous fumes poisoning. On the other hand, when the fumes have become dispersed, and therefore less concentrated, nitrous fumes poisoning will practically invariably follow. Each one of these results is well illustrated in Case V, cited below, and the first is clearly shown in Case IV.

The larger accidents of this group quite overshadow those due to poisoning from blasting fumes, since in the former large areas of the mine are quickly flooded with poisonous gases, and many deaths may result. Fortunately the greater number of accidents due to burning explosives are of a less tragic nature. These have occurred from smaller quantities of explosives being accidentally set on fire in the workings through carelessness or misadventure. The insatiable curiosity of natives to find out what really happens when gelatine burns has been the cause of not a few.

In such cases carbon monoxide poisoning may also occasionally result if the fumes are sufficiently concentrated and exposure sufficiently prolonged. Usually, however, when explosives are set on fire there is a hasty stampede to a place of safety. But nevertheless, let me repeat, a very brief exposure to the fumes of burning gelatine or gelignite, even although it be only a stick or half a stick, is quite enough to cause fatal poisoning by nitrous fumes. Nitrous fumes poisoning is therefore the typical and characteristic form of "gassing" under these circumstances. Several deaths have occurred from the inhalation of these fumes in lighting up with the old-fashioned "cheesa" stick, made of strips of blasting gelatine. The use of lighting sticks of this sort has as a consequence been prohibited for some time.

I shall quote three further cases of accidents of this group, each of which illustrates one or other of the points I have mentioned.

CASE IV.—Accidental Ignition of Gelatine Dynamite (15-20 lb.): Carbon Monoxide (or mixed) Poisoning: Fifteen Deaths.

A gang of thirty natives under a white miner were proceeding to their working place in a stope. The natives arrived first; some descended the stope; the others, fourteen in number, remained on the level above, in which, between them and the station, was the miner's explosives box. The miner followed, and had reached his box and passed it, when immediately an alarm was raised. Fifteen, perhaps twenty, pounds of gelatine dynamite contained in the box had become ignited, apparently, so far as the facts are obtainable, through the carelessness of the miner. The boys on the level rushed towards the station, right into the fumes, and all collapsed at once and dropped within a short distance of the box, where their bodies and that of the miner were found. The natives in the stope below the level escaped. Exposure was thus immediate, and apparently death almost equally so.

The blood from three of these cases was examined in the Government Laboratory. In each case it was cherry-red in colour and uncoagulated. It contained a high percentage of carbon monoxide, and the chemical evidence was stated to point to an "oxide of nitro, ei" as a contributory cause. Clearly here the proportion of these gases in the air at the moment, no doubt in conjunction with carbon dioxide also, was high enough to cause immediate unconsciousness and rapid death, and the case may be regarded as one of mixed poisoning, although carbon monoxide was probably the preponderant cause.

CASE V.—Burning of 50 lb. of Blasting Gelatine: Six Deaths from Carbon Monoxide (or mixed) Poisoning; Nineteen from Nitrous Fumes Poisoning; One from Pneumonia.

A white miner, S., was seen at 7.45 a.m., sitting beside his explosives box, which was at the dead end of a short crosscut communicating with a main level (14) and air-way. The explosives box was open, and he had a lamp and candle in dangerous proximity to it. One native witness stated that the candle was actually stuck on the corner of the open box.

A few minutes afterwards a flame was seen in the place. The miner ran out, and having told his own natives who were working near by to turn on the air into their working places, as there was gas about, he went away, and warned no one else. He afterwards denied all knowledge of how his explosives had gone on fire, but was eventually convicted before a magistrate and sharply sentenced.

Several witnesses say that they heard a blast, which may have been due to the explosion of part of the burning gelatine. There was certainly, however, no violent explosion. The fumes poured into the level and were carried by a strong ventilating current up the nearest stope, 70 ft. away, and so to the level above (13). There were natives and a white man (who afterwards died) working in this stope. This man at once ordered his natives out. Six were afterwards found dead or dying in the level above, having been overcome in the attempt to escape. Nineteen other natives died later on in the

mine hospital, and fifteen of these had been working in this same stope. The fumes spread for a considerable distance along Level 13, 600 ft. or 700 ft. in either direction, and ascended to Level 12 through several stopes in which many natives and some white men were working. Many of these were affected.

The medical record of these cases is of great interest. For it I am indebted to Dr. A. H. Watt, of the Simmer and Jack Hospital, who saw and treated them.

The six natives found dead were exposed to the fumes in great concentration, being nearest to the original seat of burning. Death in their case was presumably due to mixed poisoning from carbon monoxide and nitrous fumes.

Fifteen other natives from the same stope and four from other working places died in the mine hospital later with symptoms of nitrous fumes poisoning. Eight of these were dead or moribund on admission. They had not been overcome by the fumes at the time of exposure, and had been withdrawn from the mine in the ordinary way. In fact, during the day and through the evening large numbers of natives were admitted to the mine hospital suffering from respiratory symptoms. Many of these had been working in the stopes between 13 and 12 levels, where the fumes had travelled a greater distance before reaching them. They were recognized as suffering from nitrous fumes poisoning, and in the bad cases free bleeding was carried out, followed by respiratory stimulants. Dr. J. B. Tough informs me that in six natives whom he found comatose with a thin froth issuing continually from their mouths and who were freely bled, the colour of the blood changed during the operation from a dark asphyxial colour to that of oxygenated blood. All six recovered. Excluding those dead or moribund on admission the number treated was sixty-seven. One native died ten days later from pneumonia.

Fourteen white men were also affected by the fumes. What happened to them may be best described in Dr. Watt's own words:

"Thirteen of them" (who, under his orders, came to hospital and were detained there overnight) "had an emetic, and the next day were all out of danger. One man disobeyed orders, and went home without receiving an emetic. He was sent for, but he had gone out for a stroll after having partaken of a hearty luncheon. He was found four hours after the accident, and came to hospital under protest, stating that he felt quite well. In the evening he developed general oedema and congestion of his lungs, and died before morning." This was regrettable, as this particular man had been active in getting the boys out, and had inhaled the gas in so doing.

Unfortunately, the *post-mortem* evidence in this case is incomplete. Not all of the bodies were dissected, as this was unnecessary for the immediate purpose of the district surgeon. Dr. Moiler informs me that those which were examined did not show any signs of carbon monoxide poisoning. The blood was dark and the lungs very oedematous.

Pure carelessness on the part of three white miners was responsible in these two instances, and in the shaft accident already mentioned, for over one hundred deaths. If the regulations regarding the handling of explosives had been observed not one of them would have occurred. The careless miner (we have met with him rather frequently in these records) is a standing danger, not only to himself but to every one near him. Recklessness such as this is not fair play. But these accidents suggest that it might be well to provide all those engaged in the actual handling of explosives with approved (and tested) electric lamps for use in so doing.

I should like to mention, in a word, another occurrence, in which 100 lb. of gelatine was accidentally set on fire by a white learner when capping fuses. He himself and three natives died—the natives certainly from nitrous fumes poisoning. But, although the fumes spread for considerable distances through the mine, no one else died, owing to the prompt and resourceful action of the mine officials. Being immediately warned of what had happened, they at once withdrew all the workmen from the portions of the mine affected to fresh air. This is obviously the only thing to do. Every one should at once get by the nearest way out of the air current bearing the fumes. Rescuers also should be careful to approach places where burning has occurred only from the windward side. The familiar wet handkerchief over the mouth should not be omitted. Several men have saved themselves, when cut off from safety by the fumes, by retreating into a dead end and turning the air on at the face. Sometimes, however, this has not sufficed to protect them from nitrous fumes.

When small quantities of explosives are set on fire, every one should leave the place at once until it has been thoroughly blown out and wetted down. Neglect to do so was the cause of the following accident, the last which I shall quote. In this instance a much smaller quantity of explosive was ignited, and nitrous fumes poisoning followed. Observe once more in this instance the almost

clockwork precision with which this poison does its work. Compare it in this respect with Case I.

CASE VI.—Accidental Ignition of 5 lb. of Gelatine: Nitrous Fumes Poisoning: Four Deaths.

About 1.20 p.m. on a Saturday a miner (G.) accidentally set fire to half a packet (about 5 lb.) of gelatine in a stope. Another miner (H.) and his natives were working at the top of the stope. The fumes ascended the stope to the level above, through part of which men and boys had to pass. G. withdrew his boys and immediately warned H., who left the stope with his natives, and waited with them not far away in the level above for a short time. He then insisted (about 2 p.m.) on returning to charge his holes, although warned not to do so, and took with him a native. He was followed by G. They finished their work and all left the mine together afterwards. H. said he did not feel sick, and both men took the tram home.

Five natives were affected by the fumes. All went to the compound, but about 7 p.m. two became very ill and were taken to the mine hospital. They were spitting blood. One died in a quarter of an hour, the other the following day.

Just at the same time (8 p.m.) the mine medical officer was called to see H., and found him sitting on the side of his bed, with a pulse of 120, expectorating blood-stained sputum. There were signs resembling those of commencing pneumonia at one base. The medical officer made arrangements to send him to hospital the following morning. At 3 a.m. he was dead, thirteen hours after exposure to the fumes.

Two other natives were taken to the hospital at 3 a.m. One died the following day; the other recovered.

The *post-mortem* notes on these four cases were kindly supplied to me by Dr. Stanley Heberden, district surgeon, who certified all as having died from nitrous fumes poisoning. All four reports are couched in almost identical terms. A summary of two will suffice.

Native S. (the boy who died within six hours after exposure). No disease of internal organs. Air passages full of froth; mucous membrane congested; lungs congested and oedematous. Right side of heart engorged with blood. The blood was dark and asphyxial in character. There was no alteration in colour suggesting the presence of carbon monoxide.

R. H. The body of a well-nourished European male. No injuries. The mucous membrane of the air passages is congested and the tubes are full of froth. The lungs are congested and tense with oedema. The right side of the heart is engorged with blood. The blood is dark (asphyxial), and there is no alteration in colour suggesting the presence of carbon monoxide.

MEDICAL TREATMENT.

Regarding the medical treatment of nitrous fumes poisoning there has been a good deal of local experience.

In all cases in the early stage, first produce emesis as soon as possible (apomorphine hypodermically). Follow this by stimulant, ammonia, or (preferably) pituitrin. Then send the case straight to hospital.

Atropine may prove useful in the latent stage.

In the acute stage with developing oedema of the lungs, Macaulay recommends as the first step wet cupping of the chest, back and front. This invariably relieves the symptomatic distress. It should be followed locally by poulticing, or better by jacket mustard-water fomentation, applied very hot and changed every hour.

In all recognized cases of acute oedema free blood-letting should next be performed. This is a most valuable remedial measure. In one of Macaulay's cases, after venesection, the haemorrhagic sputum speedily ceased, and never returned, and the patient made an uninterrupted recovery. Dr. Tough's experience, already quoted, also clearly shows the value of this measure. This has been confirmed by other observers. The condition of the blood may render bleeding difficult, but it should be free (12 to 20 oz.). Venesection should not be delayed until the condition becomes grave. It should be undertaken immediately on the recognition of the nature of the case.

Follow venesection by saline infusion, and repeat this if necessary.

Administer oxygen intermittently to relieve and tide over the asphyxial condition.

Give ammonia in repeated doses.

Injections of pituitrin (1 c.cm.), repeated every four hours, should be tried. I have found this drug, used in this way, of great service in the treatment of acute pneumonia.

These are the lines of treatment which have been followed locally, and in a considerable number of cases with marked success, although when the condition of acute oedema is well established probably a majority of cases will die in spite of treatment.

I had written the above notes before I had an opportunity of seeing the very valuable report by Lieutenants Elliot Black,

Glenny, and McNee, R.A.M.C., on Cases of Poisoning by Noxious Gases used by the Enemy.⁷

REFERENCES.

- ¹C. le Neve Foster and J. S. Haldane: *Investigation of Mine Air*.
²J. S. Haldane: *Journal of Chemical, Metallurgical, and Mining Society of South Africa*, September, 1906. ³R. A. Mann: Report on Composition of the Gases caused by Blasting in Mines, Perth, West Australia, 1911. ⁴D. Macaulay: Gassing by Dynamite Fumes, *Transvaal Medical Journal*, February and July, 1906. ⁵I. G. Irvine: First Aid in Mining, *South African Red Cross Society*, 1915. ⁶A. H. Watt and I. G. Irvine: Treatment of Gas Poisoning in Transvaal Mines, *BRITISH MEDICAL JOURNAL*, August 14th, 1915. ⁷J. Elliot Black, Elliot T. Glenny, and J. W. McNee: Observations on Cases of Poisoning by Noxious Gases used by the Enemy, *BRITISH MEDICAL JOURNAL*, July 31st, 1915. ⁸W. Cullen and D. W. Greig: Gases from Burning Nitro-glycerine Explosives, *Journal of Chemical, Metallurgical, and Mining Society of South Africa*, September, 1909.

NOTE ON CASES OF PHLEBOTOMUS FEVER AT AN ISLAND IN THE EASTERN MEDITERRANEAN.

By J. T. D. S. HIGGINS, M.B., B.A.,
SURGEON, R.N.

EIGHT cases of phlebotomus fever occurred amongst the officers and men attached to the garrison under my charge. These were due to infection by *Phlebotomus papatasi*. Seven cases occurred between July 21st and August 1st, 1915, and one other case on August 9th.

Six of these cases occurred in one locality and in one house. The patients were either mess-servants, sentries, or officers (1) who were on duty at and slept in this house. One case was an officer's servant (Private R.M.L.I.). He came in from another camp, and slept one night at the house. On the morning of the fourth day afterwards he became ill with the fever. All the other patients had numerous marks of bites. They resembled mosquito bites; but the sandfly bites silently; it does not give warning of its presence by any peculiar musical note, as does the mosquito. A very faint note may sometimes be heard if the fly passes close to one's ear. The sudden sharp sting, when the phlebotomus bites, is sufficient to wake one from sound sleep.

After the first case, on account of the type, sandfly infection was suspected; the suspicion became greater when the localized incidence at the house became marked. A search was made for phlebotomi in the house, *Culex* larvae (? dengue) being searched for at the same time in the wells, etc., as the marks on patients' wrists and ankles closely resembled mosquito bites. No *Culex* larvae were found, but phlebotomi were found in the house, and later inside the mosquito net of an officer, who had been severely bitten and developed the fever. These were caught and proved to be *Phlebotomus papatasi*. Although specimens had been seen at the Royal Naval College, Greenwich, during the tropical course, after entry, I was not certain that this was the genuine sandfly, but the diagnosis was confirmed by Colonel Garnier, R.A.M.C., Egyptian Medical Service, and they were later examined in company with Dr. A. De Lisle, attached to the French Army Medical Service.

The following prophylactic measures were taken:

1. The sleeping place of mess-servants and sentries was changed from the hall on the ground floor to the lobby on the next floor higher up.

2. A space of ground alongside the house, but not part of the premises, contained old rubble, refuse, and fallen masonry, and was thought to be the probable breeding place and habitat of the fly. This was cleared and covered with lime; quicklime was applied for in order to spray or wash down all these old walls and crevices, but was not immediately available.

After these measures were taken no fresh case occurred, but this was probably in part due to the fact that a slight change in the weather followed, and the temperature dropped below 70° in the evenings, which is unfavourable to the continued presence of phlebotomi. The weather during June and early July was probably too hot and dry for the larvae to hatch out.

As was gathered subsequently from articles published in the *BRITISH MEDICAL JOURNAL*, and seen by me in September, prophylactic measure No. 1 above was probably more effective in the circumstances than was hoped for at the time. In the place where the men previously slept they were exposed to the flies from the

rubble, etc., which was only a few yards away across a narrow by-way, and level with the open windows of the hall, so that the flies entered each evening, probably attracted first by the light inside. As the phlebotomus does not tend to ascend much in flight these flies probably did not reach the second lobby, where the men afterwards slept. Although they remained in some of the rooms during the day this lobby was too bright to suit them, and there was always a free draught there.

The case which occurred on August 9th, 1915, was that of a ship's steward (pensioner, aged 43). This case occurred at another building, an old castle. His office and store were in a part of the castle suitable for the fly, that is, inside one of the old stone turrets. This building was not used by the men.

The flies were of a dull pale yellow or sand colour. Two dots of black pigment at the eyes were conspicuous when the fly was caught. The body was curved on itself in hump-backed fashion. The wings were long and narrow, and with a magnifying glass were seen to have long fine hairs along their edges. The wings (at rest) were always carried pointed backwards, upwards, and outwards from the body, diverging from each other. When an attempt was made to capture a fly it did not fly forward, but eluded capture by seeming to jump off at a right angle, alighting again about six or eight inches away in a straight line to right or left.

GENERAL DESCRIPTION OF THE CASES.

Incubation.

From the case of the private (R.M.L.I.), and from consideration of the time of onset after first noticing the bites, this appears to have been about three days.

Symptoms.

The onset is sudden; the patient's face is flushed and eyes puffy and injected as if he had been drinking heavily. He complains of dizziness, severe headache, and pains, generally in the back and region of the hip-joints. He is "tired" and feels very ill. In two of the cases there was nausea and slight vomiting at the onset. The temperature was generally about 101° at the onset, but usually reached 103° or more within ten hours. On the second day it was usually about 101°. In three of the cases it eased to normal on the evening of the second day. In the others it did not reach normal until the evening of the third day or later. After becoming normal, in several cases a rise next day to 99° or 99.4° was noted, the temperature afterwards steadying at normal.

During the night of the first day and subsequently, pain in the back, sacral region, and joints was marked, and also pain across the eyes; the eyeballs are rather tender to pressure. The patient slept little and did not sweat. By the second day the tongue was covered with a white fur, except at the tip, and the patient had no appetite. One patient had slight diarrhoea, but the others were constipated. The pulse-rate was never more than 80 in any of the cases, even when fever was high. In one case there was slight sore throat, and in another slight stupor and delirium on the third night.

After Effects.

A general feeling of fatigue and lack of energy, mental and bodily, lasted for some time. All cases showed this to some extent, but in three it was much less than in the others; these three cases were "two-day" cases. The others remained unfit for duty for a week or longer. The pains and feeling of stiffness sometimes remained. Although the patients said they felt well, they walked about shakily, and as if shrunken inside their uniforms. Their voices were noticed to be weak and rather higher pitched than normally.

Treatment.

During the attack acetyl-salicylic acid was freely given. Quinine was given to the first two cases, but discontinued when it was seen that they were not due to malaria and that quinine did not appear very effective. During the after-period mist. Fowleri was given for about a week.

In his article on phlebotomus fever at Peshawar, published in the *BRITISH MEDICAL JOURNAL* of July 31st, 1915, Captain Houston, M.B., R.A.M.C., remarks on the tendency of the infection to "cling more particularly to certain bungalows." It is interesting to note that the infection met with above was almost exclusively experienced at one particular house. Also, the detailed corre-

spondence of the symptoms noted above, with accounts published in the *BRITISH MEDICAL JOURNAL* for Indian phlebotomus, is at once striking and interesting for one without previous experience of this widely-distributed infection.

THE TEMPERATURE NECESSARY FOR THE DESTRUCTION OF LICE AND THEIR EGGS.

By A. W. BACOT,

ENTOMOLOGIST TO THE LISTER INSTITUTE.

THE points concerning temperature dealt with by Dr. Kinloch in his valuable contribution on lice, published in your issue of June 19th, 1915, were so at variance with my experience regarding the heat necessary to kill other insects that I felt impelled to test the matter for myself.

Bugs (*Cimex lectularius*) have been shown by Blacklock (1912) to die at 45° C. (113° F.); subsequent experiments by myself (1914) confirm this, and also show that fleas (*Xenopsylla cheopis*) and cockroaches (*Periplaneta americana*) are destroyed at this temperature, or a few degrees higher. Reports of experiments with mosquitos (*Stegomyia fasciata*), performed under the auspices of the Yellow Fever Commission (West Africa), now in course of publication, show that about the same degree of heat is also critical for these insects.

Living specimens of lice—*Pediculus humanis (vestimentis)*—were obtained from two separate sources and treated as a single stock, from which the active insects and nits required for the following experiments were drawn. The breeding method adopted was to line an entomological glass-bottomed box with a slip of dark-coloured cloth and cover the top with chiffon,* through which the insects were fed. This box was nested in one of a larger size for safety and carried in a pocket where the insects had the advantage of the natural heat and humidity of the body.

The method used in the tests was as follows: Pieces of cloth with eggs and active lice on them, or with one or the other only, were taken from the stock box and divided, one portion being kept as a control, the other used for the test. If active lice were present, the piece of cloth was placed in a similar box, covered with chiffon, but if the nits only were tested the cover was not used.

It was found that both the eggs and lice (in their second instar) survived a thirty minutes' trial in an incubator (dry air) at 49° C. (120.2° F.), the lice being apparently unaffected, as they subsequently completed their development. Living lice, however, were killed by thirty minutes' submersion in water at 50.2° C. (122.3° F.); at the same temperature in dry air they were paralysed and rendered incapable of other movements than a feeble motion of the legs; 28 out of 32 specimens in all stages of growth died within a few hours, but 4 (two in the second and two in the third instars) survived.

Another trial was carried out at 54° C. (129.2° F.). Thirty-five minutes after the lice were placed in the incubator they were all dead, and, up to the time of writing—over three weeks after the test—no young have emerged from the eggs submitted to this temperature, though the control box is swarming with lice in all stages of growth.

Eggs on pieces of cloth were dipped into water boiling at 98.4° C. (209.1° F.) for one minute and a half-minute respectively, and, as was to be expected, they turned opaque white, presumably owing to the coagulation of the albumin. They were, however, kept in entomological boxes and carried in the same pocket as the control eggs; these latter duly hatched, but the tested eggs shrivelled up after drying.

A further test was carried out in a water bath to ensure greater accuracy. One batch of eggs was placed in tap water in a tube, stoppered with cotton-wool, and another portion of the same batch of eggs was placed dry in a similar tube; both the tubes were submerged to within an inch of the rim in the water bath, the registered temperature of which was 55° C. (131° F.). After thirty minutes the eggs were removed and placed in separate boxes, the

control portion being placed in a third. All three boxes were kept together in the same pocket. Up to the time of writing (sixteen days after the trial) no eggs have hatched in either of the test boxes, while many active lice in various stages of growth are present in the control box.

While it is, of course, possible that eggs having a long hatching period may survive a temperature which kills those which develop more rapidly, it is so improbable that I have no hesitation in concluding that dry heat or submersion in water at 55° C. (131° F.) kills both active lice and their eggs. It follows as a consequence that considerably lower temperatures than those usually employed may be used to destroy these vermin. For the thorough sterilization of infested garments the question of penetration is all-important. It is probable that considerable economy in fuel might be effected by allowing a longer exposure at a lower temperature, while it should be practicable to use quite lightly built chambers or temporarily adapted rooms to obtain dry air temperatures of, say, 60° C. (140° F.)

REFERENCES.

Bacot, *Bull. of Ento. Research*, vol. v, pp. 111-117, September, 1914.
Blacklock, *Annals of Tropical Medicine and Parasitology*, vol. vi, pp. 415-428, December, 1912. Kinloch, *BRITISH MEDICAL JOURNAL*, June 19th, 1915, pp. 1038-1041.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

CREOSOTE IN RHEUMATISM AND GOUT.

OWING to the great rise in price of acetyl salicylic acid and sodium salicylate, I made a trial as a substitute of creosote in ½-minim doses given in the form of a mixture, as follows: Magnesium carbonate (heavy), 3j; creosote, viij min.; peppermint water to viij fl. oz. The dose for an adult is one tablespoonful every four hours, with an equal quantity of water.

If pain is severe, the addition of from five to seven minims of liquid extract of opium to each dose is valuable; and when the pain is due to acute gout, the further addition of from seven to ten grains of potassium bicarbonate is also good. In cases of arthritis, associated with great loss of lime salts, prepared chalk (ten grains), or aromatic chalk powder (ten to fifteen grains), may be added with good results.

I have found that cases of acute gout treated on these lines, combined with suitable local treatment, are rapidly relieved, the patient being able to return to his work in less time than before, whilst the interval between the attacks seems to be lengthened.

In cases of catarrh and influenza, with feverishness, it is a good plan sometimes to substitute for the peppermint water solution of acetanilide (2½ grains to the ounce), made previously with boiling water and cooled—the flavouring being made by essence of peppermint.

Cases of lumbago, sciatica, fibrositis, neuritis and arthritis of various types, seem to do quite as well with the creosote treatment as with the salicylic, and one decided advantage is the absence of severe gastric disturbance associated with the use of acetyl salicylic acid in some cases, as shown by anorexia and nausea. In fact, the creosote mixture (modified if necessary to suit individual cases) is of use in gastric and intestinal disorders, and replaces bismuth salicylate very well in some cases.

For patients unable to tolerate the smell or flavour of creosote, as well as for other cases, the substitution of sodium sulpho-carbolate gives good result.

I send these suggestions in the hope that they may help to cut down expenses in panel and dispensing practice, and to obviate the difficulty in obtaining a sufficient supply of the salicylic compounds.

ALFRED ORCHARD, M.R.C.S., L.R.C.P.Lond.

Ashby-de-la-Zouch.

DYSTOCIA DUE TO CONSTRICTED OS.

HEERMAN, in his valuable work on difficult labour, refers to dystocia due to the very rare condition of smallness of the os externum, and the following case is recorded on this account:

A young woman had suffered from procidentia uteri; the uterus had been ventro-fixed by operation, but the procidentia thereafter completely recurred. She became

* This method is fully explained in A Study of the Bionomics of the Common Rat-flea and other Species associated with Human Habitations, etc., *Journal of Hygiene*, Plague Supplement III, January 14th, 1914, p. 465.

pregnant for the first time, and on a Sunday began to have labour pains. On the following Tuesday the maternity nurse, having been sent for, called us in, because she could not find the os uteri, although the globose head appeared to be low in the pelvis.

By digital examination we found that the cervix was completely relaxed, but the os externum could not be felt; inspection through a good speculum, after some considerable search, revealed a very small opening, which would just admit a director. It was decided to administer a suppository containing $\frac{1}{4}$ grain of morphine, and await events.

After the expiration of twenty-four hours the pains were strong and regular, and the pulse was increasing in frequency; the speculum enabled a three-pronged cervical dilator to be inserted into the os; the blades were separated to their limit (1 in.), when amniotic fluid, mixed with meconium, escaped in quantity.

The os was now, with the greatest possible ease, dilated by a sweeping movement of the finger, and gave way to the full extent in a very few minutes. A dead child was naturally born, the second stage of labour occupying about half an hour.

The interesting points about the case appear to us to be: (1) In view of the unknown etiology of this condition, the question as to whether the procidentia may have unnerved the dilator mechanism of the external os, this patient having habitually worn, as it were, the cervix uteri outside her body; (2) the rarity of the condition; (3) the remarkable way in which the os adopted its normal behaviour and gave way readily when, so to speak, it was frightened by a dilator.

J. OWEN-JONES.

CHAS. E. MORRIS.

Holywell, N. Wales.

IMPROVED TECHNIQUE FOR INTRAVENOUS INJECTIONS AND REMOVAL OF BLOOD FROM VEINS.

MAY I say a word in confirmation of Dr. Alfred Codd's suggestion (JOURNAL, December 11th, 1915, p. 861) of the sphygmomanometer as an apparatus for blocking the venous flow in the upper limb when it is desired either to introduce remedies into the blood stream or to withdraw blood from the veins? I have used this method for some time and can fully endorse all that Dr. Codd says of its value. Personally, I find an instrument with an aneroid index more convenient than the more bulky mercurial register, but really neither the one nor the other is necessary if a clip is fixed on the india-rubber tubing attached to the ball pump on the side remote from the index; the amount of pressure needed can be readily regulated by the finger placed over the radial artery. Either with or without this modification it is perfectly easy to give an intravenous injection without any assistance other than that which the patient can afford, and this is one of the special merits of the method. All that is necessary is to place between the patient's thumb and index finger of the limb which is not being operated on the clip in the one case, or the junction of the india-rubber tube and the ball-pump in the other, and to instruct him to make the required manœuvre at the word of command. The release of the pressure is instantaneous—even more rapid than from a turn of the escape cock—and this without the slightest risk of dislocating the point of the needle from the interior of the vein.

As a practical point I would add that the armlet prior to inflation should not grip the arm too closely; unless this is remembered there may be, even after the airbag has been emptied, sufficient pressure to cause blood to escape from the punctured vein and so to produce an unnecessary haematoma.

London, W.

C. O. HAWTHORNE.

THE volume of *Studies from the Department of Pathology of the College of Physicians and Surgeons, Columbia University*, consists of reprints of monographs and reports representing the results of the work done in that department during the collegiate year 1913-14. The cost of reprinting and issuing the studies is defrayed by a special grant from the university itself, and no longer, as before, by an association of its alumni. The collection includes some valuable scientific reports.

Rebueluz.

TWO WAR BOOKS.

MR. J. M. ROBERTSON, M.P., in his *War and Civilization*,¹ has reverted to the fashion of the polemical letter. It proves most excellently adapted to his purpose and to his style, for, though he is widely read in German, he is too deeply steeped in Elizabethan English to be anything but direct when he wishes, and in this letter he is very direct.

The letter is addressed to Dr. Gustaf F. Steffen, Professor of Economics and Sociology, Stockholm, who three years ago was professor of the same subjects at Gothenberg. Professor Steffen, it is stated, published a book in Swedish early in 1915, which has been translated into German with the title *Krieg und Kultur*. Professor Steffen's main proposition seems to be that if of two combatant nations one can, in his opinion, lay claim to higher intellectual qualities and a more zealous cult of the State than have been developed by the other, it is justified in any way it wages, on any pretext, with that antagonist. Mr. Robertson is puzzled, as well he may be, that a work of a professed student and teacher of social science should take as an absolute premiss the inevitableness of a German effort to destroy the British Empire, while at the same time laboriously criticizing British writers who take a hostile view of Germany's action in precipitating the war. Professor Steffen's thesis seems to be somewhat as follows: Germany desires to expand at the expense of other nations, and such a right vests in those willing to exercise it. Germany will be able to exercise it when she crushes Britain and destroys its command of the seas. The rights of other States do not count. Not being able to make a successful aggression they have no right to resist, and those who cannot resist aggression have no rights at all. Germany is a great and gifted and noble-hearted nation, which has produced admirable music. Her militarism is necessary to her. What Britons ought to do is resign themselves to her inevitable supremacy.

If this be so, the attitude of the German is due to a mixture of pride and envy, and, says Mr. Robertson, "we are no more surprised at his new ethical positions than we were at those of the company of *Gelehrten* who defended the infernal wrecking of Belgium by asserting the superiority of German Kultur. We are, in fact, now incapable of being surprised at any ethical developments that may take place in a country in which the gospel of war for war's sake has become predominant. That seems to be really the fundamental issue." Mr. Robertson then proceeds to examine the allegations as to the ennobling effects of war on character, but we have said enough already to show the character of his book, and need only perhaps deal with one other matter. To many readers of our profession the most interesting part of his letter will be, we suspect, the section on the pseudo-science of national psychology, and those following in which the subject is developed. *Völker-psychologie* is the so-called science which labels the French as frivolous, the German as solid, the Russian as dreamy, the English as slow-witted, the Irish as quick-witted, the Scot as cautious, and so on. No one with any adequate knowledge of men, or even with a sense of humour, would take labels of this sort seriously, but the Germans took *Völker-psychologie* very seriously; it ministered to the frame of mind which led them to believe that the German type of civilization, the German way of thinking, power of organization, and so on, were superior to those of all other nations, and that therefore they were justified in provoking the war and the atrocities committed by themselves in Belgium, and by their allies, the Turks, in Armenia. Since, as the history of Germany itself shows, a race can change its psychology from generation to generation, nothing, scientifically speaking, is left of *Völker-psychologie* but the conception of political aggregates of human beings of a given grade of culture, swayed for the time by prevalent teachings and induced states of mind. Mr. Robertson sums up his thesis in the following sentence, with which his book concludes: "The psychology of your friends is the psychology of the braggart. The science of war they

¹ *War and Civilization: An Open Letter to a Swedish Professor*, By the Right Hon. J. M. Robertson, M.P. London: George Allen and Unwin. 1916. (Cr. 8vo, pp. 160. 2s. 6d. net.)

mastered like the other physical sciences; and they took for granted that their mere barbaric instinct, their race-pride, and their appetite to power yielded them a science of man, a *Völker-psychologie*, in which their ascendancy was deducible even as might be the operation of an explosive shell in physics. That is to say, in the most essential knowledge of all, in comprehension of the vast process of international action and reaction, of the way of working of the souls of nations and of free men, they are the most profoundly unscientific of all the civilized peoples, and by consequence they are the most barbarous. That is my thesis."

We trust that we may not, by any such defect in this notice, have given the impression that Mr. Robertson's letter is in the least dull; there is not a dull line in it, and, apart from the brilliancy of the whole argument, it contains some striking quotations from German documents, including extracts from the diary of Private Becker (in civil life professor of Latin at the Bonn Gymnasium), which contains part of the story of the inimitable Lieutenant Reinicke and how he got the Iron Cross.

A book of a very different kind is *German Culture*,² edited by the Professor of Divinity in the University of Edinburgh, and published last year. It contains a series of essays, written for the most part by Scottish professors, in which an attempt is made to appraise the value of the contribution of the Germans to knowledge, literature, art, and life. At the outset the editor is in trouble to find an English equivalent for "Kultur," and defines it as civilization viewed on its higher side, but we would add, with a special limitation to the German variety, based on the ideas of State organization in civil life and terrorism in war. The longest essay, and that which bears the title, "What science owes to German investigators," is by Professor Arthur Thomson of Aberdeen, and though it could not have been in better hands the result is not satisfying. Professor Thomson does not really grapple with the German thesis, which is, not that science owes much to German investigators, but that Germany is supreme in science, as in other departments of human activity. Professor Thomson does not subscribe to this claim to supremacy, but sets himself to prove that "it is as inaccurate as it is ungrateful to belittle the debt of science to German investigators." He gives lists of the men most distinguished in the various sciences in parallel columns, Britain, France, Germany, other countries—we should like to quarrel with him for arranging them in alphabetical order, which means nothing, instead of chronologically, which would have meant a good deal. Of the names of living men in the German column most, if not all, were among the 93 who signed the deplorable declaration by German professors and men of science. The arrogance and narrowness of mind displayed in the manifesto produced a reaction in this and other countries from an attitude of undue adulation and imitation to one severely critical. We believe the reaction to be healthy and for the good of all the nations, including the German. Germany claimed supremacy in science as it claimed hegemony in Europe and, indeed, throughout the world, including the western hemisphere. The claim to hegemony was in fact founded on the alleged supremacy. The fact is that, as Professor Thomson in the end seems to have recognized, he set himself an impossible task. He has not been content to fulfil the promise of the title of the volume by giving an account of the contributions of the Germans to scientific knowledge, but has attempted to appraise the value of German contributions, not to the details but to the inspirations of science, as compared with those of other nations. Science is more truly cosmopolitan than any other sphere of intellectual activity; it is, in fact, universal. A mathematical analysis, an observation of a physical phenomenon, or a chemical equation, can have no national or racial colour. All three will hold good not only all over the world, but throughout the whole solar system and beyond. They can only acquire a national colour when it comes to their interpretation, to their manipulation to establish or refute a hypothesis. Moreover, as Professor Thomson recognizes near the beginning of his

essay, nationality is an insufficient basis for the scientific analysis of intellectual tendencies and capabilities. The really interesting criterion which would satisfy scientific demands would be race, not nationality. Now, the nations of Europe and North America are made up of a mixture of races, and, as he admits, "perhaps the greatest difficulty is in regard to the Jewish element in the various nations, for the Jews have been extraordinarily inventive and independent, especially in certain departments, such as physiology and pathology. As we have not been able to discriminate the Jewish strain, we have probably given the various nationalities considerably more than they deserve." The general effect of what Professor Thomson has to say is that the Germans are diligent workers, have produced many eminent teachers, some of whom have founded important and prolific schools of research, and a few men who have really made new roads into regions previously closed. He does not say, as we think a strictly impartial historian might have said, that organized research in Germany has also been a sower of tares, and that far too much of the energy of research workers in other countries has had to be given to clearing away the weeds.

Though the writers of nearly all the essays are Scotsmen, the shortest, and perhaps the best, is by a Yorkshireman who has returned to his own county to serve the University of Leeds as vice-chancellor. Dr. Sadler sees very clearly both the strength and weakness of German education. Its strength lies in its extraordinary precision of aim, its high standards of intellectual attainment, its liberal encouragement of organized scientific research, and its wide diffusion and convenience of access. But it has been so framed as to place a weapon in the hands of the dominant power of the State; "the glorification of the State has included the sacrifice of the individual, and that has been conducted ruthlessly in Germany"; and, again, "it has made the minds of individuals too susceptible to current intellectual fashions and has left them deficient in the power of independent criticism and of resistance to governmental control." Is it too much to hope that one of the lessons we shall learn from the hideous misconduct of the Germans will be to avoid the downward path along which some who have been inoculated with the German virus would drive education and the professions in this country?

PRACTITIONERS' ENCYCLOPAEDIAS.

*The Practitioner's Encyclopaedia of Medical Treatment*³ is an endeavour to produce a single comprehensive volume on the subject, written by men of wide understanding and experience. It consists of three parts. The first, over 500 pages in length, deals with the methods of treatment to be adopted in the various disorders with which the practitioner is likely to meet, considered under one hundred and twenty headings and more. The second part is devoted to the agents employed in medical treatment, and extends to 270 pages. Here the reader finds compact and up-to-date accounts of the pharmacological actions of the drugs, preparations, and drug-foods that the practitioner may employ with advantage. The third part of the volume is the excellent index, 100 pages in length, in which will be found references to the pages where special information may be found on diseases he has to treat, and drugs or methods of treatment he desires to employ. The introduction is a brilliant piece of writing from the pen of Sir CLIFFORD ALLBUTT, who gives a most engaging survey of the new from the standpoint of the old in the treatment of disease. The editors are to be congratulated upon the excellence of the staff they have collected for the composition of their *Encyclopaedia*. The individual articles of which it is composed appear to reach and to maintain a high level of practical excellence, and to contain just the information for which the medical practitioner is ever on the look-out. We cannot do more than recommend the book most highly, and congratulate the editors, Dr. LANGDON BROWN and Mr. KEOGH MURPHY, upon the success of their venture.

² *German Culture. The Contribution of the Germans to Knowledge, Literature, Art, and Life.* Edited by the Rev. Professor W. P. Paterson. London: T. C. and E. C. Jack. (Cr. 8vo, pp. 384. 2s. 6d. net.)

³ *The Practitioner's Encyclopaedia of Medical Treatment.* Edited by W. Langdon Brown, M.D., F.R.C.P., and J. Keogh Murphy, M.C., F.R.C.S. With an introduction by Sir T. Clifford Allbutt, K.C.B., M.D., F.R.S. Part I: Methods of Treatment. Part II: Agents in Treatment. London: H. Frowde, and Hodder and Stoughton, 1915. (Sup. roy. 8vo, pp. 897. 35s. net.)

The appearance of this volume affords an opportunity, which we gladly take, of noticing the appearance of the second edition of *The Practitioner's Encyclopaedia of Medicine and Surgery*.⁴ This came out within a year of the issue of the first edition, a fact that may be taken to show that the book supplied a definite want. It is not too much to say that it is a work reflecting the highest credit on its editor, Mr. KEOGH MURPHY, and his many scores of contributors. Here the practitioner will find covered the whole field of medical and surgical practice in all its branches, and covered well. Medicine, surgery, anaesthetics, obstetrics, gynaecology, diseases of the special organs of sense, diseases of the skin, and special forms of treatment, all receive exhaustive consideration in turn. The articles are full of information useful to the general practitioner; where necessary, illustrations have been added to improve the clearness of the text. The book is one that should be in the hands of every practitioner of medicine, unless, indeed, he chances to own a copy of the first edition.

PRIMARY TUBERCULOSIS OF THE LUNG IN CHILDREN.

THERE has always been some dispute as to the primary focus of the tuberculosis in children with tuberculosis of the lung. According to one view the focus in the lung is the primary focus, the tuberculosis of the neighbouring peribronchial lymphatic glands being secondary. The other view maintains that the infecting tubercle bacilli lodge first, so far as the lungs are concerned, in the lymphatic glands, spreading thence in a retrograde manner into the lung and setting up a pulmonary tuberculosis that is secondary. Much work has been done on the Continent to settle this point. A book was written about it by Dr. A. GHON of Prague in 1912, and this has now been translated into English by Dr. BARTY KING.⁵ Here we have a full account of the *post-mortem* examination of the lungs and bronchial glands in 184 tuberculous Viennese infants and children. In 170 of these there was a primary focus in the lung, as Dr. Ghon's analysis shows; in 14 no focus could be detected in the lung. The final conclusion reached is that the lung was the primary focus of infection in 162 cases, and in 15 more another organ besides the lung came under the category of channel of infection; in 3 the small intestine, in 1 the right tonsil, in 1 apparently the skin was the primary focus, and in only 2 cases could no channel of infection be recognized. Good reasons exist for believing that in the young the lungs are infected with tuberculosis by inhalation, and not by the blood stream or lymphatic channels. In childhood, therefore—at any rate, so far as the city of Vienna is concerned—a primary infection of the lungs represents the usual form of tuberculous infection. The translator has done his work adequately, although such diagnoses as "meningitis Weichselbaum" (p. 52) and "pseudo-membranous angina" (p. 17) smack more of the German than the British tongue. The book should be read by pathologists and those who are especially interested in tuberculosis.

NOTES ON BOOKS.

*Whitaker's Almanack*⁶ for 1916, the forty-eighth annual volume, appears with an apology from the editor for its later publication, the delay being due, it is stated, largely to causes arising out of the war, including difficulties in the various departments of production. The general arrangement and scope of the volume has not been changed, but the navy and army lists have been curtailed owing to the scantiness of official information. On the other hand, there are two articles on the war—the one a diary bringing matters down to the end of October, 1915, and the other a consecutive history of the military and naval operations. There are several articles on national finance, including particulars of the war budget and taxes, and a table showing the amount of tax payable on incomes of

various amounts. There is a useful note on trading with the enemy, and the duties of the Public Trustee in respect of enemy property. There is also a short article on the national dye scheme which, if successful, may eventually have considerable influence on the price of synthetic drugs. Altogether the volume for this year has been brought well up to date, and is a no less indispensable desk companion than the previous issues.

The ninth edition of Drs. WARWICK and TUNSTALL's *First Aid to the Injured and Sick*,⁷ an advanced ambulance handbook, comes two years after the eighth edition. It is accompanied by a set of questions whereby the success with which the learner has perused it can be tested. The book is one of proved utility and excellence, written in concise style, full of useful information. The authors might with advantage recast the account of "Shock by Electricity," given on p. 163, emphasizing the importance of immediate recourse to artificial respiration in such cases, and the necessity for continuing therewith until either the patient has recovered or it is certain that death has taken place.

The thirteenth volume of the *Laboratory Reports of the Edinburgh Royal College of Physicians*,⁸ edited by Drs. GRAHAM BROWN and JAMES RITCHIE, contains thirty-two papers by eighteen authors. They deal with subjects in protozoology, anatomy, biological chemistry, pathology, and bacteriology, and include four articles that first appeared in the *BRITISH MEDICAL JOURNAL* during 1913 and 1914. Nothing could furnish more satisfactory evidence of the vitality of the study of medical science in Edinburgh than is afforded by the publication of this interesting and well-filled volume. Many of the articles are of the first importance, from a practical as well as a scientific point of view, and none fall below a high level of excellence. It is gratifying to find that even in the present time of stress the study of pure science is not being neglected.

Volume xlii of *St. Thomas's Hospital Reports*⁹ deals with the cases admitted during the year 1913. Its contents are divided into eleven sections, and these deal in a summary or statistical manner with the activities of the various hospital departments among both out-patients and in-patients. These reports should be of particular interest to St. Thomas's men, and are of value as showing the proportions in which the various surgical, medical, and gynaecological disorders come up for treatment in a great London hospital at the present time.

It is to be regretted, perhaps, that statistics do not always command the respect that is their due. The man in the street is apt to connect them in his mind with the paradox, "lies, d—d lies, and statistics"; the French have defined them as *le mensonge en chiffres*. As a corrective to such injustices as these may be mentioned a recent monograph on *Mortality Laws and Statistics*,¹⁰ in which the mathematical treatment of the subject is thoroughly expounded. To any one familiar with the employment of logarithms and disintegration, functions and summation, the volume should be of no little service; to less accomplished mathematicians it will remain a sealed book.

In his brief account of *Catalysis and its Industrial Applications*,¹¹ reprinted from the *Chemical World*, Mr. JOBLING gives an account of the chief of the many uses to which catalysts are put in chemical industry. The book is highly interesting reading, but demands a certain amount of chemical knowledge for its due appreciation. The notion of catalysis was introduced into chemistry by Berzelius as long ago as 1835; an exact definition of what is meant

⁴ *The Practitioner's Encyclopaedia of Medicine and Surgery in all their Branches*. Edited by J. Keogh Murphy, M.C. Cantab., F.R.C.S. Second Edition. London: H. Frowde, and Hodder and Stoughton. 1913. (Sup. roy. 8vo, pp. 1469. 35s. net.)

⁵ *The Primary Lung Focus of Tuberculosis in Children*. By Dr. A. Ghon. English authorized translation by D. Barty King, M.A., M.D. Edin., M.R.C.P. Lond. and Edin. London: J. and A. Churchill. 1916. (Roy. 8vo, pp. 196; 2 plates, 72 figures. 10s. 6d. net.)

⁶ *Whitaker's Almanack*. London: 1916. Price. 2s. 6d. net.

⁷ *First Aid to the Injured and Sick: An Advanced Ambulance Handbook*. By F. J. Warwick, B.A., M.B. Cantab., Major R.A.M.C. (T.), and A. C. Tunstall, M.D., C.M., F.R.C.S., Major R.A.M.C. (T.). Ninth edition, revised. Bristol: J. Wright and Sons, Limited, London: Simpkin, Marshall, Hamilton, Kent, and Co. 1915. (Fcap. 8vo, pp. 260; 300 figures. 1s. net.) *Questions on First Aid to the Injured and Sick*. (Fcap. 8vo, pp. 38. 6d.)

⁸ *Reports from the Laboratory of the Royal College of Physicians, Edinburgh*. Edited by J. J. Graham Brown, M.D., and J. Ritchie, M.D. Edinburgh: Oliver and Boyd. 1915. (Roy. 8vo, illustrated.)

⁹ *St. Thomas's Hospital Reports*. Vol. xlii. Edited by Dr. J. J. Perkins and Mr. C. A. Ballance. London: J. and A. Churchill. 1915. (Demy 8vo, pp. 258; 4 illustrations. 8s. 6d. net.)

¹⁰ *Mortality Laws and Statistics*. By R. Henderson. No. 15. Mathematical Monographs, edited by M. Merriman and R. S. Woodward. First edition. New York: J. Wiley and Sons, Inc.; London: Chapman and Hall, Ltd. 1915. (Med. 8vo, pp. 114. 5s. 6d. net.)

¹¹ *Catalysis and its Industrial Application*. By E. Jobling, A.R.C.Sc., B.Sc., F.C.S. Textbooks of Chemical Research and Engineering. London: J. and A. Churchill. 1916. (Cr. 8vo, pp. 128; 11 figures. 2s. 6d. net.)

by the term is no longer possible, owing to the multiplicity and variety of the catalytic reactions known and employed nowadays. A well-known definition of a catalytic agent or catalyst states that it is "a material which affects the velocity of a chemical reaction without appearing in the final products." The drying of oil paints may be quoted as a catalytic process familiar to all. Mr. Jobling writes clearly so far as the obscurity of his subject admits, and covers a great deal of ground in his excellent little book.

It would not be easy to find a more striking instance of the power of science to unravel the complexities and to illuminate the obscurities of Nature than is supplied by Mr. COULTER's account of our present knowledge of *The Evolution of Sex in Plants*.¹² The subject abounds with traps for the unwary, and, until quite recently, botanists, misled by the superficial resemblance of the processes of reproduction among plants and animals, have been lending authority to popular misinterpretations which are now being abandoned. The key of the situation is to be found in the proclivity of plant life to an alternation of sexual and asexual generations, so that there are two kinds of individuals in a life cycle—the sporophyte producing spores but not gametes, and the gametophyte producing gametes but not spores. The gametophyte or sexual plant, which began in the thallophytes near the foot of the evolutionary ladder, has in the seed plants disappeared from ordinary observation, and become a dependent internal parasite of the asexual individual or sporophyte. The evolution of the sporophyte is the reverse. It appears among the cryophytes as an inconspicuous dependent upon the gametophyte; among the seed plants it is the only individual seen. Hence the stamens and pistils of a flower contain "the spores that in germination produce male and female gametophytes." They themselves are products of the asexual spore-producing plant which has monopolized the vegetative functions of the species. Low down in the scale, among the algae, we find individuals giving off cells which on division form ciliated spores of various sizes; the largest germinate independently and form new individuals, while the smallest usually, though not invariably, pair before germination. Here, then, we have both spores and gametes produced side by side from the same individual, indistinguishable except by size and behaviour, and the history of reproduction in plants is largely that of the gradual working out of a blend of the two modes of reproduction. Mr. Coulter tells his story in a fashion which holds the reader's interest. On the part played by nutrition, environment, and metabolism in the sexual sphere he has views of his own well worthy of attention.

¹² *The Evolution of Sex in Plants*. By J. M. Coulter, Head of the Department of Botany, the University of Chicago. The University of Chicago Science Series. Chicago: The University of Chicago Press; Cambridge: The University Press. 1915. (Cr. 8vo, pp. 140; 46 figures. 4s. net.)

HYPOCHLOROUS ACID IN SURGERY.

At the request of the Medical Research Committee an investigation on antiseptics was undertaken in the department of pathology of the University of Edinburgh in January, 1915. Comparison of the different types of antiseptics led to a general conclusion embodied in the paper entitled "Experimental observations on the antiseptic action of hypochlorous acid and its application to wound treatment," published in this JOURNAL, by Drs. Lorrain Smith, Murray Drennan, Rettie, and Campbell, on July 24th, 1915, p. 129. The name "eupad" was given to the powder and that of "eusol" to the solution. At that date a considerable amount of surgical experience on the subject had already accumulated, but at a meeting summoned by the president of the Royal College of Surgeons of Edinburgh on August 10th, it was resolved to institute a more extended clinical investigation by the combined action of a number of surgeons in Edinburgh. A report by this committee has now been presented to the Medical Research Committee, and will be published, we are informed, in full in the *Journal of the Royal Army Medical Corps*.

The report points out that solutions of alkaline hypochlorites have long been used as antiseptics, but that solutions of hypochlorous acid have not been generally employed, although there is evidence that the chlorine water of the old *British Pharmacopoeia* owed its antiseptic power to the presence of hypochlorous acid in solution. The experience related in this report and that of other surgeons show that hypochlorous acid can be

applied in the treatment of septic wounds to an extent hitherto unsuspected. This general conclusion, it is pointed out, is confirmed by observers who have worked with dilute solutions of sodium hypochlorite.¹

The report contains notes on 257 cases; 199 were civil cases and the remainder military; the cases were selected to show the applicability of the method to the treatment of wounds, both recent and those in which sepsis had been established for at least a week, and in some cases for months. Of the civil cases 100 were treated in the outpatient department of the Royal Infirmary by Mr. J. M. Graham and Mr. Jardine. They consisted of lacerated and contused wounds, cuts, septic ulcers, abscesses, whitlow, etc. Upon these cases the following observations are made:

Of these, 67 never showed sepsis; 23 were septic when they were admitted to the department; 10 became septic after treatment, but experience showed that the cause of this was insufficiency in the application of eusol—for example, one dry dressing in twenty-four to seventy-two hours.

Special note was made in 10 cases in which an experimental first field dressing was applied with the view of testing its power of preventing sepsis. It consisted of a pad of gauze, in the centre of which were placed 2 grams of dry eupad. The powder was moistened by fluid discharge from the wound, or where the wound was dry a little water was poured on the dressing. It was covered only by the bandage. The purpose was to test the disinfecting power of the hypochlorous acid gas given off from the moistened eupad.

This treatment was completely successful except in three cases. In one of these the patient returned after twenty-four hours, when the wound was found clean and a eusol dry dressing was applied. The patient then absented himself for seven days, and at the end of this period he returned with the wound septic.

In the second case, a contusion of the scalp in a child 5 years of age, the wound remained clean for three days. It was then being treated with a dry dressing of eusol; this was insufficient to prevent the onset of sepsis, but it was cured by eusol soaks.

In the third case the wound became infected because the patient removed the dressing.

This subject deserves further investigation, but it can be adequately dealt with only in the field—for example, by the regimental medical staff or the field ambulance medical officers.

The military cases comprised superficial wounds, deep flesh wounds, fractures, and injuries to bone, including necrosis, and septic synovitis.

The wounds were all septic when the patients reached the hospitals. Except in a few cases of recent accidental wounds, the interval between the receipt of the wound and entry to hospital varied from one to three weeks; in many cases the interval was longer, treatment having already been carried out in another hospital.

GENERAL CONCLUSION.

The following are the conclusions drawn by the Committee:

"Further clinical experience of eusol in a great variety of cases has proved it to be a non-toxic, non-irritating, and efficient antiseptic.

"Nothing in this experience has been more striking than the fact that while it is highly destructive to bacteria, it is non-toxic to the tissues. In eusol free hypochlorous acid is the most essential ingredient, but there is present also a sufficient quantity of boric acid of calcium to give the solution a reaction alkaline to litmus. This feebly alkaline solution can be introduced into wounds or serous cavities with perfect safety. It can even be left in such cavities in quantity without any harmful effect. In lacerated and contused wounds, and in compound fractures such as are met with in military practice, it is the most efficient antiseptic we possess.

"It is most efficacious during the period of what might be termed progressive sepsis. Some surgeons have emphasized the benefit of modifying the treatment when sepsis is subsiding or has ceased. The granulations form after a period of two to three days, and rapidly cover the surface of the wound. Any tendency to superabundant growth of granulations, and consequent delay in healing, can be counteracted either by so applying the eusol that the serous discharge is reduced to a minimum and the wound is kept dry, or by discontinuing eusol and using other dressings appropriate for healing wounds. In any event the sepsis is by this stage completely under control.

"The freedom which can be exercised in the application

¹ Dakin, BRITISH MEDICAL JOURNAL, 1915, vol. ii, p. 318; Bowly, *ibid.*, p. 921.

of eusol, and the rapid action which it has in arresting the sepsis and discharge of an infected wound, led to experiments on the effect of eusol on the blood. Following on this, eusol was employed in the treatment of general septic toxæmia by intravenous injection.

"This method was first made use of by Lorrain Smith, Ritchie, and Rettie,² in a case of grave puerperal septicæmia, and the result was the recovery of the patient. They have applied the treatment in other similar conditions. In several cases toxæmia has been successfully overcome, and although such a result has not been uniformly attained, the safety of the method justifies its being applied in the diseases referred to in their preliminary communication. Intravenous injection has also been applied with success by Captain Fraser and Captain Bates in cases of acute toxæmia secondary to gas gangrene.³

"Further research is now being carried out on the development of the subject foreshadowed by these investigations."

SOME PRACTICAL CONSIDERATIONS.

Some practical considerations are developed in an appendix, which is as follows:

"Hypochlorous acid is an extremely active bleaching agent, and it should therefore not be brought into contact with coloured fabrics. Further, if cloth is kept in the solution for some time, its fibres are made brittle from destruction of the texture. Any towels, etc., which become wetted by the lotion should be forthwith rinsed in a large quantity of water to remove the acid as rapidly as may be. It also is corrosive to metals: instruments, needles, etc., should be carefully treated, else they will rust.

"The lotion is exceedingly inexpensive. The ingredients are procurable everywhere at a slight cost, and the preparation is a very simple process. At the present time especially it will be found that the introduction of eusol will effect economy in the outlay for the treatment of septic wounds—a point of considerable importance since phenol and its derivatives are becoming increasingly difficult to procure.

"Finally, it may be useful to set forth the details for preparing the antiseptic:

"Eupad powder is composed of equal weights of boric acid and bleaching powder. The boric acid is in sufficient excess to set free the hypochlorous acid in the solution. The bleaching powder should be dry and should contain 28 to 30 per cent. available chlorine.

"The solution eusol is prepared as follows: Add to 1 litre of water 25 grams of the powder; shake well; allow it to stand an hour; filter. The clear solution is eusol and contains about 5 per cent. hypochlorous acid. If the bleaching powder is old or not up to the strength given above, use a larger quantity of the powder. A rough and ready method of preparation is to add $\frac{1}{2}$ oz. of the mixed powder to 1 pint of water, stir or shake, and allow the sediment to settle. In cold weather the solution will keep its strength for three weeks. In hot summer weather it loses its strength more rapidly and should not be kept more than one week. It keeps best in bottles of coloured glass in a dark cupboard.

"For use as a lotion the solution must be warmed. This may be done by placing the bottle in a basin of hot water, or the solution may be made double strength (50 grams to the litre) and diluted with an equal volume of hot water. The double strength solution will not keep its value for more than two days."

ROYAL MEDICAL BENEVOLENT FUND.

(Concluded from page 134.)

The following is a continuation of the summary of cases relieved by the Committee at its meeting on December 14th, 1915:

L.R.C.P.Edin., aged 58, who practised at Old Kirkpatrick, N.B. Is suffering from spastic paralysis. Lives with a sister who has to earn a living by taking in boarders. Only income is that given by the Fund. Has one son, aged 19, who is studying for a dentist, and his fees being paid by the Fund and Guild. Relieved eleven times, £132. Voted £12 in twelve instalments.

Widow, aged 56, of L.S.A.Lond. who practised at Islington and died in 1905. Applicant was left with two sons, who helped to keep her. The elder one, however, died in March, 1915, and the other joined the army, and has been missing since April, 1915. She is now keeping house for two young nephews. Relieved eight times, £128. Voted £18 in twelve instalments.

Daughter, aged 47, of M.D.Edin. who practised at Southampton and died in 1886. Applicant's only income is £25 per annum from a charity and friends; she is suffering from chronic neuritis and quite unable to continue her work as a nurse. Relieved twice, £14. Voted £12 in twelve instalments.

Daughter, aged 71, of M.D.Edin. who practised in Somersetshire. Applicant lost all her income through unfortunate investments. Used to earn a little by painting, but cannot obtain any commissions at present. Relieved three times, £42. Voted £3, and referred to the Guild for report.

Widow, aged 66, of L.R.C.P.Edin. who practised at Port Carlisle and died in 1893. Applicant was left quite unprovided for, with five children, none of whom are able to help. Has recently had breast removed for cancer, and otherwise health very bad. Elected to annuity of £10 by another charity this year. Relieved twice, £24. Voted £12 in twelve instalments.

Widow, aged 60, of M.R.C.S.Eng. who practised in Liverpool and died in 1895. Applicant is a trained nurse, but in consequence of ill health is not always able to work. Relieved six times, £42. Voted £12 in twelve instalments.

Daughter, aged 57, of M.R.C.S.Eng. who practised at Hammer-smith and died in 1908. Owing to ill health the applicant is unable to obtain employment. Has no income, but receives occasional gifts of clothes and food from friends and help from the Guild. Relieved eight times, £104. Voted £18 in twelve instalments.

Widow, aged 54, of M.R.C.S.Eng. who practised in Wiltshire and Devonshire and died in 1914. Applicant was left unprovided for at husband's death, who was an annuitant of the Fund. Receives a little help from friends, but not sufficient to keep her, and unable to obtain suitable work. Relieved three times, £16. Voted £12 in twelve instalments.

Widow, aged 56, of L.S.A.Lond. who practised at Limehouse, E., and died in 1914. Applicant was left unprovided for, with two daughters now aged 21 and 23 years, but neither living with their mother, or able to help much. Applicant's health very indifferent, and only able to earn a little by needlework. Relieved ten times, £58. Voted £12 in twelve instalments.

Widow, aged 48, of M.R.C.S.Eng. who practised at Hexham and London and died in 1908. Applicant dependent on boarders, which is very precarious, and what she can obtain by needlework. Has four stepchildren and one daughter of her own who lives with her, but earns very little in consequence of bad sight. Relieved six times, £72. Voted £12 in twelve instalments, and referred to the Guild.

Daughter, aged 69, of M.R.C.S.Eng. who practised at Cheltenham and died in 1879. Applicant's health is very bad, suffering from rheumatism and defective sight. Only income two small annuities, and not quite sufficient to live upon. Relieved twice, £24. Voted £12 in twelve instalments.

Widow, aged 61, of L.R.C.P.Edin. who practised in Dublin and died in 1900. Was left unprovided for, but was helped a little by son, who has recently died; also earns a little by needlework. Health now very indifferent. Relieved three times, £30. Voted £10 in two instalments.

Daughter, aged 69, of M.R.C.S.Eng. who practised in London and died in 1875. For forty years earned her living as a governess, mainly abroad, and for the last ten years in Russia. Her life savings were in a bank in Berlin, and she has not been able to obtain any of them. Has recently been able to earn a little by sewing, but not enough to live upon. Relieved once, £12. Voted £12 in twelve instalments, and referred to the Guild.

Daughter, aged 60, of M.R.C.S.Eng. who practised in London, and died in 1877. Applicant's only certain income a small pension from another charity. Before the war she earned a little by teaching music. Health has been very unsatisfactory of late. Relieved once, £10. Voted £10.

The claims on the fund show a constant increase month by month. At the last meeting the Committee had a record number of applications, and only a balance of £42 to meet them with. Grants were made to the extent of £448. To meet this deficit the reserves, which had already been reduced by £500, will have to be further drawn upon. Unless further support is quickly forthcoming, the Committee will have no choice but to restrict its operations, and that in the face of ever-growing claims. Subscriptions may be sent to Dr. Samuel West, the Honorary Treasurer, at 11, Chandos Street, Cavendish Square, London, W.

The Royal Medical Benevolent Fund Guild appeals for gifts of secondhand clothing, boots, and shoes in good condition, also household linen. The gifts should be sent to the Secretary, Royal Medical Benevolent Fund Guild, 43, Bolsover Street, W.

THE Eugenics Record Office, which has its head quarters at Cold Spring Harbor, Long Island, New York, has begun the issue of a bimonthly bulletin, entitled *Eugenical News*, to report its work. It has trained a number of persons engaged in social and eugenical research, and the investigation of family histories is conducted under its direction by a number of other agencies.

² BRITISH MEDICAL JOURNAL, November 13th, 1915.

³ BRITISH MEDICAL JOURNAL, January 15th, 1916.

British Medical Journal.

SATURDAY, JANUARY 29TH, 1916.

DAYLIGHT TREATMENT.

M. DASTRE proposed some time ago to apply the term "biotic" to the action of light on living tissues, and the word seems convenient. The effect of sunlight on plants is one of the commonest observations in nature, as is also the fact that diffused sunlight may be more wholesome for them than direct. It is possible to have too much of a good thing. In a vague way it has been recognized that sunlight might be good for animals also. Lately we have heard a good deal about the therapeutic effect of sunlight and are and incandescent lamps; wonderful powers have been attributed to the ultra-violet rays, and the x rays have been shown to possess great virtue, so that as heat, general or local, is perhaps the oldest of all prophylactic and curative agencies, we are now using rays all the length of the spectrum, though below the ultra-violet there is a long gap, as to which, indeed, even the physicists know very little. Physiologically in both plants and animals light probably exerts its action wholly or mainly through the natural pigments chlorophyll or haemoglobin, green being almost as absorbent, and red only a little less absorbent, than black. The effects observed may be due either to direct absorption of energy, or to an excitation effect on the protoplasm. Sunlight, and ultra-violet rays unfiltered or having only undergone a small amount of filtration, are fatal to bacteria, but so thin a layer protects them that even direct sunlight ceases to be lethal when it has to travel through only 1 mm. of the tissues.

Dr. Miramond de Laroquette reported recently to the Académie de Médecine in Paris¹ the results of a long series of observations carried out from 1910 to 1914 on animals and plants in conservatories with coloured glasses. His general conclusion is that the biotic action of light is not due exclusively, or even principally, to what are commonly called the chemical rays. He found that in spite of the fact that the chemical effect of blue light is nearly equal to that of white light, blue has very slight biotic effect, much less than yellow and a little less than red. All parts of the solar spectrum, the infra-red light and the ultra-violet, appeared to benefit plants, but the most active was light, and of the light rays the most active was yellow, which has little chemical action, but is highly illuminating and heating. Long exposure to strong sunlight has an irritating effect on tissues, and produces erythema in man; if intense and prolonged it may cause dehydration and coagulation of the protoplasm of cells, and there is reason to conclude that these effects are mainly due to the chemical rays. The bactericidal action of light is only to be observed when the bacteria are in layers very thin or easily dried. Cultivations of the colon and paratyphoid bacilli, and of streptococci and staphylococci in liquid mediums resisted long and strong irradiation; some lived in Dr. Laroquette's conservatories for as long as six months, even when under ordinary white colourless glass, which only cuts off a very small part of the ultra-violet. If more than 1 mm. deep in the tissues, bacteria are protected, for irradiation

strong enough to kill them destroys the cells also. Dr. Laroquette concludes that any therapeutic results are primarily biotic, and that any destruction of bacteria is secondary, due to the stimulation of the defensive powers of the tissues.

Nevertheless he is a strong advocate of treatment of the wounded by daylight; after exposure for a few days to sunlight suppuration diminishes, wounds assume a healthy aspect, and cicatrization proceeds rapidly. That the treatment is not more generally adopted is due, he thinks, to certain misapprehensions. One mistake made is to expose patients to direct sunlight over too large a surface and for too long a time. Another mistake is to suppose that direct sunlight is necessary at all. He argues that it is not, and asserts that a large number of experiments and clinical observations have convinced him that light filtered through ordinary window glass does not lose its biotic powers, that it may still irritate the tissues, and also exercise some part of the small bactericidal power possessed by the unfiltered sunlight. He holds that exposure to diffused light, though it acts less rapidly, is not less effective if sufficiently prolonged. The light treatment of wounds should, he considers, be carried out in large, well-ventilated conservatories, with walls and roofs of ordinary glass. The temperature should be maintained at about 27° C. (80° F.), and at that temperature large surfaces of the body can be exposed without inconvenience. The light can be regulated by screens or blinds, as in a photographer's studio, or if the sun is shining brightly, by yellow screens. When the light is bad it can be concentrated on the wounds by reflectors or lenses. Dr. Laroquette declares that the results he got at the Maillot Hospital, Algiers, among the wounded from Morocco in 1912 to 1914 were most satisfactory, and that many surgeons who, during last summer, used heliotherapy in France are convinced of its efficacy.

As there seem still to be many who are sceptical as to the injurious effect of direct sunlight when a large surface of the body is exposed to it, we may take the opportunity of mentioning a paper by C. Römer,² in which he condemns his countrymen for their indiscriminate resort, especially when suffering from nervous debility, to sun baths. The public, he says, use them irrationally and immoderately, owing to the growth of a superstition that the sun possesses the primary sources of healing for every evil. In special sun and air institutions in every large town persons of every age and with every kind of disease expose themselves by the hour to the direct rays of the sun. To one such institute in Hamburg as many as 18,000 may go on a Sunday in the summer. The chief results of the exposure of the whole body to the sun are a rise of temperature and increase in metabolism. Though in small doses and under certain conditions this treatment may, he thinks, possibly be beneficial, yet, indulged in as a fad, it is harmful, particularly for the subjects of nervous instability. Its devotees are mainly recruited from among the tired, flabby, anaemic workers in offices and factories, where the day is spent in dark and unhealthy surroundings. To make up for these drawbacks, the workers take overdoses of sunlight when they can, with the result that they become exhausted, irritable, sleepless, and unfit for work. Not infrequently by the end of the summer they have to go into hospital. Römer mentions the case of one lad, aged 16, who had indulged in a sun bath on July 19th for several hours without any covering to his head. Afterwards he suffered from

¹ Bull., T. lxxiv, p. 549.

² Deut. med. Woch., July 8th, 1915.

severe headache; on admission to hospital on July 24th, he showed nothing abnormal, apart from marked pigmentation and irritation of the skin. There was no fever or cervical rigidity, and the pulse was slow. Lumbar puncture, which yielded clear, sterile fluid under a pressure of 320 mm. of water, was instantly followed by cessation of the headache, and the patient was discharged on July 28th perfectly well. In another case a lad, aged 16, had spent the whole day of July 12th in the sun without any covering to the head. The headache which followed still persisted on July 20th, when he was admitted to hospital with the diagnosis of meningitis. The temperature was 38° C., and the pulse was soft and rapid; Kernig's sign was positive, and cervical rigidity was demonstrable. There was no mental disturbance, and examination of the eyes and urine was negative. Lumbar puncture yielded clear, sterile fluid under a pressure of 280 mm. of water. The pain diminished at once, and next day the fever, cervical rigidity, and Kernig's sign had disappeared. On July 23rd the pressure of the cerebro-spinal fluid had fallen to 150, and on July 27th to 110 mm. of water.

CEREBRO-SPINAL FEVER.

A NUMBER of interesting conclusions are reached by the authors¹ of a recent paper on 161 cases of cerebro-spinal fever treated during 1915 at a hospital located, apparently, somewhere in France. Dealing first with the problem of carriers of the meningococcus, they argue that the spread of the infection is not necessarily caused by the immediate contacts. They do not think that the disease can properly be called contagious, because no case occurred and no carriers were found among the nurses, nursing orderlies, or medical officers in attendance on the patients, though quite a number of carriers were detected among units in the field. The diagnosis is often difficult early in the disease, except in the very acute cases. Cerebro-spinal fever is differentiated from influenza by the relatively slow pulse of high tension, the frequent hyperaemia of the ciliary region of the sclerotic, the dry and dirty tongue, the high leucocytosis, and generally also by the changes in the cerebro-spinal fluid, that characterize cerebro-spinal fever. In enteric fever the onset is less abrupt, there is a leucopenia, and the evidence obtained by lumbar puncture is conclusive. In two cases acute mania closely simulated cerebro-spinal fever; the diagnosis here was made by lumbar puncture. In fact, the authors lay great stress on lumbar puncture in the diagnosis of cerebro-spinal fever; it was performed in 160 cases, and showed the presence of many polymorphonuclear leucocytes in the fluid withdrawn in every case, with intracellular diplococci in 117 instances; both small and large lymphocytes were also increased in every instance. The occurrence of ocular signs and symptoms—such as blepharitis, purulent conjunctivitis, keratitis, optic neuritis, ptosis, squint, and nystagmus—is said to be of bad prognostic import, as is also loss of control over the sphincters if it is more than transient. Among the complications noted were acute nephritis in nine cases, suppurative arthritis of the knee in two patients (cured by repeated aspiration), hyperpyrexia in two fatal cases, and acute or chronic hydrocephalus was seen very frequently. As for treatment, the patients were nursed in a large and airy ward, and were put out on a balcony in the open air whenever possible. Frequent lumbar puncture

after the administration of a little pure chloroform was the main line of treatment. This was repeated daily for four or five days, and then every second day for about a week unless the patient was convalescent, when the puncture was discontinued, or seriously ill, when it was repeated daily. With this treatment alone 21 out of 43 patients died. Other patients received this treatment combined with vaccine or serum treatment; except in the case of the living vaccine (29 cases, 13 deaths) the mortality here was higher. This uniformly high mortality is ascribed to the fact that many of the patients did not come under treatment till the fifth or even the eighth day of the disease. In four cases trephining for decompression was performed, in one with a successful result. One patient recovered after the fever had lasted 141 days, and another after 96 days of pyrexia. One patient—a young woman who had been visiting her husband lying ill with meningitis for some weeks—had a hysterical attack closely simulating cerebro-spinal meningitis, with headache, a temperature of 101° F. and a pulse of 68, retraction of the head and stiffness of the neck, photophobia, erythematous blotches on the abdomen, ankle clonus and exaggerated knee-jerks; a flexor plantar response, and a doubtful Kernig's sign. Lumbar puncture was performed thrice, and yielded a normal cerebro-spinal fluid on each occasion. Recovery was rapid. The authors remark that no satisfactory method for the speedy isolation or differentiation of the meningococcus has yet been devised, a fact that should not be overlooked when the diagnosis of carriers of the meningococcus is being considered with a view to checking the spread of the disease.

A novel aspect of its etiology is introduced by Dr. Hort, in a paper printed on another page of this issue. He does not believe that Weichselbaum's meningococcus is the causal agent of cerebro-spinal fever. His experiments lead him to think that the true infecting agent is a very minute organism capable of passage through the pores of a Chamberland F filter; he holds that the meningococcus itself is incapable of reproducing the disease, but is constantly associated with this filterable virus that does cause it, and has hitherto been overlooked by investigators of the pathogenesis of this form of meningitis. That some connexion exists between the new virus and the old meningococcus with which we are all familiar seems a natural conclusion. Possibly, as Dr. Hort suggests, the two are but different phases in the life-history of a single causal micro-organism. The point is one that can safely be left to the future for elucidation. Dr. Hort's paper and his views on the etiology of cerebro-spinal meningitis will be read by bacteriologists with interest, if not, perhaps, with immediate acquiescence and approval. The many points he deals with are naturally in need of further investigation and confirmation, on the lines pointed out by himself, before they can expect to command general acceptance.

THE INSURANCE COMMISSIONERS AND MEDICAL RECRUITING.

THE circular issued by the Insurance Commissioners for England and Wales to Insurance Committees with regard to medical recruiting (see SUPPLEMENT, January 8th, p. 5) is being construed, it would appear, by some Insurance Committees in such a literal way that there is a danger that quite unnecessary obstacles may be put in the way of panel practitioners joining the army. Though the Commissioners expressed their anxiety that nothing of the sort should

¹ Lieutenant-Colonel E. A. Bourke, Captain R. G. Abrahams, and Major S. Rowland: *Journal of the Royal Army Medical Corps*, London, 1915, xxv, 633.

occur, their circular, we fear it must be admitted, lends itself to the interpretation that the convenience of the insured population must at present take preference over the requirements of the army so far as medical service is concerned. That this interpretation has been put on it by more than one Insurance Committee appears from their acts, and the work of obtaining medical recruits by the medical war committees, which was already hampered quite enough by the private difficulties of practitioners, will be made far more difficult if all the suggestions of the Commissioners are to be carried out in the literal spirit which these committees show. The Commissioners reminded Insurance Committees that the panel doctors are under contractual liabilities, and a hint is given that for the present, at all events, the contracts must be strictly enforced. An example showing the interpretation which may be put on the circular is afforded by a letter addressed by the Insurance Committee of the County of Middlesex to the panel practitioners of its area. The Committee seems to agree with Mr. Lambert, M.P., who "does not see that the war makes any difference." It asks the recipient to "remember that your agreement provides that all treatment shall be given by you personally, except where you are prevented by urgency of other professional duties, temporary absence from home, or other reasonable cause, and that you will to the best of your ability provide that when you are so prevented some other practitioner will give attendance as deputy on your behalf." After this the Committee goes on to say that "before releasing a practitioner for military service it must be satisfied (1) that there is no likelihood that the absence of the doctor in question will render the panel service no longer efficient, either generally or in any particular locality, due regard being had to the seasonal variation of sickness incidence; and (2) that satisfactory arrangements are made for carrying out the absentee's duties."

It is not too much to say that in all probability the mere mention of these guarantees will already have deterred more than one panel practitioner from offering his services to the army, and if the terms of the letter are enforced in their obvious sense it will put almost insuperable difficulties in the way of the medical war committee or committees for the Middlesex area.

Practitioners throughout the country have made the best arrangements they could to safeguard the practices of those practitioners who are absent on war service. This was entirely an act of free will. As a general rule the arrangements involve that the practitioners who remain at home should undertake to do a vast amount of additional work for half the ordinary fees, the other half going to the absentees. So long as this was a purely voluntary arrangement it would have worked well, but now the Commissioners make a pronouncement which is interpreted to mean that Insurance Committees are set up as judges as to whether these voluntary arrangements are satisfactory. In other words, since it is practically impossible at present on any large scale to obtain locumtenents, Insurance Committees, believing that they are acting in accordance with the instructions of the Insurance Commissioners, are, by demanding the stringent guarantees mentioned above from any panel practitioner who would be willing to join the army, not only appropriating as a right what was intended as an act of grace, but are assuming a right to criticize a free gift. If the Commissioners had stopped at suggesting friendly conferences between local medical war committees, panel committees, and insurance com-

mittees, there is little doubt that efficient arrangements for continuing to provide an adequate medical service for the insured would have been made; but when they go further and suggest measures which can be interpreted as justifying the blunt letter of the Middlesex Insurance Committee, reminding panel practitioners that they must carry out their contract to the letter, and demanding that a would-be recruit must give guarantees against such contingencies as seasonal variation of sickness incidence, they are, no doubt unwittingly, putting serious hindrances in the way of medical recruiting and unnecessarily hampering the work of the medical war committees.

It might have been supposed that, having seen the hideous iniquities to which it has led, the exponents of State socialism would have been ready to show some degree of modesty in using the letter of the law to enforce their doctrines on an unwilling people. It seems that this was too sanguine an expectation. To them we commend the perusal and reperusal of the book by the Right Hon. J. M. Robertson reviewed in another column. They can hardly flatter themselves that he is a prejudiced witness.

INTRAVENOUS INJECTION OF HYPOCHLOROUS ACID IN THE TREATMENT OF TOXAEMIA.

THE four cases¹ in which the intravenous injection of hypochlorous acid in severe toxæmia has been followed by very remarkable improvement will direct attention to this method. It is important, therefore, to point out that among the problems which are raised by these investigations there is one which should receive the special attention of observers—namely, the composition of the solution which contains the antiseptic. The solution *eusol* contains several ingredients, the chief of which are hypochlorous acid and calcium bichlorate. According to the original statement of Lorrain Smith, Drennan, Rettie, and Campbell,² the solution of *eusol* contains hypochlorous acid 0.54 per cent. and calcium bichlorate 1.28 per cent., with a small quantity (0.17 per cent.) of calcium chloride. The hypochlorous acid is estimated by titration with N/10 arsenious acid. In virtue of the balance which is established in this solution the reaction is faintly alkaline, while the hypochlorous acid is to a large extent free. It has been shown by experiment that considerable quantities of this solution can be injected into the veins of normal animals with impunity. On the other hand, a solution of pure hypochlorous acid cannot be injected, as it coagulates the blood; nor can a dilute solution of sodium hypochlorite be injected, since it causes hæmolysis.³ Further investigations will show the extent to which the intravenous injection of *eusol* can be applied in the treatment of toxæmia in the human subject. It will be noted that in all the cases the solution actually injected was made up in normal saline. The solution employed by Captains Fraser and Bates consisted of *eusol* containing 0.5 per cent. of hypochlorous acid to which was added 8.5 grams of sodium chloride per litre and the solution was carefully standardized before injection. In two cases (C and D) the quantity injected intravenously was 40 c.cm.; in a third (E) 70 c.cm. In the case of puerperal fever reported by Lorrain Smith, Ritchie, and Rettie the quantity was 100 c.cm. of *eusol* made up in normal saline and the temperature 98.4° F. It appears that the rate of injection (10 c.cm. per minute) is an important point.

THE NEW LIGHTING RESTRICTIONS.

THE difficulties which it is feared the new lighting restrictions will create for medical motorists were brought to notice in the House of Commons by Mr. Perkins on

¹ Lorrain Smith, Ritchie, and Rettie, *JOURNAL*, November 13th, 1915, p. 715; Fraser and Bates, *JOURNAL*, January 15th, 1916, p. 85.

² *JOURNAL*, July 24th, 1915, p. 129.

³ Dakin, *BRITISH MEDICAL JOURNAL*, August 28th, 1915, p. 319.

January 19th, when he asked whether, in view of the difficulties of medical men living in country districts who frequently had to drive themselves long distances after dark to visit patients, the desirability of exempting their cars from the new lighting order would be considered. The Home Secretary (Mr. Herbert Samuel), in his reply, expressed the opinion that the effect of the order had been misunderstood in some quarters. The use of headlights was prohibited in certain areas, but the limits of size and power for side-lights had been fixed so high as to allow a good driving light on country roads at night. The order, he added, was settled in consultation with expert motorists, and had been generally accepted. We understand that experiments have shown that if the side-lamps are placed above the mudguards and fairly well forward the lighting of the road is much improved; the Home Office takes no objection to this position so long as the lamps show the full width of the car. In its reply to the letter addressed to it by the British Medical Association on December 31st, 1915 (SUPPLEMENT, January 15th, p. 10), it pointed out that in some cases motorists might be unable to obtain the full illumination the new order allows with the lamps they already possess, but added that, on the whole, a better driving light was permitted under the new order than under the orders previously in force. The authorities lay great stress upon the necessity of so altering the side-lamps as to obtain from them the full amount of light allowed by the order, and it is said that much of the dissatisfaction shown by motorists in regard to the new restrictions will disappear if careful attention is given to this detail. Some of the manufacturers are selling at quite a cheap rate a fitting which allows oil lamps to be converted into acetylene lamps.

"THE CRIMES OF THE GERMAN ARMY."

The special illustrated supplement of the *Field*, entitled, "The Crimes of the German Army" (1s.), will fulfil the high expectations of those who possess the supplement it published last February. France, her ambassador in this country tells in a letter of approval, desires that the truth should be universally known. That is all, and it is enough; not Raemaekers' green devil could devise any forms of cruel, cowardly, and bestial crime not committed by the Germans and their allies during the last eighteen months. The crimes are related in this publication from official documents compiled from the statements of survivors, and the official notices, or unguarded statements in diaries never meant to be published, of the criminals. These are some of the headings: "Crimes against women and children," "outrages against civilians," "burning, loot, and pillage," "massacres," "the use of civilians as screens," "killing or mutilating the wounded," "outrages on the Red Cross." It is well to have these deeds brought together in an accessible form, because already the Germans and their hirelings are beginning to deny them, not because they are not true, but because, according to a crazy apriorism, they cannot be true of a nation some of the members of which in the past have written beautiful music. The publication is copiously illustrated by photographs of destruction and cruelty, and of the wooden idols the Germans have erected, together with studio portraits of the gods in uniform. It contains also reproductions of pictures published in German newspapers, including a self-revealing drawing of the panic supposed to have occurred among the women and children on the quays (!) of Scarborough. It was a happy idea to scatter through the articles reproductions of the woodcuts of Holbein's "Dance of Death," engraved early in the sixteenth century. The historian of the future will give his verdict from the official documents, which are accumulating rapidly, but the appeal which Mr. T. A. Cook makes in his preface is to the people of to-day, that, whether belligerent or neutral, there shall be recalled to them the indisputable facts they have read piecemeal in the daily papers. The facts are damning, yet they are

excused by German men of science such, to name only a few whose names are best known, as Emil von Behring (Marburg), V. Czerny (Heidelberg), W. Erb (Heidelberg), Ernst Haeckel (Jena), Gustav Schwalbe (Strassburg), Wilhelm Wundt (Leipzig), Rudolf Kobert (Rostock), and August Bier (Berlin).

PASSPORT DECLARATIONS.

THE proceedings taken against Dr. A. H. Vassie, of West Hampstead, to which we referred on p. 945 of our issue of December 25th, 1915, concluded at the Old Bailey on January 14th in his acquittal of the charge of making a false declaration for the purpose of enabling a person to obtain a passport. As is probably well known, the Foreign Office requires all applications for passports to be accompanied by a form of recommendation signed by a British subject to the effect that the applicant is to his "personal knowledge a fit and proper person to receive a passport." Apparently, on August 3rd, 1914, a patient whom Dr. Vassie had known for many years introduced his niece, with the request that the doctor should sign her recommendation for a passport. Dr. Vassie ascertained from her that she was anxious to go to Germany in order to nurse her mother, who, she said, was seriously ill, and after putting a series of questions, all of which were answered willingly and satisfactorily, Dr. Vassie signed the form of recommendation, and a passport was issued by the Foreign Office on the following day. In July of last year the woman was arrested on a charge under the defence of the realm regulations. Inquiries were made of Dr. Vassie, as the person who had recommended her for a passport, with the result that proceedings were taken against him. The question which had to be decided by the jury at the Old Bailey was, had Dr. Vassie any "personal knowledge" as to the fitness of the applicant to receive a passport? The jury found that he had, and, as we have already mentioned, acquitted the doctor. The case is of some little interest to members of the medical profession, many of whom must frequently be asked to sign recommendations for passports, and the question which at once arises is, what extent of personal knowledge must a man have before he signs such a recommendation? In Dr. Vassie's case the jury considered that his seeing the applicant and putting a series of questions was sufficient; and although the finding of a jury in one case is no authority affecting the decision of another, even if the facts are identical, yet it is probably safe to assume that ordinarily no jury would convict where such precautions had been taken. The question is, after all, rather one of ordinary care and diligence than of anything else. A person who signs a passport recommendation must realize that by so doing he is becoming a sort of guarantor for the applicant, and that he is enabling him or her to obtain a passport which he or she could not otherwise have. He must therefore satisfy himself, so far as he is able as an ordinarily careful and prudent man, that the applicant he proposes to recommend is a fit and proper person to receive a passport, and unless he is satisfied he should refuse to sign.

CREMATION IN THE UNITED STATES.

THE Cremation Association of America held its third annual meeting at Buffalo, New York, on August 26th and 27th, 1915, when Dr. Hugo Erichsen of Detroit, the President, delivered an address in which he said that cremation had received the formal approval of the American Medical and American Public Health Associations. He urged the adoption of a vigorous propaganda to enlist the practical sympathy of persons having weight in their respective communities, and suggested the raising of a fund for that purpose by means of legacies of 1 per cent. on the estates of deceased members. He called on the medical press of America to pay more attention to cremation, saying that as a physician he was deeply ashamed of the fact that they could

not point to a single medical periodical in the States that could compare in this respect with the *BRITISH MEDICAL JOURNAL*, which had championed incineration for years. The American Cremation Association had, he said, grown steadily. The growth in 1890-94, as compared with 1885-89, was 25 per cent.; in 1895-1900, 39 per cent.; in 1900-4, 44 per cent.; and in 1905-9, 63 per cent. Mr. S. Frank Balcom, of Indianapolis, said that before 1884 there had been but a score of incinerations in America. Between that year and 1888 Le Moynes crematorium had been followed by structures in New York, Buffalo, Pittsburgh, Philadelphia, Detroit, Los Angeles, Cincinnati, and St. Louis. About that time cremation societies were formed, and a good many members of the medical profession became interested in the movement. A table of statistics, presented by Mr. Samson to the Indianapolis Convention, showed that eleven of the fifty-three crematories in the States were in California, and that about one third of all incinerations in the States had been carried out in California. This had been due to what might be called expediency. Many persons who failed to regain their health in that State and died there were incinerated, and the ashes returned to their former homes. Mr. Balcom suggested the formation of an incorporated body of the Cremation Association of America, with a central office in Washington from which propagandist literature could be distributed. Certificates might be issued, good for incineration at any crematory in America, on payment of, say, from £10 to £50, the ashes to be deposited under perpetual care if desired in a national columbarium. A resolution endorsing a petition addressed by Dr. Stefan Ulbrich, a Roman Catholic physician of Reichenberg, Austria, to the Congregation of the Inquisition at Rome, was passed. That petition asked the Holy See to rescind the decrees forbidding incineration to members of that Church. These decrees were based on the premiss that cremation was a tenet of Freemasonry, but it was pointed out that cremation was not a dogma of the Masonic order. Copies of the resolution were sent to Archbishop John Bonzano, Apostolic Delegate to the United States. One of the most interesting communications made to the meeting was a paper by Mr. J. Franklin Meehan on the planting and care of crematory grounds. Dr. Erichsen was re-elected president, and he was also chosen to be a delegate of the association to the next International Cremation Congress, which is to meet "shortly after the war."

WINTER CLIMATE OF THE EASTERN MEDITERRANEAN.

In his presidential address to the Royal Meteorological Society Major H. G. Lyon, F.R.S., said that the returns from the large number of meteorological stations which had been in operation during the last fifteen to twenty years gave much accurate and detailed information as to the conditions prevailing at different seasons of the year in the Eastern Mediterranean. The conditions vary from the true continental climate of the Balkans, with low winter temperatures and moderate rainfall at all seasons, to the Mediterranean climate of Southern Greece and the Levant, with a hot summer and a strongly-marked rainy season in winter, characters which prevail in a more intense form in Egypt. Major Lyon said that the temperature in the Balkan region in winter was frequently very low, descending often below zero Fahrenheit. Frost occurred often in inland Greece and occasionally throughout the Eastern Mediterranean. The most severe weather occurred when anticyclonic conditions with clear skies and light winds prevailed in the Balkans; the air then fell to a very low temperature, and as a result streamed off the highland down into the low-lying Aegean Sea as a strong, cold northerly wind, which of course reached gale force. January was the coldest month, but February differed little from it, and the first

marked departure from winter conditions occurred in March. During the winter months the waters of the Mediterranean were from 5° F. to 10° F. warmer than the coasts, where, therefore, the winter climate was much milder than inland, but in March the difference became very small and disappeared at many places as the land was growing rapidly warmer. In winter rainfall was heaviest on the western shores of Greece and Syria, and markedly less on the eastern coast. The Balkan rainfall had a maximum in November, and afterwards decreased slightly, but was not heavy at any time; rain fell during the passage of depressions from the Mediterranean, which passed from west to east, bringing cloudy mild weather, rain and strong winds. Rainfall decreased southward, and in lower Egypt the amount was insignificant. The normal air circulation of the Eastern Mediterranean was simple in its general outlines. Northerly winds blew over Greece and the Aegean Sea, becoming north-westerly in the Mediterranean and westerly on the Syrian Coast. In Egypt northerly winds prevailed. This arrangement, which followed from the mean distribution of pressure in winter, was, however, greatly modified by the frequent passage of depressions along the Mediterranean from west to east. Many passed over the Balkans to the Black Sea and Southern Russia, causing strong southerly gales in the Aegean Sea, with rain and mild, unsettled weather for two or three days. Others crossed Greece and the Aegean, where, as they were approaching, strong southerly winds blew, which usually veered to the north-west on the following day. Others, again, passed to the south of Greece, sometimes skirting the Egyptian coast, and caused south-westerly gales and stormy weather in the Eastern Mediterranean and Levant, and northerly winds in the Aegean Sea. Northerly winds, which caused rough sea in the Aegean Sea during the winter months, were more frequent than southerly winds in the proportion of 2.5 to 1; and since many of these northerly winds were due to cold air pouring down from the Balkan highlands, the northerly winds might continue for a week at a time, while southerly gales rarely lasted for more than two days, unless a second depression was closely following the first.

We regret to announce the death, on January 25th, of Emeritus Professor John Wyllie. Dr. Wyllie was appointed professor of medicine in the University of Edinburgh in 1900, in succession to Sir Thomas Grainger Stewart, and retired owing to ill health in November, 1914. We hope to publish a biographical notice in an early issue.

The Council of the British Medical Association, at its meeting on January 26th, the first held since July, 1915, expressed its approval of the work done by the Central Medical War Committee appointed at the instance of the Representative Meeting, 1915, and of the measures it had taken and was taking to organize the medical profession in England and Wales to do its share in meeting the demands of the army, while safeguarding the interests of the public and of individual members of the medical profession as fully as the exigencies of the supreme struggle in which the British Empire is engaged permit.

The Financial Secretary to the Treasury (Mr. Montagu) informed a deputation representing the approved societies, on January 26th, that it had been decided to appoint an expert committee on the questions of the simplification and the finance of the Insurance Act.

The *Muenchener medizinische Wochenschrift* states that the reports circulated recently as to the serious state of the health of the German Emperor were greatly exaggerated. It adds that the physical fatigue and intense mental anxiety the Emperor has undergone since the war began has rendered him less able to resist minor illnesses.

Medical Notes in Parliament.

Central Medical War Committee.

MR. LYNCH on January 20th asked the Prime Minister whether he would take steps "to reorganize and recall to normal action the Statutory Advisory Board of the Army Medical Services, that it may resume regular meetings in its consultative capacity with a view to aiding the Director-General to a better utilization of the skill and experience which has been offered by medical men to the War Office, and to a more appropriate distribution of medical aid both for meeting the necessities of the military situation and for the needs of the civilian population." Mr. Tennant, in his reply, after pointing out that the Advisory Board was not statutory, referred Mr. Lynch to the answer given to Mr. Shirley Benn on November 25th (*BRITISH MEDICAL JOURNAL*, December 4th, p. 832); and to his written reply to the same member on January 12th (published in full in the *JOURNAL* of January 22nd, p. 140), where the matter had been dealt with at great length. "I may, however," Mr. Tennant continued, "add that, thanks to the patriotism of the medical profession, there is no present anxiety regarding the supply of doctors for the army, and the action of the Central Medical War Committee, with which the Director-General of the Army Medical Service is in touch, will be to carefully guard the interests of the civil population in this matter, the claims of whom have not been and will not be disregarded."

Mr. Lynch also asked whether during the last three years £600 had been paid yearly to each paid member of the Army Medical Advisory Board, and whether, seeing that since the beginning of the war the Board had held no meetings, the advisability of eliminating this expense would be considered if the Government desired that no formal meetings of that Board should be held. Mr. Tennant again replied by referring to the answers he had given to Mr. Shirley Benn on November 22nd and 25th (*JOURNAL*, December 4th, 1915, p. 832).

The Military Service Bill.

The Committee stage of the Military Service (No. 2) Bill was concluded in the House of Commons on January 20th. After the clauses of the bill had been disposed of considerable discussion took place on the first schedule, which enumerated the exceptions from the obligation of unmarried men to serve. The persons mentioned in the schedule as finally adopted are—

Exceptions.

1. Men resident in Great Britain for the purpose only of their education or for some other special purpose.
2. Members of His Majesty's regular or reserve forces, or of the forces raised by the Government of His Majesty's Dominions, and members of the Territorial Force liable for foreign service or who are, in the opinion of the Army Council, not suited for foreign service.
3. Men serving in the Navy, or the Royal Marines, or who, though not serving in the Navy or Royal Marines, are recommended for exception by the Admiralty.
4. Men in holy orders or regular ministers of any religious denomination.
5. Men who have left or been discharged from the naval or military service of the Crown in consequence of disablement or ill health (including officers who have ceased to hold a commission in consequence of disablement or ill health), and, subject to any provision which may hereafter be made by Parliament, men who have been discharged from the naval or military service of the Crown on the termination of their period of service.
6. Men who hold a certificate of exemption under this Act for the time being in force (other than a certificate of exemption from combatant duties only), or who have offered themselves for enlistment and been rejected since the fourteenth day of August, nineteen hundred and fifteen.

A protest was made against the inclusion of members of the Territorial Force who had not accepted liability for foreign service. Mr. Tennant said that the only men in the Territorial Force who would come under the bill would be those who were medically and militarily fit for foreign service, and of the vast number of men who had joined the Territorial Force at the outbreak of war, only a very small number would come in that category, for the Territorial Force had rallied splendidly to the call of the country. They would have the period up to the appointed

day to take upon themselves the foreign service obligation, and the Army Council undertook that, whenever possible, a man would be posted to a unit of his own corps, unless he desired otherwise. Men who were unmarried and fit for foreign service, but declined to take that obligation, would be discharged from the Territorial Force and would come into the general pool under the bill. Later in the discussion, Mr. Bonar Law added that the Army Council would have the right to keep these men in the Territorial Force without the necessity of going before a tribunal if the Council considered they were not suited for foreign service. The proposal to exempt members of the Territorial Force not liable for foreign service was rejected by 259 to 27. Colonel Yate proposed to omit Clause 4 of the schedule, which exempted ministers of religion, but the proposal was withdrawn after an appeal from Mr. Long on the ground that there was a shortage of such ministers at home.

Medical Men.

Mr. King moved to insert in the schedule the following words: "Men who at the time of the passing of this Act were fully qualified medical practitioners, or registered dentists, or students at any hospital." Mr. Raffan, in supporting the proposal, suggested that unregistered dentists should also be included. In the discussion Mr. Glyn-Jones said that every member of a profession needed in this country would be certain to get exemption under Clause 2, Subsection (1) (a):

2. (1) An application may be made at any time before the appointed date to the local tribunal established under this Act by or in respect of any man for a certificate of exemption from the provisions of this Act:

(a) On the ground that it is expedient in the national interests that he should, instead of being employed in military service, be engaged in other works in which he is habitually engaged or in which he wishes to be engaged.

The tribunal could exempt a person on the ground that it was expedient in the national interest that instead of being employed in military service he should be engaged in other work. Knowing the needs of a district and knowing that the medical profession was short, the tribunal would decide that it was expedient in the national interest that the applicant should be permitted to continue the work of his practice. He would certainly object to the exemption of unregistered dentists. Mr. Long admitted that those engaged in the administration of the public health laws and in watching the general condition of the health of the country, and making themselves acquainted with the supply of medical men and the calls made upon them, must view the present situation with grave anxiety. Only those who were constantly face to face with the official facts realized how tremendous had been the labours thrown on medical men since the outbreak of the war, and how unselfishly and heroically they had devoted themselves to their work. He knew men working day and night, many of them for no return, many of them for very little monetary return. The matter could not be viewed without anxiety and perhaps some misgiving, but, as Mr. Glyn-Jones had pointed out, there were two methods by which those who came within the purview of the bill might be released from service—the exemptions and the exceptions. Mr. Long proceeded to argue that it would be dangerous to include in the automatic exceptions all medical men and dentists, but it was obvious that all who belonged to those professions and whose services were required should, where the interests of the country demanded it, be retained in their practices and continue to do their present work. Their case was already met.

Sir Robert Finlay, as the representative of a constituency which had a great many medical men, said that he had listened to Mr. Long's remarks with satisfaction. The shortage of medical men even at the present time was undoubtedly extremely serious, but he thought that for practical reasons the course taken by the Government was right. A medical man who was wanted would get exemption, because it would be apparent that it was inexpedient that he should be taken away to serve in the army. Mr. King offered to withdraw the proposal, but leave was refused. Mr. Raffan suggested the need for keeping constantly in view the retention of those who were engaged in work contributing to the health of the community, and Mr. Long agreed. Mr. Holt expressed the hope that the army would not take even volunteers among medical men and dentists unless they were wanted in connexion with

their own professional duties. There were only too many willing to go and fight, but they would serve their country better at home trying to cure people than by going and killing the enemy. Mr. Long said that it was his intention to make it quite clear that medical men ought not to be allowed to take unnecessary risk unless they could be spared from work which he considered equally important. For the last four or five months he had been endeavouring to impress upon the War Office that it must exercise discretion and care in the demands it made upon the medical men for the war. The proposal to insert the paragraph in the schedule excepting medical men was then negatived without a division.

Standard of Physical Fitness.

In the discussion of the fifth clause of the schedule Captain Amery said that the fluctuations in the standards of rejection for medical fitness had been wide. There was, for instance; a difference of opinion as to teeth. In one place the doctors rejected every man who had more than four teeth missing, while in another it was said that as long as a man was well nourished and had hard gums he might be passed. There were also a few cases of malingering, especially in connexion with alleged defective eyesight. Colonel Yate considered that the number of men rejected as being below the standard of height and measurement might be reduced by a little careful training and extra food. At Leicester 849 men were rejected in 1914; of these 384 had, as a result of competent instruction, been passed as fit, and 254 were still under training, so that of the original 849 only 211 were finally rejected as unfit. Mr. Long admitted that there was some difficulty about the matter. Since the war broke out the work of medical examination had been in some districts indifferently performed, whereas in others the standard set was very high; he instanced the case of one commanding officer who insisted on so high a standard that a great many men were rejected who, now that the medical examination had been more equalized, would be accepted. For this and other reasons he believed that under the existing better organized system a great deal of excellent material would be found among those who were formerly rejected. He believed that the indirect effect of the bill would be to bring in all those who wanted to come in, and as regards the small minority who had got their certificates improperly—and they were the worst kind of shirkers—if there were any other means by which they could be brought in he would not hesitate to ask Parliament to use them. After some further discussion the amendment was withdrawn.

Schools and Colleges.

Another amendment to exempt all men at a school or college, or under articles for the purpose of entrance into a profession was withdrawn, after the Home Secretary had pointed out that the proper course was to allow all such cases to be considered individually on their merits, in accordance with machinery provided by the bill, and had undertaken to introduce an amendment on the report stage. The second schedule setting up local and appeal tribunals, and a central tribunal was adopted with some verbal amendments.

The report stage of the bill was concluded on January 24th, and the bill was read a third time by 383 votes to 36.

War.

Medical Students.—Sir Gilbert Parker, on January 24th, asked what was the policy of the Government with respect to the recruiting of first and second year medical students, and instanced a case in which an applicant had been refused by an officers' training corps on the ground that he was a medical student. Mr. Tennant replied that there had been no change in the policy of recruiting first and second year students, and referred to the answer he had given to Mr. Shirley Benn on January 12th (BRITISH MEDICAL JOURNAL, January 22nd, p. 140), in which he stated that the statistics bearing upon the matter were being further examined. He added that it was not contemplated that qualified medical men should be used as soldiers in the ranks.

Physical Unfitness.—In reply to a question by Sir E. Cornwall, on January 20th, as to whether men otherwise

fit for service who had been rejected on the eyesight test would be afforded another opportunity for examination, with a view to their being utilized in some branch of the service where good eyesight was not of primary importance, Mr. Tennant said that there was nothing to prevent a man who had been rejected in the past as medically unfit on any grounds from presenting himself again if he wished to do so. On the same day Mr. Thomas raised the case of men who, under the Derby recruiting scheme, had only been subjected to a cursory examination and when called up and subjected to a more searching examination were found unfit for service and sent back to civil life. This caused loss and inconvenience to men who were in the position of having to dispose of or wind up a business, or whose positions had in the meantime been refilled, and he asked that measures should be taken to enable men to be finally examined before they severed connexion with their civil occupations. Mr. Tennant promised that every effort should be made to do this.

Artificial Limbs.—On January 20th Sir George Toulmin asked whether the best available artificial limbs were being supplied to officers and men who had lost limbs, and if the whole cost was not paid by the State, what proportion was paid in the case of officers and men respectively. Mr. Tennant said that officers were given such sum as the Army Council considered sufficient to defray the necessary expense of providing the artificial appliances, and the artificial limbs for men were provided and prepared at the public cost. At the institution at Rochampton House all men who had lost limbs could have the artificial limbs fitted under the advice of expert orthopaedic surgeons and receive instruction in the use of the limbs.

Recruits' Eyesight.—Major Lane-Fox on January 19th asked a question as to the rejection of men otherwise suitable on the ground of defects of sight which could be corrected by glasses. Mr. Tennant said that the minimum standard for eyesight for general service was low, and soldiers were given glasses to bring their sight more nearly to the normal. There were, however, cases in which glasses could not bring the sight to a standard sufficient for general service. In reply to a suggestion by Major Lane-Fox, that there was a considerable amount of evasion of military service by men whose eyesight was not really seriously defective, Mr. Tennant said that instructions had for some time been in force to the effect that a mere statement of inadequacy of vision was not to be regarded as sufficient reason for excusing military service.

Insanity of Wives.—On January 20th Mr. Samuel asked a question as to the case of a soldier now serving in France whose wife had lost her reason and had to be temporarily taken to an asylum and his two children to the cottage home of the guardians. He asked whether by this not only was the soldier disfranchised, but also the army allowance for the maintenance of his wife and children stopped. Mr. Long said, in reply, that under the Electoral Disabilities (Naval and Military Service) Removal Act, 1914, the soldier would not be disfranchised on account of the circumstances mentioned, nor would the issue of an army allowance in respect of the maintenance of the children be discontinued, but, as the War Office Order stood at present, it did not refer to wives' allowances. He believed, however, that the matter was under consideration. In reply to a further question, on January 24th, Mr. Forster said that the separation allowance issued in such a case was at the higher rate given when children were motherless.

Lunacy Institutions.—In reply to Mr. Shirley Benn, Mr. Tennant stated, on January 20th, that the lunacy institutions being used in whole or in part for the accommodation of unwounded soldiers invalided through transient loss of balance or mental disorder were: Springfield War Hospital, Wandsworth; the Napsbury War Hospital, St. Albans; the Red Cross Military Hospital, Maghull, near Liverpool; and the War Hospital, Peebles, N.B. The institutions had been taken over by the War Office, and were entirely under its control.

Wastage.—Colonel M'Calmont asked, on January 24th, what proportion of the 15 per cent. calculated as the average monthly wastage for infantry of the expeditionary forces must be reckoned as permanently non-effective, and what proportion must be considered as requiring replacement by drafts from home. Mr. Tennant said that the matter could not be conveniently dealt with in an answer to a question, and he doubted whether it could be

discussed in public without giving to the enemy information better withheld.

The Statistics of Enteric Fever in the British Armies.—Mr. W. Thorne asked the Under Secretary of State for War, on January 20th, why no statistics were given of the balance of 215 cases of enteric fever over and above those diagnosed after bacteriological examination; if cases bearing the name of para-typhoid fever, trench fever, pyrexia, and other pseudonyms of enteric fever were included in the totals furnished by him; and, if not so included, would he furnish statistics of cases and deaths diagnosed under those heads, as well as those for the 215 cases of enteric fever referred to above? Mr. Tennant said: The 215 cases consisted of those waiting bacteriological examination and also of some cases which, in the early days of the war, were not bacteriologically examined, but were diagnosed as enteric fever on clinical grounds only. The diseases mentioned in the second part of the question were not included in figures I gave on January 10th. I cannot accept my hon. friend's suggestion that those diseases are pseudonyms for enteric fever. No statistics are available of the cases of trench fever and pyrexia. My hon. friend's question appears to me to suggest, though, no doubt, inadvertently, that the medical authorities hide cases of enteric fever by falsely returning them under other names. So far as this suggestion is contained in the question, I must repudiate it. I did not give particulars of the cases of para-typhoid in my answer of January 10th because no system of inoculation for that disease has been adopted.

Vaccination.—On January 25th Mr. Tennant informed Mr. King that a soldier deemed to have enlisted under the Military Service (No. 2) Bill would not be deemed to have consented to be vaccinated.

Direction of Army Medical Services.—Mr. Lynch, on January 20th, asked whether, as the Army Medical Services were subjected to dual control, one Director-General being in England and another in France, who might work contrary to the plans of the Director-General in England, and who possessed authority to upset the units of hospitals as soon as they arrived in France, appropriate steps would be taken to deal with the matter. Mr. Tennant replied that the appropriate steps for dealing with the matter would be to make no change. There was no conflict of authority. Medical units in the field were under the orders of the Commander-in-Chief to dispose of in any way that was thought fit, and he did not see how it could be otherwise.

Salaries of Director-Generals.—Mr. Lynch, on January 20th, asked what was the total of the emoluments at present being received by the Director-General in England, including present pay plus pension and salary as President of the Imperial College of Science and Technology; what emoluments were being received by the Director-General in France; and whether he was receiving the salary of a Director-General, together with allowances, as well as a wound pension. Mr. Forster: The Director-General of Army Medical Services at the War Office is receiving from army funds £2,000 a year pay and £625 pension. He is receiving nothing from the Imperial College of Science and Technology. The Director-General of Medical Services in France is receiving £2,000 a year pay and the field allowance of his rank (£273). His wound pension was commuted some years ago.

Remuneration of Re-employed Retired Officers, R.A.M.C.—Mr. Lynch, on January 20th, asked whether retired officers, R.A.M.C., who had been called up for active service were now receiving full pay of rank in addition to full pension, and what pay was each surgeon-general and each colonel receiving. The Financial Secretary to the War Office (Mr. Forster) said that the answer was in the affirmative except in the case of a small number of surgeon-generals who had given their services in posts of a grading not commensurate with their rank, who drew £600 a year in addition to pension.

R.A.M.C. Income Tax.—On January 25th Mr. Watt asked whether according to the pay of officers of the R.A.M.C. sent in December there was a notice saying that income tax would in future be deducted at the rate of 1s. 9d. in the £, and whether this notice was in conflict with the Chancellor of the Exchequer's statement that these incomes would be subject only to a reduction of 1s. 6d. in the £, even though the general tax was raised to a higher level. The Financial Secretary to the Treasury said that

he understood that no general notice of the nature indicated had been issued to officers of the R.A.M.C., but he pointed out that under the Finance (No. 2) Act, 1915, the proper rate of deduction from the pay of officers whose total income exceeded £300 and did not exceed £1,000 was for the year ending April 5th next 1s. 9d. in the £.

Promotion in R.A.M.C.—Mr. Laurence Hardy, on January 25th, asked the Under Secretary of State for War whether temporary lieutenants of the R.A.M.C. and captains received considerably higher pay than captains, Special Reserve R.A.M.C., although in many cases the latter officers served before the war, whilst the former had no previous experience; whether there had been no promotion in the Special Reserve R.A.M.C. since the war beyond the rank of captain, though there were now in the service 543 captains of the Special Reserve as against 39 at the outbreak of war; and whether he could see his way to giving equal pay and opportunities for promotion to this branch of the R.A.M.C. as were enjoyed by the other branches of the medical services, namely, Regulars, Territorials, and temporarily enlisted. The Financial Secretary to the War Office made a written reply as follows: Captains R.A.M.C. Special Reserve receive the same pay as captains R.A.M.C. Regular Army. Their emoluments are nearly the same as those of temporary lieutenants or captains serving under civil contract. The large number of captains in the Special Reserve is due to recent promotions, and can hardly be made a reason for further promotions. The senior captain in the Special Reserve has less service than the senior captain in the Regulars. It does not appear that officers of the Special Reserve are at a disadvantage.

British Prisoners in Turkey.—Mr. Tennant, on January 24th, stated, in reply to a question by Mr. Macmaster, that the number of officers and men of the Royal Navy and the British regular, colonial, and Indian forces at present prisoners in Turkey were as follows: Officers 47, other ratings and non-commissioned officers and men, 598. Although letters from individuals not infrequently spoke of markedly good treatment, there was reason to fear that the general condition of internment in Turkey was far from satisfactory; but, owing to the remoteness of some of the camps and the difficulties of communication, it was hard to ascertain the actual state of affairs. The American Ambassador at Constantinople had done everything in his power, but had been unable to obtain the consent of the Turkish Government to visit the internment camps.

German Army Casualties.—Mr. Tennant, on January 19th, gave the following as the casualties for the whole German army, founded on the best information available, and coming down, he believed, to the end of the year:

Killed	...	...	...	...	588,986
Died	...	...	...	...	24,080
* Wounded	...	...	...	...	1,566,549
Missing and prisoners	...	...	...	...	356,153
Total	...	...	...	...	2,535,768

* This figure includes both wounded and severely wounded.

In reply to a further question, Mr. Tennant said that the information at his disposal was not by any means complete.

[The figures given by Mr. Tennant on December 21st, 1915, will be found at p. 26 of the JOURNAL of January 1st, 1916. The total then given was to November 30th, 1916, and was about 11,000 lower than in the above table. The total now returned as killed is, however, over 100,000 higher.]

Local Loans.—The President of the Local Government Board has stated that since the outbreak of the war it has sanctioned 997 loans to local authorities, amounting in the aggregate to £12,647,187. Of this amount £8,929,560 was sanctioned prior to March 26th, 1915.

THE book entitled *Makers of Man: A Study of Human Initiative*, by Dr. C. J. Whitby of Bath (Rebman, 1910), has been translated into Japanese by a society organized in Tokyo in 1908 under the auspices of Count Shigenobu Okuma, the well-known statesman and educationalist, to popularize Western information and ideas. The "Dai Nippon Bummel Kyokwai," whose objects are comparable to those of our University Extension Movement, has already issued translations of about a hundred standard works of various nationalities chosen by its committee.

THE WAR.

ARRANGEMENTS FOR CONVALESCENT OFFICERS.

(From a Correspondent in Northern France.)

THE existing arrangements for the benefit of officers convalescent from wounds received or disease contracted on active service during the war, are much the same as those which proved so useful last winter. Superficially, indeed, they are identical, except for the fact that the institution closed at Ciniez last May and reopened in November has had included in its title the name of the lady who furnishes the British Red Cross Society with the funds for its maintenance. It is known, therefore, as the Michelham Convalescent Home for British Officers. A more important difference is that the home is classed this year as a military hospital, and that consequently the regulations in regard to its administration and the admission of patients are somewhat more stringent.

The officers regarded as having the first claim on the accommodation from time to time available are those suffering from the effects of wounds or whose ill health is due to the especially trying conditions of life within the fighting zone. Other officers—namely, those serving at the bases or on the lines of communication—are also eligible for admission, but in their case the regulations seem to anticipate that before their names are submitted for the approval of the D.G.M.S. they will be sent before an ordinary medical board. Cases of a chronic kind, such as neurasthenia and phthisis, as also patients who can be classified as mental and severe surgical cases, are definitely excluded.

There is room for one hundred patients, and as vacancies occur they are usually sent down in batches. At Paris they are met by an official of the Paris branch of the British Red Cross Society, and if necessary are visited by one of its medical officers. The society also arranges to send down a nurse or orderly with any officer who is unfit to travel unassisted. The medical officer, or medical board certifying as to the nature of a case, must state the duration of stay recommended, which must not exceed thirty days. If eventually a longer period prove very desirable, responsibility for its extension rests with the medical officer in charge of the home. The patients on their discharge are sent, as a rule, to the base details dépôt of their unit, where they are re-examined by a medical board before rejoining their battalions; some, however, are allowed to take up their work forthwith if this be of an administrative order, and the commanding officer of the home considers them fit for it.

The commanding officer, who has the title of Commandant, is a Lieutenant-Colonel, R.A.M.C., and has two officers of the same corps to assist him. The matron is drawn from Queen Alexandra's Imperial Military Nursing Service, but the nurses and the rest of the personnel belong to the Red Cross.

Each officer in residence has a bedroom to himself, but meals are taken in common. The wearing of uniform is compulsory, except during the playing of games in the park attached to the hotel in which the home is situated. In order to encourage the patients to keep in the open air as much as possible, no card games are allowed to be played before 4 p.m. If, however, the weather is very inclement the commanding officer can relax this rule. There are also regulations as to the hours between which officers can absent themselves from the home, and as to the hour at which all lights must be out.

The general idea of these arrangements is to ensure maintenance of the right military tone despite the influence of past illness, of freedom from duty, of an environment not essentially dissimilar from that of a large Riviera hotel, and of the proximity of friends and relations, for arrangements have been made by which a certain number of the latter can find accommodation on low terms at hotels in Nice, and they can be invited to luncheon and tea at the home. The special value of this home, from a military point of view, is that, besides affording officers a chance of getting fit for duty earlier than would be likely to be the case if they had to recruit their strength in a less genial climate than that of the

Côte d'Azur, it obviates in a great many cases the necessity of granting them sick leave. To this step there are held to be distinct military objections when war is in progress, and when the officers concerned are not suffering from wounds or sickness likely, in the ordinary course of events, to incapacitate them for an indefinite time.

A home of similar purpose, but somewhat less formally administered, has been at work at Dieppe for a good many months for officers belonging to the Canadian contingent, and one for the use of Red Cross nurses and members of Voluntary Aid Detachments employed with the army was opened in Mentone in November. There is no corresponding place for army Sisters, but, on the other hand, a rest home, at which nurses who have been ill or are more or less "run down" can obtain a change of scene and surroundings, has been at work at Hardelet for nearly a year, and I believe there is another at Rouen. The ladies to whom these homes owe their existence, and by whom they are conducted, have official sanction for their work, and they have undoubtedly been of the greatest utility.

Those specially interested in the Ciniez home will find a more detailed account of its arrangements, and some of the considerations attaching to the maintenance and management of such institutions, in the BRITISH MEDICAL JOURNAL for April 3rd, 1915. It was then known as Queen Mary's Convalescent Home for British Officers.

CASUALTIES IN THE MEDICAL SERVICES.

ARMY.

Died on Service.

THE casualty list published on January 22nd gives the name of Lieutenant J. Le K. Mavety, R.A.M.C. (temporary), as having died in France. He was attached to the Royal Field Artillery. He joined the R.A.M.C. from the Canadian Army Medical Corps in June last.

Wounded.

Captain H. S. Milne, R.A.M.C., Special Reserve, France.
Lieutenant R. E. Thomas, R.A.M.C. (temporary), France.

DEATHS AMONG SONS OF MEDICAL MEN.

Gwynne, Owen Perrott, Second Lieutenant, 92nd Punjabis, younger son of the late Charles N. Gwynne, M.D., of Sheffield, killed in Mesopotamia, January 6th to 8th, aged 25. He was born at Sheffield, educated at Loretto, and was for five years an engineering pupil with Vickers, Maxim, and Co. He then went to Ceylon as resident engineer on the Dunsinane tea gardens. When war broke out he joined the Ceylon Planters' Corps, with which he went to Egypt. He then got a commission in the 92nd Punjabis, took part in the battle of Irmak, and accompanied his regiment to Mesopotamia. His only brother, Captain J. F. Gwynne, R.A.M.C., fell at Ypres on July 9th, 1915.

Macnaught, Frederick Clement, B.Sc. Lond., Lieutenant R.E., elder son of the late Frederick Macnaught, L.R.C.P. and S.Ir., of Walsham-le-Willows and of Bow, London, killed at Loos on September 25th. He obtained his commission on September 24th, 1914, and was attached to the 1st Field Company of the 24th Division, R.E.

Mouillot, Augustus de Thierry, Captain 51st Sikhs, only son of the late Dr. Mouillot, of Harrogate, died in Mesopotamia, on January 12th, of wounds received January 6th to 8th, aged 33. He was born on June 21st, 1882, got a commission through the militia as Second Lieutenant in the Bedford Regiment on July 4th, 1903, entered the Indian army and was posted to the 51st Sikhs on October 1st, 1906, and became Captain on April 8th, 1912. He served in the South African war, and afterwards at St. Helena, receiving the Queen's Medal with three clasps.

Wylie, Hamilton MacLaren, Second Lieutenant 1st Battalion Seaforth Highlanders, youngest son of the late Dr. James Hamilton, inspector of schools, killed in Mesopotamia on January 7th, aged 22. He was educated at Repton and at Pembroke College, Cambridge, joined the London Scottish in September, 1914, went to France with the first draft to that regiment, and got a commission in the Seaforths in August, 1915.

NOTES.

HONOURS.

ON January 21st the Admiralty published a list of honours bestowed on naval officers for services in the Persian Gulf and Mesopotamia. Among them Surgeon Dermot Loughlin, M.B., R.N., receives the Distinguished Service Cross for attending the wounded under a heavy fire at close quarters on board the *Comet* on the night of September 28th, 1915.

A list was issued at the same time of officers and men mentioned for their services with the British Naval Mission

to Serbia. Among those mentioned is temporary Surgeon E. R. A. Merewether, R.N.

The *London Gazette* of January 22nd announces the award of a large number of honours to officers and men for distinguished service, four Victoria Crosses, seven D.S.O.'s, 35 Military Crosses, and 179 Distinguished Conduct Medals. One medical officer, Captain A. Findlater, R.A.M.C.(T.F.), gets the D.S.O., and one, temporary Lieutenant J. W. Gilbert, the Military Cross.

D.S.O.

Captain Alexander Findlater, M.D., 1st London Mounted Brigade Field Ambulance, R.A.M.C.(T.F.). For conspicuous gallantry and devotion to duty on several occasions, notably on September 29th, 1915, at Chocolate Hill, Gallipoli Peninsula. He crossed over two hundred yards of open ground under very heavy shell fire to render aid to two wounded men. He saved the life of one, but the other was beyond help.

Military Cross.

Temporary Lieutenant John Wesley Gilbert, R.A.M.C. (attached 9th Brigade, R.G.A.). For conspicuous gallantry and devotion to duty near Ypres on December 29th, 1915. After three attempts he succeeded in entering a farm, which was being heavily shelled with gas and other shells, and rendered valuable help to the wounded infantry who were billeted there.

We are informed that Captain M. A. Macdonald, R.A.M.C., M.B.Glasg., has been recommended for the French Military Cross for services under fire at Gallipoli.

Captain William Albert Colhoun, of the 4th Battalion Royal Irish Fusiliers, who received the Military Cross in the list of honours gazetted on January 14th, is a fourth-year medical student of Trinity College, Dublin.

MEDICAL OFFICERS WANTED.

2nd London Sanitary Company.

Medical men required as sanitary officers, each to command a sanitary section of 25 n.c.o.'s and men; every probability of going overseas at an early date. Those engaged in public health work and possessing the D.P.H. preferred. Applications to Captain F. G. Caley, R.A.M.C.(T.), Officer Commanding, Duke of York's Head Quarters, Chelsea.

2/1st Eastern Mounted Brigade Field Ambulance.

Medical officers required for this ambulance. Pay as in regular army. Foreign service obligation necessary. Applications to the Officer Commanding, Hurst Park, London.

3/2nd East Anglian Field Ambulance.

Medical officer urgently required. Pay and allowances as in regular army, also an outfit and field kit allowance. Applications to Officer Commanding, Halton Park, Tring.

Sydney.

SOLDIERS AND ALCOHOLISM.

A MEDICAL committee was appointed some time ago to report on the health and sanitation generally of the camp at Liverpool. The committee consisted of the Principal Medical Officer of the Second Military District (Colonel Perkins); Professor Welsh, Professor of Pathology in the University of Sydney, and Drs. Paton, W. G. Armstrong, and Cleland, of the Board of Health. The report states that the conditions of camp life at Liverpool revealed certain predisposing causes of disease. Some of these, which were incidental to the training of the soldiers, included exhaustion and fatigue, associated at one time with overheating and saturation of the clothing with perspiration, and at another with cold and wet. Such conditions depressed vitality and predisposed to disease. With reasonable care, however, such depressant effects might be mitigated. Other influences, however, were at work which were much more potent in lowering the resistance to disease. The two outstanding of these influences were intoxication by alcohol and defective ventilation and overcrowding. There was evidence that alcoholism was prevalent and excessive among the recruits. If drunkenness were checked, the committee was convinced that venereal disease would be much less common, and the susceptibility to other infectious diseases would be diminished. There was no other single cause which had so profound an effect on the health and efficiency of the troops. The committee, therefore, recommended that the following regulation should be introduced to minimize the opportunities of alcoholic excess: (1) Wet canteens should be established for the sale of light ales and wines

served with ice, at moderate prices. They should be under official control, and the profits might go towards improving the canteens and the camp. The site should be preferably within the camp, or, if that be not practicable, it should be close outside. At Liverpool it should be on the same side of the river as the camp. (2) The town of Liverpool and district west of the railway line should be put out of bounds in order to eliminate the public-houses and the women of ill repute. (3) All public-houses throughout the state, except authorized canteens, should be closed to soldiers in uniform after 6 p.m. (4) Shouting for soldiers in uniform should be made illegal, as it is for all persons in proclaimed munition areas in England. (5) Discrimination should be exercised in granting leave. No late leave should be given except for special purposes or to reliable men. Ordinary leave should require return to camp before dark. Drunkenness should be penalized by curtailment of leave. (6) Ladies' club; might be formed for the purpose of entertaining men on leave, especially those from the country, in circumstances that would encourage their self-respect.

Further efforts have been made with a view to diminishing the evil effects of drink among the soldiers. The district commandant states that conferences have been held between representatives of the military authorities and the executive of the Licensed Victuallers' Association with the object of preventing the misuse of intoxicating liquors by soldiers on licensed premises. It is stated that in some places publicans have found that when they have endeavoured, in the interests of the young men concerned, to give them friendly advice as to restraint in the use of liquor, and have endeavoured to prevent them obtaining more than was good for them, some of the general public have interfered on behalf of the soldier, and resented the advice of the publican. With a view to establishing in the minds of all the fact that over-indulgence in intoxicating liquor is an offence, and that the presence of intoxicated men on licensed premises is also an offence, a notice has been posted in the bars of hotels setting out the fact that soldiers in uniform under the influence of liquor must not enter or remain upon licensed premises; and that the licensed victualler must not suffer any soldier under the influence of liquor to enter or remain upon his premises. It has been further pointed out that under the War Precautions Act persons who take part in any action calculated to be subversive of discipline, or to prejudice the good conduct of a soldier, are liable to heavy penalties.

GERMAN DRUGS.

A deputation, consisting of Mr. Bailey, President of the Australasian Pharmaceutical Conference; Mr. Buckhurst, President of the Federal Pharmaceutical Council; Mr. R. Grimwade (Felton, Grimwade, and Co.); Dr. Sidney Plowman, Lecturer on Materia Medica and Pharmacy at the College of Pharmacy; and Mr. D. Rankin, Past-President of the Pharmaceutical Society, waited on Mr. Hughes, the Prime Minister, recently and asked him to cancel the aspirin licence and prevent German trade marks being used. In reply, Mr. Hughes promised carefully to investigate the question of striking off the trade marks register all German trade names, and that the Government would do all that was possible to encourage the manufacture in Australia of raw materials for drugs that previously came from Germany. He also promised an inquiry into an allegation that German drugs were reaching Australia through neutral countries. He had no prejudice in favour of retaining the word aspirin; the whole matter was receiving attention as part of a general policy to deregister all German trade names. He thought there was no doubt, under the Enemy Trade Marks Act or the War Precautions Act, that the Commonwealth had the power to do anything within reason in the protection of the country.

During the interview it was stated that since the renewed activity of British submarines in the Baltic the price of certain drugs in Australia had gone up by leaps and bounds. Referring to this statement, Mr. Hughes said that if it were true it was a startling fact, and he did not know whether the deduction that enemy drugs were getting into Australia through neutral countries was not justified. He asked for a list of these drugs which had shown these extraordinary and significant variations in prices.

NEW PRINCIPAL MEDICAL OFFICER FOR THE NEW SOUTH WALES MILITARY DISTRICT.

Last month the Minister for Defence decided that the appointments of Principal Medical Officer in the second and third military districts were of sufficient importance during the continuance of the war to necessitate the service of an officer who could devote his whole time to the duties. Hitherto the pay for these appointments had not been commensurate with the duties and responsibilities of a capable officer so employed. The occupants of the "part-time" positions were consequently required to vacate their positions on November 30th, 1915, and applications were called from the medical profession, either with or without military experience, to fill the vacancies at £800 per annum. The selection was to be made of the most suitable applicant of the highest professional attainments, who must be a capable organizer and administrator, irrespective of rank. The appointment was to be for a period of six months on probation, to be confirmed if satisfactory for the period of the war and four months afterwards, the successful applicant to be granted the temporary rank of colonel in the Australian Army Medical Corps while holding the appointment. The applications were referred to a committee consisting of the Adjutant-General, the Director-General of Medical Services, the commandant of the district concerned, and the President of the Branch of the British Medical Association of the district concerned. This Committee submitted their recommendations to the Minister, and Lieutenant-Colonel E. S. Stokes was appointed for New South Wales.

Lieutenant-Colonel Stokes has been for the past ten years medical officer to the Water and Sewerage Board. He is 47 years of age, possesses organizing ability, and in addition has seen service in the present war. He left Sydney with the rank of Major in the First Field Ambulance, and after spending some time in Egypt joined the staff of Brigadier-General MacLagan, who was in command of the Third Brigade and detached forces. He then proceeded to Lemnos, and on April 25th landed with the 2nd Field Company of Engineers in connexion with the water supply. Shortly after landing he was appointed Deputy Assistant Director of Medical Services to the First Australian Division, under Colonel Howse, V.C., C.B., with the rank of Lieutenant-Colonel. Among other duties he had to take charge of the sanitary arrangements of the area occupied by the First Infantry Division. Subsequently he became ill, and was given leave to return to Australia. His leave had almost expired, and instead of returning to the front he has taken up the duties of his new position.

Canada.

THE CANADIAN MILITARY HOSPITAL COMMISSION.

The Military Hospital Commission meets once a month, but subcommittees have been formed in each province, consisting of the representatives of that province on the Commission, to make arrangements for the accommodation and medical treatment of invalided members of the Canadian Expeditionary Force. It is estimated that only about 10 per cent. of the men who return to Canada require further hospital treatment on their arrival. Ample accommodation in convalescent homes has been provided throughout the country, and any invalided soldier who returns to Canada, and who has not been discharged from service, can be placed in one of them on making application to the Secretary of the Hospital Commission at Ottawa. Arrangements have been made with the Red Cross, the Daughters of the Empire, and other societies for the provision of comforts in the shape of clothing, books, and papers. Convalescent homes have been established at Sydney, St. John, Montreal, Toronto, Hamilton, London, Calgary, Victoria, among other places, and in each arrangements have been made for electrical treatment, massage, and other remedial measures in cases of atrophied limbs and stiffened joints. Soldiers suffering from tuberculosis are sent to a sanatorium, and 10 dollars a week is paid by the Government for their treatment. The men are kept in the convalescent homes as long as there is reasonable hope of improvement, but when this exists no longer they are discharged on a pension. These

men have all been examined and classified in Great Britain prior to embarkation. On arrival in Canada they are sent to the clearing hospital at the port of debarkation, where they undergo a further examination, and, if necessary, they are sent to hospital or to one of the convalescent homes. If discharged, they are given a pension and three months' pay, payable in three monthly instalments. A careful record of all cases is kept, including the nature of the disability, the occupation prior to enlistment, the possible sources of income, and the nature of the occupation they would like to follow if unable to continue the work in which they were engaged before enlistment.

The provision of employment for such men has been undertaken by provincial committees, to each of which a representative of the Hospital Commission has been appointed. This branch of the work was formerly in the hands of the Patriotic Fund.

Ireland.

WORKHOUSE AMALGAMATION.

At the last meeting of the Cork County Council, the chief business was to consider generally the question of the amalgamation of the Poor Law Unions of the county and other matters connected therewith. The following resolution was unanimously adopted:

That having regard to (1) the great decrease in the population since the present Unions were established; (2) the fact that there is no unemployment at present existing; (3) that the sum of £190,000 approximately is paid yearly throughout the county under the Old Age Pensions Act; (4) that a sum of £15,000 approximately is paid to insured persons in the county under the National Health Insurance Act; (5) the greater possibilities afforded by railways and motor ambulances, we consider that several workhouses could with advantage be abolished, and the Unions amalgamated with adjoining Unions; and that the Local Government Board be asked to hold an inquiry at the County Courthouse, Cork, at which the guardians of the several Unions and other persons interested may be represented.

A DOCTOR'S SUPERANNUATION.

At its last weekly meeting the Enniscorthy Board of Guardians rescinded a resolution passed in November last, granting their late medical officer, Dr. Thomas J. Kelly, a superannuation allowance of £100 a year. The guardian who moved the rescinding resolution (which was carried by a vote of twenty-one to fifteen) said that when they were kind and generous enough to give Dr. Kelly £100 a year he at once wrote off to the Local Government Board, and complained that certain emoluments had not been taken into consideration. As the clerk had since informed them, the doctor's statement was incorrect. It was to punish the doctor for writing such a letter, and to show him and all officials that the dignity of the board of guardians must be respected that he moved his motion. Several proposals were then put forward as to the amount which should be granted the doctor. The sums ranged from £100 to £20. The final vote was between £75 and £50, and the latter sum was carried by twenty-two votes against fifteen.

RED CROSS FUND.

From the reports of the local committees presented to a meeting of the central committee of the Leitrim Red Cross Fund last week it appeared that, although this fund was only started in November last, the substantial sum of nearly £900 had been collected. It was decided to allocate the fund as follows: £470 for the purchase, through the War Office, of a Sunbeam motor ambulance, bearing the inscription "Presented by the County Leitrim for service with the 10th (Irish) Division of the British army in the field"; £300 to the British Red Cross Society, and the balance to the Connaught Rangers' Comforts Fund, including prisoners of war. It was decided to keep the fund open for further subscriptions until January 31st, 1916.

THE *American Journal of Orthopedic Surgery* will in future be published at Boston and will appear monthly instead of quarterly. While continuing to be the official organ of the American Orthopedic Association, its scope will be enlarged so as to appeal to surgeons and general practitioners as well as to specialists.

Correspondence.

THE SOLDIER'S HEART AND THE STRAINED HEART.

SIR,—One may well be glad and satisfied with the recent discussion anent the soldier's heart at the Royal Society of Medicine, for it gives expression to an opinion from those well qualified to give it, that "the soldier's heart" is but our old enemy "the strained heart" now come out into the open, and sailing under its true colours. It is much to be hoped that this will sink home into general practice: that the so-called "strained heart" is not a muscular fault, but a temporary overdraft of current account of nervous energy, and that we shall hereafter—vain hope, I fear—banish that vicious term from our nosology, shrouding as it has done, and does, so many young men and women, and even children, in its winding sheet of "dilatation of the heart" for months, nay, often for years, when they should never have been invalidated in that sense at all.—I am, etc.,

London, W., Jan. 22nd.

JAMES F. GOODHART.

SIR,—My remarks on the "Soldier's Heart" in the discussion on that subject (JOURNAL, January 22nd, p. 131) were quite extempore, and I had hoped that the larger question of the heart in the soldier might have been considered. Consequently your report, which is necessarily brief, makes me rather too emphatic as to the hopelessness of the future of such a condition in the soldier. Recovery depends a good deal on the man himself. The term, the "soldier's heart," like any other which may be defined, might be allowed currency, as also might that of the "soldier's brain" or the "soldier's spinal cord." But it is, I think, of questionable utility that one of many evidences of shock and exhaustion should be emphasized to the exclusion of the general state in which it is merely an incident. This tendency to the specialization of effect, in the case of an agent acting generally, is rather amusingly evident at present in that capture from secretions and excretions of organisms regarded as having a particular effect upon a given organ.

Excluding possibilities of contamination—frequently a difficult matter—by such care as the bacteriologist can exercise, what reason is there to suppose that the organism (or its assumed toxins) which he captures from the excretions or secretions are the actual cause of a local condition, the blood itself not growing any such organism, and the host showing no morbid reaction to the invasion? There is admittedly no proof, and however fruitful the suggestion may prove, it can at present be regarded as no more than a suggestion, and that unsubstantiated. As a matter of fact, the soldier's heart is but an incident in a general neurasthenia or state of exhaustion, and exemplifies the relation of the nervous system to sustained energy in the viscera.

The detachment with which some, of recent years, have been wont to regard cardiac motion, has placed rather in the background the relation of cardiac energy to the nervous system, but some modification of this attitude has been the result of a better knowledge of the relation of the excitatory structures in the heart to it.

Dr. Poynton referred to cases in which the general and particular collapse of the patient had apparently been a direct result of high explosive agency, and most of those who have had to deal with such cases, in the course of the present war, must be in a position to recall instances of this relation between apparent cause and effect. The immediate cardiac effect in such cases is probably a profound inhibition, for the patient usually gives a history of a temporary state of unconsciousness immediately consequent upon undergoing this experience.

Many, perhaps most cases, however, are the result of a general exhaustion without direct relation to high explosive agency. Indeed, the "soldier's heart" may occasionally be met with in the overworked civilian, harassed by anxiety, and, as distinguished from particular disorders of the heart induced by the life of the soldier, it is but an incident in the generally shattered nerve energy of the patient, who is, in short, a neurasthenic with exaggerated sensibility. One sees, for example, seasoned soldiers of fine physique suffering from so general an exaggeration of

sensibility, as to conceal altogether the local cardiac condition, with sighing respiration and inability for exertion. In this general state, no evidence of local lesion in the nervous system may be notable, beyond the marked psychasthenia and neurasthenia of which the exaggerated sensibility is an expression. Such a condition might as well, as I have said, be termed the "soldier's brain" or "spinal cord," as the cardiac state the "soldier's heart." Nevertheless, given a definition, we recognize the condition.

The treatment, therefore, of the "soldier's heart" is the treatment of a general neurasthenia which is a grave disorder and by no means hysteria. It should consist in the first place of general and absolute rest, followed on a degree of recuperation, by gradually increasing physical exertion and mental change.

The creation or acquisition of psychical rest is the most important element in the successful treatment of such cases, for it brings with it refreshing sleep. The removal of the apprehension of breakdown may in time lead to the reconstitution of the power of endeavour—the recovery of endurance. Those who attain this, however, are usually men of some mental force, who accept their measure of disability and face its consequences with the same resolution and indifference to death, if necessary, in the discharge of their duty with which, in more perfect health, they face death in the actual shock of combat. The neurasthenic who becomes introspective and critical of his state is lost. For this reason, while in general agreement with the opener of the debate on the soldier's heart in his views of its treatment, I question whether good would result from the collection of such cases in a sanatorium specially devoted to their care. The companionship of a man who had lost his leg would be more conducive to his recovery than that of a fellow sufferer from neurasthenia with or without subjective cardiac distress.—I am, etc.,

London, W., Jan. 22nd.

ALEXANDER MORISON.

SIR,—It would have been interesting and helpful had the discussion on the soldier's heart at the Royal Society of Medicine on January 18th dealt with the relation between excessive cigarette smoking and "irritable heart." Several soldiers have told me that it is quite common to smoke thirty or forty cigarettes a day, and even more than that at times. No one will deny that this is an excessive number, and that the absorption of a powerful poison like nicotine does adversely affect the heart in spite of a certain tolerance acquired by use. Excessive tobacco smoking may be a more important factor in the production of "soldier's heart" than is imagined.—I am, etc.,

Warrington, Jan. 24th.

J. S. MANSON.

STRANGE WOUNDS CAUSED BY HIGH EXPLOSIVES.

SIR,—In view of Dr. J. Lewis Thomas's opinion that the strange wounds caused by high explosives are "due to the escape of internal body pressure into the vacuum produced by the explosion," the following fact which came under my own observation may prove of interest:

One night in a small town in Flanders in which I was billeted at the time several bombs were dropped. One exploded in a field, making a hole about 15 ft. in diameter. The explosion was a few yards away from the end of a barn, which was built of bricks. The curious thing about it was that this end wall instead of being blown in had fallen outwards flat, with the bricks still in position, the rest of the barn being intact. Evidently this must have been due to the vacuum caused by the explosion, and not by the explosion itself.—I am, etc.,

J. H. HOBLING, Major R.A.M.C.T.

Weston-super-Mare, Jan. 17th.

THE BACTERIA OF GANGRENOUS WOUNDS.

SIR,—Major H. R. Dean and Captain T. B. Mount in their article on the bacteria of gangrenous wounds (BRITISH MEDICAL JOURNAL, January 15th, p. 77) refer to one type of bacillus which they isolated as *B. oedematis maligni*. Their account of this organism, however, seems to point rather to its being *B. cadaveris sporogenes* or some closely allied saprophyte. The absence of pathogenicity supports this view. There is undoubtedly a large group of bacilli,

morphologically identical, which are of faecal origin, and frequently swarm in lacerated wounds. This group is somewhat fully discussed in the late Dr. v. Hibler's monograph *Ueber die pathogen. Anaëroben*. In the autumn of 1914 I was privileged to work on this subject with Lieutenant-Colonel L. W. Harrison, D.S.O., and isolated a number of strains. Several, which were pathogenic to the guinea-pig, conformed most closely to "Art. XI" of v. Hibler, while the majority of the remainder, presenting cultural characters similar to those described by Major Dean and Captain Mouat, conformed to the account of *B. cadaveris sporogenes*. All the bacilli of this group are flagellated and actively motile (even the sporing forms) while *B. aërogenes capsulatus* is non-motile and devoid of flagella.

As I have no books with me I am unable to give more exact references.—I am, etc.,

J. F. SMITH,
Captain, R.A.M.C.(temp.)

France, Jan. 19th.

Public Health

AND

POOR LAW MEDICAL SERVICES.

VITAL STATISTICS IN ENGLAND AND WALES, 1915. WE are indebted to the Registrar-General for the following statement showing the birth-rates and death-rates and the rate of infantile mortality in England and Wales and in certain parts of the country during the year 1915.

ENGLAND AND WALES.

Birth-rate, Death-rate, and Infant Mortality during the Year 1915 (Provisional Figures).

	Annual Rate per 1,000 Living.*			Deaths under One Year per 1,000 Births.
	Births.	Deaths.		
		Crude.	Standardized.†	
England and Wales...	21.9	15.1	14.8	110
95 great towns, including London	22.8	15.6	15.9	117
148 smaller towns...	21.6	14.0	14.2	114
England and Wales, less the 244 towns	20.7	14.8	13.6	98
London	22.6	16.1	16.1	112

* Populations in the middle of 1914, estimated by the method described in the Registrar-General's Annual Report for 1907, have been used in the calculation of these rates, no reliable estimates of population in the middle of 1915 being available.

† The standardized death-rates are the rates which would have been recorded had the sex- and age-constitution of the populations of the several areas been identical with that of the population of England and Wales as enumerated in 1901. A description of the method of standardizing these death-rates will be found in the Annual Report for 1911, page xxix.

POOR LAW MEDICAL OFFICERS' ASSOCIATION OF ENGLAND AND WALES.

At a meeting of the Council of the Poor Law Medical Officers' Association on January 20th among other questions considered was that of the increased cost of drugs used in Poor Law practices. The Honorary Secretary, Dr. Major Greenwood, said that in 1864 a Committee of the House of Commons recommended that "in future cod-liver oil and other expensive medicines should be provided at the expense of the guardians," and in consequence a circular, dated April 12th, 1865, was issued by the Local Government Board ordering boards of guardians to carry out this recommendation. It was, perhaps, stretching the order too much to say that under it the guardians were compelled to pay for drugs that had become expensive medicines owing to the war, but in all equity the guardians ought to meet such increases by increasing the salary or making a special grant, and many boards had done so.

The Honorary Secretary reported that, in reply to a letter from a member, he had expressed the opinion that a joint appointment as district medical officer and workhouse medical officer at an inclusive salary was illegal. The two offices were treated in the Poor Law Orders as separate. The Council agreed, and expressed the opinion that representations should be made to the Local Government Board on the subject at the first opportunity.

With regard to the question of the federation of Poor Law sectional associations, the Council expressed the opinion that the matter ought to be deferred until after the war.

Medico-Legal.

ALLEGED IMPROPER USE OF THE TITLE OF DOCTOR.

IN the Scottish Court of Sessions an interim judgement was given on January 12th in certain proceedings which were taken by the Royal College of Physicians of Edinburgh against the Dr. Temple Company, Limited, of 7, West Register Street, Edinburgh—Harry Key (chemist), William Temple, Mathias Trudel (clerk), and John Key. The object of the proceedings, as appears from a report which was published in the *Scotsman*, is to restrain the respondents from using, in connexion with the business or businesses carried on by them at 7, West Register Street, Edinburgh, and 57, West Campbell Street, Glasgow, the name or title of "Doctor," or its contraction "Dr.," whether used in association with the names "Temple," "Temple Company," or "Temple Company, Ltd." or not; and to restrain them from pretending that they are medical practitioners or doctors, and from taking or using any title or description implying that they or any of them were persons registered under the Medical Acts or "specially qualified" to practise medicine in Scotland. In particular, the College ask that the respondents should be restrained from displaying certain advertisements upon their premises, and should be ordered to obliterate from the walls of the premises at West Register Street the name or title "Dr. Temple."

The respondents objected to the proceedings on two grounds. They said that the College were not so interested in the acts complained of as to give them in law a title to sue, and that the Medical Acts themselves provided a penal remedy which precluded civil proceedings being taken.

Lord Anderson granted the interim interdict asked for by the College, but limited its scope to Edinburgh, where alone, he considered, the College might be said to have an interest. He intimated that the point as to whether the College had in law a title to sue was one of importance and some difficulty which would be disposed of at a later stage, together with the question as to whether the acts of which the College complained constituted an infringement of the Medical Acts. The case, when finally disposed of, will raise, therefore, two points of very considerable medico-legal interest.

Universities and Colleges.

UNIVERSITY OF EDINBURGH.

UNIVERSITY COURT.

At the meeting of the Edinburgh University Court on January 17th the Principal, Sir William Turner, expressed the gratification of the Court that two members, Lord Provost Sir Robert K. Inches and Sir George A. Berry, had received the honour of knighthood and their regret that the two new knights were unable to be present to receive in person the congratulations of their colleagues.

Students and Military Service.

On the recommendation of the Senatus, it was resolved that students who had attested and had been accepted for military service, and who had completed five terms of study of anatomy, should be permitted to appear for the professional examination in anatomy in March next.

On the recommendation of the Senatus, it was resolved that, for the present year, students who commenced medical study in winter, and who are in their third year, should be allowed to appear for examination in March next, instead of in the following July.

Prize for Women Students.

It was announced that the sum of £237 had been received from the Scottish Association for the Medical Education of Women for the purpose of founding a prize for women medical students. The precise conditions of award will be announced later.

Examiners.

The following additional examiners were appointed:—*Public Health Laboratory Work*: G. P. Yule, M.D., B.Sc., M.O.H. Fifehire. *Pathology*: Professor H. R. Dean (Manchester). *Forensic Medicine*: W. G. Aitchison Robertson, M.D., F.R.C.P. Edin. *Public Health, etc.*: Charles Porter, M.D., B.Sc., M.O.H. Marylebone. *Midwifery*: G. Barbour Simpson, M.D., F.R.C.P. Edin.

UNIVERSITY OF ST. ANDREWS.

UNIVERSITY COURT.

At a meeting on January 22nd it was reported that the total number of students was 350; 144 men, a decrease of 88, and 206 women, an increase of 22. A number of men students of the Martinmas term had obtained commissions, and a large number were attested or awaiting commissions, so that it was expected that before the end of Candlemas term there would be

a reduction of about 100 in men students owing to military and kindred services, without reckoning those occupied in war work in the laboratories.

The Court concurred with the Edinburgh Court in appointing Professor Sir J. Halliday Croom to be a member of the Central Midwives Board for Scotland.

CONJOINT BOARD IN SCOTLAND.

The following candidates have been approved at the examinations indicated:

FIRST EXAMINATION.—Alice Fung-a-Ling, A. F. Caddell, G. ap Vychan Jones, W. Gibb, D. Gilmour. *In Physics*: M. J. Quinlivan, Lizzie R. Clark, N. H. Mackay. *In Biology*: M. J. Quinlivan, R. B. Forgan, W. H. Kerr, M. H. Carleton.

SECOND EXAMINATION.—Eliza Jean Stuart, T. T. Read, C. T. Gasking, A. F. Brighlman, W. B. Watson, P. M. Fernando, G. P. de Silva. *In Anatomy*: A. B. Macdonald. *In Physiology*: J. K. Steel, D. Mackay, L. H. Fories, D. Levenstein.

THIRD EXAMINATION.—S. C. Swinburne, J. H. Brown, R. McLaren, W. B. Lawson, R. G. Battersby, B. Ajaji-Young, T. Jackson. *In Pathology*: F. G. Jones. *In Materia Medica*: A. B. Black, C. B. C. Moon, M. Talaat.

FINAL EXAMINATION.—T. C. MacGowan, C. A. Slaughter, T. C. van Derzeil, A. W. McGregor, C. K. Carroll, G. L. Pillans, W. L. Paterson, D. S. Taylor, D. S. Luther, D. S. Graham. *Medicine*: T. Jackson, J. Bygott. *Surgery*: R. C. W. Spence, B. C. Haller, J. E. Kitchen. *Midwifery*: A. Smith, junr., J. Ross. *Medical Jurisprudence*: H. Ellison, J. W. Gordon, S. W. Hoyland, T. Hardie, J. S. Durward, A. Morrison, J. V. R. Rohan, G. L. Stanley, J. Y. McLean, E. M. L. Morgan, B. J. T. Malcolm Gasper, W. B. Lawson, J. G. McK. Macaulay.

SOCIETY OF APOTHECARIES OF LONDON.

The following candidates have been approved in the subjects indicated:

Surgery: *H. H. Bailey, *†D. M. Hunt, †L. Kahan, *†G. L. T. Lawlor, †H. H. Lloyd, *†F. C. Russell, *†A. J. A. Wilson. *Medicine*: *†P. H. G. Bayon, *†C. B. de Forest, *†T. Y. Dent, *†J. Fox-Russell, †G. L. T. Lawlor, *†J. G. T. Thomas. *Forensic Medicine*:—G. S. Ashby, P. H. G. Bayon, C. B. de Forest, H. M. Gray, L. Kahan. *Midwifery*:—C. B. de Forest, H. M. Hobson, R. F. Jarrett, E. O. Morrison, R. H. Petterson, J. Remers, H. N. D. Richards, C. Segal, L. Zarchi.

* Section I.

† Section II.

The diploma of the society has been granted to the following candidates: C. B. de Forest, D. M. Hunt, G. L. T. Lawlor, I. H. Lloyd, T. C. Russell, J. G. T. Thomas, and A. J. A. Wilson.

Obituary.

DR. SAMUEL WHITE DUCKWORTH WILLIAMS, who died recently at the age of 75, was little known to the present generation, but the fruits of his work remain. He was the son of Dr. William White Williams, medical superintendent of the Gloucester County Asylum, who, with Dr. Conolly, was the pioneer of the present humane system of the treatment of the insane. Later these two were connected in this great work of reform with Sir Charles Bucknell and Dr. Hack Tukey. Dr. S. W. D. Williams was a student at St. Bartholomew's and matriculated at the London University. Owing to his father's illness he was unable to complete his course there, and ultimately took the degree of M.D. at St. Andrews. After assisting his father at Gloucester for a year, he was appointed assistant physician at St. Andrew's Hospital, Northampton, where he carried on his father's great work of reform and instituted the system of taking mental patients to the seaside for change of air and scene. Afterwards he was appointed assistant physician under Dr. Lockhart Robertson to the Sussex County Asylum at Haywards Heath, and in a few years succeeded him and was head of that great institution till 1888. It was largely due to his methods and skilful organization that that asylum became such a well known model of excellence and efficiency. Dr. Thomas Bodley Scott, to whom we are indebted for these notes, adds:

His writings were not many, but were of deep interest and always well thought out. His first publication, in 1866, was on the sedative action of digitalis in acute mania. The dose used is rather startling to the less courageous minds of to-day—"drachm doses of the tincture every two hours" till the attack was passed, but in such cases nothing but heroic treatment is of avail. His most important contribution was about the same period, and was the first systematic exhibition of bromide in epilepsy. This was begun at Northampton in 1864, and his statistics of successes and failures formed the groundwork of our present treatment of this disease. His investigations were always thorough, scientific, and unbiassed by undue enthusiasm. In addition to all the anxious and arduous work that the management of a big asylum involved, Dr. Williams found time for many other interests. He was a prominent Mason in Sussex.

He was a crack shot, a safe golfer, a good fisherman, and a good mountaineer; but perhaps the chief joy of his life was music, which he understood thoroughly. In his later failing years at Bournemouth his chief pleasure was in Dan Godfrey's wonderful orchestra. Here, with the full score of the chief symphonies before him, he forgot his physical troubles. He was a member of the Athenaeum Club for thirty years.

Though a very reticent and retiring man he was full of kindness, sympathy, and charity, and his friends all feel that by his death they have lost a most accomplished, courteous, learned physician and gentleman.

ON January 19th Mr. EDGAR HOWARD LAKE, B.Sc.Lond., demonstrator of anatomy at the Middlesex Hospital, lost his life as the result of a bicycle accident when he was on his way to the College of Surgeons, where he was going to present himself for his final examination. He was a man of high scientific attainments and devoted to his work. His ambition was to enter the Royal Army Medical Corps. By his premature death a man of great promise has been lost to the medical profession.

GEORGE MACDONALD, L.R.C.P. and S.Edin., who died suddenly (from angina pectoris) at his residence, 49, Murrayfield Gardens, Edinburgh, on January 14th, was for many years in practice at Markinch, Fife. He obtained his qualification of the two Edinburgh colleges in 1864, and was made L.M.Univ.Edin. in the same year. A few years ago he retired from active work and went to reside in Edinburgh. He had always taken a great interest in church matters, and soon after settling in Edinburgh he was elected an elder in St. George's U.F. Church. He was a good type of the quiet, hard-working country doctor, highly esteemed and greatly beloved. He is survived by a widow and a daughter. The funeral took place at Markinch on January 18th.

DR. JOHN LAING BRAY, who died in London, Ontario, on November 30th, 1915, was born in Kingston in 1841. He entered Queen's University as a student of medicine, and graduated in 1863. Afterwards he spent six months in Richmond, Virginia, where he served as surgeon in the Southern army during the American Civil War. In 1865 he went into practice at Chatham, where he remained until 1907, when he became registrar of the Ontario College of Physicians and Surgeons, a position he held until June, 1914, when he was obliged to resign on account of failing health. Dr. Bray was a member of the Ontario Medical Council from 1880 to 1907, in 1881 he was vice-president, and in the following year president. In 1891 he was elected to the presidency of the Canadian Medical Association. Dr. Bray always showed a great interest in the work of the profession, and as registrar of the Ontario Medical Council was well known and highly esteemed throughout the province.

DR. MALACHIA, of Milan, who recently died at the age of 80, was a gynaecologist of repute, but was best known as an advocate of social reform. He organized the first Italian congress of industrial hygiene and took a prominent part in the campaign against alcoholism and in the furtherance of cremation. In 1859 and 1860, and again in 1866, he served with Garibaldi and was awarded the silver medal for valour and the military cross of Savoy. He was a member of the Chamber of Deputies in three parliaments. Ten years ago he was made a Senator of Italy.

MR. J. G. GEORGE died at Buff Bay, Jamaica, on November 16th, 1915, at the early age of 38. He was the eldest son of Mr. Arthur George, of Kingston. When a student in Edinburgh during the South African war he joined the Royal Army Medical Corps and received the South African medal. He obtained the diplomas of L.R.C.P. and S.Edin., and L.F.P.S.Glasg., and in December, 1904, entered the medical service of Jamaica; he served for a time as one of the medical officers of the lunatic asylum, and was afterwards stationed at Buff Bay.

LIEUTENANT-COLONEL THOMAS MICHAEL O'BRIEN, R.A.M.C. (retired), died at Exeter on January 20th, aged 81. He took the diploma of L.R.C.S.I. in 1856, sixty years ago, and entered the army as assistant surgeon on January 22nd, 1858, becoming surgeon in 1870, and surgeon-major on March 1st, 1873. He retired on January 9th, 1889. The *Army List* assigns him no war service.

LIEUTENANT-COLONEL ALFRED JAMES O'HARA, Madras Medical Service (retired), died in London in December, aged 61. He was educated at the Bishop Cotton School at Bangalore, and at the Madras Medical College, where he took the L.M.S. He took the diplomas of L.R.C.S. and L.R.C.P. at Edinburgh in 1879, and entered the I.M.S. as surgeon on April 2nd, 1881; he became surgeon-major on April 2nd, 1893, and lieutenant-colonel on April 2nd, 1901, and retired on November 2nd, 1902. He served in Burma in 1886-88, taking part in the operations round Nyingyan and in those of the 3rd Brigade, and received the medal with a clasp.

LIEUTENANT-COLONEL WILLIAM MOYLE O'CONNOR, R.A.M.C. (T.F.), died in London on January 21st. He was a son of the late Mr. Patrick O'Connor, of Dublin. He was educated at University College and King's College, London, and at Trinity College, Dublin, where he became B.A. in 1886, M.B. and B.Ch. in 1887, and M.A. and M.D. in 1897. He also took the D.P.H. of the Irish Colleges, with honours, in 1889. He was for a time resident surgical assistant in the Meath Hospital, Dublin. He served for many years in the militia, and held the honorary rank of major in the army from April 1st, 1903. He became lieutenant-colonel commanding the 6th London Field Ambulance on March 31st, 1913, and was also in command of the Duke of York's head quarters school of instruction, and a member of the London Territorial Force Association. He was lecturer and examiner to the St. John Ambulance Association, medical officer of the Actors' Association, a Fellow of the Royal Society of Medicine, and a member of the British Medical Association. The interment took place at Glasnevin Cemetery, Dublin, on January 24th.

DEATHS IN THE PROFESSION ABROAD.—Among the members of the medical profession in foreign countries who have recently died are Dr. Berger, Sub-Director of the Pasteur Institute of Batavia, as the result of accidental inoculation in the course of experimental work on the prevention of plague; Dr. F. G. Byles, professor of hygiene in the University of Colorado, aged 62; Professor Andrea Ceccherelli, chief of the Institute of Clinical Surgery of the University of Parma, and director of the territorial Red Cross Hospital in that city; Dr. Edmond Chapuis, representative of the Jura department in the French Chamber of Deputies; Dr. Benjamin Joy Jeffries, of Boston, formerly ophthalmologist to the Massachusetts Charitable Eye and Ear State Hospital, aged 82; Dr. W. L. Ballenger, professor of laryngology, rhinology, and otology in the College of Physicians and Surgeons, Chicago, aged 54; Dr. C. L. Barrows, head of the gynaecological department in Cornell University, aged 58; Dr. Joseph J. O'Connell, health officer of the Port of New York, and lecturer on hygiene in the university of that city, aged 49; Dr. Rodolphe Engell, sometime professor in the Medical Faculty of Montpellier, professor of chemistry at the Ecole Centrale, aged 66; Dr. Hamelin, honorary professor in the Medical Faculty of Montpellier, aged 75; Dr. Peter Herescu, professor of urinary diseases in the University of Bucharest, aged 47; Dr. G. T. Jackson, professor of dermatology in the Women's Medical College, New York, author of several works dealing with matters connected with his speciality, aged 63; Dr. H. L. E. Johnson, professor of gynaecology in the George Washington University, Washington, and consulting gynaecologist to Providence Hospital and the United States Government Hospital for the Insane, representative of the Department of State at the International Congress of Hygiene held at Berlin in 1907, and at Budapest in 1909, aged 57; Dr. Maurice Langier, a former president of the French Society of Forensic Medicine; and Dr. J. G. Linthicum, sometime professor of the practice of medicine in the University of Baltimore, aged 81.

Medical News.

OWING to the death of the publisher, Signor Enrico Detken of Naples, the *Giornale Internazionale delle Scienze Mediche* has ceased to appear.

THE annual meeting of the Medical Sickness, Annuity, and Life Assurance Society will be held at the offices of the society, 300, High Holborn, W.C., on Tuesday, March 28th, at 4.30 p.m.

DR. JOHN CRUICKSHANK, Pathologist to the Crichton Royal Institution, Dumfries, and late assistant to the Professor of Pathology in the University of Glasgow, has been awarded the Foulis Memorial Scholarship by that university for distinction in original work in pathology.

SIGNOR SALANDRA, the Prime Minister of Italy, has, with the object of preventing waste of effort in the provision of aid and opportunities of re-education for the wounded, set up a committee comprising representatives of the services of public health and of the army and navy to study the best means of co-ordinating the work of public associations, institutes, and other public bodies for that purpose.

AT the annual meeting of the Liverpool Medical Institution on January 20th, Dr. C. J. Macalister was elected president, Dr. Llewellyn Morgan treasurer, Dr. Hubert Armstrong general secretary, Drs. John Hay and John Owen secretaries of ordinary meetings, Drs. Frank Barendt and J. Martin Beattie secretaries of pathological meetings, and Dr. R. W. MacKenna librarian and editor of the *Journal*.

AT the beginning of December the Italian Red Cross had established 31 hospitals at the front and 150 territorial hospitals, with 16,000 beds. It had mobilized 100 motor ambulances and 22 hospital trains. Besides these, it had at its disposal about a thousand automobiles, many of which were offered gratuitously for the work. The number of doctors was 1,500 and of nurses 2,000. The total personnel of the various services was 8,000.

THE American College of Surgeons, which has now about 3,400 Fellows in the United States and Canada, has recently announced that it has obtained from them an endowment fund of £100,000. The fund is to be held in perpetuity and the income only to be used to advance the purposes of the college. These are directly concerned with matters of character and training, with the betterment of hospitals, and of the teaching facilities of medical schools, and with laws relating to medical practice and privilege.

THE Central Midwives Board held its monthly meeting on January 20th, when Sir Francis Champneys presided. It declined to accede to requests of Queen Charlotte's and the City of London Lying-in Hospitals for the postponement of the operation of the new rules of training until January, 1917. In reply to a letter the Board resolved to ask the Essex County Council to reconsider a proposal to delegate its powers and duties under the Midwives Act, 1902. The names of eleven women were removed from the roll at their own request. A penal cases meeting was held on January 21st, when Sir Francis Champneys again presided. Eight cases were on the agenda, and four of the women were charged with not being of sober habits. Seven out of the number were struck off the roll, and in the eighth case judgement was postponed for reports from the local supervising authorities in three and six months.

THE Right Hon. Henry Hobhouse has been appointed Chairman of the Departmental Committee of the Board of Agriculture on the settlement and employment on the land of discharged soldiers and sailors, in the place of Sir Harry Verney, Bt., M.P., who has received a commission in the army. Mr. H. L. French, of the Board of Agriculture, has been appointed secretary of the Committee. Sir Rider Haggard is about to start, as representative of the Royal Colonial Institute, on a mission to the Dominions for the settlement of ex-service men from the United Kingdom on the land overseas at the conclusion of the war.

IN a German work, an English translation of which has been published recently under the title *Emergencies in Medical Practice*, the author, one Dr. Richard Lenzmann of Duisberg, with a truly prophetic instinct, devotes a chapter to "Poisoning by irrespirable gases," in which he deals at some length with those that "distribute a peculiar odour," to quote the translator's curiously un-English words. Into this group would of course fall chlorine, bromine, ammonia, and other asphyxiating and lacrymogenic gases on which German scientists are entitled to

speak with the authority begotten of close study and accurate knowledge, inasmuch as the manufacturers of these gases for use in warfare never supposed that they would have to defend themselves against the consequences of their inhalation, an assumption which has not been borne out by events. It was certainly thoughtful on the author's part to discuss at length the question of treatment. No information, however, is vouchsafed as to the means of guarding against the effects of irritating gases, and the suggestions for treatment, even of such comparatively mild gases as carbonic oxide, coal gas, and sulphuretted hydrogen, are by no means up to date. Possibly the manuscript was censored in intelligent anticipation of coming events, otherwise it is difficult to account for the author's omission in this respect.

In the nineteenth annual report (for 1914) recently issued of the National Association for the Feeble-minded (Denison House, Vauxhall Bridge Road, S.W.) it is stated that the war has interfered with the establishment of institutions which the Mental Deficiency Act made it the duty of local authorities to supply, and that consequently accommodation furnished by existing voluntary homes was taxed to the full. The Princess Christian's Farm Colony at Hildenborough had provided an additional farm house designed "for boys of a slightly better social class." The older buildings urgently needed certain additions in the way of day-space, and in order to provide this an appeal is made for £500, failing which the alternative facing the Committee would be to discharge some twenty of the existing inmates. Several additional homes (notably those established by the Rev. H. N. Burden and his Incorporated Society and the Co-operative Sanatoriums at Billericay) have entered into federation with the National Association, and steps were taken to promote closer unity amongst federated homes for mutual help, counsel, and guidance. Two conferences with this object had been held, and the opinion was strongly expressed that in addition to large public institutions under the Act the continued existence of smaller voluntary homes was most desirable. During the year communications had been addressed to the managers of rescue homes with reference to the distinctive classification of feeble-minded inmates, and the prevalent absence of such classification had been brought under the notice of the Board of Control. The report states that 673 applications had been dealt with in the twelve months preceding its issue. Notes are also given concerning some of the homes in connexion with the association, the complete list of which shows aggregate accommodation for over 2,000 inmates in 25 voluntary establishments, either "certified" or "approved" under the Mental Deficiency Act.

THE Central Association for the Care of the Mentally Defective (30 and 31, Queen Anne's Chambers, Tothill Street, S.W.) originated at a meeting called by the National Association for the Feeble-minded in November, 1913, when it was resolved to form a "central organizing body representing the statutory authorities concerned in the care of defectives and the voluntary institutions, homes, and societies dealing with defectives, both directly and incidentally, in the course of their social work." It was subsequently incorporated under the Companies Act, and among the objects set forth in the memorandum of association are the promotion of suitable treatment of mental defectives in England and Wales, the rendering of assistance (when requested) to public authorities in carrying out the Acts relating to defectives, and the formation of local branches in the various statutory areas. It is designed also to serve as a means of communication between local voluntary organizations and Government departments and local authorities. It will seek to organize the training of teachers, visitors, guardians, attendants, and others concerned in the care of defectives, to give assistance in the case of individual defectives not under statutory authorities, and to keep records of such defectives and of societies and institutions dealing with defectives. From the first report of the council (which deals with the period to July 22nd, 1915) it appears that considerable progress has been made in carrying out these objects in spite of difficulties caused by the war; twenty-five local voluntary associations have been formed, a scheme of training for special teachers has been drawn up and submitted to the Board of Education, and a course of instruction for visitors and officials established. The Board of Control has recognized the practical work done by the association and shown its confidence therein by financial grants under Section 43 of the Mental Deficiency Act to the amount of £300. The report closes with an interesting account of the summer school for teachers of mentally defective children held under the auspices of the association in July last.

Letters, Notes, and Answers.

THE telegraphic addresses of the BRITISH MEDICAL ASSOCIATION and JOURNAL are: (1) EDITOR of the BRITISH MEDICAL JOURNAL, *Attilage, Westrand, London*; telephone, 2631, Gerrard. (2) FINANCIAL SECRETARY AND BUSINESS MANAGER (advertisements, etc.), *Articulate, Westrand, London*; telephone, 2630, Gerrard. (3) MEDICAL SECRETARY, *Mediscra, Westrand, London*; telephone, 2634, Gerrard. The address of the Irish office of the British Medical Association is 16, South Frederick Street, Dublin.

LETTERS, NOTES, ETC.

EPILEPSY.

DR. A. G. CRIEB (G.M.O., Millthorpe, N.S.W.) writes: Some years ago one of my patients, a rheumatic subject, who used methyl-salicylate ointment frequently for lumbago, told me that it acted like a charm when rubbed into his chilblains. I followed this clue, and have long ago come to the conclusion that chilblains in the majority of cases are due to uric acid, and I treat the patients accordingly. A purin-free diet, a mixture of sodium salicylate and potassium bicarbonate with cascara, and the methyl-salicylate ointment rubbed well in night and morning, will quickly relieve the patient. In the JOURNAL of October 23rd, 1915, Dr. Mercier discusses the value and necessity of bromides in epilepsy. The late Sir William Gowers introduced borax in this disease, and I always combine it with the bromides. I am of opinion that a purin-free diet with a rural life is of more importance than the administration of drugs.

WHOOPIING-COUGH AND KINKHOST.

WITH reference to a note under this heading which appeared in the JOURNAL of January 8th, p. 76, Dr. J. A. Nixon, of Clifton, refers to Hecker's *Epidemics* (Sydenham Society, 1844, p. 219) for an account of the origin of the term "Coqueluche" as applied to whooping-cough. Hecker adds little to the authorities quoted in the note. In an account of epidemics of influenza he says: "The French, who, from the levity of their character [Hecker was, of course, a German], have always called serious things by jocose names, designate this disease *Coqueluche* (the monk's hood), because, owing to the extreme sensibility of the skin to cold and currents of air, this kind of hood was generally necessary, and was a protection against an attack of the malady as well as against its increase." The term was first employed during a severe epidemic in Paris in 1414 in which all who had the complaint suffered from hoarseness, and all public business was interrupted. This is the epidemic of which Mézeray speaks in his *Abregé chronologique de l'histoire de France* (Paris, 1690), where he says: "Un étrange rhume qu'on nomma coqueluche, lequel tourmenta toute sorte de personnes, et leur rendit la voix si enrouée que le barreau et les collèges en furent muets." The word *coqueluche* was afterwards applied to whooping-cough. To Hecker's reference we may add the following: Kurt Sprengel in his history of medicine (French translation by A. J. L. Jourdan, second edition, Paris, MDCCCXV, t. iii, p. 85) says *coqueluche* was by some connected with *cucullio*, a hood, while others derived it from *coquelicot*, the wild poppy, because the syrup of that plant was first used in the treatment of the disease. Skeat may also be quoted (*Etymological Dictionary, sub voce*): "Chincough, the whooping-cough. (E). 'No, it shall ne'er be said in our country Thou dy'st of the chin-cough' (Beaumont and Fletcher; *Bonduca*, 1. 2). It stands for *chink cough*; prov. Eng. and Scot. *Kink-cough* or *kink-host* where *host* means 'a cough.' Cf. Scot. *Kink*, to labour for breath in a severe fit of coughing (Jamieson). It is an English word, as shown by 'cincing, cacinatio' in a glossary, printed in Wright's *Vocab.*, 1, 50, col. 2; which shows that *kink* was also used of a loud fit of laughter. *Kink* is a nasalized form of a root *kik*, signifying 'to choke,' or 'to gasp'; an imitative word like *Cackle*, . . . + Du. *Kinkhoest*, the chincough, whooping-cough; O. Du. *Kiechhoest*, *Kichhoest*, the same (Kilian). + Swed. *Kikhosta*, the chincough; *Kik-na*, to gasp, to pant (where the *n* is formative, to give the word a passive sense, the lit. meaning being 'to become choked'). + Dan. *Kighoste*, the whooping-cough. + G. *Keichen*, to pant, gasp. B. A stronger form of this root *KIK*, to gasp, appears in the English *choke*. . . . Indeed, the word *cough* is also related to it."

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

		£	s.	d.
Seven lines and under	...	0	5	0
Each additional line	...	0	0	8
A whole column	...	3	10	0
A page	...	10	0	0

An average line contains six words.

All remittances by Post Office Orders must be made payable to the British Medical Association at the General Post Office, London. No responsibility will be accepted for any such remittance not so safeguarded.

Advertisements should be delivered, addressed to the Manager, 429, Strand, London, not later than the first post on Wednesday morning preceding publication, and, if not paid for at the time, should be accompanied by a reference.

NOTE.—It is against the rules of the Post Office to receive *poste restante* letters addressed either in initials or numbers.

ANTENATAL CLINICS AND PREMATERNITY PRACTICE AT THE EDINBURGH ROYAL MATERNITY HOSPITAL IN THE YEARS 1909-1915.

By J. W. BALLANTYNE, M.D., F.R.C.P.E.,

PHYSICIAN, EDINBURGH ROYAL MATERNITY HOSPITAL; LECTURER ON MIDWIFERY AND GYNAECOLOGY, SCHOOL OF MEDICINE OF THE ROYAL COLLEGES, EDINBURGH, ETC.

In November, 1901, prematernity work was definitely commenced in the Edinburgh Royal Maternity Hospital with the opening of the Hamilton Bed—a bed set apart and endowed for the purpose of the treatment of the diseases peculiar to, or accidental during, pregnancy. A few years later, with the consent of the directors of the hospital, the bed became a ward, and was known as the "prematernity ward"; and I have from time to time reported on the work done therein, sometimes in the form of descriptions of special cases, and at other times in that of lists of maladies dealt with. My last report, which summarized the cases treated in the autumn quarter of 1908, appeared in the February and March parts of the *Journal of Obstetrics and Gynaecology of the British Empire* for 1909.¹ Since 1908 I have continued to be in charge of the hospital during the autumn quarter of each year, and I now bring forward notes on the cases dealt with during these seven recurring periods in the pre-maternity ward.

Before, however, the records of these experiences are set forth it may be useful and interesting to outline the extensions of the prematernity and antenatal work of the hospital during the past few years. No sooner had the prematernity ward been opened than it became evident that patients entering it were being supplied from at least three different sources—medical men in and around Edinburgh, knowing of its existence, began to send in suitable cases, and in this manner the majority of the women arrived for treatment; a few patients apparently came on their own initiative; and others were recommended to come in by the nurses of the hospital who happened, in the discharge of their duties in the outdoor department, to meet with expectant mothers suffering in one way or another from the maladies of gestation. The result was that almost automatically the prematernity work began to develop along these three lines; and, as a consequence, I have never had any lack of cases during the autumn quarter in the last seven years, and in the last three or four years the supply of patients has been such as to force me to accommodate some of the incomers in another small ward of four beds known as the "first stage ward." A few have had to be temporarily placed in the large general wards of the institution.

The extension of the supply of patients through the dissemination of information regarding the existence of the prematernity department has been gradual and continuous. The publication from time to time in the medical journals of the result of cases treated in the hospital has no doubt tended to make the work familiar to a large circle of medical men, and the district served by the hospital has thus been widened, so that in 1914 several patients from long distances were inmates of the ward for longer or shorter periods. As other maternity hospitals establish the same kind of work this source of supply may cease to expand so rapidly.

Antenatal Work in the Extern Department.

Another direction of development has been through the extern department of the hospital and the nurses working in it. At first antenatal work in this sphere was irregular, haphazard, and on a small scale; individual pregnant women occasionally came to the hospital to put down their names to secure attendance at their confinement, and at the same time asked advice in connexion with troubles from which they were suffering, with the result that now and again one would enter the prematernity ward; and nurses, on their rounds in the extern department, sometimes heard of women whose pregnancies were not proceeding normally, and got into touch with them, either giving them advice in minor matters or bringing them into hospital in more serious cases. During the autumn quarter of 1913²

this sort of work was systematized and considerably extended. I then made arrangements whereby a trained nurse with special knowledge of pregnancy troubles was made available for work in the "district" (as the extern department is called), and she visited expectant mothers, giving advice as to the preparations for confinement, making inquiries respecting health, and in particular taking notice of any of the danger signals of the pregnant state, such as headache, oedema of face and hands, excessive vomiting, rickety deformities, and the like. She reported to the matron and the medical staff in the hospital. In cases of grave trouble the patient was brought into the prematernity ward, and in less serious cases she was visited by one of the resident medical officers, and watched over by the pregnancy or prematernity nurse in her own home. Most of the patients with whom the hospital thus got into early touch were married women, the unmarried girls reaching the institution through another channel, to which reference will be immediately made.

In order to aid the prematernity nurses in their work among the expectant mothers of the extern department I constructed and had printed a Prematernity Card, setting forth the most important questions to be inquired into and reported upon. These cards were put into use in September, 1913, and were soon found to be of great value. Each card (*vide infra*) had spaces for answers to questions regarding, first, certain general

PREMATERNITY CARD (Edinburgh Royal Maternity Hospital).

1. Name
2. Age.....
3. Address.....
4. No. of Pregnancy
5. Details of past pregnancies, labours, nursings, etc.
6. Expected Date of Confinement
7. Details of present pregnancy, especially as to danger signals:
 - (a) Excessive vomiting.....
 - (b) Persistent headache.....
 - (c) Small quantity of urine.....
 - (d) Discharge, red or white.....
 - (e) Excessive constipation
 - (f) Impaired vision
 - (g) Any other unusual sign, for example, swelling of hands and face.
8. Advice given as to
 - (a) Food. (b) Clothing. (c) Exercise and rest.
 - (d) Straining or reaching. (e) Medicines.
 - (f) Care of breasts and teeth. (g) Medical advice. (h) Preparations for Confinement and baby clothes. (i) Healthy living rooms.

matters such as name, age, and address of patient; second, the number of the pregnancy, the details of past pregnancies; and the expected date of confinement (that is, the age of the gestation); third, the details of the present pregnancy, especially in respect of such danger signals as excessive vomiting, persistent headache, diminished flow of urine, red discharge, excessive constipation, impaired vision, and the like; and fourth, regarding the advice given by the prematernity nurse as to food, clothing, exercise, rest, straining, medicines, care of breasts and teeth, medical advice (at the hospital), preparations for confinement (in the home), and the like. After filling in the answers to the preliminary questions the visiting nurse was instructed simply to place a cross opposite any one or more than one of the danger signals, and similarly to put a mark opposite the advice she had given. For instance, a card might be returned with a cross opposite "impaired vision," and another alongside of "medical advice"; as the result of the reception of this card one of the medical officers would visit the woman, would probably find that she was suffering from albuminuria and retinitis, and would be able to take such measures as might save her from eclampsia. The patient might have noticed her failing eyesight, but might not have thought of telling the nurse about it had not the question been directly put to her. As a matter of fact such a case occurred in the extern department of the hospital simply as a result of the prematernity nurse asking questions, and this case had not a little to do with my determination to provide the card of inquiry.

As has been stated, married women were the patients most effectively reached by the prematernity nurses. They heard of them when visiting other patients, and,

after finding out that they were not already being looked after by doctor or midwife, they offered their advice, often with the result that timeous arrangements were made for confinement, baby clothes were looked after, and many other preliminaries carried out which would otherwise have been postponed or never done at all. Reference has been made to the way in which the unmarried girls were reached. In this respect the hospital was very fortunate in having situated opposite to it the Lauriston Place Home for Maternity Rescue Work. In this institution³ young girls illegitimately pregnant for the first time are cared for, and in many cases saved from the further disasters which so often follow upon such lapses from virtue; but, further, these girls are kept under medical supervision, a medical man regularly visiting the home, and watching for early signs of the maladies of pregnancy. In this way deviations from the normal have been on many occasions promptly recognized; in some instances the requisite treatment has been applied in the home with immediately beneficial results, whilst in others the girl has been transferred to the prematernity ward of the adjacent Royal Maternity Hospital for the more specialized management which the morbid condition called for. It is an undoubted fact that by this means many primiparous patients have in recent years been protected from the development of eclampsia, and have been carried safely through their confinements, who would otherwise have suffered severely and might well have lost their lives. There can be no hesitation in saying the Prematernity Rescue Home and the prematernity ward in the Royal Maternity Hospital have worked most usefully into each other's hands, and have by their conjoined efforts saved many lives and lessened much suffering.

ANTENATAL WORK IN THE HOSPITAL.

During the summer of 1915 a further advance was made in the organization of the prematernity and antenatal work carried on in the Royal Maternity Hospital. This consisted in the establishment of a weekly antenatal clinic, under the care of the physician or the assistant physician of the hospital for the time being. Two rooms were set apart and fitted up for the purpose, and in them regular antenatal clinics were commenced in June, 1915, under the care of Dr. Haig Ferguson, whose quarter it was. When I came on duty on July 1st the work which had been so auspiciously begun was continued, and Dr. Oliphant Nicholson, the assistant physician, saw many an interesting case of disease in pregnancy during the following three months. Some cases were immediately taken into the prematernity ward, others were treated at the clinic, and yet others at their own homes in the extern department, and others again were simply asked to report themselves at intervals for supervision. Another weekly clinic was instituted at the same time for infants recently born in connexion with either the indoor or the outdoor work of the hospital, and so post-natal is added to antenatal care of the babies. The directors of the hospital present to each of the expectant mothers visiting the clinic a copy of my little booklet (*Hints to the Expectant Mother on Her Health*), published in 1915 by the Women's Co-operative Guild of London. This has also been freely used in the extern department of the hospital, and has to some extent taken the place of the prematernity cards above referred to. Through the antenatal clinic there can be no doubt that the hospital comes into more immediate and earlier touch with just the patients who may be most benefited by prematernity care and treatment. It has, so to say, completed the prematernity system of the hospital.

During the autumn quarter of 1915 a number of interesting cases were dealt with in the antenatal clinic. There were two or three patients suffering from albuminuria; a heart case which was taken into the prematernity ward; an instance of excessive vomiting which was treated; a woman troubled with haemorrhoids, who was relieved; one with a contracted pelvis, who was told to come into hospital for induction of labour in a month; one who had had repeated miscarriages and whose past history in respect of syphilis was investigated; one who had given birth to dead infants, who was kept under observation; one who had had spurious pains and was assured of the fact; one who had had "fainting turns" from an undiscoverable cause, who was to be visited; one who was distressed by cystitis, and was given medicine; one who had chronic

constipation, which was overcome, and one whose pregnancy was doubtful. There were also cases of normal pregnancy, in which the mothers simply came for advice about their arrangements. There can be no doubt regarding the real value of these antenatal clinics, for through them the physician on duty gets to know of the health of pregnant women who will later become his patients in either the intern or extern departments of the hospital; his diagnosis and prognosis, and to some extent his treatment of the resulting confinements, are rendered more exact and much more effective, and the patients' chances of normal labours rendered better than they would otherwise be. Further, when more normal non-war times come, the teaching value of the clinic for undergraduates and post-graduates will be demonstrated more fully. Certainly opportunities for the careful diagnosis of normal, and especially of abnormal, pregnancies are thus greatly extended.

The Prematernity System.

The prematernity system of the hospital as it now exists may be described as follows: The prematernity ward is the centre of the whole work, for without it all the rest would be ineffective. The other means would not indeed be useless but they would be indecisive, and patients would be left in many cases incompletely dealt with. Consequently the other parts of the system are largely of the nature of sources of supply for the prematernity ward. They consist in the first place of the prematernity or prenatal nurses (to use the name given to them in Boston where they work under the Women's Municipal League), who come into touch with expectant mothers in the outdoor department of the hospital, and who, if necessary, recommend these "expectants" either to the antenatal clinic or to the prematernity ward. In the second place, there is the prematernity home for unmarried girls, where such young pregnant women are kept under medical supervision, and can be sent either into the general wards when they pass into labour, or into the prematernity ward if they develop serious complications of gestation; in the third place, of the antenatal clinic, whose range of usefulness has already been indicated, and need not be restated; and, in the fourth place, of the medical practitioners in the neighbourhood, who, with steadily increasing frequency, are sending suitable patients of the working class into hospital for prematernity treatment. The prematernity department of the hospital, naturally, is connected with the maternity portion, where the women are delivered of their infants and pass the days of the puerperium, and that again is reinforced by the baby clinics, to which the mothers are enjoined to bring their infants for supervision, weighing, and advice, and by the postnatal home for the unmarried mother and her first child.⁴ At the same time these agencies are not necessarily all brought into action in any case. It is not essential, for instance, that a woman treated in the prematernity ward wait in the hospital for her confinement; she may be relieved of her trouble while in the pregnancy ward, and thereafter return to her own home for her confinement; and this is a not infrequent occurrence in the case of maladies early in pregnancy, such as threatened abortions and troublesome vomiting.

PREMATERNITY WARD WORK, 1909-1915.

In the remaining part of this contribution I shall not try to give a complete account of the work done in the prematernity ward in the Edinburgh Royal Maternity Hospital during the autumn quarters of the seven years from 1909 to 1915, for that would constitute a very lengthy statement; but I shall give the numbers of the patients attending in these quarters, indicate the maladies from which they suffered, and a few notes in connexion with specially interesting cases.

Autumn Quarter, 1909.

In the autumn quarter of 1909 thirty-two patients passed through the prematernity ward. The following were the causes by reason of which these women were treated in the ward for morbid pregnancies: Of albuminurias there were five, and of eclampsias three, and to these eight cases special reference is made below. Three were received on account of varicose veins, three by reason of false pains, three for the induction of labour on account of

small size of the pelvis, three for heart disease, and three for convenience (homelessness, poverty). Two patients were admitted for threatened abortion, in both of whom the pregnancy continued. One patient was taken into the ward on account of symptoms arising from over-distension of the abdomen, which turned out to be due to twins; one for syphilis complicating pregnancy; one for a cervical cyst which it was feared might interfere with labour, but did not; one for inevitable abortion; one for phlebitis; one for croupous pneumonia; and one for an ovarian tumour, which was removed a few days later in the Royal Infirmary, where she was sent.

Whilst the maladies named were the outstanding ones from which the patients suffered, they were not the sole ones. For instance, one of the women, whose most evident trouble arose from varicose veins, had in a previous pregnancy been attacked by eclampsia; another, who is numbered with the albuminurias, came in for false pains; and the existence of a cervical cyst was quite accidentally discovered in another, who came to the hospital from the poorhouse.

Of the thirty-two mothers one only died. This was the patient sent in suffering from croupous pneumonia. She arrived in an ambulance from a town some miles out of Edinburgh, and was practically moribund on her arrival. She was put on oxygen inhalation soon after her admission, and was vigorously treated by stimulants and other appropriate means, but all the measures taken were ineffective, and she died undelivered. She was not at term. Of the remaining thirty-one mothers, six left the hospital undelivered but relieved of the maladies for which they were admitted; the six included the cases of threatened abortion, of varicose veins, and of false pains. Another undelivered woman (the one suffering from an ovarian tumour) went to the Royal Infirmary for ovariectomy. Twenty-four patients remained in or returned to the hospital for confinements, and they all left the institution in good or fairly good health after their deliveries. One death in thirty-two was a result which could be considered satisfactory when it was borne in mind that there were three eclampsias, five albuminurias, three heart cases (one of which was a very serious one), and a croupous pneumonia. The heart case just referred to was so grave that labour had to be induced; she lived for two years afterwards. The results so far as the infants were concerned were not so good; they numbered twenty-six, for in one case there were twins. Of the twenty-six, sixteen were alive when their mothers left the hospital, and to these might be fairly added the seven fetuses still unborn in the seven patients who left the institution undelivered; but the remaining ten died, eight of them antenatally, one during birth (from craniotomy), and one (a prematurely born child from a case of induction) some days later in the post-natal period. Of the eight antenatal deaths one was an abortion, one was due to syphilis, two were the result of eclampsia in the mothers, one fetus perished *in utero* (in the case of the maternal death), one death was due to maternal albuminuria, one to maternal heart disease (probably placental haemorrhage), and one from an unknown cause (prematurity?).

Nearly all these prematernity cases contained elements of interest in their records; but space can only be given for a brief reference to the three cases of eclampsia.

The first of them, a primipara, aged 25 years, was a few days short of the full term, and was sent to hospital after having had seven fits. On admission her blood pressure was 160, her pulse 91, and her temperature 99. Venesection was performed, the stomach was washed out with sodium bicarbonate solution, 10 oz. of Henry's solution were inserted into the stomach, a large enema was given, and normal saline was transfused subcutaneously. Improvement followed, and three days later she went into labour and was safely delivered of a living child. She had no fits after admission to the ward, and both she and her baby left the hospital well.

The second eclampsia patient was also primiparous, her age was 27, and her pregnancy was in the eighth month. She was sent into the hospital after having had five fits, and she had one after admission. The treatment consisted of stomach washing, the administration of 10 oz. of Henry's solution by stomach tube, a large enema, and the hot pack. She soon began to improve, and five days later she went into labour and was delivered of a dead-born male child, whose weight was only 4 lb. 2 oz. The mother made a good recovery. The third patient had a somewhat unusual experience, and it was a consideration of her case which led me to extend the treatment I was in the habit of giving in eclampsia to albuminuric patients who had not yet developed fits. She was only 17 years

of age; it was her first pregnancy, and she had reached the seventh month; she was sent into the prematernity ward on account of generalized oedema, diminished secretion of urine, and marked albuminuria. She had had no fits. I contented myself with ordering purgatives, diuretics, the hot pack, and an enema, and for five days there was steady improvement; then her blood pressure rose to 170, the fetal movements ceased, and the patient had a fit. On the following day she had two fits, and then venesection, intravenous transfusion (normal saline), stomach washing, and the running in of Henry's solution was performed. Improvement in certain of the symptoms followed, but she continued in a dangerous state for two days, at the end of which labour set in, and she was delivered of a dead male fetus, weighing 2½ lb. She made a slow but in the end a good recovery.

This last case was in one sense a disappointment, for I had hoped—and, indeed, had affirmed in teaching students and post-graduates—that if an albuminuric patient came into the prematernity ward and received treatment there for at least two days eclampsia could be staved off. In this instance eclampsia was not prevented. The lesson I learnt was to give to grave cases of albuminuria the same treatment, or part of it, as I was giving to actual eclampsias. In future I treated the serious cases of pre eclampsia just as if they had already had fits, sometimes doing a venesection, sometimes adding to that a gastric lavage with sodium bicarbonate solution, and sometimes transfusing as well. The change in management was simply a carrying of the principles of preventive treatment a little further back in the history of the case. In other words, I did not wait for the fits to develop before giving the treatment I thought necessary for them.

Autumn Quarter, 1910.

In the autumn quarter of 1910 twenty-nine patients passed through the prematernity ward. The conditions leading to their admission to the ward were as follow: Four were admitted for convenience (poverty, homelessness), three on account of albuminuria, three for the induction of labour on account of contraction of the pelvis, and one to wait for a Caesarean section for the same reason, two for spurious labour pains, two for heart disease, and one each for jaundice, retroversion of the gravid uterus, eclampsia, pyelonephritis, hyperemesis, oedema of limbs, haemorrhage at eighth month, haemorrhage at seventh month, syphilis and perhaps myxoedema, supposed appendicitis, threatened abortion, and diarrhoea and vomiting. There were two other interesting causes for admission. One was the occurrence of fetal death in previous pregnancies, and the other was the supervention of convulsions (soon after birth) in the infants born at previous labours.

All the mothers did well. Seventeen of them remained in the hospital for their deliveries, whilst twelve, for various reasons, left undelivered, but, as a rule, relieved of the trouble for which they were admitted, or remained for further treatment during the ensuing quarter. Of the seventeen mothers who went on to labour, fourteen gave birth to living children who left the hospital alive, whilst one (an albuminuric patient) expelled a dead fetus, one (a hyperemesis case) had abortion induced, and another (a woman with a contracted pelvis, especially narrow at the outlet) lost her child in labour. The last named case caused me more regret than any other during the quarter.

The woman had had four previous full term labours. With the help of forceps her doctor had delivered her of her first child, who, although in a state of asphyxia at the time of birth, had survived; but in the three following labours, which were all instrumental, the child was lost in each case. She had been warned to return to the hospital for induction on the occasion of her last labour, but she did not come in till she was in the eighth month. The interspinous diameter measured about 9 in. and the intercrural about 10 in., whilst the true conjugate was calculated to be a little over 3 in.; the outlet felt markedly narrow. It was regarded as a just minor type of deformed pelvis. Labour was induced, but both forceps and version having failed the child had to be craniotomized.

Two causes must be assigned for the untoward result. The first was a miscalculation of the possibility of the child passing through the pelvis, owing in part to the late date of induction, in part to the large size of the fetus, and in part to the unrealized narrowness of the outlet; and the second was the fact that in her first labour a living child was extracted with the help of forceps.

During this quarter a good deal of post-graduate

teaching was carried on in the hospital,* and I gave several clinics in the prematernity ward; one of these lectures was reported in the *International Clinics*.⁶ In it I gave an account of three interesting cases.

One was an instance of recurrent fetal death in a patient who in each of her three previous pregnancies was delivered of a child which had evidently perished *in utero* about a fortnight before its expulsion. She was pregnant for the fourth time, and besides watching the fetal heart carefully I ordered her to have calcium chloride and a mixture containing iron, arsenic, and strychnine. She went a little beyond the full term, and so I induced labour, and had the satisfaction of delivering her of a living child.

Another woman was successfully treated for retroversion of the gravid uterus causing difficulty in micturition; the uterus was replaced under an anaesthetic, and a pessary was introduced to keep it in position.

The third patient suffered from renal calculi and pronephrosis in pregnancy; she was operated on in the Royal Infirmary, the kidney being opened and the stones removed (nephrolithotomy); she then returned to the prematernity ward, where she remained till her labour, which took place normally; both mother and infant left the hospital in good health.

Amongst the cases treated at this time there was a curious one in which a patient was sent into the ward from the country by a doctor who reported that in each of her previous pregnancies (five in number) she had given birth to a living child which in every instance died from fits some weeks later. In one instance a *post-mortem* examination was made, which did not, however, reveal any cause for the fits. Her medical man (Dr. Andrew, of Windygates, in Fife) thought that perhaps some antenatal treatment might be administered through the mother which would prevent the next infant dying in the same way as the former ones. A very close examination of every one of the woman's systems was made, without, however, leading to the discovery of any anomaly in the working of any one of them. Thinking that perhaps the fetus might have suffered in previous pregnancies from deficiency of calcium salts or of phosphorus, I put the mother on hypophosphite of calcium and sodium, and after a stay in the ward of about a week she returned to her home to be under Dr. Andrew's care. I heard later from Dr. Andrew that once again she had given birth to a living and apparently healthy child who had developed fits at the end of a week. Treatment before birth, therefore, was of no avail in this case, but I have recorded it as of interest and as illustrating the sort of case which the prematernity ward attracts to the hospital and the new vistas of possible kinds of treatment it suggests.

Autumn Quarter, 1911.

In 1911 my quarter on duty in the maternity hospital was reduced by two weeks, in order to facilitate a re-adjustment of the terms of service of the medical staff; consequently, the number of patients who passed through the prematernity ward was reduced to 26. These patients came in for various causes. Three were admitted because they were supposed to be aborting, and two of them did abort, whilst the other was curetted when it was discovered that she had already expelled most of the gestation sac. Another patient was sent because of repeated premature labours with dead children; she did well. There were 5 cases of albuminuria; all these did well under appropriate treatment, with the result that the five mothers left the hospital in good health along with six children, for one of the labours ended in the birth of twins (with hydramnios). In one of these albuminuric patients there had been chorea in the early months of pregnancy (for which she had been treated in the prematernity ward); in the twin case the united weight of the infants was 10 lb. 5 oz., and in the remaining 3 cases the child weighed 8 lb. 6 oz., 8 lb. 13 oz., and 7 lb. 15 oz. respectively. It was therefore probable that in 4 of the cases the cause of the albuminuria was mechanical pressure or renal strain.

There were 3 cases of hyperemesis, and in all of them it was found necessary to induce abortion. Consequently all the fetal lives were lost, and there were four of them, for in one of the pregnancies there were twins. This was an unfortunate result; but in addition I had to deplore the death of one of the mothers. The fatal case was one of a woman, aged 40, pregnant for the fifth time (at the

fourth month). Her pulse was 110 when she was admitted, and it never fell below 100 either after or before the induction, and death occurred seven days *post abortum*. Another patient was sent in for gastric disturbance near the close of pregnancy; but she had a normal labour and a living child. There was some (unconfirmed) suspicion of gastric ulcer. Two women came in on account of troublesome constipation; both were relieved by appropriate treatment; one went out undelivered, as she was not near term, and the other remained in hospital for her confinement, which was normal. Two patients came in for spurious pains; in one case they settled down and she went out, her pregnancy continuing; in the other she went out, returned exactly fourteen days later, and had her baby normally.

Two patients were in the prematernity ward by reason of contracted pelvis. One of these women went into labour spontaneously and prematurely, while waiting in the ward, and had a living child who survived; the other, who had had Caesarean section on a previous occasion and had developed a large umbilical hernia, was kept in till full term, when I performed a second Caesarean section along with an operation for the closure of the hernia; both were successful. Of the remaining seven cases, one was admitted after a fall in pregnancy and an attack of haematemesis, but since no evil results followed she went home in eight days; one came in for bronchitis and varicose veins, and after a stay of a week was delivered naturally, with immediate improvement in the two morbid states; one was sent in for oedema of the legs, and after twelve days gave birth to a child weighing 9 lb. 6 oz., a circumstance which probably accounted for the oedema; one was given a bed for nearly a fortnight on account of threatened accidental haemorrhage, but since the red discharge did not return she went home for her confinement, which was not due for some weeks; one was sent up to the hospital on account of mental symptoms, and whilst in the hospital she tried to drink a bottle of lysol, but she became normal after her confinement, which, however, was three weeks post-mature; and another was admitted on account of phlebitis of the left leg which threatened to develop into phlegmasia alba dolens of pregnancy, but which, with rest in bed and other appropriate treatment subsided and was followed by a normal labour and puerperium. The last-named patient also suffered from an abscess in the leg which Mr. Wade (from the Royal Infirmary) opened after her confinement. The seventh of these cases was an interesting example of haematuria during pregnancy.

The woman was a III-gravida at the eighth month; for more than two months blood had been coming in the urine, and she had received treatment from her doctor, but lately the haemorrhage had been alarming, and it was so during the first five days after her admission to the hospital. As the cause was obscure, I asked Professor Caird (the consulting surgeon of the hospital) to see her with me. The result of a cystoscopic examination was the discovery of an ulcer at the fundus of the bladder, covered with a blood clot. Since she gave a positive von Pirquet reaction it was regarded as probable that the ulcer was tuberculous in nature. But whatever may have been the explanation the blood gradually diminished in amount, was quite gone eleven days later, and the patient had a normal labour and puerperium and a healthy male child weighing at birth 8 lb. 4 oz.

The results of the prematernity ward work for the autumn quarter of 1911 may be summed up as follows: Twenty-six mothers were under treatment; of these, 5 left the hospital undelivered but relieved of the trouble for which they entered; 1 died (the case of severe hyperemesis gravidarum); and the remaining 20 passed through labour and left the hospital well. In all there were 28 babies or fetuses, for in two of the confinements twins were born; of 5 of these nothing can be said, for the mothers went out before delivery; 7 fetuses (including one pair of twins) perished, but they were all non-viable; and the remaining 16 (including the second pair of twins) were all alive and well when taken from the hospital by their mothers.

REFERENCES.

- ¹ Prematernity Hospital Practice, *Journ. Obstet. and Gynaec. of the British Empire*, 1909, vol. xv, pp. 93, 169.
- ² *BRITISH MEDICAL JOURNAL*, 1913, ii, p. 825.
- ³ *BRITISH MEDICAL JOURNAL*, 1913, i, p. 579.
- ⁴ A. Dingwall Fordyce, *Edin. Med. Journ.*, 1915, N.S. xv, pp. 130-134.
- ⁵ *International Clinics*, 1911, 21 S., vol. iii, pp. 211-222.

(To be continued.)

* This was continued and developed in all the succeeding years save in 1915.

ON THE IMMEDIATE TREATMENT OF SEVERE POST-PARTUM HAEMORRHAGE.

BY

R. K. HOWAT, F.R.C.S.ENG., F.R.F.P.S.GLAS.,

HONORARY SURGEON, NORTH RIDING INFIRMARY, MIDDLESBROUGH.

The term "*post-partum* haemorrhage" is one which, in its accepted clinical significance, is incapable of exact definition. Its meaning is conventional, and may be described with fair accuracy as an abnormally severe haemorrhage from the parturient canal occurring within twenty-four hours after the birth of the child.

The source assigned indicates the idea of the purely obstetric nature of the haemorrhage. The time limit has been arbitrarily fixed for convenience. The measure of quantity is unavoidably vague. Practically, it is the opinion of the medical attendant in the particular case that the haemorrhage is sufficiently severe to call for measures for its arrest, and to merit the term "*post-partum* haemorrhage."

Cases of *post-partum* haemorrhage are usually classified in three groups according to their causes, which in turn indicate the appropriate lines of treatment:

1. Laceration of the parturient canal.
2. Retention of the placenta (partial or complete) within the uterus.
3. Inadequate shrinkage of the uterus.

Obviously any two or all three of these conditions may coexist. In all of these cases, as indeed in all cases of haemorrhage in whatever situation, treatment has three successive objects, namely:

1. The immediate arrest of the haemorrhage.
2. The immediately succeeding maintenance of this arrest.
3. The permanent closure of the bleeding vessels.

The general principles of treatment are the same for all cases. The particular means employed for the first and second objects may properly depend to some extent on the severity of the haemorrhage in the particular case, and the same means can promote both objects. The third object is attained by purely natural means, namely, the formation and growth of new tissue.

Post-partum Haemorrhage due to Laceration of the Parturient Canal.

Its nature is proved by seeing or feeling the laceration or lacerations. Failing this, it may be confidently inferred from the presence of its characteristic feature, namely, persistence of the haemorrhage, despite firm uterine contraction, more especially after complete expulsion of the placenta. Treatment consists in suturing or plugging the lacerations.

Post-partum Haemorrhage from Retention in the Uterus of the Placenta.

When due to retention of the placenta in whole or in part, the haemorrhage takes place from the open blood channels in the uterine wall and in the placenta (when the latter is only partially separated). The haemorrhage here implies placental separation in some degree, for while the placenta is yet entirely attached to the uterine wall (that is, while as yet no separation whatever has occurred) the blood channels are intact, and therefore no haemorrhage can occur. Under normal conditions the same forces—contraction and retraction of the uterus—simultaneously cause separation of the placenta and closure (by compression) of the opened blood channels in the uterine wall. This sealing effect is maintained until clotting and organization perpetuate it.

With the commencement of placental separation the possibility of *post-partum* haemorrhage begins, and if at any time thereafter and before permanent haemostasis is secured shrinkage of the uterus fail and flaccidity occur, then the temporary sealing of the torn blood channels is liable to become undone and consequent haemorrhage to set in. Obviously, then, the later in the process of placental separation flaccidity of the uterus occurs the larger is the number of blood channels thus opened, and *pro tanto* the severer is the haemorrhage likely to be. Indeed,

the most serious and immediately dangerous cases of *post-partum* haemorrhage are to be found amongst those in which haemorrhage begins after the placenta has been delivered.

The two ready means of resolving doubt as to whether any placental tissue has been retained are inspection of the placenta delivered and palpation of the uterine interior.

In *post-partum* haemorrhage from retained placenta the essentials of treatment are two: (1) to empty the uterus—that is, to remove whatever part of the placenta is still within its cavity, and (2) to promote uterine contraction. Should haemorrhage continue despite complete removal of the placenta the case automatically passes into the next class, and is to be treated accordingly.

Post-partum Haemorrhage from Uterine Flaccidity after Expulsion of the Placenta.

Severe degrees of this form the more immediate subject of this paper. Different terms (for example, atony) have been used to denote the condition of the uterine wall. It matters comparatively little what terms are used provided that one has a clear mental picture of the essential feature, namely, an absence (more or less complete) of the normal shrinkage of the uterus, which shrinkage is due to contraction and retraction of the muscle fibres in the uterine walls.

Where *post-partum* haemorrhage of this kind is a continuance of a haemorrhage preceding expulsion of the placenta the medical attendant is in a favourable position to check it, because, engaged in the delivery of the placenta, he is bound to be aware of its existence at the earliest stage.

Matters are very different where haemorrhage begins after expulsion of the placenta. Here one meets with the gravest cases of *post-partum* haemorrhage. Probably no haemorrhage of equal severity occurs in circumstances so little likely to attract the immediate notice of either the medical attendant or the patient. Here is no dramatic violence compelling attention as in the case of surface wounds. There is here no pain to enforce complaint, such as accompanies the blanching haemorrhage of ruptured tubal pregnancy. Unlike a haematemesis, this haemorrhage, occurring under bedclothes, is unseen. The patient, exhausted by her confinement, is at first aware only of an increase in the flow of warm discharge, which she has no reason to suppose is not quite usual and natural. She soon feels faint but not surprised, and almost immediately is beyond power of speech. Such are the cases in which the medical attendant, having delivered the placenta, felt the uterus to be contracted, and finished his bedside duties, inspects the child, washes his hands, and, returning to his patient's side, is staggered to find her blanched, breathing almost imperceptibly, scarcely conscious, dying.

It is when faced with such a situation as this that one appreciates the immense advantage of having at instant command a simple, direct, efficacious, and easily applied line of treatment which has been thought out by oneself beforehand. It may be said that this is so self-evident and is so universally realized as to call for no remark. Experience in cases seen in consultation has proved the contrary. Conversation with different medical men has confirmed this conclusion. A reference to various textbooks in the English language suggests that their authors have succeeded in describing an encyclopaedic list of the different means that have at any time been used to check *post-partum* haemorrhage rather than in giving a clear lead in the selection and precise application of the best.

This paper has been written in order to emphasize the importance of a pre-determined line of treatment, to describe and discuss a method used by the writer for a number of years with good results, and to urge the great value of a particular measure in that treatment—namely, immediate elevation of the bleeding surface.

The morbid condition is a mixed haemorrhage, of which the immediate cause is uterine flaccidity, and the predisposing causes are any and all conditions that make for uterine flaccidity. That the haemorrhage is in part arterial is indicated by the immediate effect of compression of the abdominal aorta. That it is in part venous is indicated by its colour. The arterial haemorrhage is by onward flow from the curling arteries. The venous

haemorrhage is by regurgitation through the uterine veins, facilitated by the absence of valves from them and from the veins that they feed.

Uterine flaccidity connotes corresponding inadequacy in the mechanical closure by muscular compression of the blood channels traversing the uterine wall at the placental site. It is almost certainly not the only causal factor in every case, but in every case it is to be regarded as the dominant one, and the only one to which attention need be primarily given. Where adequate retraction and contraction exist no *post-partum* haemorrhage occurs.

The conditions predisposing to uterine flaccidity fall into two main groups which obviously are not mutually exclusive, namely:

1. *Conditions existing before labour, and facilitating uterine exhaustion*, including, besides any condition of impaired health, what one can at present only label as "idiosyncrasy," exemplified by those women who, despite reasonably good health and easy labours, suffer from *post-partum* haemorrhage in confinement after confinement. Such a condition cannot be forecast in a first confinement, and need never be overlooked in a subsequent one.

2. *Conditions occurring during labour, and producing uterine exhaustion*—a group practically equivalent to unduly prolonged and unduly precipitate delivery—for example, rapid delivery by forceps after a tedious second stage with consequent failure of pains. Even here the risk of *post-partum* haemorrhage is much diminished by leaving the placenta alone—not seeking by manual compression of the uterus to separate and expel it immediately.

Circumstances Governing Choice of Treatment.

Of these the first is the fact that the haemorrhage is severe, threatening life. Hence the measures chosen should be of prompt applicability and of immediate effect. They should be in action within a few seconds. The other circumstances are chiefly domestic. The majority of confinements take place in cottage homes (often lacking conveniences) where assistance is relatively slight and often unskilled. Here measures of treatment which are and ought to be matters of course in a lying-in hospital are out of the question. The *essentials* of treatment must therefore be independent of all but the most primitive accessories. The mechanism must be personal to the medical attendant. In fine it consists of his head and his hands.

In applying these considerations it is well to regard the problem not as peculiarly an obstetric one, but substantially as a problem in first aid to the wounded, the approximate but not the precise seat of the wound being known. The first object of treatment is the immediate arrest of haemorrhage. Precisely the same principles apply, precisely the same kind of measures should be employed, as in the case of a severely bleeding wound of a limb, namely:

1. Pressure—(a) Proximal to the bleeding area.
(b) Local—at the bleeding area.
2. Elevation of the bleeding area.

The facility with which these measures can be applied depends to some extent on the assistance at command. Single-handed one can apply pressure. With one assistant it is possible to carry out both lines of treatment simultaneously. But the help of a second assistant greatly facilitates matters. There must be few occasions on which this assistance is not available.

The procedure here advocated may be described in connexion with an imaginary case. The patient's appearance suggests the condition present. The bedclothes are at once thrown off and the quantity of blood seen practically clinches the diagnosis. With one hand the abdominal aorta is compressed—an easy thing to do through the lax abdominal wall, and one which should not require more than three seconds. Meanwhile the nurse is called to the bedside and further assistance, if not in the room, is shouted for. The other hand separates the thighs and is then passed into the vagina. The cervix is felt and grasped with moderate firmness in order to steady it and so help the other hand in its next manoeuvre. As soon as this is done the abdominal hand, leaving the aorta for the moment, "gathers" the relaxed and blood-filled uterus in its hollow, squeezes it, and presses it down in an ante-flexed position against the vaginal hand, which meanwhile has been shut and moved into the anterior vaginal fornix.

The anterior and posterior uterine walls are now pressed against each other by the two hands. At the same time some pressure, if thought desirable, is made on the aorta by the back of the wrist of the abdominal hand.

While this is being done an assistant places a pillow between the patient's head and the top of the bed to act as a buffer. As soon as the uterus is gripped between the attendant's hands the nurse lifts up the patient's pelvis as high as possible—practically to an angle of 60 or 70 degrees with the bed—that is, the patient is placed in the Trendelenburg position. The necessary counter pressure is given by the resistance of the bed-head to the head of the patient who now rests on the back of her shoulders, neck, and head. All the above manoeuvres need not occupy more than thirty or forty seconds.

Meanwhile the additional help, which by this time has arrived, prepares whatever is necessary and available to maintain the Trendelenburg position in order to relieve and set free the nurse. Suitable mechanical supports are pillows, etc., a partly inverted chair, and a towel or sheet as a sling from the bed-top. Others will readily suggest themselves.

The above measures will, with practical certainty, secure the complete arrest of haemorrhage as soon as they are in operation. No other *local* treatment is attempted. But if the patient's condition suggest danger from low blood pressure, then her arms and legs are raised to the vertical and held there by the assistants.

When the uterus is felt to be firmly contracted (and on no account before this is so) the vaginal hand is withdrawn, and is then available for other purposes, a wet pad being applied to the vulva as the hand is withdrawn.

As soon as uterine contraction and the patient's general condition are satisfactory the pelvis is lowered to an angle of about 30 degrees and the abdominal hand removed, being returned from time to time to observe the condition of the uterus. A binder is tightly applied. The patient is kept in this elevated position for as long as seems desirable—never less than several hours—her legs being supported in a horizontal position. Whatever additional measures may be thought desirable for the maintenance of haemostasis and uterine contraction are applied, and suitable arrangements are made for the patient's general comfort.

REMARKS ON THE FOREGOING.

Proximal Pressure: Compression of Aorta.—The object of this is to check arterial haemorrhage by preventing blood reaching the uterus. It is the first manoeuvre employed because it can be most quickly applied. Since almost the entire arterial blood supply of the uterus reaches it through the terminal branches of the aorta the effect of compression is to prevent this blood reaching the uterus, and *pro tanto* to diminish the haemorrhage. But compression of the aorta can have further effects. The uterus, being relaxed and containing much blood, extends a considerable distance up into the abdomen, lying in front of the aorta. Hence pressure on the aorta will be exerted through the uterine walls. The effects of this on the uterus will be to stimulate it in some degree to contract, to express blood from its interior, and to "block" the placental site should this be in the line of pressure.

As probably much of the haemorrhage is due to regurgitation from the iliac and caval veins it might be thought worth while to use the abdominal hand for simultaneous compression of the aorta and inferior vena cava. No doubt the greatly relaxed abdominal wall and low blood pressure would permit of this being readily enough done. But there are strong reasons against any attempt, for example, the slightly longer time required to get the hand into accurate position, the risk of failing completely to compress the aorta, the certain diversion by regurgitation to the uterine veins of blood returning from the lower limbs.

Local Pressure: Bimanual Compression of the Uterus.—pressure of the anterior and posterior uterine walls against each other between the abdominal hand and the fist in the anterior vaginal fornix—has three objects, namely: (1) To "block" the open blood channels of the placental site by direct pressure, and so to prevent escape of blood from them. (2) To empty the uterus of blood. (3) To stimulate the uterus to contract, and so itself to continue to fulfil the other two objects. The area specially sought to be affected

is the placental site. As the exact position of this is rarely known the entire uterus is compressed in order that the placental site may not be missed. The compression of the placental site is calculated to check *all* haemorrhage, arterial and venous.

Bimanual compression of the uterus, the internal hand being within the uterine cavity, has been advocated as having the following advantages over the above method—the better emptying of the uterus of blood; the more direct compression of the placental site; a greater stimulus to the uterus to contract. Granted that in each method reasonably strong pressure is exerted, then it may be said of the intrauterine method that its first advantage is probably *nil*, at most very slight; its second is *nil*; its third is real, but probably not great. The outstanding disadvantages (they imply the corresponding advantages of the vaginal method) are (1) that a larger area of the flaccid uterine wall will escape compression, and this area may contain the whole or part of the placental site; and (2) the greatly increased risk of intrauterine sepsis, and this in a patient but ill fitted to cope with it. This risk is very great, for the urgency of the case forbids time being spent in any attempt at surgical cleanliness of the hand immediately before its introduction.

Of the two methods, the intrauterine one has slight advantages, serious disadvantages. The balance of value is obvious.

Elevation of the Bleeding Area.

This is of the first importance on account of its efficacy, simplicity, and facility. The more nearly the patient's inverted trunk is to the vertical the more effective is this haemostatic. The effects of this position are that venous haemorrhage by regurgitation is rendered practically impossible, whilst arterial bleeding is greatly diminished. Indeed, where much blood has already been lost, and consequently the heart's action is feeble and the blood pressure low, it is probable that little, if any, arterial haemorrhage would occur even were no other treatment resorted to.

But further important effects follow. Elevation of the pelvis not only automatically lessens or arrests bleeding, it also by gravity drives the unshed venous blood back to the heart and facilitates the flow of blood to the brain, in both of these ways stimulating circulation and respiration at precisely the time when this is most urgently needed. Nay, further, should the patient's condition seem desperate despite these measures, it is enough in addition to have the four limbs held vertically up to secure that practically all the blood in the body is (anatomically) above the level of the navel. If this cannot secure enough blood nourishment to the vital centres there is nothing that can do so short of the introduction of fluid from without. The elevated position recommended greatly facilitates the rapid introduction and retention of such fluid—for example, enemata of hot saline solution.

The degree of elevation here advocated may suggest a risk of air embolism from "adspiration" into the uterus and thence to the uterine veins on withdrawal of the vaginal hand. Whatever this risk might be it is counteracted by two precautions, namely, (1) uterine contraction; the hand is not to be withdrawn from the vagina until this natural preventive is in active operation; while it is so in operation air may enter the vagina, but cannot enter the uterus; (2) closing the vaginal orifice with a wet pad on the vulva as the hand is withdrawn. This prevents a rush of air into the vagina.

CONCLUSION.

In the foregoing remarks I have sought to emphasize the great importance of high elevation of the pelvis as a *primary* measure because I know of no contra-indication to its use; because it does not interfere with any other appropriate measure of treatment; because it promptly, simply, and effectively deals with the immediate cause of great danger; and because it continues to act in the promotion of the patient's subsequent recovery. It is almost incredible that there have not been many men who on many occasions have used to check *post-partum* haemorrhage a measure so simple, easy and effective, resting on a principle so familiar as the law of gravity, and taught and employed time out of mind in connexion with wounds of the extremities. I have there-

fore been surprised to find that of the many obstetricians, general and special, to whom I have mentioned the matter in conversation, every one found the suggestion a novelty. I have looked up a number of English and American textbooks on midwifery. In none of these did I find any mention of this measure of treatment. It is true that elevation of the pelvis by raising the foot of the bed after arrest of haemorrhage has been secured is mentioned. But the employment of the high position as a primary measure rests on a quite different conception from the other. From that the elevation advocated in this paper differs in its object, its degree, and in the time and mode of its application. There would thus appear to be some ground for thinking that familiarity with the use of this measure is not as wide as it might be. It is for this reason that I have sought to call special attention to its value.

Of the whole line of immediate treatment advocated above, the essential value lies in these facts:—it is simple in application; it is prompt and effective in action; and it is entirely personal in its mechanism; that is, it is independent of environment, it needs no "apparatus," it is carried out as easily in a hut as in a hospital.

CAESAREAN SECTION IN A PITMAN'S COTTAGE.

By R. GORDON BELL, F.R.C.S. EDIN.,

SUNDERLAND; FORMERLY DEMONSTRATOR AND ASSISTANT TO THE PROFESSOR OF ANATOMY, UNIVERSITY OF GLASGOW.

On September 7th, 1915, I was asked by Dr. Anderson, of Seaham Colliery, to see a patient who had been fifteen hours in labour at full time without any signs of the head engaging in the pelvis. There was a history of two previous labours which had ended in the sacrifice of the child.

Measurements showed the conjugate diameter to be just over 3 in., and the promontory of the sacrum was within rather easy reach by digital examination.

As the parents were very unwilling to risk the loss of another child, and as the conditions demanded either craniotomy or Caesarean section, I elected to do the latter.

There was one clean room available; the removal of superfluous ornaments, hangings, and furniture was followed by a cleansing with a damp cloth and the spraying of the walls, floor, and ceiling with formalin; the room was then closed for two hours; this gave me the nearest approach possible in the circumstances to the surroundings of an operating-room. Meantime detailed preparations were made for the sterilizing of all necessary articles. Two drums of sterile dressings and masks can always be at hand, but in addition I transported a small Cathcart sterilizer, which was placed on a gas ring, and towels and gowns were steamed, sterilized, and dried in this. Instruments and gloves were easily dealt with in the small portable sterilizer contained in most operating bags. The skin of the patient was prepared in the usual way, and after being thoroughly dried, was coated with a 2½ per cent. solution of iodine in spirit and water.

Preparations were all completed within three hours from the time the message was received; the patient's condition was good, the pains strong and frequent, and re-examination revealed not the slightest progress.

The details of the operation scarcely differed from the description in Berkeley and Bouney's *Gynaecological Operations*, and included the use of boiled silk throughout except for skin sutures. A variation from their technique was, I think, a slight improvement for the prevention of haemorrhage from the cut uterine surfaces. A large vulcanite pessary was boiled along with the instruments, moulded to the shape of a cartouche, fixed in this position by tying with silk while it was still plastic, and re-hardened in cold, sterile water. By pressing firmly on one side of this myself, and the assistant doing the same on the other side, we had no difficulty in avoiding bleeding. I believe this method was suggested years ago by Professor Murdoch Cameron of Glasgow.

The child, a girl weighing 8 lb., was easily removed and breathed at once. It lacked the usual frontal and occipital moulding of the ordinary baby, and therefore looked more

like a child a month old. The mother made an uninterrupted recovery; the pulse never rose above 76, and the temperature was normal throughout, not showing even the ordinary rise when the milk flow was established on the third day.

An examination of the pelvic brim from inside showed the promontory of the sacrum projecting forward and considerably larger and wider than usual. The os was very fully dilated, and there was free drainage by the vagina in the normal way.

I should much have preferred the comfort of a nursing home for this operation, but it was not possible, and I am convinced that many operations involving the transport of the patient by road could quite well be done at home. Except for the air and dust of the ordinary room, one can have all the other essentials of complete asepsis, provided one has a good surgical nurse. But, of course, it is more trouble.

In 1907, at the spring meeting of the Northumberland and Durham Medical Society, I showed a number of major abdominal operations done in private houses, and an interesting discussion took place on the possibility of doing most operations in the homes of patients, and thus relieving the pressure on hospitals.

I was much indebted to Dr. William MacMurray for valuable help, to Dr. Anderson for very efficient anaesthetizing, and to Nurse French for vigilant preparations both before and after the operation.

THE INFLUENCE OF SYPHILIS ON THE CHANCES OF PROGENY.

BY

N. BISHOP HARMAN, M.A., M.B.CANTAB., F.R.C.S. Eng.,
OPHTHALMIC SURGEON TO THE WEST LONDON HOSPITAL; THE
BELGRAVE HOSPITAL FOR CHILDREN; AND THE WEST
END HOSPITAL FOR NERVOUS DISEASES.

THE effect of syphilis on the child-bearing capability of a woman is well-known, but there are few definite figures that set out this common knowledge in an easily remembered fashion; for this reason the figures presented in this paper may be of interest.

At the annual meeting of the British Medical Association in Aberdeen (1914), I presented to the Ophthalmological Section a paper giving a return of the causes of blindness in eleven hundred children, with special reference to the influence of venereal disease.¹

In the investigation of the case-papers of these 1,100 children I found, in a large number of cases of children whose blindness was the undoubted effect of parental syphilis, that I had investigated the family history—that is to say, the mother of the child had been seen and the history of her married life, so far as its results in the matter of pregnancies and the results of these pregnancies were concerned, had been tabulated. These detailed family histories number 150. In each of these families one or more of the children had been under my care, often for many years, and were undoubted sufferers from congenital or inherited syphilis. Besides the state of blindness due to this cause, either by reason of interstitial keratitis, iritis, or disseminated choroiditis, there were other indubitable signs of syphilis in Hutchinsonian teeth, the characteristic physiognomy, radiating scars at the angles of the mouth, evidence of bone or joint disease, ulceration of the nose or palate, deafness. Whatever may be said for and against the evidential value of the widely-used blood tests for syphilis, there is no doubt in the minds of any one of the certainty of the evidence presented by the finding of these other clinical features. Hutchinsonian teeth alone give certainty; the association of this form of teeth with one or more of these other clinical characters provides a superabundance of certainty. This was the fact with regard to these 150 families; in no less than 68.5 per cent. Hutchinsonian teeth were present in the blind child of the family, and besides the teeth, one, two, or three other symptoms were noted. In those cases where the evidence of the teeth was lacking there were the other symptoms in sufficient number to leave no room for doubt as to the cause of the state of blindness.

TABLE I.—One Hundred and Fifty Syphilitic Families.

No. of Pregnancies for each Mother.	No. of Families.	Healthy Children.	Mis-carriages	Still-births.	Infant Deaths	Affected by Syphilis.
18	1	10	—	—	7	1
17	1	6	—	7	1	1
16	1	1	—	—	14	1
15	1	6	2	1	—	1
14	3	11	—	7	13	6
13	5	17	4	10	26	8
12	4	21	6	7	11	3
11	10	50	—	—	33	13
10	7	32	—	3	18	9
9	10	33	11	7	22	17
8	16	54	24	7	17	27
7	15	50	9	4	18	24
6	14	24	3	8	14	25
5	11	23	3	6	—	17
4	17	22	4	5	19	18
3	13	16	2	1	3	17
2	10	4	1	1	3	11
1	11	—	—	—	—	11
Totals ...	150*	390	92	80	229	210

* = 1,001 pregnancies.

Amongst the eleven families to which only one child was born there were four illegitimate unions and the progeny therefrom; all these eleven were blind children and alive at the time of the inquiry.

The column "healthy children" includes all those children reported healthy by their parents or guardians. In the majority of cases it was not possible to examine them, so that the statement of health must be taken with reservations. It also includes those children who had died from accidental causes or from febrile conditions from the age of 3 years and onwards where there was no reason to suspect that the fatal disorder was connected with syphilis.

The column headed "affected by syphilis" includes all those seen by me and ascertained to be the subjects of definite syphilitic conditions. Taking into consideration the statement made regarding those entered as "healthy" it will be seen that any error in the table under-estimates the number of the syphilitic and over-estimates the number of "healthy."

The history of these 150 families set out by themselves would provide a characteristic picture; but for the proper appreciation of this picture it is necessary to set beside it another picture, one giving the family history of an equal number of women who were neither the subjects of syphilis nor the progenitors of syphilitic children. This second picture has been prepared, and the contrast between the two is interesting in the extreme. The standard of comparison provided in this second picture was obtained by an inquiry into the family history of a number of women who were attending the West London Hospital. This hospital has a very large *clientèle*, and the patients are amongst the poorest and most deserving of charity of any attending the great London hospitals. On the average these women were if anything a little poorer than the average of the syphilitic parents whose family histories mainly concern us. The history of 150 women was inquired into; there was no selection of cases, except that where one of known syphilitic history was found she was excluded from the count. But no special measures were taken to ascertain whether or no there was any syphilitic taint. The return obtained from the investigation of the family histories of these women may be taken as a fair average return of family history for the poorest section of the London community.

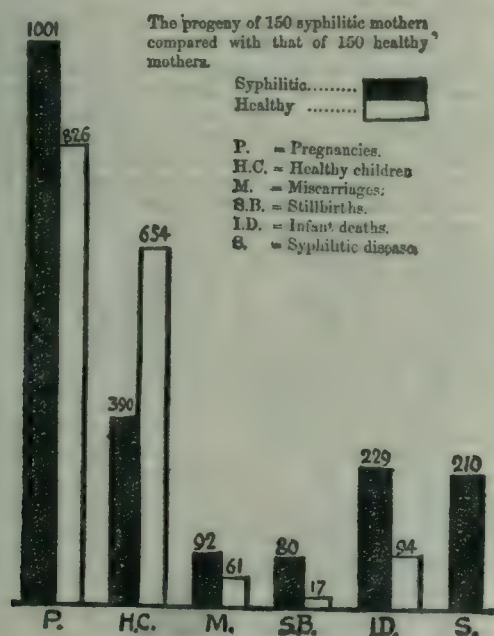
The comparison of Tables I and II can best be made by means of the familiar device of parallel columns; the

TABLE II.—One Hundred and Fifty Healthy Families not known to be affected with Syphilis.

No. of Pregnancies for each Mother.	No. of Families.	Healthy Children.	Mis-carriages.	Still-births.	Infant Deaths.
17	1	1	3	—	5
16	1	11	3	—	2
15	2	19	1	3	7
14	1	11	2	—	—
13	3	11	4	—	7
12	1	11	4	3	4
11	6	55	2	2	7
10	1	40	6	3	8
9	7	51	4	1	7
8	1	55	8	—	9
7	6	31	5	—	6
6	17	83	6	1	12
5	15	62	5	2	6
4	17	57	4	—	7
3	25	68	3	1	3
2	20	35	1	1	3
1	11	10	—	—	1
Totals ...	150*	654	61	17	94

* = 826 pregnancies.

diagram shows such a graphic representation. The difference between the results of the fertilization of these two sets of women is remarkable; 150 syphilitic mothers had no fewer than 1,001 pregnancies, but of these only 390 resulted in presumably healthy children. And it must be remembered that in these cases not every mother began her maternal career as an affected woman; many of the pedigrees show that she was healthy and bore a number of healthy children before the taint affected her; after



that, miscarriages, still-births, and diseased children were born. On the other hand, 150 healthy mothers had 826 pregnancies, and from these there resulted 654 healthy children.

The outcome of the pregnancies of the two classes may be compared further by setting them against each other on the basis of a thousand pregnancies, thus:

TABLE III.—Rates per 1,000.

Parentage.	Healthy Children.	Mis-carriages.	Still-births.	Infant Deaths.	Diseased with Syphilis.
Syphilitic ...	390	92	80	229	210
Healthy ...	791.7	73.8	20.5	113.8	—

Remark may be made on the fact that the syphilitic mothers had about 17 per cent. more pregnancies than the healthy mothers. This may be accounted for in part by the frequency of miscarriages and still-births in the syphilitic. The short intervals between many of these would allow of several ineffective pregnancies within the same time as would be taken for one full pregnancy in a healthy mother. Further, the frequency of these ineffective pregnancies and the many infant deaths would keep the family of the syphilitics down, so that where there is a desire for children the pregnancies would be increased in number.

It is unnecessary to point the moral, the figures speak sufficiently of the influence of parental syphilis on the chances of healthy progeny.

REFERENCE.

¹BRITISH MEDICAL JOURNAL, August 29th, 1914, p. 390.

A SPLINT FOR COMPOUND FRACTURE OF THE ANKLE.

By MAJOR M. SINCLAIR, R.A.M.C.

This splint was first applied to a compound dislocation of the right astragalus, but could be used for any compound injury in that region. Astragalectomy had been performed by Captain St. John D. Buxton, R.A.M.C., who asked me to suggest a method of fixation which would allow easy access to the wound.

There were minor injuries to the skin posteriorly, and great oedema due to septic infection of the foot and ankle as far as the knee. The ankle required frequent dressings, and the foot could neither be kept in good position nor quiet, and caused great pain to the patient.

A splint was constructed to fix the foot at a right angle, to immobilize the ankle, and allow ready access for dressings.

The patient was in hospital for three weeks, and was sent home in the splint, which proved so satisfactory for treatment and transport as to make its construction and method of application worth recording.

The splint was made out of the aluminium splinting from the field service fracture box in the following way:

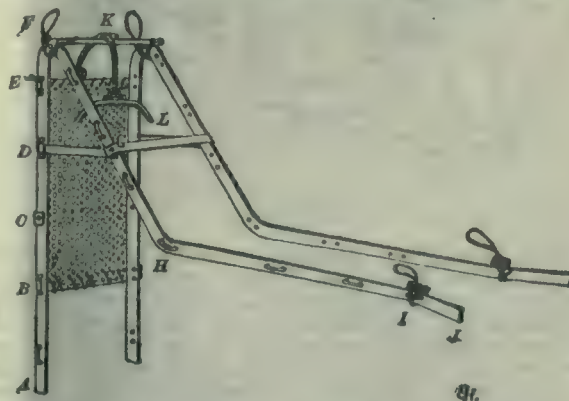


FIG. 1.—A F = 15 in.; F H = 11 in.; H I = 11 in.; I J = 3 in. Total length = 40 in.

A length of aluminium of 40 in. is bent on its edge at F to an angle of 40 degrees, at H to an angle of 130 degrees, and bent on the flat at I to an angle of 45 degrees.

Another length of 40 in. is bent in the same way, having the staples corresponding and on the outside.

These two pieces are riveted at C and F, parallel and 6 in. apart, with 8 in. by $\frac{1}{2}$ in. by $\frac{1}{4}$ in. aluminium.

The transverse bar at F has a staple, K, in the centre, from which the foot is slung. Transverse bars of ribbon aluminium are fixed at B and E, and to these a sheet of perforated zinc 5 in. by 10 in. is laced with wire to form a smooth support for the sole of the foot. From D a strip of ribbon aluminium runs at right angles to F A as far as the point G. Another strip of aluminium ribbon runs from G to the corresponding point on the other half of the splint, and the junctions at G are fixed by riveting.

These supports give the necessary rigidity, prevent the angle at F enlarging owing to the weight of the limb, and the respective supports D G fix the ends of the bandage which keeps the dressings in position. L is an arc of aluminium 4 in. in length with a central staple to which a cord is attached. It is placed in the toe of a sock in which is a small hole for the cord.

The arc L acts as a spreader to prevent crowding together of the toes when the foot is suspended.



FIG. 2.

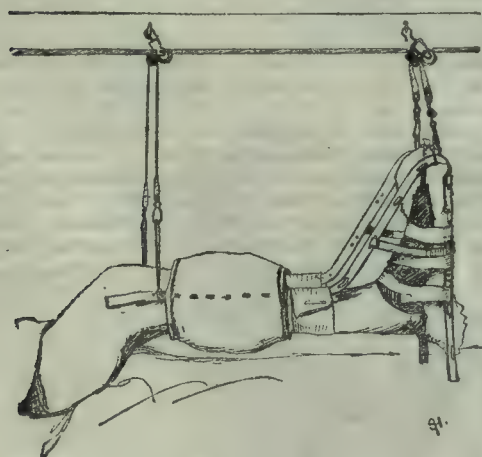


FIG. 3.

Four loops of cord are fixed at F and I to sling the limb to a modified Balkan by means of weights, cords, and pulleys. A suitable cotton sock is cut obliquely from the heel to the middle of the instep. The arc of aluminium, L, is inserted into the toes of the sock and the cord allowed to pass out through a small hole at the extremity. The foot is cleaned with petrol or ether to remove the grease. The sock is applied dry and its outside painted with a solution of equal parts of Canada balsam in xylol, Venice turpentine, and ether. When dry a layer of cotton-wool is placed between the perforated zinc and the foot, and the two fixed together with a band of adhesive plaster round the dorsum. The cord from the arc L is adjusted until the bars H I are parallel with the bones of the leg. The latter is embedded in a plaster case extending down as far as convenient (about 6 or 7 in.) from the tuberosity of the tibia. The uncovered portion of the leg is supported

with suspensions of elastic webbing or bandage. The foot is now fixed at right angles to the leg.

Figs. 2 and 3 show the splint applied to a patient and slung by four cords, snap hooks, sandbags, and eight pulleys to a modified horizontal bar. This gives the patient free movement in bed and the attendants ready access to the wounds.

BRONCHOPNEUMONIA WITH SECONDARY HAEMORRHAGIC MENINGITIS AND RECOVERY.

By A. GEOFFREY SHERA, B.A., M.B., B.C. CANTAB.,
M.R.C.S. ENG., L.R.C.P. LOND.,

LATE CLINICAL ASSISTANT IN THE MEDICAL DEPARTMENT OF THE
EVELINA HOSPITAL FOR CHILDREN, S.E.; LIEUTENANT, R.A.M.C. (T.C.),
ATTACHED MILITARY HOSPITAL, EASTBOURNE.

In the course of a series of some 14 cases of bronchopneumonia in children, occurring nearly a year ago, the following somewhat remarkable case was encountered—to wit, a mixed meningeal infection with spontaneous recovery. The mixed infection was, so far as was ascertainable, due to Fraenkel's pneumococcus, together with Friedlaender's diplobacillus, the latter in great numerical predominance.

The original investigation was undertaken with a view to confirm or dispel Hutchison's suggestion that a streptococcal strain in bronchopneumonic infection is of grave prognostic import, quite apart from other considerations.

The sputum was obtained by first slightly irritating the pharyngeal wall and so causing a short onset of coughing and production of sputum, a sample of which was obtained on a sterile platinum wire and straightway inoculated on blood-agar, all contact with mouth or fauces being most carefully avoided. Thus the proverbial difficulty of obtaining infantile sputum was overcome.

The particular case in question was one of a series of cases of infantile bronchopneumonia admitted last January to a London infirmary. All but two were under the age of 3 years. A very large proportion of these cases showed the predominance of the pneumobacillus (Friedlaender's) both in smears and in cultures from the sputum.

It is relevant in this connexion to recall the chief morphological and cultural characteristics of these two pneumonic organisms, not for didactic purposes, but as a labour-saving device.

The *Pneumococcus lanceolatus* is Gram-positive, and stains deeply in sputum, often (in these cases) showing chains of two, three, or four pairs, and is encapsulated. As a rule there were series of long chains which showed all transitions from a typical streptococcal arrangement to a gradual separation into diplococci, the morphological explanation of which should prove interesting. On blood-agar the colonies were almost transparent, and very small when found separate, and this was only at the edges.

The pneumobacillus, on the other hand, is Gram-negative. It is also encapsulated, and both forms reveal encapsulation remarkably well in sputum. The colonies resemble knobs of ivory, and a stab culture shows a characteristic "nail-like" form with a process in the substance of the agar; the "head" is a heaped-up mass, densely white. The organism is non-motile. This latter fact, together with morphological considerations, and its presence in sputum, also the absence of intestinal symptoms, enabled one to make sure that one was not dealing with *B. enteritidis* of Gaertner, which has one or two similar characters. It is, for instance, Gram-negative, and produces haemorrhagic lesions, including a single recorded case of "meningitis haemorrhagica," a clinical entity for whose existence this organism is held to be solely responsible, when considering the group it represents.*

The sputum contained other organisms besides these two, such as staphylococci and diphtheroid rods, but these were not of significance in regard to the meningeal symptoms.

CASE.

A boy, aged 18 months, was admitted on December 29th, 1914, with marked meningeal and chest signs and symptoms.

History and Condition on Admission.

Save for the fact that he had not been ill before two days earlier, and that he had been fed on cow's milk, no history was

* Muir and Ritchie: *Manual of Bacteriology*, 1913, p. 383.

forthcoming. On admission the temperature was 97°, and, curiously enough, remained subnormal throughout, possibly indicative of a severe haemia, and so of a bulbar toxæmia, with paralysis of the heat-regulating centres. The respirations were 42, the pulse 112.

Central Nervous System.—The meningeal signs and symptoms were as follows: There was head retraction to a marked degree, *tache cérébrale* and Kernig's sign, with rigidity of the legs, the right leg being flexed more than the left; he screamed intermittently but frequently in a typical manner. The knee-jerks were increased, and the plantar response was (probably because he had not learnt to walk) doubly extensor, but notably brisk. He had a left internal strabismus. He appeared to be thin, and showed loss of flesh whilst under observation. He was extremely peevish and mentally irritable. The three highest mental faculties were all impaired—to wit, attention, judgement, and self-control. No convulsions occurred.

Respiratory System.—The child had pneumonic breathing, patchy dullness at the lower angles of the scapulae, below the left clavicle, and markedly at the bases, with fine crepitations.

Sputum.—Examination of the sputum showed a large number of pneumobacilli, strepto-diplococci (adherent pneumococci in chains in all stages of separation up to twenty pairs or more), and ordinary detached pneumococci.

Lumbar puncture yielded about 10 c.cm. of turbid fluid, with a negative haemoglobin spectrum. This was centrifugized, and also inoculated on blood-agar directly. Cultures of pneumobacilli and pneumococci were found alone. The former enormously predominated.

After-History.

On the seventh day of illness (January 3rd, 1915), that is, five days later, the condition of the child had markedly improved. He was much quieter, and screamed only occasionally during the day, but he was still restless at night, crying out often. The following mixture was found to be effectually sedative: Pot. brom. gr. iv, tr. bellad. m. iij, glycerine m. x, aquam ad ʒi; sig. ʒi nocte p.r.n. Head retraction and squint were still present, as also was Kernig's sign. The pneumonic condition was much the same as before, but pneumonic breathing, instead of being continuous, only occurred if the child were disturbed. The pulse was 85 and the respirations 30. Eight days later, on the thirteenth day of illness (January 11th, 1915), lumbar puncture was again performed and the fluid was thickly haemorrhagic, and cultures showed abundant colonies of Friedländer's bacillus and a few pneumococcal colonies also.

The condition of the child improved after this. Only a few rhonchi were noted in the chest, and pneumonic breathing had ceased. Cerebral scream had also vanished, but the child was irritable. Kernig's sign could not be obtained; there was no squint, and much less head retraction.

On January 15th, 1915—that is, the nineteenth day of illness (four days later)—the child was sitting up and taking an interest in his surroundings, to all intents and purposes quite well, although thin and wan to the eye. The lungs were now clear.

Lumbar puncture, cultivated on blood-agar, showed pure Friedländer's bacilli. The fluid thus obtained was still haemorrhagic.

On January 18th—that is, twenty-second day of illness—a final lumbar puncture was performed. The fluid was tinged with blood, but quite sterile on inoculation.

The child was normal in behaviour, slept and fed well, and was not in the least fretful. All nervous signs had disappeared, including squint. A second examination of the sputum showed staphylococci, pneumococci, also pneumo-streptococcal forms, and notably enormous numbers of pneumobacilli in smears.

The question arises whether what was taken for pneumobacilli were not in reality *B. enteritidis* of Gaertner, since this organism has been known to cause a meningitis characterized by haemorrhagic lesions likewise. Against this is the fact that this case showed no intestinal symptoms, and that 13 other cases of bronchopneumonia in the same ward showed no intestinal symptoms, and all showed in the sputum predominance of pneumobacilli, which were morphologically pneumobacilli and had the pathognomonic "nail-like" culture form. Unfortunately, lack of apparatus prevented me testing the indol and lactose reactions, but I can assert that the organism was non-motile. Moreover, I venture the opinion that clinical guidance was both confirmatory and reliable in this case. So far as I can ascertain, *B. enteritidis* has not been recorded in the etiology of bronchopneumonia. I therefore ruled out *B. enteritidis*.

Some writers identify the pneumobacillus with *B. lactis aërogenes*, which occurs most commonly in sour milk. That this may be true I do not dispute theoretically, but even so this is irrelevant to the essential substance of my thesis. Possibly it may be argued that this series of cases is in favour of this more improbable contention, since children in poor circumstances at such a tender age and with such careless mothers as some of them have, may well receive sour milk for food. But it seems strange that a normal inhabitant of the intestine should, for no

particular reason, suddenly migrate to the meninges to assume a pathogenic rôle, having previously attacked the bronchial mucous membrane. The total absence of intestinal disorder also contravenes this particular explanation. It is therefore not unnatural to conclude that one was dealing with a strain of true Friedländer bacillus as originally contended.

Critics may rightly ask why splenic and blood cultures were not made. The answer is that the particular case occurred in an investigation undertaken for a totally different purpose, and that it was not until I came across the notes of the case in revising the others that it occurred to me to record it; then the opportunity for making such cultures had gone, the child having disappeared.

I have noted the case for a dual purpose. Firstly, to demonstrate the prognostic value and manner of sputum examination in children with bronchopneumonia, and secondly, in the hope that a clinical variety of meningitis, with a favourable prognosis, may be established—and this is submitted as a desirable objective from the medical, from the maternal, and especially from the national point of view, in face of the heavy toll of childhood which meningitis in all its forms exacts to-day, when more than ever do we require to conserve a healthy childhood.

BIBLIOGRAPHY.

Hutchison, R.: *Lectures on Diseases of Children*, third edition, 1913. Muir and Ritchie: *Manual of Bacteriology*, 1913, pp. 224-234, 383-394. Allbutt and Rolleston: *System of Medicine*, vol. viii, 1910, p. 193.

TRAUMATIC RUPTURE OF THE SPLEEN: SPLENECTOMY: RECOVERY.

BY

WALTER H. CAM, M.A., M.B., B.C. CANTAB.,
M.R.C.S. ENG., L.R.C.P. LOND.,

ASSISTANT SURGEON, SAVERNAKE HOSPITAL, WILTS.

A HEALTHY married woman aged 31, the mother of four healthy children, spent the first twenty-one years of her life in South Africa and never had a day's illness. Since living in this country she has from time to time suffered from a fairly severe degree of anaemia, but has never needed a doctor except for her confinements.

On August 6th, at 3 p.m., she found a nail projecting through the sole of her boot. She stood up on a kitchen chair to reach a set of boot lasts and a hammer from a shelf (Fig. 1). The chair tilted forwards, the hind legs



FIG. 1.

FIG. 2.

FIG. 3.

leaving the ground, her feet slipped. She fell forwards, striking her epigastrium on the edge of the chair-back (Fig. 2). Her weight then carried the hind legs of the chair to the ground, and she received a second and more severe blow as the hind legs regained the ground (Fig. 3). She continued with the job in hand, picked up the boot lasts and hammer which had slipped from her grasp, and having satisfactorily knocked down the nail in her boot, again stood on the chair, and replaced the boot lasts on the shelf. This accomplished she felt faint and sick, walked upstairs to her bedroom, and lay down.

One of her children was then dispatched to me. Unfortunately I was out, but on my return at 6 p.m. I went to her house and found a colleague had in the meantime been sent for and had, about twenty minutes previous to my arrival, given morphine gr. $\frac{1}{4}$ hypodermically. The patient was lying in bed blanched and nearly pulseless, with the

knees slightly flexed and her hands under the back of her head, resting on the pillow. The pulse was 130, the temperature 98° F., and the respirations 32. The pain, which had been very severe, was easier; she had not vomited, but felt sick, and complained of a desire to micturate, which she had been unable to satisfy.

There was no visible sign of injury, such as a graze or bruise, but the whole abdomen was rigid to palpation. The point of maximum tenderness appeared to be to the left of the mid-line and in the left iliac fossa, but her condition was too grave to justify questioning. To percussion the whole of the left flank seemed duller than the right, but no definite shifting dullness could be found. The liver dullness was normal. The catamenia were regular and no period had been missed. I ordered her immediate removal to hospital.

At 7 p.m. she was anaesthetized with open ether. Examination then revealed definite dullness in the left side of the abdomen, which did not shift. A catheter was passed and about 8 oz. of pale and normal-looking urine withdrawn. The only possible diagnosis was severe internal haemorrhage, and the spleen appeared the most probable source in view of the fact that the urine was normal. It was impossible to exclude injury to the gastro-intestinal tract in addition.

Operation.

A median incision was made below the umbilicus and free blood could be seen through the peritoneum before this membrane had been incised. The incision was then extended upwards. The peritoneal cavity was full of blood and blood clot. On commencing to remove the latter, bright fresh blood welled up extremely profusely. Examination revealed to the touch a tear in the visceral surface of the spleen. The bleeding appeared to be controlled when the splenic artery and vein were compressed. This was effected with the left hand whilst the spleen was brought into view with the right. The tear was then seen to extend through the hilum involving the point of entry of the vessels.

As time was of the utmost importance, no effort was made to isolate the individual vessels. A pedicle needle was passed through the extreme tail of the pancreas and one ligature made to include the whole vascular pedicle of the spleen, which was then removed. The peritoneal cavity was cleared of blood and clots and then flushed with normal saline at a temperature of 112° F. The incision was closed in layers, and as much saline left in the cavity as could be retained. At the conclusion of the operation the colour was better, the pulse 120 but much fuller, and the respirations 36.

After-Treatment.

The patient was put in the low Trendelenburg position, and rectal saline injections were immediately started. To the first saline injection of 2 pints, brandy 1 oz. and aspirin gr. xv were added. The instructions were to repeat the saline injections every two hours as long as the patient could retain them, and that the bed was to be put flat at the expiration of four hours. The following morning the head of the bed was raised on high blocks.

The patient made an uneventful recovery. The temperature rose to 100° in the first twenty-four hours, but thenceforward remained normal or subnormal. No external bruising ever developed, nor was there any injury to ribs.

REMARKS.

The main interest in the case appears to lie in the fact that it is possible to sustain such a severe injury from a comparatively trivial accident. The patient is an averagely covered woman, weighing 8 st. 7 lb., and stands 5 ft. 2½ in. Macroscopically the spleen appeared healthy.

I am indebted to Dr. Penny for giving the anaesthetic and to Dr. W. B. Maurice for assisting me at the operation.

The accompanying sketches are intended to illustrate precisely how the injury occurred; and Dr. H. M. Turnbull, Director of the Pathological Institute, London Hospital, who kindly examined the spleen for me, reports that with the exception that it was very anaemic, it was otherwise normal in every way.

TRAUMATIC RUPTURE OF SPLEEN.

WITH A FEW NOTES ON THE BLOOD.

BY

CAPTAIN E. H. JONES, M.B., B.S., R.A.M.C.

The patient whose case is here related was admitted to the Preston Royal Infirmary, October 31st, 1912, under the late Dr. Garner.

T. W., a boy aged 10, had fallen a distance of 20 ft., coming in contact with a tree stump. He walked 100 yards and then fainted. He was admitted to hospital the same evening, with signs of intra-abdominal injury.

Operation.

On opening the abdomen by the high rectus incision I found that the peritoneal cavity contained much free blood, the source of which was found to be the spleen, which was almost completely severed. The organ was removed through a transverse incision, commencing at the apex of the exploratory opening, and the abdomen closed hurriedly.

After-History.

For seven days progress was uneventful. On November 7th, 1912, the temperature shot up to 104° and reached 105° on the next four days. The patient had definite bronchopneumonia, the temperature returning to normal by lysis by November 19th, 1912.

He was discharged on December 18th, 1912.

I saw the boy on November 14th, 1915 (three years after the operation), and he was quite healthy, doing half-time at the mill.

Blood Counts.

On November 3rd, 1912 (three days after the operation), the blood count was—

Red cells	...	...	...	3,500,000
White cells	...	...	...	15,600
Polymorphonuclears	...	...	...	36 per cent.
Mononuclears	...	...	...	64 per cent.

Following the bronchopneumonia the blood count was—

Red cells	...	...	...	3,500,000
White cells	...	...	...	21,200
Polymorphonuclears	...	...	...	58 per cent.
Mononuclears	...	...	...	42 per cent.

On December 4th, 1912, the blood count was—

Red cells	...	...	...	3,000,000
White cells	...	...	...	11,000
Polymorphonuclears	...	...	...	68 per cent.
Mononuclears	...	...	...	28 per cent.
Eosinophiles	...	...	...	4 per cent.

A year later Dr. Leigh kindly examined his blood for me, and found mononuclears rising in percentage and eosinophiles up to 6 per cent.

On December 14th, 1915, Dr. Tindall, the honorary pathologist to the Preston Royal Infirmary, made a final count, which was as follows:

Red cells	...	...	...	3,200,000
White cells	...	...	...	6,900
Polymorphonuclears	...	...	...	56 per cent.
Mononuclears	...	...	...	44 per cent.

A case Dr. Collinson operated on during the same period, a lad of 19, showed lymphocytosis, which persisted for at least a year, without the return of a higher polymorphonuclear count such as accompanied the bronchopneumonia in my case. Dr. Collinson's case showed an eosinophilia of 12 per cent. twelve months after the operation. This patient is now serving with the colours.

The cases are interesting as showing (1) the original leucocytosis, (2) a relative lymphocytosis of some duration, (3) the transient eosinophilia twelve months after removal of the organ, (4) the absence of any adverse effect following removal of the spleen.

A CASE OF PROBABLE SPONTANEOUS RUPTURE OF THE SPLEEN.

By W. B. OGILVIE, LIEUTENANT-COLONEL I.M.S.,
SUPERINTENDENT, DELHI GAOL.

It is recognized that this case is not a well proved one, but such cases are of so much deep interest to those working in tropical countries that it is thought worth while to record it, incomplete though it is.

Prisoner, male, aged 28, had been in gaol for three months, during which time he had never been in hospital, and his weight had remained steady. On a Sunday he did none of his ordinary work—paper making—but washed his clothes and

bathed, according to the usual routine. On the Monday he ate his full morning meal. He then reported sick, and was detained in hospital. He complained of fever, chill, and cough during the previous night; his temperature was 99.4°. He did not complain of any discomfort in the abdomen, nor did he admit any fall or blow. Careful inquiry failed to elicit any history of a fall or blow. On admission the spleen was enlarged. In the evening his temperature was 102°. He ate the greater part of his evening meal, and complained of nothing beyond the fever. About 10 p.m. he vomited twice or thrice. At midnight he became suddenly collapsed, and died at 1.20 a.m. on the Tuesday.

Post-mortem Examination.—The body was well nourished; rigor mortis was present; there were no marks of violence. The examination was held fifteen hours after death; the body was quite fresh, and showed no signs of commencing decay. The weather was cold and dry. All the tissues were anaemic to a degree. The abdominal cavity was full of clotted blood and clear serum. The spleen was enlarged to twice the normal size, and looked black. On its anterior surface was a tear about 2 in. long. On removing the spleen, the capsule was seen to be distended with firmly clotted blood. The spleen itself was anaemic, the colour was the "light red" of the paint-box, and the substance was almost diffuent—about the consistency of thick porridge. The other organs were normal.

What apparently negatives the possibility of a blow having been received before admission to hospital, and rupture of the spleen thereby, is the steady rise of temperature. Had the spleen been ruptured by a blow there would probably have been shock, and almost certainly no rise of temperature; the internal haemorrhage would have kept the temperature down.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

ICHTHYOL IN ERYSIPELAS.

A MAN was admitted with a large suppurating wound on the inner side of the arm, with some redness and swelling around the wound. The temperature rose next day to 104° and then to 105°. The usual signs of erysipelas were present, the redness and swelling extending below the elbow. I ordered the arm to be painted every twelve hours with ichthyol and glycerine equal parts, and covered with oil-silk, and gave him a mixture containing large doses (2 drachms every four hours) of liq. hydrargyri perchloridi. In forty-eight hours the temperature was normal, and all the local symptoms of erysipelas had disappeared; the wound was then dressed with ordinary hypertonic saline solution.

In another case, of a man sent from the trenches with both arms covered with boils, local treatment by ichthyol and glycerine had equally good results.

HELEN SEXTON, M.B., Ch.B.

Médecin Chef, Hôpital Australien, Paris.

RELAPSING BERI-BERI.

THAT beri-beri is due to the deficiency or absence of substances called vitamins; that polished rice is one of the common food substances deficient in vitamins; and that beri-beri is found practically only in rice-eaters—these are the commonly accepted views about the etiology of this interesting ailment, and it may therefore be well to record any definite cases where the disease was clearly not due to rice eating or, indeed, to any obvious want of vitamin substances. The patient, aged about 28 years, was a soldier on sick leave. He contracted beri-beri in India. His was the regulation army diet—meat, vegetables, milk, bread, butter, tea, coffee. On a rare occasion he would take a bit of rice or sago pudding, but at no time of his life was he ever on an exclusive or continuous rice dietary. He had exhibited the usual symptoms—multiple peripheral neuritis, some paralysis and some anaesthesia, very considerable weakness, cardiac dilatation, and oedema of the legs. Under treatment for some months in bed he improved, but signs of cardiac dilatation with a definite bruit still remained. Oedema of the lower extremities was intermittent. He was liable to relapses of the condition whenever he fell into ill health from any cause. These were accompanied by hyperaesthesia of the muscles and of the nerve trunks. During the periods of remission no physical sign of the disease could be seen, except the evidence of cardiac dilatation.

The usual cardiac tonics, as iron and digitalis, appear useful for the heart trouble, but nothing seems to have any specific effect on the beri-beri.

J. C. McWALTER, M.D., D.P.H., R.A.M.C.

Reports

ON

MEDICAL AND SURGICAL PRACTICE IN HOSPITALS AND ASYLUMS.

THE LORD DERBY WAR HOSPITAL, WARRINGTON.

A CASE OF SUDDEN HEART FAILURE UNDER ANAESTHESIA: DIRECT MASSAGE OF HEART: RECOVERY.

(By GERALD SICHEL, F.R.C.S., Captain R.A.M.C.)

PRIVATE —, aged 22, was admitted on September 29th, 1915, suffering from a severe gunshot wound of the left hand, received in France on September 26th. A rifle bullet had struck the middle finger, almost completely severing it; the wound was very septic.

He was treated with hypertonic saline baths, and syringing with hydrogen peroxide, and the wound cleaned up considerably. As it was considered necessary to amputate the finger he was, on October 4th, given a general anaesthetic—a mixture of chloroform (two parts) with ether (three parts), and alternately pure ether on an open gauze mask. He was taking the anaesthetic quite well, and was wheeled from the anaesthetizing room into the operation theatre.

He was lifted on to the operation table, when he suddenly became ghastly white, sweated profusely, and the pupils became widely dilated. Breathing continued slow and regular, but rather shallow. No pulse or cardiac impulse could be felt, or heart sounds heard. An incision a little to the left of the middle line was rapidly made into the upper part of the abdomen, and meanwhile hypodermic injections of strychnine and brandy were given, and a cloth wrung out of boiling water applied to the precordium.

The right hand was inserted into the abdomen, and a flabby mass, supposed to be the heart, seized through the diaphragm, and energetically and rhythmically squeezed. In a short time the flabby mass suddenly became hard—like a cricket ball—in the hand, and firm, regular, but slow contraction commenced. After a little these firm contractions became tremulous and threatened to cease, but on squeezing, again became firm and regular; this routine was carried out several times, and at last a regular heart-beat and regular pulse were established. The patient began to strain and vomit, so that there was some difficulty in sewing up the abdominal wound. In about twenty minutes he was taken back to the ward, where a rectal saline injection was administered.

In the evening he suffered from considerable pain in the abdomen and chest, which was allayed by a hypodermic injection of morphine. He made a good recovery, and as it was deemed unwise to give him a further anaesthetic the injured finger was eventually amputated by means of strangulation, with a piece of indiarubber tubing.

Remarks.

1. The man's general vitality was probably considerably lowered from septic absorption.
2. The movement of lifting him from the stretcher on to the table appears to have been the deciding factor in the cardiac failure.
3. The anaesthetic was chiefly ether, the amount of chloroform being very small.
4. The subsequent pain was probably due to bruising of the diaphragm, and perhaps the heart.
5. I think the hypodermic injections of strychnine were of use once the heart's action was re-established, although obviously they could have been of no good whilst the circulation was stagnant.

My thanks are due to Dr. Garner and Mr. Stone, R.A.M.C., for efficient help at the time of the emergency. Dr. Manson was responsible for the subsequent treatment of the patient.

Reports of Societies.

TREATMENT OF SYPHILIS.

Di-ortho-amino-thio-benzene ("Intramine").

At a meeting of the Dermatological Section of the Royal Society of Medicine on January 20th Mr. McDONAGH gave an account of a new drug he had devised for the treatment of syphilis. He had, he said, found by experiment that salvarsan did not attack the syphilitic organisms directly, but became attached to the lipid-globulin molecules of the serum, which, by the chemico-physical action of adsorption, killed the parasites. For this was necessary active oxygen, which was normally formed directly by peroxidases and indirectly by perhydriases. The arsenic in the salvarsan molecule, in the form of a hydroxide, acted as a peroxidase. Metals acted as peroxidases, and after experiments with aluminium and iron he had prepared drugs which acted better than arsenic and which were absolutely non-toxic. In early syphilis oxidation was more to the fore than reduction; the opposite was the case in late syphilis—therefore, he endeavoured to find out how the reductase system worked, and to make a drug which had the same action therein as aluminium, iron, and arsenic had in the oxidase system. He found that the perhydriase was a disulphide protein, and that sulphur (a non-metal) was the catalyst. Having prepared many sulphur compounds, he found that the di-ortho-amino-thio-benzene, to which he had applied the name "intramine," had the greatest therapeutic effect. It had proved to be in many respects more efficacious than salvarsan and to be absolutely non-toxic.

Mr. J. E. R. McDONAGH and Dr. H. SPENCE showed three cases of syphilis treated by "intramine":

1. Chronic ulcerative glossitis of twenty-five years' standing, which had resisted treatment with salvarsan, mercury, and iodides, and healed in a fortnight after one intramuscular injection of intramine.
2. Gummatous ulceration of genitals in a congenital syphilitic (male), aged 28. The ulcers healed with one injection of intramine and the general condition was greatly improved.
3. Recurrent papulo-ulcerative syphilide in a man aged 42, which healed in a week with one injection of intramine.

THE PILTDOWN SKULL.

THE question whether the later-found Piltdown canine tooth belongs to the Piltdown skull was raised in a paper read by Mr. W. COURTNEY LYNE, L.D.S., before the Odontological Section of the Royal Society of Medicine on January 24th. The canine tooth was not found in the mandible, but some time later near the spot where the original discovery was made. There is no vacant socket in the fragmentary mandible into which to fit this later-found tooth. It appeared, however, so reasonable to suppose that a canine tooth projecting above the general tooth level and of anthropoid character had once belonged to the fragment, that it was very generally accepted as genuine. Mr. Lyne's dissent from this view is founded on a critical examination, by means of x-ray pictures, of the pulp cavities of the two molars (the first and second permanent molars) *in situ* and of the later-found canine tooth. In all teeth of limited growth, whether temporary or permanent, a progressive diminution in size of the pulp cavity as age advances is brought about by concentric calcification; this affects the size of the root canal as well as that of the coronal pulp cavity. X-ray pictures show rather small pulp cavities and root canals in the Piltdown molars, and in the canine a large pulp cavity and root canal, so large that, assuming it to be a permanent tooth, it could not have belonged to an individual of greater age than 17. Arguing from the closed sagittal suture and from the ground-down condition of the molars the age of the Piltdown skull had been put at about 30. The molars and the canine, in Mr. Lyne's opinion, are incompatible in the same jaw. The apical foramen of the later-found canine is widely open, perhaps because a portion of the root is missing, and Mr. Lyne suggests that if it be really fractured and incomplete, the necessary addition would either raise the tooth beyond all reason or lengthen the root into the jaw till it would lie in the bone of the mandibular fragment, where in fact there is no trace of a socket to receive it. If, however, the later-found canine be, as Mr. Lyne supposes, a tem-

porary tooth, the open apex may be explained as the result of absorption. He argued that the very thin layer of enamel displayed, the loss of the tip of the tooth, the outwardly bent tendency of the root with apparent absorption beginning at the basal end of the root, along with the large size of the pulp, all pointed to a deciduous canine, and almost certainly a Primate one. The tooth is large; amongst Lemuridae in late Pleistocene times huge forms arose, for example, *Megaladapis insignis*, and it is thus quite conceivable that larger anthropoids than we have living now were in existence in late Pliocene or early Pleistocene times, and a somewhat large deciduous canine would not then be irrational.

In the discussion which followed, Dr. SMITH WOODWARD urged that it was far more probable that the remains belonged to one individual than that the cranial part, the mandible, and the canine tooth represented three absolutely new types, leaving their remains together in one small area; to which Mr. LYNE replied that he was only separating the canine tooth and so postulating two, not three, new types.

Professor KERTH said that because of the human shape of the glenoid cavity he had expected a large tooth, but not one so projecting as the later-found canine. The lower canine of anthropoids was faceted both by the upper canine and by the upper lateral; the later-found canine was faceted by the latter only. In the ape the canine was a cheek or side tooth; in man it belonged to the front series. The tooth might thus be an intermediate form and so compatible with the shape of the glenoid cavity. As showing that a large canine pulp cavity might be compatible with small molar pulp cavities he instanced the unexpected shapes of liver found in anthropoids. He thought the tooth belonged to the mandible.

Professor UNDERWOOD considered that Mr. Lyne had been very bold in coming to the conclusion that the tooth was that of a young individual by comparison of the pulp cavity with those of canine teeth of known age. He did not think the tooth temporary.

Professor ELLIOT SMITH explained that what he had said was that the age of the remains was about 30 when judged as modern man. It was probably actually younger. He had found it difficult, even in such recent skulls as those of ancient Egypt, to judge the age by closure of sutures or grinding down of teeth. There was often much grinding down in young skulls.

Mr. PYCRAFT pointed out that Mr. Lyne had made his comparison with microdont teeth, whereas the Piltdown teeth were macrodont, and should have been compared with macrodont teeth—for example, Melanesian.

Mr. HOPSON said that he had seen extreme grinding down in the temporary molars of a Neolithic child of 5 years of age, and thought that the slight tilting forward of the sockets of the third molar of the Piltdown mandible might be an indication of youth.

Mr. J. G. TURNER thought the slight forward tilt of the sockets of the third molar indicated a permanent condition of slight impaction of the tooth; he did not think it could be taken as a reliable guide to youth. In examining the grinding down of the teeth of old skulls, including ancient Egyptian, he had noted that the first permanent molar was rapidly ground flat, but that the second permanent molar was not worn at an equal rate, the tendency being to eat with the more forward teeth. The two molars (first and second permanent molars) of the Piltdown mandible were both worn flat, pointing to a considerably greater age than Mr. Lyne's 17 for the canine. The alveolar edges also of the Piltdown mandible were worn away. If this were truly an *ante-mortem* change it would only be due to a slow form of caries of the alveolar edge (pyorrhoæa alveolaris), which would have taken a good many years to reach the stage found. He had examined the pulp cavities of large numbers of human teeth, but had only twice, in molars, found such large pulp cavities and root canals in teeth of the age of 30 or so as shown by Mr. Lyne in the later-found canine. He thought, however, as Mr. Pycraft had said, the comparison should be remade with macrodont peoples.

Mr. LYNE, in his reply, expressed the opinion that no good answer had been made to the incompatibility of the large size of the pulp cavity of the canine, especially of the lower third of the root, with the size of the molar pulp cavities.

Rebueluz.

DISEASES AND THE DUCTLESS GLANDS.

As everybody knows, the ductless and endocrine glands have received a vast amount of attention from physiologists, pathologists, and clinicians during the last two decades; the literature of the subject has become enormous. From the point of view of the experimental physiology and pathology of the subject, the massive handbook by Biedl contains most of what is known, and for the general reader the little book by Sir E. A. Schäfer, reviewed in the *BRITISH MEDICAL JOURNAL* of June 5th, 1915, p. 981, contains a satisfactory *précis* of our knowledge. From the clinical point of view, a full and very valuable account of the ductless glands was published in 1913 by Dr. FALTA of Vienna, and this has recently been translated by Dr. MEYERS.¹ The book is founded on Dr. Falta's own observations, made at various Viennese clinics. Its contents are divided into fourteen chapters. After a well-written introduction, in which the complexity and uncertainties in which the single and combined actions of the secretions of the ductless glands are involved are well set out, the rest of the book is given to clinical accounts of disturbances of each endocrine gland separately. The thyroid, parathyroid, thymus, pituitary, pineal, suprarenal, lymphatic, sexual, and pancreatic glands are all discussed from this point of view. Special chapters are given to pluriglandular diseases and to vegetative disturbances not directly dependent on disorder of the ductless glands, but yet the cause of dwarfism, infantilism, mongolism, and chondrodystrophy; while the last chapter goes thoroughly into the question of the different forms of obesity. At the end of the book 70 pages are devoted to references to the literature of the subject; throughout the text Dr. Falta makes very full use of the writings of others to illustrate his meaning. The volume contains countless points of interest and well-balanced discussions—for example, his analysis of the signs and symptoms of chlorosis leads the author to attribute that disease to an exhaustion of the ductless glands generally, brought about by abnormal or precipitate ovulation, and to suggest that the disease might be treated by a very cautious irradiation of the ovaries with α rays. The translator has done his work in a painstaking manner, although his rendering not infrequently sticks too closely to the German original. This may be illustrated by a sentence from the chapter on the diseases of the thymus gland: "Stöhr regards the origin of the thymus lymphocytes as due to a partition of the epithelial pictures" (p. 223). The translation has been brought up to date by editorial addenda. There are many misprints in the names of the authors quoted.

ANATOMY.

IN his massive textbook of *Applied Anatomy*² Professor G. G. DAVIS describes at great length the construction of the human body considered in relation to its functions, diseases, and injuries. The first edition came out five years ago; the third, now before us, preserves the characters of the first, with comparatively slight corrections and additions. For all its size, the book is not a systematic treatise on anatomy, but is an explanatory and utilitarian work for the medical student. Naturally enough, it deals mainly with the applications of anatomy to surgery; the redistributions of anatomical structures caused by fractures and dislocations are dealt with very thoroughly, and so are the special anatomical points that it is thought should be in the mind of the operating surgeon when he is at work. Many hundreds of excellent illustrations of dissections made to illuminate the points at issue are included, and, speaking generally, could hardly be improved upon. From the medical point of view the book would appear to be less complete. In the account of the lungs, for example, no mention is made of the differences on percussion and palpation normally met

with when the two apices are compared—differences that first received a satisfactory explanation a few years ago at the hands of Fetterolf and Landis. In the account of hydrothorax (p. 191) no mention is made of the importance of the liver in determining the great frequency with which such effusions appear on the right side, a matter emphasized by Vaquez in 1913. The sternal angle of Louis, correctly named on p. 180, is called the angle of Ludwig on p. 200, with no note to explain that Ludwig is the German form of the name Ludovicus, which is in turn the Latin form of the French name Louis, and that the two angles are the same. From the medical point of view the book would gain if some transverse sections across the thorax were added to the excellent diagrams of frozen sections placed at the end of the volume; they would be most helpful to students seeking to understand the semeiology of diseases of the heart, lungs, aorta, and oesophagus. The book is clearly written, and contains numerous important references to the medical and anatomical literature. It contains a great deal of useful information; the only fault the medical student will find with it will lie, no doubt, in its length.

In the third edition Professor HILDEBRAND brings up to date his *Grundriss der Chirurgisch-Topographischen Anatomie*,³ published first in 1893. The feature which gives the book a special value for English readers is the attention paid to *Leitungsanästhesie*. The new subject matter is particularly concerned with the questions of cranio-cerebral topography, the distribution of lymph vessels with special reference to the extension of malignant growths, and the position of the sensory nerves from the point of view of choosing the site of injection in producing local anaesthesia. The anatomy of the various regions of the body which are of special interest to the surgeon is first described, and at the end of each section a reference is made to the part which the anatomy of the region plays in surgery. To this is added an account of the region as it can be made out from an examination of the living subject, and finally the positions of the sensory nerves are described. It is somewhat surprising that in a book of this character and scope no mention should be made of the various sensory segmental areas, and that the work of Head and other British neurologists should be entirely ignored.

The third edition of Professor BUCHANAN'S *Manual of Anatomy*⁴ contains a sound and short account (so far as any textbook of anatomy can be short) of systematic and practical anatomy and embryology. The second impression of this work was reviewed in the *BRITISH MEDICAL JOURNAL* of September 26th, 1914; it is sufficient to add to that review (which gave a very favourable account of Professor Buchanan's *Manual*) a note to the effect that the latest edition contains a new chapter on general embryology, and, in addition, a number of new illustrations. The old anatomical nomenclature is retained in despite of the Bâle synonyms, many of which are given in an appendix. This is a feature that should continue to commend the volume to medical students—a conservative class.

In Part I of *Die Anatomie des Menschen*⁵ the author, Professor FRIEDRICH MERKEL, deals with the subjects of anatomical structure and general embryology. The fact that he completes his account of these subjects within 248 pages and that he includes no fewer than 251 illustrations in the text gives some idea of the scope of the book. The work is a textbook designed to supply the medical student with a succinct and clear account of the subjects which will form the groundwork for all his later studies. The special problems with which authors of such textbooks are confronted are those of selection and compression, for, owing to the rapid advance in knowledge of the various subjects of the medical curriculum,

¹ *The Ductless Glandular Diseases*. By W. Falta, Vienna. Translated and edited by M. C. Meyers, M.D.; with a foreword by A. E. Garrod, M.D. Oxon., F.R.C.P. Lond., F.R.S. Philadelphia and London: P. Blakiston's Son and Co. 1915. (Roy. 8vo, pp. 692; 101 figures. 7.00 dols.)

² *Applied Anatomy*. By G. G. Davis, M.D. Illustrated by E. B. Faber. Third edition. Philadelphia and London: J. B. Lippincott Co. 1915. (Sup. roy. 8vo, pp. 640; 631 figures. 24s. net.)

³ *Grundriss der Chirurgisch-Topographischen Anatomie*. Von Professor O. Hildebrand. Dritte verbesserte und vermehrte Auflage. Wiesbaden: J. F. Bergmann. Glasgow: F. Bauernmeister. 1913. (Imp. 8vo, pp. 370; 193 figures. 12s. 3d.)

⁴ *Manual of Anatomy, Systematic and Practical, including Embryology*. By A. M. Buchanan, M.A., M.D., C.M., F.R.F.P.S. Glas. Third edition. University series. London: Baillière, Tindall and Cox. 1915. (Demy 8vo, pp. 1743; 675 figures. 21s. net.)

⁵ *Die Anatomie des Menschen*. Von Professor Dr. F. Merkel. Part I. Allgemeine Gewebelehre Grundzüge der Entwicklungslehre. Wiesbaden: J. F. Bergmann. Glasgow: F. Bauernmeister. 1913. (Imp. 8vo, pp. 263; 251 figures. 8s.)

it is desirable to confine within certain limits the anatomical studies of the student. Professor Merkel has, we think, succeeded in the task which he set himself, thanks, no doubt, largely to the important *German Handbooks and Atlases* upon which he has been able to draw for his text and illustrations. An omission, which we are at a loss to understand, is that in the section dealing with the structure of the body, and which includes, by the way, an account of the blood and even of haemin crystals, there is no mention of the structure of a tooth. The book may be useful to teachers in this country faced with the same problems—namely, what to teach and what to omit.

The Intervertebral Foramina in Man,⁶ by HAROLD SWANBERG, is, as its author states, a supplement to *The Intervertebral Foramen*, which was reviewed in these columns some time ago. The earlier book dealt with the structure and contents of the foramen in the cat, and therefore had not the interest or practical value of the present work. The description of the foramen is based on an examination by microscopical sections of the foramen between the seventh and eighth thoracic vertebrae in a male child aged 5 months. The specimen was decalcified and forty-nine serial sections were made in the sagittal plane. Photomicrographs of four of these are reproduced. The main features agree with those already observed in the cat. The chief points made are that the size of the foramina does not correspond with the size of the nerves; that while in the median part of the foramen there is a large amount of fat, in the lateral part the fat is replaced by fibrous tissue, and that among the contents of the foramina is a number of lymphatic nodes. The book is the outcome of a careful piece of work patiently and skilfully carried out, but the contribution to our knowledge is on the whole rather insignificant. This, however, is in no way due to the author, but rather to the subject.

The pamphlet entitled *Anatomie der Bauchspeicheldrüse*,⁷ contains the account of the pancreas contributed by Dr. SOBOTTA to von Bardeleben's handbook on human anatomy. It contains a brief historical review, in which the growth of knowledge regarding the gland is traced from the date of Hippocrates to the time of the memorable discovery of the duct by Wirsung in 1642, and still later to that of the even more important discovery of the islands and centro-acinar cells made by Langerhans in 1869. There follows an account of the comparative anatomy and embryology, a description of the macroscopical and microscopical appearances of the gland and its ducts, with their topographical relations; and, finally, an account of the arrangement of its blood vessels and lymph vessels and of its nerves. A bibliography giving the titles of no fewer than 386 papers supplies the reader with the literature on the subject down to September, 1913. The volume is adequately illustrated.

THE CAECUM AND INTESTINAL TOXAEMIA.

METCHNIKOFF's doctrine that the colon is a useless if not harmful prolongation of the alimentary canal finds a vigorous opponent in Dr. JOHN FLYNN of Sydney, who has written essays on the *Morphology and Physiology of the Caecum*.⁸ He discusses first the comparative anatomy of certain Australian animals, pointing out that in the carnivorous dasyure or native cat the caecum is entirely absent and there is little or no distinction between the large and small intestines, whereas in the mixed feeding bandicoot there is a fairly well marked difference, the caecum being of medium size and simple; in the koala or native bear, a purely vegetable feeder, it is long and complicated. He holds that this indicates that the caecum supplements the functions of the stomach in the digestion of certain kinds of food. He strengthens this anatomical argument by quoting the researches of Keith on starch digestion, which showed that in

the lower part of the ileum no starch reaction was obtained, but it reappeared in the middle of the transverse colon, in consequence, Keith suggests, of the cellulose envelopes, which were too strong for the enzyme action of the upper portion of the alimentary canal, having yielded to the special digestion of the caecum. Dr. Flynn also quotes Keith's researches on the mechanism of the ileo-caecal valve, which tends to show that it controls the passage of the contents of the ileum into the caecum, and permits it only when intestinal digestion and absorption have been completed. The valve sphincter is governed by reflexes which start from the mucous lining of the caecum, but are abolished when an artificial opening is made in the caecum, so that diarrhoea ensues. Caecal digestion, it is suggested, is due to bacterial action. It is argued that the only agents which could produce intestinal toxæmia are the products of enzyme digestion or of bacterial digestion or exotoxins derived from intestinal bacteria. He contends that the toxic proteoses, in passing through the walls of the intestine, are hydrolyzed and rendered harmless, and that carbohydrate and fat derivatives are not capable of producing toxic symptoms. If the symptoms are due to the intestinal bacteria themselves it must, he argues, be through exotoxins, the products of their action upon the medium, or endotoxins formed within them and set free by their disintegration. Strasburger's estimate of the enormous numbers of dead bacteria in faeces points to their destruction in the bowel. As it is the function of the liver to render innocuous any poisons formed in the intestine, if toxæmia occurs it must be due to hepatic failure. He holds that not only is the nature of intestinal toxæmia vague, but also the mechanical factor upon which it is supposed to depend. He believes the relaxation of the abdominal muscles to be of far greater importance in producing constipation than such conditions as abnormal mobility of the caecum, kinking at the hepatic and splenic flexures, adhesions around the ascending colon, and abnormal mesenteries. While acknowledging the work of Sir Arbuthnot Lane, and the lasting and material benefit that may follow the removal of a permanently diseased colon, he protests against the doctrine that a man who has no colon is in a better state than one who possesses a healthy bowel, and "if Lane by a sort of intuition of genius can give a new lease of life to certain chronic invalids," his teaching "should not be applied on any occasion and on every frivolous pretext to all conditions of men and women in whom this vague condition of intestinal toxæmia may be supposed to reside."

VICHY.

THE bulky volume on the arthritic diathesis, by Drs. E. GAUTRELET and H. DE LALAUBIE, two of the editors of the *Revue des maladies de la nutrition*,⁹ is the outcome of the collaboration of one of the oldest practitioners at Vichy with the head of the local laboratory for biological chemistry. They describe it as an attempt to co-ordinate the numerous papers published from time to time on the cure at Vichy, and to explain the doctrines developed by time and experience, and by which those who practise there are guided in their administration of the waters. These doctrines differ in certain respects from those usually taught in the schools of medicine, but it is desirable that those who send their patients for treatment at this great French watering-place should be aware of the principles which guide the practice of the physicians to whom their patients are entrusted. The authors regard arthritism as depending upon hyperacidity and having a histological basis in the thickening of the cellular septa which interferes with, and more or less arrests, the osmotic exchanges essential to life. About a quarter of the book is occupied by a retrospect of the ancient and modern theories of gout and allied diseases, and about half is devoted to a description of the clinical conditions more or less closely related to the gouty diathesis; the concluding portion of the book deals with the waters of Vichy and their method of employment, internal and external, and all the various adjuncts of treatment employed there. As there are few regions of the body unaffected by the

⁶ *The Intervertebral Foramina in Man*. By H. Swanberg. With an Introductory Note by Professor H. E. Santee. Chicago: H. D. Ulmer and Co. 1915. (Post 8vo, pp. 95; 16 plates. 1.75 dols.)

⁷ *Anatomie der Bauchspeicheldrüse (Pancreas)*. Von Dr. J. Sobotta. Jena: G. Fischer. 1914 (Roy. 8vo, pp. 62; 21 figures. Mk. 3.)

⁸ *Reflections on the Morphology and Physiology of the Caecum, with Special Reference to Intestinal Toxaemia*. By John Flynn, B.Sc., M.D., M.S. (Irel., Surgeon to the Lewisham Hospital; formerly Demonstrator of Anatomy, Sydney Medical School. (Printed for private circulation.)

⁹ *L'Arthritisme-diathèse à Vichy: Physiologie pathologique et thérapeutique physiologique*. (The Arthritic Diathesis at Vichy.) By E. Gautrelet and H. de Lalaubie. Paris: A. Maloine. 1915. (Roy. 8vo, pp. 930. 10 fr.)

disturbances of nutrition which may be classed as gouty it may easily be understood that the subject is large enough to excuse a big book. All the more to be regretted is it that there is no index and only a meagre table of contents.

NOTES ON BOOKS.

WE have read with much interest the philosophical poem whose existence its author, the late Dr. B. G. MORISON,¹ revealed to his wife only the day before he died. It takes the form of a dialogue between man and the spirit of life, and inculcates a serene and lofty confidence that, in despite of all transient and seeming triumphs of wrong, suffering, and death, all is or shall be well. Life is, for "the greatest and the least" alike, in essence indestructible, and though "savage ruthless force and subtle ill" may find "allotted meed" and pursue awhile "a favoured hurtful course," yet

The hour approaches when, to newer need
Unequal found, their baneful sway shall cease;
E'en now does victim Right, striving succeed,
And win from their undoing its release.

In addition to the title poem, some alternative stanzas, and a couple of short lyrics, the volume contains an interesting introductory note, "The Physician as Poet," a "Mémorial," and two portraits, thus completing its claim to rank as a worthy memorial of an attractive and gifted personality. (An obituary notice of Dr. Morison appeared in the JOURNAL of February 6th, 1915, page 274.)

Dr. W. H. B. STODDART'S Morison Lectures on *The New Psychiatry*, delivered at the Royal College of Physicians of Edinburgh in March, 1915, have already been noted in detail in the BRITISH MEDICAL JOURNAL. They have now been republished in book form.² They form a brief introduction to the principles and practice of psycho-analysis.

Dr. STEVENS'S manual of medicine,³ now in its tenth edition, was first published in 1892. It is a book prepared especially for students, and is redolent of suggestions of the midnight oil rather than of the bedside. In other words it is a comprehensive and workman-like textbook for the examinee, brief and clearly written, stripped of superfluous matter, uninteresting to the practitioner of medicine for the reasons that commend it to the medical student. Considerable alterations and additions have been made in the present edition to bring it up to date. So well-established an elementary textbook of medicine as this can stand on its merits, and is not in need of further commendation.

Under the title of *The Infant: Nutrition and Management*,⁴ Dr. ERIC PRITCHARD publishes a collection of papers on various points connected with infant welfare. The book is brought out at a happy time, since much attention is drawn just now to the need of preserving infant life. Dr. Pritchard's hints with regard to the early management of lactation are full of sound common sense, as, indeed, is his advice on the regularity and daily management of the child's functions. We heartily agree with Dr. Pritchard when he insists on natural processes being allowed fair play, and with him we deprecate the early administration of castor oil or artificial feeding in the first forty-eight hours of existence as usurping and unwarrantably interfering with the effects colostrum on the one hand and meconium on the other are designed to have. Dr. Pritchard is inclined to think that many bottle-fed babies are apt to be overfed rather than underfed. It is suggested that the numerous garments the babies of poor parents usually wear are responsible to some extent for the underfeeding of some infants. The child who is overburdened with clothes cannot be vigorous in its movements nor the action of its skin healthy, and its appetite is therefore poor.

Dr. D. M. MACDONALD'S small volume on *Practical Prescribing and Treatment in the Diseases of Infants and*

*Children*⁵ consists of short and concise paragraphs arranged in dictionary form. We only fear lest a book such as this may tend to make some busy young practitioners trust to obtaining knowledge in too concentrated a form. We are glad to see that regularity in the daily habits of children is insisted on and that medicines for constipation, though various good formulae are given, are deprecated. The notes on diseases of the eye and the tuberculous child are practical, and the alterations in the recent edition of the *British Pharmacopoeia* are clearly presented in the last chapter.

An interesting record of the research work carried out during 1914 at the Research Laboratory of Parke, Davis and Co. at Detroit is furnished by the republication, in book form,⁶ of more than twenty papers by various authors. These papers originally appeared for the most part in different American journals. They deal mainly with bacteriological subjects; a few are concerned with pharmacy. The volume contains evidence of much useful work, and does the greatest credit to the long-sighted wisdom of the firm that has paid for the expenses of the researches and of their publication in so readily accessible a form.

⁵ *Practical Prescribing and Treatment in the Diseases of Infants and Children*. By D. M. Macdonald, M.D., F.R.C.P.E. Oxford Medical Publications. London: H. Frowde, and Hodder and Stoughton. 1915. (Pott 8vo, pp. 199. 5s. net.)

⁶ *Collected Papers from the Research Laboratory of Parke, Davis and Co., Detroit, Michigan*. Reprints—Vol. 3, 1915. Director, Dr. E. M. Houghton. (Med. 8vo, pp. 345.)

THE NOTIFICATION OF MEASLES.

THE Order with regard to the "notification and treatment of measles and German measles," which came into force on January 1st, 1916, imposes a somewhat different duty as regards notification from that imposed by the Infectious Disease Notification Act, 1889. That Act provides as follows:

Where an inmate of any building used for human habitation . . . is suffering from any infectious disease to which the Act applies then, unless such building is a hospital in which persons suffering from an infectious disease are received . . . the head of the family to which such inmate belongs, and in his default the nearest relatives of the patient present in the building or in attendance on the patient, and in default of such relatives every person in charge of or in attendance on the patient, and in default of any such person the occupier of the building shall, as soon as he becomes aware that the patient is suffering from an infectious disease to which the Act applies, send notice thereof to the medical officer of health of the district.

Every medical practitioner attending on or called in to visit the patient shall, on becoming aware that the patient is suffering from an infectious disease to which the Act applies, send to the medical officer of health for the district a certificate. . . .

Under the provisions of the Infectious Disease (Notification) Act, therefore, two notifications, the one from the person responsible for the care of the patient and the other from the attendant doctor, are receivable by the medical officer of health, and the Act provides that the local authority shall pay to

every medical practitioner for each certificate duly sent by him in accordance with the Act a fee of 2s. 6d. if the case occur in his private practice, and of 1s. if it occurs in his practice as medical officer of any public body or institution.

It would, perhaps, be too much to say that the provision in the Act with regard to notification by the head of the family is a dead letter, but we believe we are correct in stating that in practice the authorities very seldom take steps to enforce it.

If now we compare the provisions of the Notification Act (1889) and of the General Order of December 13th, 1910, on the one hand, with the regulations as to measles and German measles, we find the position somewhat different.

The measles regulations provide as follows:

(Article V.) Every parent or guardian or other person, as soon as he becomes aware of, or has reasonable grounds for supposing that any person in his charge is suffering from measles or German measles, shall, unless the case has already been notified by a medical practitioner, forthwith notify the case to the medical officer of health for the district.

(Article VI.) Every medical practitioner, as soon as he becomes aware that any person upon whom he is in professional attendance is suffering from measles or German measles, shall forthwith make and sign a notification . . . and shall transmit the notification to the medical officer of health for the district.

¹ *Life: A Poem*. By B. G. Morison, M.D. With a preface and biography of the author by an Editor. London: Baillière, Tindall, and Cox. 1915. (Demy 8vo, pp. 95; 2 plates. 3s. 6d. net.)

² *The New Psychiatry*. By W. H. B. Stoddart, M.D., F.R.C.P. London: Baillière, Tindall, and Cox. 1915. (Demy 8vo, pp. 70. 3s. 6d. net.)

³ *Manual of the Practice of Medicine, prepared especially for Students*. By A. A. Stevens, A.M., M.D. Tenth edition. Philadelphia and London: W. B. Saunders Co. 1915. (Cr. 8vo, pp. 629. 12s. 6d. net.)

⁴ *The Infant: Nutrition and Management*. By E. Pritchard, M.A., M.D., Oxon., M.R.C.P. London: E. Arnold. 1914. (Crown 8vo, pp. 271. 3s. 6d. net.)

Provided that a medical practitioner shall not be required to notify a case of measles or German measles . . . and shall not be paid a fee for so doing

(a) If he has reasonable grounds for supposing that the case has already been notified under these regulations;

(b) If the case is notifiable or has been notified by a medical practitioner under the Infectious Disease (Notification) Act, 1889, Section 55 of the Public Health (London) Act, 1891, or under the provisions of any local Act or order made thereunder;

(c) If a case of the disease which he is attending, whether measles or German measles, has to his knowledge occurred in the same household or institution, and been notified within the period of two months immediately preceding the date on which he first becomes aware of the disease in the case he is attending; or

(d) If the case is being treated in a hospital for infectious diseases.

Article VIII provides for the payment of fees to the medical practitioner notifying a case under the regulations—2s. 6d. in respect of a private practice case, and 1s. if the case occurs in the practitioner's practice as medical officer of any public body or institution.

It will therefore be seen, on comparing the respective provisions of the Infectious Disease (Notification) Act and Measles Regulations which we have quoted, that whilst the Act imposes upon every medical practitioner in attendance upon a case, say, of scarlet fever, the duty of notifying the medical officer of health whether the case has already been notified or not, the measles regulations do not require a medical practitioner attending a case of measles to notify the medical officer of health "if he has reasonable grounds for supposing that the case has already been notified." The Local Government Board has stated that it is advised that if more than one medical practitioner is attending on or called in to visit a patient suffering from, say, scarlet fever, each practitioner is bound, under the Infectious Disease (Notification) Act, to send a certificate, and is entitled to the prescribed fee of 2s. 6d. or 1s., as the case may be, for such notification. On the other hand, a doctor called in to attend a case of measles upon which another doctor has previously been in attendance would be under no duty to notify if he had reasonable grounds for supposing that the case had already been notified; and, indeed, there being no duty upon him to notify the case, it would seem that if he nevertheless notified the medical officer he would be entitled to no fee for such notification, and the same result follows if a doctor has reasonable grounds for supposing that a case has already been notified by the patient's parent or guardian.

The position is perhaps best understood by taking a concrete case. Suppose, for instance, a woman writes to the M.O.H. that she suspects that her child is suffering from measles, and that the M.O.H. visits the house and finds that the child is suffering from measles, and in that way receives a notification of the case. Later, the woman calls in a medical man, but says nothing to him about the visit of the M.O.H.; he diagnoses the case and notifies the M.O.H. accordingly. The doctor's position is clear. He had no reasonable grounds for supposing that the case had already been notified and was therefore under a duty to notify. He is entitled to receive his fee. Even though the M.O.H. was himself also engaged in private practice, he would not appear to be entitled to any fee because the duty he performed was incidental to his appointment as M.O.H. and not otherwise.

Again, a doctor is called in to a case of measles; there is something which should show that another doctor has been previously in attendance on the case; that would, unless he were told that the doctor previously in attendance had not in fact notified the case, no doubt be held to relieve him of the duty of notifying, and, if he did notify, would disentitle him from receiving a fee.

In reading the two illustrations we have given it should be borne in mind that "notification" means "notification after diagnosis," and therefore a mere statement of suspicion is not a notification.

This distinction between the notification under the Act and that under the measles regulations is, no doubt, designedly made with a view to economy, but we cannot help feeling that it is one which may very well defeat the whole purpose of the regulations, which were made in order to enable the authorities to obtain control over two infectious diseases which were not previously notifiable.

THE DUTIES OF MEDICAL PRACTITIONERS IN CASES OF CRIMINAL ABORTION.

THE question as to how far a medical man, who obtains in his professional capacity knowledge of the commission of a criminal offence, is under a duty as a citizen to give information to the police authorities and so set the criminal law in motion, is one which has great interest for the medical profession.

It is manifest that as a standing rule applicable to the vast majority of cases it is of the very highest importance that professional confidence should be respected and held inviolate. Probably the case of most frequent occurrence is that of the medical man called in to attend upon a woman upon whom he comes to the conclusion an illegal operation has been performed, and in this case, at any rate, it is now safe to say that the doctor is under no obligation to, and indeed should not, divulge the information which he has obtained in his professional capacity.

In order to explain how the point has now arisen we must go back to 1896, when the late Lord Brampton (better known as Mr. Justice Hawkins), in charging a grand jury, said:

I doubt very much whether a doctor called in to assist a woman, not in procuring an abortion, for that in itself is a crime, but for the purpose of attending her and giving her medical advice, could be justified in reporting the facts to the Public Prosecutor. Such action would be a monstrous cruelty. . . . There might be cases when it is the obvious duty of a medical man to speak out, and it would be a monstrous thing for a medical man to screen a person going to him with a wound which it might be supposed had been inflicted in the course of a deadly struggle.

Lord Brampton's remarks were brought to the notice of the Royal College of Physicians of London, and in the result it obtained the joint legal opinion of Sir Edward Clarke and Mr. Horace Avory; the latter was then in practice at the junior Bar, but has since been raised to the Bench. They advised that a medical practitioner was not liable to be indicted for misprision of felony (an offence which is practically obsolete) merely because he does not give information in a case where he suspects that criminal abortion has been practised. There the matter rested until the close of 1914, when at the Birmingham Assizes in December Mr. Justice Avory had to deal with a case of an alleged illegal operation upon a woman on whom three successive doctors had been in attendance. None of these doctors had given information to the police, and, in consequence, there was no evidence upon which a jury could convict the prisoner who was charged with having performed the illegal operation. In charging the grand jury, the judge made the following observations:

Under circumstances like those in the present case, I cannot doubt that it is the duty of the medical man to communicate with the police or with the authorities in order that one or other of those steps may be taken for the purpose of assisting in the administration of justice. No one would wish to see disturbed the confidential relation which exists, and which must exist between the medical man and his patient, in order that the medical man may properly discharge his duty towards his patient, but there are cases, and it appears to me that this is one, where the desire to preserve that confidence must be subordinated to the duty which is cast upon every good citizen to assist in the investigation of a serious crime such as is here imputed to this woman. In consequence of no information having been given, it appears to me that there is no evidence whatever upon which this woman can properly be put upon her trial.

I have been moved to make these observations because it has been brought to my notice that an opinion to which I was a party some twenty years ago, when I was at the Bar, has been either misunderstood or misrepresented in a textbook of medical ethics, and I am anxious to remove any such misunderstanding if it exists. It may be the moral duty of the medical man, even in cases where the patient is not dying, or not likely to recover, to communicate with the authorities when he sees good reason to believe that a criminal offence has been committed. However that may be, I cannot doubt that in such a case as the present, where the woman is, in the opinion of the medical man, likely to die, and, therefore, her evidence likely to be lost, that it is his duty; and some one of these gentlemen ought to have done it in this case.

Mr. Justice Avory was therefore insisting that, professional secrecy notwithstanding, medical men are under the same moral duty as other citizens of the State in all cases in which they become aware of the commission of a criminal offence, to give information to the authorities.

In this, as we have seen, he differed from the late Lord Brampton.

These remarks were brought to the attention of the Council of the British Medical Association, and, after full consideration of the matter in consultation with the solicitor to the Association, a deputation was appointed to confer with the Lord Chief Justice on the question raised. This deputation was received by the Lord Chief Justice on May 3rd, 1915, and the Attorney-General and Public Prosecutor were also present. It was then ascertained:

(a) That it is desired by the authorities that information should be given to them by medical men in attendance upon a woman suffering from the effects of abortion brought about by artificial intervention.

(b) That the circumstances under which it was desired that this communication should be made were the subject of the following three limitations:

(1) That the medical man was of opinion either from his examination of the patient and/or from some communication that she may have made to him that abortion had been attempted or had been procured by artificial intervention.

(2) That he was of opinion either from his observations of and/or from a communication made to him by his patient that such artificial intervention had been attempted by some third party other than the patient herself, and

(3) That the medical man was of opinion that his patient, due to such artificial intervention, was likely to die, and that there was no hope of her ultimate recovery.

Upon this the Council made the following observations in its report to the Annual Representative Meeting, 1915:

The Council understands that whereas Solicitors and Barristers have an absolute privilege of protection in regard to statements made to them in their professional capacity involving matters of criminal import or otherwise, no other class of persons is accorded such legal protection by State authority or Act of Parliament, although in the case of ministers of religion such protection is universally observed and recognized by custom in the Courts.

There is, however, no such universally recognized protection attaching to medical men in respect of statements made to them by a patient; in fact there is a considerable conflict of authority upon the subject.

The Council is advised that no obligation rests upon a medical practitioner to disclose the confidences of his patient without the patient's consent, and suggests that if the State desires to set up such an obligation it should at the very least preface such an endeavour by affording to the practitioner protection from any legal consequences that may result from his action. Without any desire to claim the right to refuse to make such disclosures in obedience to the order of a Court of Justice, the Council, after hearing the report of the Deputation received by the Lord Chief Justice on May 3rd, 1915, has decided to adhere to the following Resolutions which it passed on January 27th, 1915:

That the Council is of opinion that a medical practitioner should not under any circumstances disclose voluntarily, without the patient's consent, information which he has obtained from that patient in the exercise of his professional duties.

That the Council is advised that the State has no right to claim that an obligation rests upon a medical practitioner to disclose voluntarily information which he has obtained in the exercise of his professional duties.

The matter has also been taken up by the Royal College of Physicians of London. The College passed certain resolutions last July. It was subsequently considered advisable to obtain an opinion from Mr. E. D. Muir on the legal advice appended to the resolutions, which were finally adopted in the following form after they had been submitted to the Public Prosecutor for his approval. The resolutions of the College and the advice it has received are in the following terms:

Resolutions concerning the Duties of Medical Practitioners in Relation to Cases of Criminal Abortion, adopted by the Royal College of Physicians of London on January 27th, 1916.

The College is of opinion—

1. That a moral obligation rests upon every medical practitioner to respect the confidence of his patient; and that without her consent he is not justified in disclosing information obtained in the course of his professional attendance on her.

2. That every medical practitioner who is convinced that criminal abortion has been practised on his patient

should urge her, especially when she is likely to die, to make a statement which may be taken as evidence against the person who has performed the operation, provided always that her chances of recovery are not thereby prejudiced.

3. That in the event of her refusal to make such a statement, he is under no legal obligation (so the College is advised) to take further action, but he should continue to attend the patient to the best of his ability.

4. That before taking any action which may lead to legal proceedings, a medical practitioner will be wise to obtain the best medical and legal advice available, both to ensure that the patient's statement may have value as legal evidence, and to safeguard his own interests, since in the present state of the law there is no certainty that he will be protected against subsequent litigation.

5. That if the patient should die, he should refuse to give a certificate of the cause of death, and should communicate with the coroner.

The College has been advised to the following effect:

1. That the medical practitioner is under no legal obligation either to urge the patient to make a statement, or, if she refuses to do so, to take any further action.

2. That when a patient who is dangerously ill consents to give evidence, her statement may be taken in one of the following ways:

(a) A magistrate may visit her to receive her deposition on oath or affirmation. Even if criminal proceedings have not already been instituted, her deposition will be admissible in evidence in the event of her death, provided that reasonable written notice of the intention to take her statement was served on the accused person, and he or his legal adviser had full opportunity of cross-examining.

(b) If the patient has an unqualified belief that she will shortly die, and only in these circumstances, her dying declaration will be admissible. Such a declaration may be made to the medical practitioner, or to any other person. It need not be in writing, and if reduced into writing it need not be signed by the patient nor witnessed by any other person, though it is desirable that both should be done, or that, if the patient is unable to sign, she should make her mark. If possible, the declaration should be in the actual words of the patient, and if questions are put, the questions and answers should both be given, but this is not essential. If the declaration cannot there and then be reduced into writing, it is desirable that the person to whom it is made should make a complete note of it as soon as possible.

The position may therefore be summarized shortly:

1. Any one who, knowing of the commission of a criminal offence, attempts to conceal his knowledge from the authorities may himself be guilty of the offence of misprision of felony—an offence, however, which is practically obsolete.
2. An ordinary citizen, not being a barrister or solicitor, is under a moral duty to inform the authorities when he has knowledge of the commission of a criminal offence.
3. A medical man, however, is under no such moral duty where his knowledge is obtained in his professional capacity, so far, at any rate, as the offence of abortion is concerned.

THE United States Census Bureau estimates that the death-rate for 1914 in the registration areas of the country was 13.6 per 1,000, being the lowest rate recorded. The returns cover about 67 per cent. of the population, and are considered trustworthy. The death-rate of New York City had fallen 25.8 per cent., that of San Francisco 23.6 per cent., and that of other large cities showed a considerable lowering of mortality.

THE annual report of the Glasgow Eye Infirmary states that the directors have been confronted with two difficulties—the increase in the cost of supplies and the depletion of the medical staff. In addition to the general increase in the price of food, there has been difficulty in respect of drugs. The drugs indispensable in ophthalmic surgery, the report states, are mostly of foreign origin, and are now only obtainable at greatly enhanced prices, which range from five to twenty times the prices existing before the war. The charges under this heading would have been considerably heavier but for the fact that drugs are not now supplied by the infirmary to patients insured under the National Health Insurance Act.

British Medical Journal.

SATURDAY, FEBRUARY 5TH, 1916.

MEDICAL RECRUITING.

At a time like this the main interest of the work of the Association must be centred in the endeavour of the profession to further the national interests in the war. It is therefore not to be wondered that the report of the Central Medical War Committee claimed much attention from the meeting of the Council of the British Medical Association on January 26th. That the report of the Committee was adopted without amendment, save such verbal alterations as were proposed by the Chairman of the Committee himself, after it had run the gauntlet of the searching criticism of the members of the Council, speaks well for its work. The Committee, it will be remembered, was appointed at the instance of the Annual Representative Meeting last July. The representatives of the British Medical Association were the four *ex officio* members (the President, the Chairman of Representative Meetings, the Chairman of Council, and the Treasurer), four other members elected by the Council, four members elected by the Representative Meeting from among its own body, and four other persons also chosen by the Representative Body—namely, Sir William Osler, Sir T. Clifford Allbutt, the Master of Christ's College, Cambridge, and Dr. T. Jenner Verrall. The Committee had power to co-opt six other members representative of universities, colleges, and other medical bodies, and under this power has chosen the President of the Royal College of Physicians, London; the Past-President of the Royal College of Surgeons, London; the Dean of St. Bartholomew's Medical School, the Secretary of the London Panel Committee, the Dean of the Faculty of Edinburgh University, who is also a member of the Scottish Medical Emergency Committee; and the Irish Medical Secretary of the Association, who is also the Secretary of the Irish Medical War Committee. Representatives of the Insurance Commissioners and of the Local Government Board attend the meetings without vote. The Committee has met eleven times and the Executive Subcommittee twenty-three times. Government departments have been interviewed—some of them many times, and the roll shows that the members have been most assiduous in their attendance.

The status of the Committee, which met first on July 30th, had gradually been strengthened; and, as will have been gathered from Mr. Tennant's statements in the House of Commons on January 12th and 20th,¹ it may now be said to be an advisory committee to the Director-General on matters which affect the relation between the medical demands of the army and the medical requirements of the civil population, and to act also as an active recruiting agency to secure medical officers for the R.A.M.C.

Lord Derby definitely turned over the recruiting of doctors in England and Wales to the Central Medical War Committee, and in Scotland to the Scottish Medical Emergency Committee; the Army Council subsequently announced that no qualified medical practitioner willing to accept, if offered, a commission

in the Royal Army Medical Corps should be accepted as an ordinary combatant, and that the certificate of enrolment issued by the committees would be accepted as conclusive evidence on this head by all recruiting officers. Medical practitioners so enrolled, the Army Council stated, "will not be posted to a combatant unit, and will await the instructions" of the Central Medical War Committee, or the Scottish Medical Emergency War Committee, as the case may be. The Committee, acting in conjunction with the Scottish Committee, set itself to secure a large number of additional medical officers by the middle of January, and though the full tale was not attained, the Director-General stated that "on the whole he was not dissatisfied with the result." The duty of the Committee is not only to secure new medical officers for the new armies, but also new men to take the place of those who have been invalided, or who— their number is not, we believe, at present large—having served one year, for divers reasons have to return to civil life. The effort must be continued, for the demand cannot be expected to diminish. The Central Medical War Committee commended in the warmest terms the work of the local Medical War Committees. It was able to report that out of 172 areas in England and Wales all have committees working save four (West Bromwich, Dover, Lewisham, and Lewes and East Grinstead). The report stated that it was impossible to speak too highly of the arduous work and self-sacrifice devoted to the organization and conduct of many of these committees, and the Central Committee especially thanked those who, by acting as chairmen and honorary secretaries, had enabled it to establish a network of committees which have carried on the recruiting work for officers for the R.A.M.C., and have enabled some thousands of medical men to join the services, knowing that their interests during their absence will, so far as possible, be protected.

The work of the local committees is growing in importance: they must act as recruiting agencies; they must know all the men of military age, their position, the possibility of sparing them from civil work, how to safeguard their practices, and in particular must promptly advise the Central Committee whether or not a certain commission applied for may or may not be granted. Recently the Director-General has promised to put all the local committees in touch with the Deputy Director in each home command, so that changes in mobilization may be known and arranged for.

The Committee presses for the immediate enrolment of every medical man of military age—that is, of 45 years and under. Every man should enrol, irrespective of whether he thinks he can or should go or not. He is asked to put his case before the Committee for consideration and decision. Only by a complete enrolment can the Committee know the general position and do justice as between man and man and district and district. Not every enrolled man will be called upon to go, and no man will be called upon without consultation with his local committee.

Much good work has been done by local committees. Some districts have been particularly difficult to deal with; this applies to London, for instance, where the population is of a floating character and patients are not attached by close ties to their doctors, as they are in country districts. The problem still calls for much attention, and as the difficulty of getting men increases it may be necessary to consider some scheme for redistribution of practitioners.

¹ BRITISH MEDICAL JOURNAL, January 22nd, p. 140, and January 29th, p. 178.

The Committee had called the attention of the President of the General Medical Council to some few instances in which men had taken advantage of the absence of their colleagues. The President intimated in his address at the November session that the Council would take a very serious view of any case brought before it in which such unpatriotic and unprofessional conduct was proved. The Committee had also, through the lay press, appealed to the public to consider the interests of their usual doctor when he is away on service, and to tell whomsoever they may go to the name of the absentee doctor who was their usual attendant.

A letter had been sent to the medical committees of all civil hospitals asking them to consider the minimum requirement for carrying on the hospitals during the war, and information had been given as to measures taken by various hospitals in coping with shortage of junior residents.

Much tribulation had come to the Committee owing to grievances felt with regard to certain War Office regulations on points of age and physical fitness for commissions for men on home service. At the outset of the Committee's work recruiting was hindered owing to the many men of military age and fit for general service—that is to say, either at home or abroad—holding commissions and being employed on home service only. The Committee desired the Director-General to instruct "D.D.M.S.'s and A.D.M.S.'s not to retain or accept for work in military hospitals at home medical practitioners of military age who were physically fit, but to encourage such practitioners to accept commissions in the R.A.M.C."; the same was to apply to Red Cross and Voluntary Aid Detachment hospitals. The Director-General notified that "no man under 45 years of age will be employed unless he undertakes general service obligation for a year, and is found to be physically fit for duty at home and abroad." It will be noted that the army order differs from the request of the Committee. It excludes not only fit men under 45 from home service but also unfit men. The Committee therefore again approached the War Office on the matter, for it was felt that hardship would be done to men who would have to surrender their commissions under the order, and that men useful for home work would be refused commissions. The War Office replied that the decision was come to on departmental grounds. Commissions, it was pointed out, carried obligations to both sides, and the Treasury would not entertain these obligations towards men known to suffer physical disability. It was, on the other hand, stated that these men would be taken on for home service as civil medical practitioners. The matter was discussed at the meeting of the Council at some length, but a motion directing the Committee to seek a further interview with the Director-General thereon was lost.

The need for the economical use of medical officers has been a constant source of comment: it was dealt with in a lengthy section of the report, and it was debated in earnest by the Council. The Committee has had many interviews on the subject with the Director-General, and reported that while it believed that individual instances of wastage may be proved, it has been convinced by its communications with the Director-General that on the whole these complaints are due to ignorance of the larger questions of army medical administration. Reserves must be maintained; men who may seem to be idle are nevertheless indispensable. The present siege warfare makes many men in all branches of the army apparently idle and useless, but they must be there on the spot,

for who knows when the siege may give place to field operations? "The Committee feels that, after all, the responsibility must rest upon the military authorities, who would be blamed if at any given time it were found that there were not sufficient medical officers, and the Committee does not consider that it is wise or patriotic to question the decision of the military authorities, arrived at, as the Committee has good reason to know, after full consideration of the criticisms that have been offered."

SCIENCE, EDUCATION, AND GOVERNMENT.

A VOLUNTARY committee of men of science has issued a memorandum which is a serious indictment of the attitude of public opinion, but especially of political opinion in this country, towards the study of science and its application to practical affairs, including military administration. It would, perhaps, be more correctly described as an appeal to the public and an indictment of politicians, although it points out that the ignorance of science displayed by the highest ministers of the state, by almost all public departments of the civil service, and almost universally in the House of Commons, is shared by the general public, including a large proportion of those engaged in industrial and commercial enterprise. Important exceptions to the rule are recognized in the navy and the medical service of the army. "In both these services," the memorandum observes, "success has been achieved by men who, while in no way inferior in courage, devotion, and self-sacrifice to their brethren elsewhere, have received a scientific training." It is pointed out that it is admitted on all sides that this country has suffered checks since the war began, due directly as well as indirectly to a lack of knowledge on the part of the legislators and of administrative officials of "science" or "physical science," meaning thereby the ascertained facts and principles of mechanics, chemistry, physics, biology, geography, and geology. As a curious instance of ignorance, the case is quoted of the public statement by a member of the Government, unchallenged when made, that his colleagues should be excused for not having prevented the exportation of lard to Germany, since it had only recently been discovered that glycerine, used in the manufacture of explosives, could be obtained from lard. Yet the chemistry of soapmaking and the accompanying production of glycerine is very ancient history. The time certainly seems to have come when officials of all kinds, no less than members of Parliament, should be as much ashamed of ignorance of the commonplaces of science as they would now be if found guilty of bad spelling or arithmetic.

The contention that our success now and in the difficult time of reorganization after the war must depend largely on the possession by the leaders and administrators of the country of adequate knowledge of scientific method and facts and of the habit of promptly applying known means to known ends is a statement so obvious that the fact that it should be thought necessary to make it is in itself proof of our backward state. It is, indeed, discouraging and somewhat pitiable to watch the operation of a mind of great natural endowments, tempered by the highest education the public schools and the old universities afford, attempting to handle a subject demanding a knowledge of the principles, facts, and methods of science. One can imagine the contempt which would have been felt for such a system of education by Greeks of the great period.

For a remedy the memorandum looks to a reform in the system of higher education both in the universities and in the schools which prepare boys for them. The one and effective way of giving the nation both better educated civil servants and a true and reasonable appreciation of science in all classes is, the committee considers, in the hands of the legislature, and of it alone. It must direct the Civil Service Commissioners and the Army Examination Board to give a preponderating, or at least an equal, share of marks in the competitive examinations to natural science subjects, proper safeguards being taken to make them tests of genuine scientific education, and not an incentive to mere cram: Natural science has been introduced as an optional subject for the Civil Service examinations, but only one-fourth of the candidates offer themselves for it; the reason is that it does not pay, since in Latin and Greek alone, including ancient history, they can obtain 3,200 marks, while for science the maximum is 2,400, and can only be obtained by a candidate who takes four distinct branches of science. Science has only been made compulsory at Woolwich within the last few years; for Sandhurst it still remains optional, and this college is probably the only military institution in Europe where science is not included in the curriculum. A result of this system of education, not merely upon the candidates but upon all the great schools of the old universities which necessarily, as things are at present arranged, work with them in aim and interest, is neglect of the study of the natural sciences.

The memorandum concludes by an appeal to the electorates to insist that candidates for their suffrages should pledge themselves to aid by legislation in bringing about a drastic reform in the scheme of examination for all the public services in the sense indicated. The memorandum is signed by a large number of men of science, mostly the seniors. The list includes the names of Sir T. Clifford Allbutt, Sir William Osler, Sir Henry Morris, Sir John Williams, Sir Ronald Ross, Professor Leonard Hill, Professor E. H. Starling, Dr. A. E. Shipley (Cambridge), Professor G. C. Bourne (Oxford), Professor J. C. Ewart (Edinburgh), Professor S. J. Hickson (Manchester), and Professor J. A. Thomson (Aberdeen), so that in biology alone it is fairly representative of all parts of the country, but though it contains the names of two peers—the Earl of Berkeley and Lord Rayleigh—it does not contain the name of a single member of the House of Commons.

Side by side with this appeal in the newspapers of Wednesday appeared a report from the Committee on Retrenchment in Public Expenditure, recommending the closure of the national museums in the capital of the empire in order to effect a saving estimated at £50,000 a year. The main argument, however, seems to be that the closure will liberate a certain number of policemen, caretakers, and cleaners, who could be employed in other Government departments. This second reason is justified by the incidental assumption that the staffs of museums are "employed on unnecessary work." This phrase, of course, begs the whole question, and we cannot doubt that in regard to the Natural History Museum at least the decision is most unfortunate. That museum is a great educational institution, and to mention only one practical point, it seems a pity to deprive soldiers who may have to serve in tropical and sub-tropical countries of the opportunity of studying the admirable large scale models of parasites, such as the malarial parasite and the trypanosome, and the insects by which they are conveyed, displayed in the central halls of the museum.

THE CENTRAL PENSION COMMITTEE.

THE Prince of Wales, who came home on short leave on January 30th, presided in his capacity as chairman over a meeting on February 1st, attended by the members of the Statutory Committee appointed to carry out the provisions of the Naval and Military War Pensions Act, and also by the First Lord of the Admiralty, the Minister for War, representatives of many organizations for the benefit of crippled men, of Government Departments, and of local administrations. The Prince, in a very lucid speech, first sketched the history of what had been done in the past with regard to naval and military pensions, pointing out that until the Transvaal war the State had made no provision for widows and dependants. The weekly pensions since granted out of the taxes of the country were supplemented out of voluntary funds administered by the Royal Patriotic Fund Corporation. In this war, not only the rank and file, but also the officers, and even the higher commands, were drawn from all classes of the community, and in these new situations the State had been obliged to regard the problem of the widow and dependant, and the still more difficult problem of the disabled, whether from wounds or disease, from a different aspect. Parliament, expressing the will of the people, had decided that pensions and allowances for widows and dependants, and for the disabled, should be given on a higher scale, and should be paid as of right through the usual State departments, but if the rule of equality of sacrifice was followed it would be necessary to supplement these State pensions in some cases. If we were really as a nation to love and honour our stricken heroes and see that they were provided not alone with pensions, but with employment suited to their new conditions, and, if necessary, trained, it would be essential, in order to provide systematically for the health, training, and employment of disabled officers and men after they had left the service, that the whole country should be covered by a network of machinery capable of working in harmony, until, after many years, the last victims of the war had ceased to be. The Pensions Act enjoined on the Central Statutory Committee as its first duty the formation of a committee for every county and county borough, and for every borough and urban district having a large population. It was not intended that the Statutory Committee should impose hard and fast limitations of a uniform character upon the various local authorities. The promised State grant of one million to start the work should be used, in the wealthier areas at all events, to supplement and stimulate, not to supplant and suffocate local efforts and local generosity. As showing the magnitude of the task, the Prince said that the total number of all ranks killed in the South African war was 21,942; the total number of all ranks killed in the present war was already 128,138. The total casualties in all ranks in the South African war was 44,876; in this war already 549,467. Mr. Balfour, in moving a vote of thanks to the Prince, said that the scheme was to combine in one great system all the advantages of central organization with those of local organization and charitable assistance. He believed that if the machinery set in motion by Parliament were worked as it might be worked it would be possible, if not to avoid all mistakes, at least to mitigate the inevitable sufferings of the men who defended the interests of the empire and those dependent on them. Earl Kitchener, who seconded, said that the Prince's experience at the front had enabled him to appreciate how great would be the demands on our humanity, our patriotism, and our sense of gratitude. The vote was carried by acclamation, and thereafter a business meeting of the Committee was held, at which it was resolved to ask the local committees to agree on a standard of relief and to issue a model scheme.

THE ATTESTED MEDICAL MAN.

IN view of the answer recently given in the House of Commons by Mr. Walter Long to a proposal made by Mr. King that medical men and dentists should be exempted from the provisions of the Compulsion Bill, it is well to call the attention of members of both professions to their present position as far as we are able to gather it. It is known that a certain number of medical men, both married and single, attested under Lord Derby's original scheme; and it is probable that the same remark applies to the dental profession. With regard to medical men who attested, the official statement by the Army Council, published in the *BRITISH MEDICAL JOURNAL* of January 15th last (p. 102) has made clear the course of action that they should pursue. They have been told by the Army Council that they should enrol with the Central Medical War Committee or the Scottish Medical Service Emergency Committee, as the case may be, by signing an application for a commission in the R.A.M.C., and leave it to the committee to call upon them for service if and when they are required. When they have enrolled they will receive from the committee a certificate of enrolment; and if they are called up in the group to which they belong under Lord Derby's scheme, they must produce to the recruiting officer their certificate. This will exempt them from service in the combatant ranks, and it will be left to the medical war committee to call upon their services when necessary. Under the Military Service Act members of the medical and dental profession, who are single and under 40 years of age, will be attested compulsorily; as a result these men will be liable to be called upon to take service in a combatant capacity. It is highly important, therefore, that all medical men, and such members of the dental profession as hold a medical qualification, and have under the new Act become liable for service, should forthwith enrol with the committee of the county to which they belong. In this way, whenever the time arrives for the attested group to which they belong to be called up, they will be armed with a certificate of enrolment, and so able to place their position before the recruiting officer. Unless they are prepared in this way, they may find it extremely troublesome, if not difficult, to escape from combatant service. The effect on the treatment of the civilian population may be even more serious than upon recruiting for the R.A.M.C.

THE MILITARY SERVICE ACT.

THE Military Service Act, 1916, which has just been passed, directs the establishment of three grades of tribunals for dealing with applications for exemption from its provisions—local tribunals, an appeal tribunal for counties or groups of counties, and a central tribunal. The local tribunals are to be appointed by the local registration authorities under the National Registration Act. There are four grounds for an application for exemption to a local tribunal: (1) That it is expedient in the national interests that the individual, instead of being employed in military service, should be engaged in other work; (2) that serious hardship would ensue if he were called up, owing to special financial, business, or domestic obligations; (3) on the ground of ill health or infirmity; and (4) on the ground of conscientious objection to undertaking combatant service. The local tribunal, if it considers the application established, will grant a certificate of exemption. A Government department may, after consultation with the Army Council, grant certificates of exemption to men, or classes or bodies of men, in the employment of the department, or engaged or qualified for employment in any work within the sphere of the department certified by it to be of national importance. There is an appeal from the decision of the Government department to the Treasury, whose decision will be final. A certificate of exemption may be absolute, conditional, or temporary, and

in the case of application on conscientious grounds may take the form of exemption from combatant duties only, or be conditional on the applicant being engaged in some work which, in the opinion of the local tribunal, is of national importance. A certificate granted on the ground of special financial, business, or domestic obligations must be a conditional or temporary certificate only. There is an appeal from the local tribunal to the county appeal tribunal, and the President of the Local Government Board has issued a circular letter to the chairmen of county councils, lord mayors and mayors, asking them to take steps to submit a list of suitable persons to act on the county appeal tribunal. It will be the duty of the appeal tribunal to afford an opportunity to the parties to any appeal to appear in person. The circular letter points out that it is of the highest importance that the tribunal should command the confidence of the community, and that, inasmuch as the labouring population will have a large interest in the questions to be determined, a fair proportion of the members of the tribunal should be direct representatives of labour. It is further suggested that at least one member of the tribunal should have legal training and experience, and that women should be placed upon the tribunals. No person whose name is suggested should be a man of military age who has not been attested or pronounced physically unfit for military service. The members of the appeal tribunals will be appointed by His Majesty, as will also be the members of the central tribunal for Great Britain, to which appeals may be taken from the county appeal tribunal. In grouping counties for the purpose of appointing appeal tribunals the county boroughs within the area are included, with the exception that for London and for Middlesex there will be separate tribunals.

SECONDARY CLOSING OF WAR WOUNDS.

CARREL, Dehelly and Dumas presented to the Paris Academy of Medicine on January 18th a paper on the secondary closure of war wounds, in a continuation of the work already reviewed in these columns, on the abortive treatment of infected wounds based on the employment of sodium hypochlorite prepared according to Dakin's formula. In this earlier paper, as evidence of the utility of the method, cases were cited of the union by first intention of wounds which had been closed after a relatively short but vigorous course of antiseptic treatment. More extensive experience with the method led the authors to believe that such secondary closures of wounds was a general method of great value. Free incision of wounds, while essential for their successful exploration and for the removal of foreign bodies, had serious drawbacks by prolonging subsequent treatment and interfering with normal cicatrization. The cicatricial tissue eventually filled the spaces between the muscles, aponeurosis and skin, and the surfaces of these latter structures were apt to become adherent by a solid cicatricial mass of new tissue which impeded or even altogether prevented muscular contractions. To avoid this, an attempt was made to draw the various corresponding surfaces of a wound together at an early date so that the development of new connective tissue was reduced to a thin sheet, which did not seriously interfere with muscular function. This they found could be accomplished with almost constant success by employing the following method: Within a few hours of their infliction the wounds are opened up so as to admit of careful exploration, cleansing and haemostasis. During the following days the hypochlorite solution was instilled constantly by the technique already described in these columns. After all signs of infection had disappeared and successive bacteriological examinations had indicated a progressive diminution of bacteria, ending in their disappearance, the wounds were closed. This was usually done between the fourth and tenth day. When infection

was avoided, it was found that the various tissues preserved their characteristics practically unaltered during the period of antiseptic treatment, and the authors stated that wounds so treated were comparable in every way with fresh operative wounds and united by first intention. To effect this, it is essential that all parts of the wound should be brought into apposition as exactly as possible. The wound should be closed with adhesive strips $2\frac{1}{2}$ c.cm. to 5 c.cm. broad. In general they preferred to avoid sutures. The facility with which direct union was obtained in the majority of cases was ascribed to good preliminary antiseptics. The authors believe that many wounds can be closed secondarily at a later stage with advantage. As a rule the skin is adherent to the subjacent structures and granulation tissue has filled the intermuscular spaces. In order to close such wounds it was found necessary to loosen the skin from the edges of the wound and to curette the granulation tissue; the various parts were then brought into apposition and the skin closed with sutures. These procedures, it was stated, materially hastened the rate of recovery, and did much to avoid stiffness and atrophic changes. The authors reaffirm their belief in the efficacy of hypochlorite instillation, stating that it alone permitted of a sufficiently rapid sterilization, so that in most cases the wounds could be closed before the tenth day. In an interesting discussion following the presentation of the paper M. Dastre expressed the opinion that union of wounds by first intention could not be regarded as proof of sterilization. He and some other speakers expressed the opinion that the beneficial effect of hypochlorite was due to its ability to clear away damaged and necrotic tissue and to destroy toxins rather than to its antiseptic action. M. Pozzi warmly advocated the use of hypochlorite, and adversely criticized some inconclusive experiments of Delbet on the germicidal action of hypochlorites. M. Quénu and M. Bazy considered that good surgical technique and free irrigation were of more importance than the employment of hypochlorite as an antiseptic.

THE CONTROL OF TUBERCULOSIS IN WAR TIME.

THE concentration of national energy upon the provision of naval and military requirements has of necessity lessened the force of the movement, which was steadily gathering strength before the war, for the eradication of tuberculosis. Although lessened, the work has not been suspended, and it would seem to be a fitting time to take stock, as it were, of the experience already gained, and to endeavour to come to some agreement as to the best lines to pursue in the further progress of the campaign, and as to the manner in which economy can be practised with as little loss of efficiency as possible. With this object the *British Journal of Tuberculosis*, in its number for January, 1916, has collated the views of several physicians and medical officers of health who had been invited to contribute to a symposium of representative opinion as to the present needs and future prospects of the antituberculosis crusade. Appropriately headed by a word of advice from the Regius Professor of Physic in the University of Cambridge, the symposium contains many brief but valuable annotations. Sir Clifford Allbutt comments upon the futility of expenditure of large sums upon systems of cure while day by day fresh infections are multiplying the victims of the disease. He would evidently prefer to see such expenditure taking the form of provision for segregation of the infective cases. Such provision, however, even in the most peaceful times, must of necessity involve questions of personal freedom and respect for property which could only be solved by legislative enactments, wholly impracticable in existing circumstances. His further advice—that existing machinery only should be employed at the present time, and pioneer work neglected—is quite in accordance with the views expressed by others, including

Dr. Hope, M.O.H. Liverpool, who has found it necessary to give up examination of patients after treatment and examination of contacts, from sheer lack of medical assistance to carry on the work. The sanatorium question is presented in a very practical form by Dr. Williamson of Edinburgh, and the figures with respect to cost which he records deserve thoughtful consideration. It is obvious that very large sums are being spent in "improving" the health of persons who can only return to the very conditions of life under which their health became impaired. He also would prefer to see such expenditure allotted to preventive rather than to curative measures. Dr. Hyslop Thomson in like manner would exercise economy by reduction of sanatorium treatment, and would endeavour to increase hospital accommodation both for early and advanced cases. An important question is raised by Dr. Jane Walker, who advocates residential sanatorium schools for tuberculous children, even if sanatorium treatment for adults be suspended. The general outcome of the man's opinions expressed in the symposium, in addition to those already referred to, would seem to be that at the present juncture it is essential that the work of the tuberculosis dispensaries should not be relaxed, but that more attention should be paid to domiciliary treatment and to the control of infected children, especially as this can often be done by partially trained nurses or visitors. Segregation of the advanced case is as desirable as ever, but is as far as ever from practical realization. Expenditure upon sanatorium treatment should be greatly curtailed, and strictly limited to the treatment of cases in which real arrest of the disease may reasonably be expected.

THE INSURANCE COMMISSIONERS AND MEDICAL RECRUITING.

IN reply to a remonstrance addressed to him by a medical practitioner the clerk of the Middlesex Insurance Committee has written to explain that the circular letter to which we called attention last week (p. 175) was not intended to mean quite what it appeared to mean. He says that the Committee is second to none in its desire to give the greatest possible assistance to the army, and only asks that when a doctor offers his services to the R.A.M.C. it may have an opportunity of seeing that proper arrangements are made for the treatment of the members of the civil population he had undertaken to attend. In some cases, he states, it has happened that the first intimation the Committee received that a doctor had joined the R.A.M.C. was that a patient had called at his surgery and found it closed. The circular letter was sent with the view of avoiding similar circumstances arising in the future. We hardly think that this excuses the terms of the letter. It may have happened occasionally that all the patients of a panel practitioner have not become aware of the departure of the doctor, but the public is very oblivious, and does not always read notices with sufficient attention. We believe that the arrangements made by the Central Medical War Committee are sufficient amply to prevent any real inconvenience. It is, of course, necessary that every doctor of military age (that is to say, under 45) and physically fit should enrol with that Committee, when, after consultation with the local Medical War Committee, all arrangements will be made for the conduct of the departing practitioner's practice with the least possible inconvenience to his patients and the least possible loss to himself.

WE regret to have to record the deaths of Mr. Stanley Boyd, senior surgeon, to Charing Cross Hospital, on February 1st, and of Mr. Charles Stonham, C.M.G., senior surgeon to Westminster Hospital, which occurred on January 31st as the result of an illness contracted while serving, with the rank of Colonel A.M.S., as consulting surgeon with the forces in Egypt. We hope to publish obituary notices in a future issue.

Medical Notes in Parliament.

War.

Medical Students.—On January 27th Mr. Cantley asked a question as to the employment of medical students in the 1st Eastern General Hospital (Cambridge), and inquired whether the employment of senior students in military hospitals in this country could be extended without requiring them to enlist as privates in the R.A.M.C., so setting free qualified medical men now working in military hospitals for other duties. The Financial Secretary to the War Office said that the employment of students in the 1st Eastern General Hospital was a matter of private arrangement between the Cambridge school and the officer commanding the hospital. It was possible that senior students might do work in military hospitals elsewhere under similar arrangements, but if they had not completed the prescribed period of their medical studies they would not be exempt from military service under Lord Derby's scheme. Students employed in this way could not undertake the duties of qualified medical men.

Physical Unfitness.—On January 27th Mr. Tennant said that, in view of the fact that the decision to reject men as the result of a medical examination under Lord Derby's scheme had in many cases to be reached hurriedly, it might be necessary to call up such men for a fresh medical examination. Every effort would be made to carry out the medical examination of recruits as expeditiously as possible, so as to obviate any inconvenience to them or their employers, but the number of doctors available was limited, and the work must be done efficiently and not over-hurried.

Medical Appliances for Military Hospitals.—Mr. Tennant stated, on January 26th, in reply to Mr. R. Gwynne, that there was no regulation in military hospitals directing that medical appliances should be ordered only from Woolwich, as the question suggested. The regulations provided for local purchase under urgent circumstances, but this was a more expensive method of meeting requirements than by obtaining what was wanted from War Office contractors.

Wounded Soldiers: Selection of Hospitals.—Mr. Barnes, on January 27th, asked a question as to the inconvenience and cost to the relatives of wounded soldiers sent to hospitals far removed from their homes. The Financial Secretary to the War Office said that as far as possible the existing practice was to send wounded men to hospitals near their homes, but it was not possible to send every man to the hospital to which he would prefer to be admitted. Some were too ill to stand the fatigue, others were earmarked overseas for admission to hospitals specially set apart for the class of sickness or injury from which they were suffering. It was also necessary to distribute men in ambulance train loads—that was to say, in groups of a hundred or so, as railway conditions did not permit of the disturbance of traffic which would arise from a train dropping cases here and there between the port of disembarkation and the ultimate destination. Consequently some men must find themselves in hospitals removed from their homes, but arrangements could generally be made for the patient's transfer to a hospital near his home so soon as he was fit to travel, provided the medical authorities were satisfied that the case was one suitable for treatment in the hospital to which the transfer was requested.

Army Medical Services (Advisory Board).—In reply to Mr. Lynch, on January 26th, Mr. Tennant said that the Army Medical Service Advisory Board exercised no control, but advised the D.G.A.M.S. The value of the opinions of individual members of the Advisory Board was in no way affected by the military positions they now occupied. Mr. Tennant, in reply to another question, said that the Board was not instituted by Order in Council. Those of its members who received pay were paid from army funds. The decisions of the Directors-General in England and France were not subject to the concurrence of the Board. Mr. Lynch asked whether the Board had done the service for which it was instituted. Mr. Tennant replied that it had in peace time. In reply to a further suggestion whether, as the Board did not meet, steps would be taken to eliminate the expense of keeping up a

board whose advisory functions had ceased since the war broke out, Mr. Tennant said that the non-official members of the Board were employed in an advisory capacity. Those in France were similarly employed as an advisory board to the Director-General of the Medical Services.

Total Casualties.—On January 27th the Prime Minister furnished the following statistics of the casualties in all fields of operations down to January 9th. The total is 21,240 in excess of that given by the Prime Minister for the casualties to December 9th, 1915. The number of killed shows an increase of 8,215, and of wounded 14,525; the number of missing shows a decrease of 1,500. The figures are as follows:

France.			
	Officers.	Other Ranks.	
Killed...	5,318	82,130	
Wounded...	10,217	248,990	
Missing...	1,691	52,344	
Total...	17,046	383,464	
400,510			
Dardanelles.			
Killed...	1,745	26,455	
Wounded...	3,143	74,952	
Missing...	353	10,901	
Total...	5,241	112,308	
117,549			
Other Theatres.			
Killed...	918	11,752	
Wounded...	816	15,165	
Missing...	101	2,656	
Total...	1,835	29,573	
31,408			
Grand Total.			
Killed...	128,138		
Wounded...	353,283		
Missing...	68,046		
549,467			

Scientific Research.—Sir Philip Magnus asked the Prime Minister to consider the desirability of appointing a mixed committee of M.P.'s and others having a practical knowledge of the subject to inquire into the organization of education in this country, and to report as to whether, having regard to the experience gained in the operations of the war and to the new social and economic conditions that may result when the war is over, changes may be advisable in our national system of education with a view to establishing, without unduly interfering with other aims, a closer connexion between commercial and industrial requirements and the teaching provided in educational institutions, and in order to secure such further development as may be found necessary of existing facilities for scientific research, and the better training of all classes of the population for the activities in which they may be severally engaged. The Prime Minister said that the scheme of educational development which had been foreshadowed was last year reconsidered in the light of existing conditions and the probable requirements of the country after the war. Partial effect had been given to the scheme, which was concerned with the special scientific and industrial interests. The President of the Board of Education would be happy to consult all persons or bodies in a position to give advice on this matter, but it was not thought necessary to set up a committee.

Effect of Liquor Control Regulations.—On January 26th the Parliamentary Secretary to the Munitions Department (Dr. Addison) stated that the average weekly convictions for the principal areas scheduled in England, comparing the four weeks ending December 19th with the four weeks preceding the Order, had fallen approximately 50 per cent. The reductions had been as follows:

	Per cent.
North-east Coast area ...	37
Liverpool and Mersey area ...	46
Midland area ...	63
West Riding area ...	53

The figures in Scotland, although less satisfactory, showed a substantial reduction, and, as the result of an inquiry recently held in Glasgow, there seemed no reason why results as satisfactory as those in England should not be obtained in Scotland. Although detailed figures were not available, he was informed that the more serious offences connected with or caused by drunkenness had diminished in almost all areas even more rapidly than the more venial cases.

THE WAR.

WAR, DISEASE, AND A MUSEUM.

(From a Correspondent in Northern France.)

I SEE that at home you are talking of organizing science. Out here we have done so already. That "we" of course means "they." In the evening, when the day's work is over or its journey done, I think I have helped in the organizing process. In the morning—at the hour of wonder if one's boots have dried—I know that I have not. But why explain? If the fly always tries to alight on the fastest-moving wheel, who shall blame it for a little pride in its speed?

Out here Organized Science meets one right and left. It is of two main types, and the organization mainly lies in endeavouring to secure that the resources of the one shall assist the practice of the other.

Scientific instruments of destruction require human operators, and to help to keep these operators healthy is the task of preventive medicine. Never, perhaps, in any previous war has this been so thoroughly recognized, and never before has preventive medicine so well justified its title. Chemistry, pathology, entomology, and bacteriology are all four working in its service, and the result is real and effective sanitation.

There have certainly been set-backs: "trench foot," "war nephritis," and "trench fever" are perhaps instances of them; but the radical cause of the first is for the most irremovable, and the causes of the two latter have so far baffled research. Meantime it is something to the good that the diseases themselves should have been differentiated from their congeners, and that of the blind alleys that confuse the path towards discovery of their initial cause, many at any rate have been closed.

There has also, it is true, been plenty of sickness, but the total is marvellously small considering the environment and weather in which so much of the war in Flanders and the Aisne valley has been fought. Furthermore, it has to a great extent been sickness of a domestic rather than a military order. What one used to call the water-borne diseases have throughout been kept well under control; the known dietetic diseases have been almost conspicuous by their absence; dental troubles as a source of wastage have been handled with success; and the disorders of tropical or semi-tropical origin which the Indian troops might have been expected to import have almost failed to put in an appearance.

So far, in fact, the morbidity complexion of the whole operations in France during the past sixteen months has singularly differed from that of previous campaigns; in all these, sickness proved out and away a much more formidable source of wastage, both temporary and permanent, than the weapons of the enemy.

All this is already, I suppose, well known, as also are the more conspicuous factors in bringing about so satisfactory a result: The guarding of water supplies, and the careful treatment of all those of doubtful origin; the testing at the hygiene laboratories not only of rations, but of all food known to be used by the troops; the provision of bath-houses and of laundries, and the issue of parasite-free clothing and blankets; the cleansing and disinfection of billets; the destruction of garbage and of manure or other possible breeding places for flies; the assiduous attention to the cleanliness of camps; the employment of sanitary squads at railheads and of sanitary sections at bases and corps head quarters; the isolation of patients suffering from infectious disorders, as also contacts, whether of the Expeditionary Force or of the civil population brought into relation therewith; the steady practice of anti-typhoid inoculation (a vaccine valent also against the paratyphoids is now being used); the chronic search for "carriers" of all orders, civil as well as military; the instant investigation, with the help of the mobile and of the base pathological laboratories, of all outbreaks of disease, whether amongst the troops in the fighting zone or of those on the lines of communication or elsewhere; the maintenance of spot maps, charts, and tables, revealing the health-history of every unit in the field; and the co-ordination of all work and the due stimulation of all workers by the principal pathologist and the principal sanitary expert on the staff of the D.G.M.S.

These no doubt are the main factors, but there is also another circumstance which has probably exercised a good deal of influence.

For years past the general principles and demands of hygiene have been gaining increasing acceptance among laymen as the result of a campaign which has been especially active in the army. Consequently the Expeditionary Force contains quite an effective proportion of officers, non-commissioned officers, and men who, unlike their predecessors in South Africa and elsewhere, are far from regarding sanitary counsels as mere medical fads, and realize that rules regarding sanitation are quite worth keeping if circumstances are in the least degree favourable thereto.

This spirit, if it exists, must certainly have contributed to the success in question, and among other circumstances there is one—a little straw, if you please—which to my mind renders its existence indubitable.

Many of middle age will remember the old Parkes Museum in Margaret Street, the collection of embryo sanitary appliances, models, and illustrations of ideas, around which grew up the collection of the Royal Sanitary Institute now in Buckingham Palace Road. Well, some time ago I came across a place of exactly the same kind out here. It had already been open some months, and, as far as I know, it is open still. The foundation of the Parkes Museum was due to the desire to commemorate one who had done much for the Army Medical Service. This said museum owes its creation to the enterprise of an army medical officer. Many of the objects displayed were those used by himself in his work as a sanitary expert, but the bulk of the exhibits, as also the bulk of the visitors, came from the battalions resting in the neighbourhood from a turn of duty in the trenches. How can one account for the existence and popularity of such a place in a townlet within a half a dozen miles of the fighting line except on the supposition that the spirit of hygiene has a real hold on the army as a whole?

To me personally this fighting zone museum was all the more striking because I well remember a foreign station visited by men and officers from both east and west, where there were the same needs as here, and the same materials for meeting them existed. Yet that station in all the years that I knew it never improved on its original highly imperfect sanitary appliances, or seemed to realize any need for doing so.

But in those days Hygiene had not acquired a capital letter, and as a cult had barely any existence either in professional or lay circles. That the present position is very different was proved by the multiplicity of ideas illustrated at the exhibition mentioned.

A detailed catalogue was in process of compilation, I understood, and excerpts from it will no doubt find place in the eventual medical history of the war. Meantime I can merely say that the exhibits as a whole seemed to fall into three main classes—appliances for storing and safeguarding food, ways of building latrines and latrine seats, ways of getting rid of refuse—and that in all cases the materials intended to be used were those to be found in every military camp, for example, empty oil drums, biscuit and jam tins, packing-cases, and wire.

In the first class, for instance, I recall a packing-case turned into a fly-proof food store by curving the edges of its open end and covering this with a weighted curtain. In the second class, Surgeon-General McPherson's plan, by which any user of a latrine becomes his own conservancy man, urine and faeces being kept separate and both being destroyed forthwith by fire. In the third, a series of destructors and incinerators built out of practically nothing beyond empty tins, ashes, and clay. These were shown in actual operation, doing all the work created by a large army of men, and doing it very effectively.

Other forms of refuse destructors on view included one which was especially attractive on account of its simplicity. It was, however, best suited for dealing with bulky refuse, such as manure, while the two former mentioned will destroy effectually anything and everything, including the contents of latrine buckets.

The method consisted in crushing a quantity of old wire or iron bands into a heap measuring 18 in. or so in height and 3 ft. or 4 ft. in diameter, and using this as the foundation for a rubbish heap. Such refuse heaps

once set alight burn steadily and continuously for weeks, despite falling rain and whatever additions be made to them. After a time fine ashes collect round the edges in sufficient quantity to choke the draught, and the central wire core can then be pulled out and used to build a fresh pyre.

There was much else that was interesting, and this exhibition, in conjunction with other circumstances, seems to justify a remark to the effect that in the British army the cult of Aesculapius is replaced by the worship of Hygeia, whose temple is the battalion cookhouse and the camp latrine. In its original form it was made, I believe, by an Irish M.O. now in the Near East.

THE DUTIES OF A SANITARY SECTION IN THE FIELD.

We are indebted to Major Charles E. Goddard, M.D., R.A.M.C.(T.), for the following notes:

From time to time we hear of the remarkable work that is being accomplished by different branches of the sanitary service, and it may therefore be considered an opportune moment to refer to the special work of a sanitary section.

Though not actually a new unit in army establishment, a brief note as to its source, distribution, and special duties will afford many points of interest to the student of army sanitation.

At the outbreak of war, or soon afterwards, instructions were received from the War Office to increase the strength of the London (Territorial) Sanitary Companies by enrolling new companies with a view to the formation of sanitary sections for service in the field. So successful was the response, and so efficient the training and equipping of the men, that every division of the army has been supplied with one of these sections.

Each of the sections has a personnel of twenty-six men, not including the Army Service Corps men—that is, one officer, twenty-five non-commissioned officers and men. As to the choice of officers, preference has always been given to medical men who are medical officers of health, or who hold diplomas of public health or are bacteriologists; a few are sanitary engineers, and even architects. A large percentage of the non-commissioned officers are sanitary inspectors, and among the rank and file are found many plumbers with sanitary diplomas, carpenters, schoolmasters, men of all ranks of life, graduates in honours even from Oxford, Cambridge, and other universities, solicitors, chemists, and representatives of all the professions and trades. In this way it will be seen that there is no difficulty in providing for each section a sufficient number of disinfectors, interpreters, carpenters, cooks, builders, and, in fact, supplying any man likely to be of service in the field.

The first twelve sections, with twelve lorries full of equipment, were sent to France on Christmas Day, 1914, with the senior officer of the 2nd London Sanitary Company in command. Each division was then, and is now, supplied with one section; the A.D.M.S. of the Division being responsible for their work.

Such work includes bathing of the troops in thousands, disinfecting of the men for vermin after enteric, cerebrospinal fever or other infectious diseases; disinfection of all clothing and blankets; the purification of water; the draining of farms and billets; making, or giving instruction for, the erection of destructors or incinerators, ablution places, grease traps, urine pits, filters, fly traps, and, in fact, making every kind of installation, structure, or appliance that appertains to sanitation in the field.

It would be impossible to enter into details of all the good work done by these men, but reference may be made to the baths that were used in Ypres, for example in February, 1915. Here, about two miles from the trenches, was a massive red building, built and endowed by the late King of the Belgians as a school or reformatory. It had been badly shelled, but the sanitary men soon found tubs and old baths and pumped water into the boilers in the kitchen, and had excellent baths going in a few hours. Everything was carried out with system and dispatch. None of those who were there last February will forget the delight of the men at the sight of the hot baths and the hot beef-tea on coming out of the trenches, or hearing their witty comments, and seeing them in such high spirits in spite of all they were going through.

At last the enemy got the exact range of the building. The position became untenable, and other baths had to be found at breweries and other places further back. Now this huge building and the whole city of Ypres has been entirely destroyed.

Sometimes these sections are sent to the trenches. On one occasion one of the sections was asked to volunteer to help to collect the wounded who were lying outside the trenches in too great a number for the field ambulance to deal with. Every member offered and went, gaining the thanks of the general through the A.D.M.S. the next day. On another occasion they were required to take an anti-gas apparatus to the trenches, but the enemy attack was so furious that night that the apparatus had to be abandoned, and the men remained to help the doctors to treat the wounded. They had a terrible experience, and one of their number was killed. These sanitary men are not really expected to work in the firing line, but they are sometimes required to work in the reserve trenches, and occasionally get wounded on purely sanitary work.

These are only a few things which have come to my personal knowledge, but one heard them spoken of as ever willing, nay, desirous, of helping their fighting brothers in every way possible. It might have been known that such would be the case, not so much from the rank of life from which these sections are formed, but because they felt that, though many of them had had no military training, they could not be more usefully employed. The Commander-in-Chief in his last two dispatches has recognized their value by mentioning no less than thirteen of their officers and quite a number of their men.

It is good to think that there is such a body of experts who can assist the R.A.M.C. officers in watching over the health and sanitation of our brave fellows at the front.

CASUALTIES IN THE MEDICAL SERVICES.

Killed in Action.

LIEUTENANT ALFRED NOEL GARROD, R.A.M.C., 100th Field Ambulance, was killed by a shell in France on January 26th. He was the eldest son of Dr. A. E. Garrod, physician to St. Bartholomew's Hospital, and grandson of the late Sir Alfred Garrod and Sir Thomas Smith, Bt., K.C.V.O. He received his education at Marlborough, Cambridge, and St. Bartholomew's Hospital, and took the degree of B.A.Camb. and the diplomas of M.R.C.S. and L.R.C.P.Lond. in 1914. He had held the office of house-surgeon at St. Bartholomew's Hospital. Lieutenant Garrod received his commission (temporary) in the R.A.M.C. in July last, and went to France in November with the 100th Field Ambulance. During December he was attached to the 22nd Royal Fusiliers, but subsequently rejoined the field ambulance, and was serving with it when killed. His second brother, Lieutenant T. M. Garrod, Loyal North Lancashire Regiment, was killed on May 10th, 1915.

Died on Service.

Lieutenant-Colonel Henry Bridges Yates, of the Canadian Army Medical Corps, died in the Canadian Military Hospital at Ramsgate in January, aged 60. He was born in May, 1855, the son of Henry Yates of Brantford, Canada, was Medical Officer of the 3rd Victoria Rifles, Montreal, came to England as A.D.M.S. of the 4th Montreal Canadian Division, went to France in May as second in command of the No. 3 Canadian General Hospital, and was invalided to England early in December. He married in 1896 Miss Alice Bunting of Toronto, and leaves a widow and two sons, one of whom is now serving in the Canadian contingent. He was a Knight of St. Olaf of Norway, and a Knight of Grace of St. John of Jerusalem.

Wounded.

Captain H. H. B. Cunningham, R.A.M.C.(T.F.), Mediterranean.

Captain J. E. T. Jones, R.A.M.C. (temporary), France.

Captain T. L. Spackman, R.A.M.C. (temporary), Mesopotamia.

Captain H. F. Wilkin, R.A.M.C.(T.F.), attached 5th Durham Light Infantry, France.

Lieutenant W. Campbell, R.A.M.C. (temporary), Mediterranean.

Lieutenant T. E. Hammond, F.R.C.S., R.A.M.C. (temporary), Mediterranean.

Prisoners of War.

The *Times* of January 26th announces the release at Kolmaka, in the Cameroons, by the capture of that station on January 8th, of seven officers who were prisoners of war there. Among them are Dr. Lindsay and Dr. Trumper of the West African Medical Service, who were taken in October, 1914.

We are informed that Dr. Catherine L. Corbett, of the London Education Committee, who was serving with a hospital in Serbia, has been taken prisoner there. Dr. Elizabeth Brook, of the same service, who has also been serving in Serbia, has returned home.

DEATHS AMONG SONS OF MEDICAL MEN.

Adam, Alan Gordon Acheson, Captain 1/5th The Buffs (Weald of Kent), killed in action in Mesopotamia on January 21-22nd, was the fifth son of the late Dr. James Adam of Malling, Kent, and Mrs. Adam of Hythe, and was born in July, 1887. He was educated at Marlborough and Selwyn, Cambridge, took the B.A. degree in 1907, and passed the final law examination in 1910. He joined the 5th Buffs in 1911 while practising in Cranbrook. He left with his regiment for India in November, 1914, was shortly afterwards gazetted captain, and proceeded to Mesopotamia in December last.

Colson, Edward, Major 41st Dogras, eldest son of Surgeon-Major E. Colson, I.M.S. (retired), died in Mesopotamia on January 13-14th, of wounds, aged 41. He was born on October 29th, 1874, got his first commission in the South Wales Borderers, through the Militia, on December 7th, 1895, joined the Indian army on January 29th, 1899, became Captain on December 7th, 1904, and Major on December 7th, 1913. He served in China in 1900, and received the medal.

Grimshaw, Ewing Wrigley, Lieutenant-Colonel 62nd Punjab, eldest son of the late T. W. Grimshaw, C.B., M.D., Registrar-General for Ireland, killed in Mesopotamia on January 21st, aged 48. He was born on February 10th, 1867, got his first commission in the Royal Dublin Fusiliers, through the Militia, on November 10th, 1888, joined the Indian army on June 14th, 1891, became Captain on November 10th, 1897, Major on November 10th, 1906, and Lieutenant-Colonel on November 10th, 1914. He served as Deputy Assistant Adjutant-General in India from 1901 to 1906.

Murray, Graham Dunmore, Second Lieutenant 2nd Battalion Northumberland Fusiliers, son of the late Dr. William Dunmore Murray of West Side, Clapham Common, killed in France on January 26th. He got his commission in March, 1915.

Skeen, Oliver St. John, Major 62nd Punjab, son of the late Surgeon-General William Skeen, A.M.S., killed in Mesopotamia on January 21st. He was born on November 2nd, 1874, entered the army on January 16th, 1895, became Captain on January 16th, 1904, and Major on January 16th, 1913. He served in the South African war in 1900-01 as a special service officer, taking part in operations in the Transvaal, in the Orange River Colony and in Cape Colony, and received the Queen's medal with four clasps; also in Tibet in 1903-4, at the action of Nyani, the operations round Gyantse, and the march to Lhasa, medal with clasp; and took part in the defence of the Suez Canal last February, after which he received the D.S.O.

Smith, Neville, Captain Durham Light Infantry, the son of Dr. and Mrs. G. H. Smith of Hull, was killed in France on January 26th; he was a black and white artist on the staff of *Punch*.

HONOURS.

The *London Gazette* of February 2nd contains a further list of awards and promotions for services in the field. The following are among the honours conferred on medical officers:

C.B.
Lieutenant-Colonel: W. W. Giblin (Australian A.M.C.).

C.M.G.
Colonel: C. H. Hale, D.S.O.

D.S.O.
Majors: W. R. Battye, M.B., F.R.C.S., I.M.S., and D. S. Skelton.
Captain: E. S. Phipson, M.B., I.M.S.

Military Cross.

Captains: J. H. Aikman, M.B. (temporary), G. D'R. Carr (temporary), C. C. Fitzgerald (T.F.), F. J. H. T. Frere, M.B., (S.R.), W. Rutherford, M.B. (T.F.), E. T. Brennan (Australian A.M.C.), C. W. Thompson (Australian A.M.C.).
Lieutenant: H. B. Atlee, M.D. (temporary).

The *London Gazette* of January 27th announces some additions to the list of officers mentioned in Viscount French's dispatch of November 30th, published on January 1st. Among them is Major G. W. G. Hughes, D.S.O., R.A.M.C.

The *London Gazette* of January 28th publishes a long list of officers mentioned for good service in the Gallipoli peninsula, in connexion with his dispatch of December 11th. Among them are the following medical officers:

STAFF.

Colonels: J. Maher, M. J. Sexton, and C. H. Hale, D.S.O., of the A.M.S.

Lieutenant-Colonels: G. St. C. Thom, D. S. Skelton, and W. M. B. Sparkes, R.A.M.C.

ROYAL ARMY MEDICAL COLLEGE.

Lieutenant-Colonels: D. D. Shanahan, H. M. Nichols, W. P. Gwynn, T. C. Mackenzie, D.S.O., J. F. M. Kelly.

Majors: A. M. McIntosh (temporary Lieutenant-Colonel), Benson, R. R. Lewis.

Captains: J. Y. Moore (S.R.), K. M. Levi (Australian A.M.C., killed), C. Cassidy, J. C. Young (S.R.), F. J. H. T. Frere (S.R.), A. Glen (S.R.), G. S. Pirie (S.R.), R. B. Lilly (temporary), G. D'R. Carr (temporary), J. H. Aikman (temporary).

Temporary Lieutenants: H. H. R. Bayley, W. Macdonald, H. B. Atlee, T. A. Peel (died of wounds), G. S. Goodwin.

ROYAL ARMY MEDICAL CORPS (T.F.).

Lieutenant-Colonels: T. Fraser, E. J. R. Evatt.

Captains: F. J. Green, G. Raymond, A. Findlater, P. S. Bedale, C. C. Fitzgerald, M. B. Rutherford, H. E. Quick, J. Macquarrie, W. R. Eristow.

AUSTRALIAN ARMY MEDICAL CORPS.

Lieutenant-Colonels: C. Garner, H. W. Bryant, A. H. Sturdee.

Majors: H. A. Pavell, L. W. Dunlop.

Captains: J. Bentley, E. T. Brennan, H. V. P. Conrick, A. L. Dawson, A. Y. Fullerton, C. W. Thompson, W. J. Stack, J. E. Dodds, L. St. V. Welch.

NEW ZEALAND ARMY MEDICAL CORPS.

Major: E. J. O'Neill.

Captains: K. McCormick, A. V. Short, R. N. Guthrie.

INDIAN MEDICAL SERVICE.

Majors: W. B. Battye, L. P. Brassey.

Captains: P. M. Rennie (1/5th Gurkhas), E. S. Phipson (1/6th Gurkhas).

INDIAN SUBORDINATE MEDICAL SERVICE.

Subassistant Surgeons: Ghans Muhammad, Sampuran Singh, Amar Nath Puri.

The list also contains the names of non-commissioned officers and men of the R.A.M.C., including the Special Reserve and Territorial Forces and of the Indian Subordinate Medical Service.

It is notified in the *London Gazette* that the King has granted to Lieutenant-Colonel Henry Edward Manning Douglas, V.C., D.S.O., R.A.M.C., Deputy Assistant Director of Medical Services, authority to wear the insignia of the fifth class of the Order of St. Sava, conferred upon him by the King of Serbia.

NOTES.

MEDICAL OFFICERS WANTED.

2/1st Home Counties Casualty Clearing Station.

Medical officers are required for this hospital. Applications to the Officer Commanding 2/1st H.C. Casualty Clearing Station, Surbiton.

Scotland.

The Lanarkshire Insurance Committee has adopted a resolution calling attention to the bad state of housing in the county and the decrease in the number of new houses being erected. It has been led to take up the matter owing to the increasing number of cases in which patients formerly discharged from sanatoriums for tuberculosis have applied for readmission in a more advanced stage of the disease. This disquieting circumstance is attributed to the bad houses to which the patients had to return when discharged.

THE HIGHLANDS AND ISLANDS MEDICAL SERVICE BOARD.

The Highlands and Islands Medical Service Board has issued a series of schemes for the several districts concerned. Each contains a statement as to the general conditions, and a schedule showing the area for which each doctor is responsible. The notice sets out that the persons eligible to receive medical attendance at modified fees are "the families and dependants of insured persons, uninsured persons of the cotter and crofter classes and their families and dependants, and others in like circumstances to whom the payment of the practitioner's ordinary fee would be an undue burden." The fee to be charged for the first visit is not to exceed 5s., and for each subsequent

visit in the same illness 2s. 6d. The midwifery fee, including subsequent visits that may be necessary, is £1. It is pointed out that the fees will be the same whatever be the distance of the patient from the doctor's place of residence. It is the duty of the Board to ensure the doctor further compensation for his services out of the parliamentary grant. Where medicines are supplied by practitioners an additional moderate charge will be made, but where not the patients must themselves pay the chemists' charges. Persons desiring to participate in the benefits of the scheme must be prepared to comply with all such reasonable requirements of the practitioner as will enable him to make the best arrangements for his patients. Messages must be sent early enough to reach the doctor before the hour on which he ordinarily begins to visit patients, and if sent later must state whether his attendance is urgently needed that day, or whether a visit on the following day would be sufficient. Where the practitioner is accustomed to make fixed visits on certain specified days to particular localities, all calls for his services, except in urgent cases, should be reserved for those days. Where duly qualified district nurses are available, it is directed that special calls for the services of the doctor outside ordinary visiting hours to patients living at a distance should be made through the nurses wherever practicable. In the relatively few cases in which two or more practitioners practise in the same area, the patient is given the right to select the practitioner he desires, but it is added that urgent calls should, as a rule, be sent to the nearest available practitioner. Practitioners called to cases outside the area in which they have undertaken with the Board to give attendance may charge their ordinary visiting fees, and agreements between the Board and practitioners do not interfere with any private arrangements in existence between practitioners and their patients whereby the latter receive attendance under a system of annual payments for each individual or family. The concluding clause of the notice is printed in large type, and is to the following effect: "If it is proved to the satisfaction of the Board that the privilege of a medical service at modified fees is misused in any district or by any individual, the Board reserve the right to withdraw the service from any such district or individual. In such cases the practitioner's ordinary fee will be payable." The offices of the Board are at 4a, St. Andrew Square, Edinburgh.

Ireland.

The guardians of certain unions in Ireland have found that considerable economies can be made by revising the dietary scale in the workhouses, which was drawn up sixteen years ago. The Roscommon guardians have recently decided to obtain copies of revised scales and to consult the Local Government Board as to the selection of the most suitable.

The first annual meeting has been held of the Temple Hill Auxiliary Hospital, near Dublin, which receives convalescent wounded soldiers and sailors. The house was offered by Mr. Hubert Power of Waterford and approved by the War Office for the accommodation of twenty convalescents, provided that the committee could show that it had in hand the sum of £1,200, which was at the rate of £60 a bed for maintenance for one year. The British Red Cross Society offered to contribute £300 if the local committee could raise £900. Generous support was received from individuals and from collections in parishes and church congregations. The work of the hospital has been carried on in the most efficient manner.

Alderman Dr. J. J. O'Sullivan, to whom his professional colleagues in Waterford recently made a presentation in recognition of his services in connexion with the settlement of the medical certification question under the Insurance Act, has been elected Mayor for the city of Waterford for 1916. It is very rarely a member of the medical profession in Ireland is selected to occupy the position of mayor, and it is all the more pleasing, in the present instance, to the Irish profession, as Dr. O'Sullivan has been in his professional and public capacity a consistent champion of his profession.

England and Wales.

At the winter conference of the Charity Organization Society and kindred bodies, held last week in London, General Sir Neville Lyttelton, Governor of Chelsea Hospital, said that it was estimated that between 13,000 and 14,000 soldiers and sailors had been discharged since the war began; many of them had already been absorbed into the ordinary work of industrial life, and with the exception of those seriously injured, no difficulty had as yet arisen in providing work. But the longer the war dragged on the greater would be the number of men discharged unable to follow their ordinary civilian occupations, and the problem would become one difficult of solution. Earl Fortescue described what had been and still could be done by placing men on small farms.

In November, 1914, an emergency surgical aid corps was established in London with head quarters at the house of the Royal Society of Medicine. Sir Rickman Godlee, the chairman of the executive committee, reported to a recent meeting that the corps had accepted two distinct duties: first, that of arranging for assistance in the case of raids of any description on the east coast from Dover to the Wash, and, secondly, that of organizing similar help in the case of aerial raids on the metropolis. Its offers of service were cordially accepted by the War Office, and two divisions of the corps were formed, one for the east coast and the other for London. Boxes containing first-aid dressings were stored at No. 1, Wimpole Street, and a night watchman was engaged; 155 gentlemen volunteered to serve, but for various reasons, chiefly the acceptance of commissions in the naval or military forces, their number at the end of the year was reduced to 107. Altogether nine calls were received, but, except on one occasion in London, the services of the members of the corps were not eventually required. Nevertheless, in view of the opinions of the Chief Commissioner of the Metropolitan Police and of the War Office, it was decided to continue the corps on the same footing. The necessary expenses have been met by voluntary subscriptions from members of the corps; the chief expenditure was in respect of the night watchman.

Correspondence.

RETIRED MEDICAL MEN AND MILITARY SERVICE.

SIR,—I have recently received several letters from senior medical men who have retired from serving in the Indian Medical Service, the Colonies, etc., and who lament that at present no place can be found for them in the national services of the sick and wounded of our navy and army. These gentlemen have mostly occupied high positions; they possess great experience in medical and surgical diseases and injuries, and, although they have retired, still enjoy an amount of health and energy which might be placed at the disposal of the nation.

From the most patriotic and laudable of motives, they chafe under the restrictions which prevent them from devoting their energies to the service of the country in connexion with the navy and army, while they naturally feel that these would be wasted were they, after the prominent positions which they have occupied and the exceptional experience which they have acquired, to adopt the only course which is available to them at present—that, namely, of offering to relieve general practitioners and panel doctors who have left to serve in the Royal Army Medical Corps.

It may be asked: Why do they not apply to the Central Medical War Committee, who are conferring on such subjects with the Director-General of the Army Medical Service? To this I would answer: That is the proper course to take, but not until it has been ascertained in what numbers and in what capacities these highly trained men are prepared to serve. Were this made certain, and were it evident that a considerable and valuable contingent were at the disposal of the nation, then the Central Medical War Committee should be approached, in order that it might confer with the heads of the Navy and Army Medical Services, so as to discover in what manner and

to what extent it could be utilized, either now, or when coming events may have increased the strain on the physicians and surgeons of the country.

If any of those interested in this subject will communicate with me, I shall be glad to have their suggestions, and perhaps arrange to have a meeting called should the response to this letter seem to warrant it.—I am, etc.,

ALEX. OGSTON,

President of the British Medical Association.

252, Union Street, Aberdeen,
January 30th, 1916.

THE SOLDIER'S "IRRITABLE HEART."

SIR,—I have read with great interest the valuable contributions to the etiology and treatment of this important condition which appeared in the *JOURNAL* of January 22nd. The causation of "irritable heart" is undoubtedly complex, but I was surprised to discover only one reference—casually by Dr. Poynton—to a cause which I am convinced is largely responsible, in combination no doubt in most cases with other causes, for disordered cardiac action, namely, tobacco. That tobacco smoked to excess—more especially the cigarette—is competent to upset the heart is a well recognized fact. I have had personal experience of the effect of smoking too many strong Burma cheroots. Intermittent action, palpitation and excitability of heart, breathlessness, anorexia, giddiness and general slackness were the principal symptoms. Probably hard work in the trying climate of Calcutta contributed to the development of these indications. They disappeared with a more moderate use of milder tobacco, and have not recurred. That the heart was not organically or permanently damaged is proved by the fact that, at the age of 75, I am able to negotiate a fairly stiff incline on my bicycle without palpitation or breathlessness. That soldiers in this war smoke to excess is, I think, unquestionable; and in the treatment of "irritable heart" the limitation of pipe and cigarette smoking should, I submit, constitute a leading item.—I am, etc.,

Westend, Hants, Jan. 25th.

KENNETH MACLEOD.

THE DIAGNOSIS OF FUNCTIONAL HEART DISEASE IN THE RECRUIT.

SIR,—Even at this, which might be termed the eleventh, hour in the medical examination of recruits, I am convinced that the haziest notions are prevalent amongst medical men in the diagnosis of functional heart disease.

In spite of the writings of Sir James Mackenzie and others, the examiner of recruits is frequently undecided in coming to a conclusion regarding a particular case, more especially when the recruit brings a note from his doctor which states that the bearer has tachycardia, heart weakness, or arrhythmia, rendering him totally incapable for military service.

The following simple rules I have found most useful, and I hope will be useful to others:

1. *Medical History.*—Has the recruit had rheumatic fever, syphilis, or does he indulge to excess in alcohol?

What is his occupation, and if laborious, does he complain of any of the classical symptoms of cardiac deficiency? In other words, ascertain if his "field of cardiac response" is normal. Inquiries in this direction need only take a few seconds. The question of anaemia with haemic murmurs does not obtain in examining recruits, as they are practically confined to women. If the recruit's medical history is above suspicion, a glance at the apex beat and application of the stethoscope at the various regions of the heart at once proclaim the healthy heart.

2. *Physical Examination.*—Having obtained a suspicious medical history, noticed a misplaced apex beat, or heard a murmur, I would advise a systematic examination, which only takes a few minutes, when done in the following manner:

(a) Note apex beat and rapidly percuss out left side of the heart. This should be the first and is the most important examination.

(b) Granted the apex beat and size of the heart as obtained from percussion are normal, it is almost certain there is no incapacitating heart disease, but to make doubly sure listen to the mitral area. An organic murmur heard there will be propagated to the axilla. A functional murmur is immediately lost to the left of the apex beat.

It may increase in intensity as it is traced inwards; and it always can be heard in the pulmonary area, where it is louder than at the apex. Compare the intensity of the murmur in these two areas by going immediately from the one to the other. If the murmur is louder in the pulmonary area than the mitral and is not propagated to the axilla, it is functional heart disease we have to deal with. An additional proof of a functional murmur, if one were needed, is that the second sound at the pulmonary area is only accentuated when we have organic mitral disease.—I am, etc.,

T. STEWART ALLAN ORR, M.B., Ch.B. Edin.,

Recruiting Surgeon,

Central London Recruiting Depot, Whitehall.

London, W.C., Feb. 1st.

THE SOLDIER'S HEART AND THE STRAINED HEART.

SIR,—In the genuine functional collapse of a physically overstrained heart the sudden onset may be regarded as a climax in a gradual exhaustion of the myocardium, and primarily as a myocardial failure. In the analogous functional heart-stroke induced in a nerve-worn subject by some overwhelming shock we may safely assume some degree of underlying myocardial inadequacy, but his disabling attack is primarily a nervous heart collapse. The soldier's heart might be regarded as a combination of both types. But in each sufferer the individual myocardial quality and the nerve quality are varying personal characteristics. That personal factor is the main difficulty in any attempted generalization as to differential diagnosis, prognosis, and treatment. There is great encouragement in Sir J. Mackenzie's favourable estimate of myocardial recuperativeness. But we cannot underrate Dr. Morison's misgivings as to the prospect of a complete restoration of the integrity of the nerve function. Neither should we underrate Dr. J. S. Manson's reminder as to the etiological importance of excessive smoking. I therefore regard total abstinence from tobacco as a first indication, though it need not be permanently enforced in those possessing a natural or acquired tobacco immunity.

It is comparatively easy to restore myocardial tone by rest and graduated exercise. The cure of the neurasthenia of the heart struck is much more difficult. Suggestion is probably its most powerful remedy. We are thoroughly justified by our uncertainty as to the nature and extent of the trouble in the individual patient in suggesting to him that there is no heart damage, but only the transient and curable effects of over-fatigue, and, perhaps, of too much tobacco.

As regards the significance in otherwise healthy subjects of occasional irregularity in cardiac action, and of occasional murmurs, I am in practical agreement with Sir J. Mackenzie. For some hearts an irregular gait seems to be the easier one under stress of external pressures. For others an imperfect systolic valvular closure may be the best compensation for any undue intraventricular pressure; but most frequently, perhaps, a harmless murmur, reputed mitral, is nothing more than a disguised reduplication, an overlapping of the normal but asynchronous first sounds. Mere loudness is not a reliable measure for the size of the leakage, if any should exist. As in whistling, the intensity of the sound varies directly with the degree of the pressure, and inversely with the diameter of the lumen.—I am, etc.,

London, W., Jan. 30th.

WILLIAM EWART.

DYSTOCIA DUE TO CONSTRICTED OS.

SIR,—Amongst the memoranda in the *JOURNAL* of January 29th, Drs. Owen Jones and Morris record an interesting case of a nulliparous woman who, they were informed, had previously suffered from procidentia uteri, which had been treated by ventrifixation, and had completely recurred. She then became pregnant for the first time, and, when she went into labour, delivery was delayed because the os externum did not open out.

But nulliparous women do not have procidentia uteri (the final or complete stage of prolapsus uteri). When they habitually wear the cervix outside the body, as the writers aptly put it, the condition is quite a different variety of genital prolapse. This begins with a developmental error, elongation of the cervix. The overgrowth of the cervix occurs at puberty, and often proceeds until the uterus is

5 in. in length. The os approaches and finally appears at the vaginal outlet; and, as it descends, the cervix pushes down the vaginal roof, and inverts it more or less from above downwards. The os externum in these cases is sometimes extremely small—the "pin-hole" os of the older writers. During labour the elongated cervix generally simply splits on one side or on both. Thus, from being a nullipara with a long cervix and a pin-hole os the patient becomes a parous woman with a long split cervix.

The diagnosis of this condition from prolapsus is easy, because in "long cervix" or "inversion of the vagina from above downwards," there is no cystocele. On telling the patient to bear down, the cervix emerges first from the vaginal outlet. In prolapsus uteri, when the patient bears down, the anterior vaginal wall appears first, being everted from below upwards, the bladder within it. Thus in prolapsus the cystocele appears first at the vulva and the cervix comes after it.

The treatment of the condition is to amputate the cervix so as to leave the uterus about 3 in. in length, and to repair the perineum if it has been stretched and thinned by prolonged pressure of the cervix and inverted vaginal walls. Ventrification is naturally quite ineffective for the treatment of "long cervix." Nor is it a good operation for cases of prolapsus. All varieties of genital prolapse are best treated by the vaginal and not by the abdominal route.—I am, etc.,

Manchester, Jan. 29th.

W. E. FOTHERGILL.

ENGLISH PUBLIC HEALTH ADMINISTRATION.

SIR,—My attention has just been called to the extremely encouraging review of my book under the above title in your issue of January 1st. I am indeed proud to have obtained such eulogy, but I must enter a plea of "not guilty" to the charge of making such a "reactionary suggestion" as that involved in urging that the public health administration should be divided between two departments, that of the M.O.H. and that of the sanitary inspector. On p. 107 I wrote:

The M.O.H. (in the larger districts) may be expected to be a man of considerable attainments and experience, and as such will realize the desirability of centralizing control over a staff having graduated responsibility in its separate departments. It is the method followed in all great business and industrial concerns; a responsible chief having subordinate departmental heads with wide discretion and ample powers.

and on the following page (108) I distinctly proclaim the M.O.H. to be "the natural and logical head of the service," and go on to opine that

It may, therefore, be expected, despite contrary tendencies, that sooner or later ordinary business principles will prevail, and that the public health departments will be organized in a series of sub-departments each with a chief responsible to and controlled by the M.O.H.

In the last paragraph of the chapter I outline a classification of sub-departments "with chiefs under the control of the medical officer of health," which I put forward as "suggestive rather than dogmatic."

I think this is ample evidence in support of my plea, and I trust that you will allow me the space to clear myself of the charge of making what I agree with your reviewer would be a "reactionary suggestion."—I am, etc.,

Upton Park, E., Jan. 29th.

B. G. BANNINGTON.

The Services.

EXCHANGES DESIRED.

CAPTAIN, R.A.M.C.(S.R.), Radiographer Casualty Clearing Station, is desirous of effecting an exchange to the base or to England. Address, No. 550, BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C.

Lieutenant, at present medical officer to a regiment in France desires to exchange with medical officer of a hospital, ambulance train or barge. Address No. 549, BRITISH MEDICAL JOURNAL, 429, Strand, W.C.

THE American Association for Labour Legislation has initiated legislation to provide for the establishment in Massachusetts of a system of compulsory health insurance for all industrial workers earning 100 dollars (£20) a month or less. The insurance would cover any sickness, accident, or death not provided for under the head of workmen's compensation, and further benefits in the way of medical, surgical, and nursing attendance, medicines and surgical appliances, besides cash, maternity, and funeral allotments.

Universities and Colleges.

UNIVERSITY OF OXFORD.

THE following degrees have been conferred:

B.M., B.Ch.—M. R. Lawrence, C. Dean, A. Traill, L. Gameson, A. G. East, G. T. Gimlette, L. M. P. Whitcombe.

UNIVERSITY OF LONDON.

UNIVERSITY COLLEGE.

A SPECIAL introductory medical course in physics, chemistry, and biology for students desirous of beginning their medical studies will be held at University College, commencing on March 1st. Intending students should communicate forthwith with the Provost, University College, London (Gower Street, W.C.).

UNIVERSITY OF BRISTOL.

THE following candidates have been approved at the examinations indicated:

SECOND M.B., CH.B.—Part I: Hilda M. Brown, S. Datta, Marjorie S. Neville, T. H. A. Penniger.

CONJOINT BOARD IN ENGLAND.

THE following candidates have been approved at the examinations indicated:

FIRST COLLEGE.—Part I, Chemistry; Part II, Physics: V. H. Barker, E. R. Boland, H. L. Bowen, E. Brazao, H. Dryerre, B. M. Gerson, W. Hardman, S. Hazeldene, J. W. Hulme, R. R. Jagger, A. A. Knapman, Margaret O. Meek, H. S. N. Menko, G. G. Newman, Madeline P. Parker, G. K. Reeves, B. R. Reynolds, H. N. Schapiro, G. F. Smith, W. Walsham, Octavia M. Wilberforce. Part III, Elementary Biology: V. H. Barker, J. B. Barnett, E. R. Boland, H. Brookman, H. S. Chadwick, S. H. Coplans, C. W. Empey, H. M. Gerson, Kate Glyn-Jones, J. B. Gregor, A. Hamid, E. Hardy, E. R. Jagger, M. A. R. Khalifa, A. A. Knapman, Margaret O. Meek, H. S. N. Menko, H. S. Morris, J. L. C. O'Flynn, E. A. I. Phillips, Betsy Porter, E. L. J. Reason, G. K. Reeves, I. Resnikoff, H. N. Schapiro. Part IV, Practical Pharmacy: R. Aspinall-Stivale, H. W. Barnes, E. G. P. Bousfield, C. V. Brainbridge, J. C. Collins, W. H. Dye, C. A. L. Evans, A. A. Fitch, F. J. Harvey, B. Haskins, J. F. Haynes, K. Masson, G. E. Mullins, V. A. Newton, B. Sahai, R. Sinha, V. R. Smith, G. C. Williams.

* Passed in Part I only.

† Passed in Part II only.

SECOND COLLEGE.—Anatomy and Physiology: R. W. C. Ball, G. A. E. Barnes, A. Blackstock, E. J. S. Bonnett, M. V. Boucaud, G. R. Cade, J. D. M. Cardell, T. Carlyle, N. Cheua, W. B. Christophersen, W. A. Clements, C. E. Cobb, A. I. Cox, H. C. Cox, C. K. Cullen, T. Davies, C. J. C. de Silva, F. B. Dutton, T. G. Evans, D. C. Farquharson, S. Finkelstein, J. B. Flamer-Caldera, C. A. R. Goonewardene, A. G. Hewer, C. L. Hewer, R. Hilliard, M. Jackson, J. W. Jones, S. Kadinsky, A. W. Lewis, S. S. Liebermann, A. D. Lokarathan, H. O. Long, A. V. Lopes, E. K. Macdonald, T. C. McKenzie, G. Millar, D. Mintzman, W. D. Nicol, E. Nissim, A. A. Osman, W. G. Owen, E. J. Papenfus, W. A. W. Parkes, A. L. S. Payne, E. A. Pearson, H. J. Perkins, J. Peter, E. F. Rabey, E. D. T. Roberts, J. S. Rogers, S. N. Senitzky, A. G. M. Severn, B. B. Sharp, B. L. Slater, S. R. Tattersall, C. J. Thomas, N. B. Thomas, R. A. Walker, A. D. Wall, A. E. Ward, P. E. Williams, S. A. Withers, S. Wolff, S. G. Woodhouse, V. D. Wyborn, C. Young.

ROYAL COLLEGE OF PHYSICIANS OF LONDON.

A COMMITTEE was held on January 27th, Dr. Frederick Taylor, the President, being in the chair.

Admission of Members.

The following gentlemen, having passed the requisite examination, were admitted Members of the College: Aldo Castellani, M.D. Florence, and John Lloyd Davies, M.D. Lond., L.R.C.P.

Licences.

Licences to practise physic were granted to eighty gentlemen who had passed the necessary examinations.

Diplomas in Public Health.

Conjointly with the Royal College of Surgeons of England, Diplomas in Public Health were granted to the following candidates: Ratanjee Dinshaw Dalal, L.M. and S. Bombay; Philip Hamill, M.D. Cantab.; William John Hart, M.B. Oxon.; Horace Richard Wilson, M.D., B.S. Lond.

Duties of Medical Practitioners in Cases of Criminal Abortion.

A supplementary report was received and adopted from the Censors Board upon the duties of medical practitioners in relation to cases of criminal abortion (see p. 206).

Lectures.

The President announced that he had appointed Sir Thomas Barlow, Bt., K.C.V.O., to be the Harveian Orator for 1916, and Dr. Hector W. G. Mackenzie to be the Bradshaw Lecturer. Also that the Council had nominated Dr. W. J. Howarth Medical Officer to the City of London, to the Milroy Lectureship for 1917. After some further formal business the President dissolved the comitia.

Other Business.

On the recommendation of the Committee of Management, Sir Roger Manwood's Grammar School, Sandwich, and

Wellington College were recognized for instruction in chemistry and physics, and the Technical College, Swansea, in biology also. The committee also recommended that as the principle of recognizing the matriculation examination of a university without Latin had been adopted by the Royal Colleges in the case of the University of London in 1902, like recognition should be extended to the matriculation examinations of the universities of Manchester, Liverpool, Leeds, Sheffield, and Birmingham. Drs. F. J. Wethered, J. Calvert, J. Galloway, and C. Ogle were elected councillors, and Sir Francis Champneys re-elected the representative of the College on the Central Midwives Board. A resolution was adopted directing a letter of condolence to be addressed to Mrs. George Oliver on the death of her husband, who in 1904 founded and generously endowed the Oliver-Sharpey lecture.

Obituary.

JOHN WYLLIE, M.D., F.R.C.P.E., LL.D. EDIN.,

EMERITUS PROFESSOR OF MEDICINE AND CLINICAL MEDICINE IN
THE UNIVERSITY OF EDINBURGH.

By the death of John Wyllie, Emeritus Professor of Medicine and Clinical Medicine in the University of Edinburgh, which took place at his residence, 44, Charlotte Square, Edinburgh, early on the morning of January 25th, another notable figure has been removed from academic circles in the Scottish metropolis. In the Seventies of the past century there flourished a club known in Edinburgh as the "Round Table," a body remarkable for the high destiny of nearly all its members; the survivors of the nineteen or twenty members of these days now number only four or five, and they mourn the loss they have sustained in John Wyllie's decease. Edinburgh University drew largely upon the Round Table for its Professoriate, as the names of Sir Thomas Fraser, Crum Brown, William Rutherford, John Chiene, Alexander Dickson, and John Wyllie prove; and the extramural school had reason to be proud of many of the others, including Drs. Joseph Bell, Argyll Robertson, Angus Macdonald, Claud Muirhead, Charles E. Underhill, John Duncan, and Blair Cunynghame. Wyllie played his part nobly both in the extramural school and in the university, and did not fall behind any of his companions of the Table Round in the honour he brought to Alma Mater.

Born in Midlothian between Ratho and Gogar in 1844, sprung from a line of farmers, spending his early years at Bolton in East Lothian, educated at Edinburgh University in the early Sixties, and increasing his medical knowledge at Paris under Trousseau in 1866, Wyllie settled in Edinburgh in 1868. He had already made his mark with a gold medal for his M.D. thesis, with a double residentship (surgical and medical in the Edinburgh Royal Infirmary), with the senior presidentship of the Royal Medical Society (that sure index of the esteem and admiration of contemporaries in Edinburgh), and with two years as house-physician to the General Hospital, Birmingham; he had further fitted himself for the understanding of the view-point of the country practitioner by acting as a locumtenent once at least for Dr. Anderson of Selkirk. He was elected to the Fellowship of the Royal College of Physicians in 1870, and from that year he continued to teach until his retirement from the chair of medicine in the close of 1914. At first his subject was pathology (1870-78), then medicine (1878-82), then clinical medicine in the extramural wards of the Royal Infirmary (during his fifteen years' tenure of office there, 1882-97), then fevers at the Colinton City Hospital (1897-99), then clinical medicine in the university wards (in place of Professor Fraser, absent in India on the Plague Commission) in 1898-99; and, finally, on the death of Professor Sir Thomas Grainger Stewart, practice of physic in the university for fifteen years (1900-14).

But there was much more packed into these years than teaching, although it is perhaps as a teacher—a clear, concise, fully equipped, and stimulating teacher—that Professor Wyllie will be best remembered; and it was a fortunate thing that through his appointment as professor in the university he had again the wards of the Royal Infirmary thrown open to him for clinical teaching also. Yet there were important duties performed by Professor Wyllie outside of the hours devoted to teaching. Thus, for two years (1875-77) he acted as pathologist to the Royal Infirmary, and was succeeded in that office by the

late Professor D. J. Hamilton. For some six years he was a physician to the New Town Dispensary. For ten years (1878-88) he was honorary secretary to the Royal College of Physicians, and he discharged the duties of examiner in clinical medicine and in medicine for the university for a considerable number of years. Then there was the literary side of his achievement. Of the direction which this was to take an early indication was found in the subject he chose for his graduation thesis—namely, the physiology of the larynx—and he was never unfaithful to his first love. It is not surprising, therefore, to find him supplementing his winter series of lectures on practice of medicine by a summer course of instruction in laryngology and allied practical matters. Then, as time went on, he accumulated a vast amount of material bearing on the subject of the voice and its disorders and anomalies; and, finally, he began in 1891 to publish a long series of papers on the disorders of speech, a series which under that name appeared as a separate volume in 1894. These articles ran through three volumes of the *Edinburgh Medical Journal*, one being printed in almost every monthly part, and up to the very last one Dr. Wyllie retained the keen interest of his readers. It has sometimes been said that he was a man of one book; and whilst in a sense this is true (for his other contributions to medical literature had not the high note of distinction which his papers on the disorders of speech possessed), yet it must be added that it was a very great book, and left unsaid very little that was worth saying on the subject of the voice.

Professor Wyllie was emphatically a kindly man—kindly to his colleagues, to his students, to his patients, and to the younger doctors who used to consult him so often. The thoroughness he always exhibited with patients will be remembered; the notebook, the detailed questioning as to symptoms, the painstaking physical examination, the reasoned diagnosis and the sane prognosis, and the suggestive and rich therapeutics, were all of them incidents and features of consultations which were never without real and lasting benefit. The kindness was mixed with a trace of shyness and reserve, but when once this was broken down, as was always possible, by a well-chosen reference to his favourite study in medicine or to photography (his absorbing hobby) or to fishing (his loved recreation), no one spoke more brightly and attractively. He was perhaps at his best conversationally when he was led to describe his rambles through little-known parts of Europe with his camera and his fishing-rod. Yet it was not given to all who knew him to know him intimately, and to his shyness must in all probability be ascribed the degree of surprise which some of the profession felt when his election to the chair of medicine in the university was announced. Professor Wyllie never married.

The funeral, from Charlotte Square, Edinburgh, to Bolton in East Lothian (where Wyllie spent his childhood), took place on January 28th, and was largely attended by representatives of the University, of the Royal Infirmary, of the Royal Colleges of Physicians and Surgeons, and by many personal friends.

Sir JAMES AFFLECK, an old friend, writes: The death of Professor Wyllie means to many, and especially to those of his friends who have gone through professional life with him, a great cutting off. Dr. Wyllie's was a life devoted throughout with singleness of purpose to the cultivation of the science and art of medicine, with the view of making his acquirements available to those brought under his influence. For it was largely upon his work as a teacher that Dr. Wyllie's reputation rested. Gifted with the power of lucid exposition, happy expression, and apt illustration, his teaching, alike in the lecture room and the hospital wards, was of the kind to impress in an especial manner junior students, and to lay a sound foundation upon which their subsequent knowledge might be built. A large part of his time and strength was devoted to clinical teaching in the wards. An earnest student and worker himself, he demanded a high standard of diligent effort from his pupils, and slackness or irregularity in attendance would not be tolerated. As an examiner he was eminently fair and kindly, yet none knew better than he how to detect the man who had "ground up" for the occasion, and to deal with him accordingly. Living through a period which embraced the views and methods

of what might be termed the older and the newer medicine, he was able to appreciate and to utilize the good in both. It was a matter of regret among his friends that Dr. Wyllie did not write more, since few were better qualified than he to have enriched the literature of medicine; but he had an almost morbid shrinking from anything like display. His masterly work on the *Disorders of Speech* proved his high capacity as a thinker and writer, and will remain a worthy memorial of his powers. But it was not alone to the field of medicine that Dr. Wyllie's mental energies were restricted. He was truly one who "seeketh and intermeddeth with all wisdom." An omnivorous reader in history and in general literature, there were at the same time few branches of science that had not an interest for him. Big-brained and big-hearted, Dr. Wyllie had a wide outlook and a large human sympathy. His bright smile and genial and manly bearing were but the expression of qualities which won the affection of all who knew him. Those of the inner circle of his intimates and colleagues who sorrow most of all that they shall see his face no more will ever retain a sweet memory of his many virtues, and will rejoice and be thankful for the privilege of having been numbered among the friends of so singularly gifted and estimable a personality as John Wyllie.

Professor HUNTER STEWART writes: It was with sorrowfulness—not sadness—that the many friends of Professor John Wyllie paid the last tribute of respect to his memory on Friday last—sorrow, deep and poignant, that the influence of a spirit so lofty, so unselfish, so helpful to others had been withdrawn, and that they should see his face no more; but not sadness when they thought of the long life so worthily lived. Indeed, to his medical brethren who knew him well there was a feeling of honest pride that here was a man who had nobly continued the best traditions of the profession. John Wyllie's character and mental outlook was devoid of angularities; it rather seemed a rounded whole, developed symmetrically from within. Firm of purpose, he tested all new opinions by his robust common sense, and readily assimilated what his trained judgement approved. In social intercourse, perhaps specially at his own home, one saw him in other lights, and the sweetness of "Mary Morison" and the gentle flow of "Sweet Afton" were never sweeter or gentler than when sung by him. How delightful were the quiet evenings at his home when he talked on general literature which he knew so well! Nature in all its moods appealed to him, and keen fisher as he was, he has been known to stop for an hour on a beautiful stream, quite forgetful of the trout, "listening to the birds." As we laid his body to rest in the old churchyard of Bolton where his kindred sleep, within hearing of the murmur of the stream he loved so well, the sun broke from a wintry cloud, as if confirming the promise, "At evening time there shall be light."

Professor G. LOVELL GULLAND writes: One feels that in Professor Wyllie one has lost one of those personalities who cannot be replaced. He was a man of strong character and great individual force, with a definite conviction of his duty and mission, and a clear conception of the way in which he should perform them. His teaching was of prime importance in his life, and he took great pains with it, keeping in view the necessity of holding the balance between the presentation of recent thought and discovery, and the insistence on the unchanging principles which underlie the study and treatment of disease. He will never be surpassed as a teacher of junior students because of his power of giving a broad view, and at the same time insisting on the unvarying study of detail. As a physician he was sound, of ripe judgement, careful, and clear-sighted, while his kindness of thought and manner endeared him to patients and doctors. His old students all over the world will feel themselves the poorer for his loss, and his friends in Scotland will miss his help, his wisdom, and his thoughtfulness for others.

Dr. H. G. LANGWILL (Leith) writes: As a pupil in a very special sense of the late John Wyllie, and one who will remain a lifelong debtor to him, I should like to pay a small tribute of affectionate regard and esteem to my late teacher for his work in the treatment of stammering. It was in the early Eighties, on leaving school, where my

stammer had become steadily worse (doubtless as a result of the competitive viva voce conjugation of Greek verbs with their reduplications!) that I was brought to the notice of Wyllie, who was at that time working at the subject of stammering. The kindness, interest, and patience that he uniformly bestowed, not only on myself, but (as I saw later when a student in his wards) on any stammerer, made a deep and lasting impression. Stammering was then—and, alas! is yet—so little considered to be within the sphere of medicine that any one afflicted with it (and only those who have gone through it know in how wide a sense it is an affliction) could not fail to feel most deeply grateful to such a master in medicine, who lent his powerful aid to extricate the victim from a veritable "slough of despond." Looking back, the most striking feature, perhaps, was his extraordinary patience in trying to get his pupil to *understand and carry into practice* the lessons of his physiological alphabet. Our speaking is such an automatic performance that very few have any idea how difficult it is to get a pupil to *think* about the method of producing his words. Wyllie's patience was inexhaustible, and the characteristic little laugh with which he would greet the oft-repeated failures not only put the nervous patient at his ease (which is half the battle in treatment), but gave him the feeling that here was a teacher whom no stupidity would anger. His satisfaction, too—one might almost say personal delight—in devising effective illustrative sentences as exercises upon the various consonants was another characteristic trait, and one can almost still hear the rippling laugh which followed some favourite exercise, like "Tip-toe Tommy turned a Turk for tuppence."

SIR FRANCIS LOVELL, C.M.G.

We regret to announce the death of Sir Francis Henry Lovell, Dean of the London School of Tropical Medicine, which occurred at his house in Hampstead on January 28th. He was the eldest son of Henry Hill Lovell, D.C.L., of Apsley in Bedfordshire, and was born in 1844. He received his professional education at St. Bartholomew's Hospital, and obtained the diploma of M.R.C.S. in 1865 and that of L.S.A. in 1867. In 1873 he was appointed Colonial surgeon at Sierra Leone, and in 1878 was transferred to Mauritius where he became chief medical officer, president of the General Board of Health and a member of the Legislative Council. In 1893 he was appointed surgeon-general of Trinidad and Tobago and was a member of the Executive and Legislative Councils. He retired from the Colonial Service in 1901.

On his return to England he showed a keen interest in the work of the London School of Tropical Medicine, where his long official experience made him very useful. In 1901, when the number of students began to exceed the accommodation available for them, and it became evident that funds were urgently needed for the development of the school, Sir Francis Lovell offered to go on a mission to tropical centres for the purpose of enlisting the practical sympathy of public bodies and residents in the work. In pursuit of this object he visited Bombay, Calcutta, Ceylon, Singapore, the Straits Settlements, the Federated Malay States, Penang, Hong Kong, Japan, and Canada. Everywhere he received a sympathetic welcome from the administrative authorities, the leading members of the medical profession, and the principal merchants, native as well as British. He brought back with him a sum of nearly £10,000 and many promises of support in the form of subscriptions and further donations. He also obtained for the school the right in perpetuity of appointment to the office of Director of the Research Institute, then recently established by the Government of the Federated Malay States at Kuala Lumpur. In recognition of his services he was elected dean of the school. In 1909 he went on a second mission, again going to Ceylon and also to the West Indies. He visited Barbados, the Windward Islands, the Leeward Islands, Jamaica, Trinidad, and British Guiana. Once more he succeeded in making a large addition to the funds of the school whose interests he had so much at heart.

In 1893 he was made a C.M.G., and his name was included in the list of new knights in the New Year's honours of 1900. This was, we believe, the first instance in which a knighthood has been bestowed on a member of

the Colonial Service during his tenure of office. The event was regarded as unique in the medical history of Trinidad, and therefore as being a fit subject for special congratulation. An illuminated address, signed by representatives of the Medical Board of Trinidad and of the Trinidad and Tobago Branch of the British Medical Association, was presented to Sir Francis Lovell. It stated that the signatories recognized that the dignity had been worthily conferred as a reward of long and honourable service.

He was a representative of the Trinidad Branch from 1903 to 1905 and a member of the Colonial Committee.

In 1903 he became a Fellow of the Royal College of Surgeons of England. He was also an honorary LL.D.

Sir Francis Lovell, though modest and retiring, was a man of considerable force of character, and his influence on the work of the School of Tropical Medicine, though quietly and unobtrusively exerted, was none the less active and beneficial. His courtesy and kindness of manner made him everywhere popular, and, while endearing him to those who knew him well, contributed greatly to the success of his missions.

SIR GEORGE AUGUSTUS PILKINGTON, who died at Southport on January 28th in his 68th year, was the son of Mr. R. G. Coombe, surgeon, of Burnham, Essex. He received his medical education at Guy's Hospital, and took the diplomas of M.R.C.S. and L.S.A. in 1870. He was the first house-surgeon of the Southport Infirmary, being appointed in 1871, and retaining the position until 1875, when he engaged in private practice in the town. In that year he married the daughter of Mr. Pilkington of Blackburn, and at his father-in-law's request took that name. He continued to practise in Southport until 1885, in which year he was elected to represent the newly constituted Southport division in Parliament. He was defeated by the present Lord Curzon in 1886 and was re-elected in 1899, but not in the following year; his parliamentary career was thus short. He was twice mayor of Southport, and had been high sheriff of Lancashire. He received the honour of knighthood in 1893.

SIR HUGH OWEN, G.C.B., who was Secretary of the Local Government Board from 1882 to 1898, died at his residence at Highgate on January 28th at the age of 82. He joined the staff of the Board in 1876, so that he served through a period of transition in public health and Poor Law administration, on the course of which he exerted no little influence.

THE profession in Nottingham has sustained a serious loss by the sudden death of Dr. C. H. BROMHALL, at the early age of 36. While opening an abscess, on January 7th, he accidentally pricked his finger. This was followed by cellulitis of the arm and septicaemia. He died of heart failure on January 16th. He was educated at the Royal Lancaster Grammar School, and studied medicine at the Manchester University, where he took the degrees of M.B., Ch.B. in 1903. After serving as resident medical officer at the Birmingham Poor Law Infirmary, he held the posts of assistant house-surgeon at the Birmingham General Hospital, resident officer at the Birmingham Dispensary, and finally resident surgical officer at the Birmingham General Hospital for six months' temporary duty. In 1907 he was appointed resident medical officer to the Nottingham General Dispensary (Hyson Green Branch). Two and a half years later he commenced practice in the City of Nottingham. Being a man of great energy and considerable natural ability, he rapidly acquired a large practice. Living in the heart of a great industrial district, he had a very long list of insurance patients. He was also one of the district medical officers under the Nottingham Union. He was a shrewd and capable practitioner, and, although very hard-worked, did not lose touch with the more scientific aspects of progressive medicine. He was of military age and willing to do his duty, for he is known to have said that if selected for service by the local War Emergency Committee he should go.

By the death of Mr. JOHN HUMPHREY, M.R.C.S., which took place in London on January 27th, at the advanced age of 91, the medical profession loses one of its oldest

members. Mr. Humphry received his medical training at University College Hospital, and qualified in 1849. Thereafter he spent two years in the London Fever Hospital under Sir William Jenner, and was for five years medical officer at the Birmingham Union Infirmary. In 1855, during the Crimean war, he acted as civil surgeon, and was attached to the British Army Hospital at Renkioi, Asiatic Turkey, organized by the late Dr. Parkes, at whose special request he was sent out. In 1856 he was appointed medical superintendent of the Bucks County Asylum, Stone, Aylesbury, which had then been opened about four years; and here he spent the remainder of his long professional career, retiring about eight years ago. Throughout his connexion with the Bucks Asylum Mr. Humphry retained the confidence of successive visiting committees, and to mark his completion of fifty years as medical superintendent, in 1906, he received from the Visiting Committee, County Council, and residents in Buckinghamshire an illuminated address and service of plate. Mr. Humphry's administration of the Bucks Asylum was characterized by kindly consideration for the patients and staff, by all of whom he was beloved. At the same time he was always keenly interested in every advance in the treatment and care of the insane, and in his own institution carried out a policy marked by liberal ideas, and encouraged every effort to improve the nursing and treatment of the patients. He was a member of the Medico-Psychological Association for over fifty years, and also of the British Medical Association.

DR. SAMUEL ROBERT DUDLEY, who died recently at the age of 54, received his medical education at St. Bartholomew's Hospital and became L.S.A. in 1901 and L.M.S.S.A. six years later. He was gazetted a temporary lieutenant R.A.M.C. on November 23rd, 1915, and went to Canterbury on December 1st. He subsequently became ill and returned home to Ilford on December 18th and died on December 21st.

LIEUTENANT WALTER HALLIBURTON MACDONALD, R.A.M.C., died of appendicitis in Craigleith Hospital, Edinburgh, on January 22nd, aged 57. He was educated in the medical school of the Royal College of Surgeons, Edinburgh, where he took medals in chemistry and in medical jurisprudence, and also honours in anatomy, surgery, and midwifery; he obtained the Scottish triple qualification in 1889. He was appointed principal medical officer to the Imperial British East Africa Company in 1889, and when that chartered company's territories became a protectorate in 1895 continued to hold the same post. During his service in East Africa he gained the African war medal and clasp for Witu in 1890, a clasp for Mwele in 1895, the East and Central Africa Queen's medal with clasp for Uganda in 1897-98, the Africa general service King's medal with clasp for Uganda in 1900, and the Imperial British East Africa service medal in 1902. He received a letter of thanks from the Admiralty for service in the Mazumi rebellion in 1895, was present at the bombardment of Zanzibar, and received a sword of honour with the thanks of H.H. Sultan Hamoud in 1896, and the order of the Brilliant Star of Zanzibar in 1895. He was in medical charge of the Anglo-German Boundary Delimitation Commission of 1898, and was a corresponding member of the Royal Scottish Geographical Society. On the outbreak of the war he took a temporary commission in the R.A.M.C., was for some time stationed at Redford, and then, till his death, medical officer in charge of the troops of the Forth defences.

LIEUTENANT-COLONEL NICHOLAS LEADER, R.A.M.C.(ret.), died at Brentwood, Essex, on January 22nd, aged 63. He was born on April 15th, 1852, took the diplomas of L.R.C.P. and L.R.C.S. at Edinburgh in 1874, and that of F.R.C.S. Edin. in 1887. He entered the Royal Army Medical Corps as surgeon on February 3rd, 1878, becoming surgeon-major on February 3rd, 1890, and lieutenant-colonel on February 3rd, 1896. He retired on November 23rd, 1898, and joined the Reserve of Officers; he rejoined in the present war, and served until his health failed. He had seen much war service: Egypt, 1882, medal and Khedive's bronze star; Soudan, 1885, reconnaissance to Hasheen, actions at Hasheen and Tofrek, attack on convoy

on March 26th, and destruction of Tamai, two clasps; Chitral, 1895, with the relief force, medal with clasp; and the Nile expedition of 1898, when he was mentioned in dispatches, *London Gazette*, December 9th, 1898, and received both the British and the Khedive's medals.

DR. JAMES CLARKE WHITE, one of the most distinguished physicians of Boston, who died on January 6th, was born at Belfast, Maine, in 1833. He was educated at Harvard. After graduating M.D. in 1856 he studied dermatology at Vienna, and on his return to America acquired a great reputation as a dermatologist. From 1863 to 1866 he was editor of the *Boston Medical and Surgical Journal*, to which he continued to contribute till within a few weeks of his death. He was a man of considerable literary gifts and of the highest integrity.

MRS. GRANT, who with her husband, the Rev. A. C. Grant, went down in the *Persia*, was a daughter of Ex-Lord Provost Maitland of Aberdeen. As Miss Christian Davidson Maitland she graduated B.Sc. at Aberdeen in 1908, afterwards proceeding to Edinburgh, where she took the degrees of M.B., Ch.B. in 1911. After serving for a time on the staff of the Aberdeen Hospital for Sick Children, she went to India in 1912 as a medical missionary of the United Free Church, and worked in Rajputana, where she rendered valuable service. There she met Mr. Grant, a missionary, to whom she was married in Aberdeen last November. The young couple were returning to their sphere of duty in India when they met their tragic fate.

DEATHS IN THE PROFESSION ABROAD.—Among the members of the medical profession in foreign countries who have recently died are Dr. Meslier, formerly a representative of the Seine department in the Chamber of Deputies, aged 47; Dr. A. Millard, physician to the Beaujon Hospital, and for many years one of the leading clinical teachers in Paris, aged 85; and Dr. Thomas Miller, lecturer on anatomy and diseases of children in Howard University, Washington, aged 58.

Public Health

AND

POOR LAW MEDICAL SERVICES.

SCOTTISH POOR LAW MEDICAL OFFICERS' ASSOCIATION.

THE annual meeting of the Scottish Poor Law Medical Officers' Association was held at St. Enoch's Hotel, Glasgow, on January 28th. The report for 1915 showed that during that year the number of vacant appointments was greater than usual owing to the fact that so many medical officers had accepted commissions in the Royal Army Medical Corps. Many of these vacancies had not been filled up owing to the scarcity of medical men eligible for civilian practice. It was pointed out that if many more medical officers were withdrawn from country districts a very serious question would arise as to how the medical necessities of the people were to be met. During the year serious friction took place between one parish council and its medical officer; ultimately the matter was settled by the resignation of the medical officer. In no case did the secretary require to warn applicants, as each one of the vacancies was quite legitimate. The Insurance Act appeared generally to have been of considerable benefit to the medical officers in outlying districts, particularly in the Highlands and Islands. The regulations of the Medical Service Board (Highlands and Islands), under which the medical officers would in future have to work, were issued in August last. A considerable amount of irritation was caused amongst some of the medical officers by certain of the regulations, which were considered to be too onerous, requiring a great deal of book-keeping, etc. The Board had tried to meet any reasonable objections, and it was hoped that the working of the regulations would not be so troublesome as some medical officers feared. The opinion was expressed that the Act must result in great benefit, not only to the general public, but also to the medical officers, in that portion of Scotland to which it applied. The death of Dr. Gilbert Campbell, who presided over the association for many years, was announced with deep regret. The financial statement presented by the treasurer, Dr. F. Stewart Campbell, 19, Westercraigs, Glasgow, showed a balance in hand. It was decided that this should be put into an Exchequer bond. The report was adopted. Dr. S. Prince Clark, Glasgow, was elected president.

Medical News.

PROFESSOR SHERRINGTON has been elected a foreign member of the Imperial Academy of Sciences, Petrograd.

At the meeting of the Liverpool Institution on January 27th a resolution was adopted congratulating Captain Noel G. Chavasse, R.A.M.C.(T.), 10th (Scottish) Battalion, King's Liverpool Regiment, on having received the Military Cross.

ON January 8th Surgeon-General William C. Gorgas was presented with the gold medal of the Geographical Society of Chicago. After the presentation he delivered an address on sanitation in its relation to geography.

ALDERMAN W. E. ST. L. FINNY, M.D., M.Ch., J.P., of Kingston-upon-Thames, has been called to the Bar at the Inner Temple.

THE many friends and old pupils of Sir Thomas Fraser will have seen with regret the announcement of the death of his son, Mr. H. C. Fraser, B.Sc., who was acting as a civil engineer at the Rosyth naval base. Sir Thomas Fraser lost another son in the navy earlier in the war.

SOME idea of the decrease in the production of medical books caused by the war may be gathered from the annual report of the library committee of the New York Academy of Medicine issued on January 1st. It is there stated that whereas 704 French and German publications were received during 1913, the number in 1915 was only 435.

ACCORDING to a telegram from Berne in the *Morning Post*, an appeal, signed by 246 German and Austrian scientists, has been made to the public not to cease to subscribe to scientific periodicals. Such periodicals, the memorialists state, are indispensable to scientific progress. Medical periodicals from Germany and Austria appear to have ceased to reach this country.

THE museum of the Royal College of Surgeons of England has been closed since June last, the motive being the desire to safeguard the collection from destruction during air raids. All spirit preparations and some of the more valuable of the others are now stowed in the basement, but those who desire to study any particular specimen will be permitted to do so. The conservator, Dr. Keith, is still in attendance, and anatomical and other scientific work is carried on in the workrooms of the college.

THE National Food Reform Association (178, St. Stephen's House, Westminster) held 450 demonstration-lectures and meetings for practical instructions in housekeeping during 1915. It is now arranging for about twenty demonstrations a week, and the experience of last year leads to the confident anticipation that they will be well attended by women of all classes—wage-earners, mistresses of small households, and social workers—who are anxious for lessons in economy with increased efficiency. An appeal for funds to carry on the work, both by way of demonstrations and leaflets, is signed by, among others, Sir Lauder Brunton, Dr. Robert Hutchison, and Professor Sims Woodhead.

AT the monthly meeting of the Medical Sickness and Accident Society on January 21st it was reported that the sickness claims for December were up to the expectation, though for the whole year they were below, notwithstanding the large sum paid to members invalidated home from active service. The proposals for increased sickness benefit from existing members continued to show good returns. The society still accepts officers of the R.A.M.C. for limited amounts in sickness benefit and life assurance without extra premium. It was resolved to form an investment reserve fund to meet the depreciation in stock values. Full particulars and forms of application can be obtained from the secretary, Medical Sickness and Accident Society, 300, High Holborn, London, W.C.

DR. SUZUKI, Fleet Surgeon in the Imperial Japanese Navy, after careful anatomical and microscopical researches, states (*Surgery, Gynaecology, and Obstetrics*, December, 1915) that the oxyuris may be harboured in the lumen and also in the mucosa and submucosa of the appendix without causing any symptoms or producing any noteworthy anatomical changes, but contends at the same time that there is a genuine appendicitis oxyurica. It is developed when the parasites have penetrated the wall of the appendix in large numbers, leaving a breach of tissue offering a portal of entry to the infecting agent. He met with one such case among 103 appendices removed by operation. In three other cases a non-inflammatory yet painful morbid condition of the appendix, accompanied by traumatic destruction of the tissue and evidence of hæmorrhage, were observed.

Letters, Notes, and Answers.

THE telegraphic addresses of the BRITISH MEDICAL ASSOCIATION and JOURNAL are: (1) EDITOR of the BRITISH MEDICAL JOURNAL, *Antiology, Westrand, London*; telephone, 2631, Gerrard. (2) FINANCIAL SECRETARY AND BUSINESS MANAGER (advertisements, etc.), *Articulate, Westrand, London*; telephone, 2630, Gerrard. (3) MEDICAL SECRETARY, *Mediscera, Westrand, London*; telephone, 2634, Gerrard. The address of the Irish office of the British Medical Association is 16, South Frederick Street, Dublin.

Queries, answers, and communications relating to subjects to which special departments of the BRITISH MEDICAL JOURNAL are devoted will be found under their respective headings.

QUERIES.

PETROL DUTY.

G. R. P. has been informed that the local authorities have no instructions as to allowing a rebate in respect of the additional duty imposed by the Finance (No. 2) Act, 1915.

*. Section 10 (3) of the Act provides in clear terms that the old rebate shall be extended to the additional duty, and on due proof that the motor spirit used by "G. R. P." has been subjected to the full—that is, the present—rate of duty, his claim to a full rebate appears to be indisputable.

INCOME TAX.

PARTNERSHIP TAX inquires as to the effect of a dissolution of partnership on September 30th last.

*. Apart from any complication as to allowances by way of "abatement" or for life assurance, etc., the outgoing partner should pay one-quarter of the tax assessed for the year, and the remaining partner the balance, being one-half of the tax for the first half year and the tax for the second half year. The dissolution constitutes what the Income Tax Acts refer to as a "succession," and if the profits of the practice fall short for the second half year from any specific cause, such as the payment of an assistant or a diminution in the receipts, since or by reason of the succession, our correspondent will be entitled to an adjustment of the liability for the period from September 30th to April 5th.

INCOMPATIBILITY.

M., who has been in the habit of prescribing a mixture containing sodii salicyl. 3ij, potass. bicarb. 3iij, tinct. ferri mur. 3ij, aq. chlorof. 3viiij, asks whether the ingredients are, as he is told, incompatible.

*. The ingredients of the prescription are chemically incompatible, the iron reacting with both the salicylate and the potassium bicarbonate, and being precipitated as a substance consisting chiefly of ferric hydroxide. It seems probable, however, that the mixture is not affected very much physiologically by the chemical incompatibility, since the iron would be redissolved in the hydrochloric acid of the stomach contents, and would have as much effect as if it were administered in a soluble form in the first place. A little of the bicarbonate, and possibly of the salicylate, would be lost, but not a very large proportion of the quantities given in the prescription.

LETTERS, NOTES, ETC.

TEMPERATURE NECESSARY FOR THE DESTRUCTION OF LICE AND THEIR EGGS.

DR. J. PARLANE KINLOCH (University of Aberdeen) writes: I have read with much interest Mr. Bacot's paper, "The Temperature Necessary for the Destruction of Lice and their Eggs," which appeared in the JOURNAL of January 29th.

There does not seem to me to be any substantial difference between his results and mine when full account is taken of the different conditions under which the different sets of experiments were made.

I hope to be able to send you, in the course of a few weeks, a further contribution on the subject of insecticides, and perhaps it may be well that I should reserve till then such explanations as I may wish to offer regarding the apparent difference between Mr. Bacot's results and mine.

FOREIGN BODY IN THE RECTUM.

C. P. G. WAKELEY, M.R.C.S.Eng., I.R.C.P.Lond. (House-Surgeon, King's College Hospital), writes: A man, aged 43, came into hospital with the story that he had placed an egg-cup in his rectum to cure constipation, and was unable to dislodge it; he had taken 2oz. of castor oil the day before. The cup, concavity downward, could be felt on rectal examination tightly wedged between the tuberosities of the ischium. Part of the cup was broken, and the side walls of the rectum were slightly lacerated and bleeding, and there was a constant flow of liquid faeces. The egg-cup was acting as a ball-valve, and as soon as it was pushed up a little higher into the rectum

faeces escaped. Under an anaesthetic the external sphincter was dilated with the finger, but it was found impossible to remove the egg-cup as the lower part of the rectum and anal canal could not be dilated enough; an incision was made posteriorly dividing the external sphincter, when, with a little manipulation, the egg-cup was removed. The wound was packed with iodoform gauze, and a morphine suppository (½ grain) was placed in the rectum. The bowels were confined for four days, when they were opened by a dose of castor oil. The wound healed well, and the patient was discharged seven days after operation. I have seen the patient since; the wound has healed perfectly, and he states that he has complete control over his motions.

PHYSICIAN VERSUS SURGEON.

DR. JOHN HADDON (Hawick) writes: Since I published my book proving that food is the chief cause of disease, I watch with interest the contents of the medical papers, hoping to see that the physician is awakening to recognize the need there is to study the physiological action of our common foods. The ignorance upon that subject seems to me, since my eyes were opened, unpardonable; and the medical students of Scotland, at an inter-university congress, having unanimously passed a resolution that their teachers should be asked to teach them dietetics, have left the responsibility upon the medical authorities. All that is required is to make dietetics a compulsory subject for every licence to practise medicine, and it is to be hoped that the General Medical Council, which is responsible for the character of the education of medical students, will so far gratify the expressed desire of the medical students in Scotland. If I am right in my contention that food is the chief cause of disease, it is only by the study of the physiological action of foods that the physician can save his patients from falling a prey to the knife of the surgeon and having many of his organs removed which, through neglect, have become a danger to life. In this connexion I was pleased to notice T. A. R. Aiyar's experience as related in the JOURNAL of December 25th, 1915. He tells us of nine typical cases of appendicitis occurring in the natives of India, who object to submit to the surgeon's knife; and of the nine only one died, and it was a child, in whose perforated appendix an orange pip was found *post mortem*. There may be cases which only the surgeon can save, but there can be no doubt that appendicitis is a diet-produced disease, and from my experiments and observations on foods I believe it will be found that vegetables, by distending the caecum, lead to what is called appendicitis, although many perfectly healthy appendices are being removed by our leading surgeons.

Another communication, on epilepsy, by Dr. Pereira, in the JOURNAL of January 1st deserves special attention, for epilepsy, like appendicitis, is a diet-produced disease. Dr. Pereira has noticed that epileptic attacks depend upon meteorological states of the atmosphere as secondary causes. Hippocrates paid more attention to meteorology in connexion with disease than we do, but there can be no doubt that all who are in a plethoric state and suffering from anasarca, which the profession cannot yet recognize, are in danger of dying suddenly, as it is called, through some indiscretion in diet, or a sudden change in the weather. That accounts for certain diseases, and even abortion, occurring in runs, and being looked upon as epidemic.

A DOMINIONS YEAR BOOK.

THE *British Dominions Year Book* for 1916, issued by the general insurance company of that name, contains a series of articles bearing on the war in its various aspects. Thus there are articles by Sir L. Chiozza Money on a business-like empire; on the navy, by Mr. Jane; on finance, by Mr. Crammond and Mr. Keegan; and on the motor vehicle by Mr. Massac Buist. The last named has a very large subject, but endeavours, with much success, to deal with the general principles involved. One or two statements he makes are worthy of reproduction. He says that in the course of a single afternoon a batch of motor lorries may take forward 125 tons of shell and a million rounds of small arms ammunition. Speaking of the commissariat department, he says that motor meat safes, motor filters, and motor field kitchens are among the special varieties of vehicles furnished. Of the motor ambulance services, he says that the British is out and away the best. The book has a number of coloured illustrations which will help the civilian to understand the various badges and ribbons used by the navy and army.

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

	£	s.	d.
Seven lines and under	0 5 0
Each additional line	0 0 8
A whole column	3 10 0
A page	10 0 0

An average line contains six words.

All remittances by Post Office Orders must be made payable to the British Medical Association at the General Post Office, London. No responsibility will be accepted for any such remittance not so safeguarded.

Advertisements should be delivered, addressed to the Manager, 429, Strand, London, not later than the first post on Wednesday morning preceding publication, and, if not paid for at the time, should be accompanied by a reference.

NOTE.—It is against the rules of the Post Office to receive *poste restante* letters addressed either in initials or numbers.

"TRENCH FEVER":

A RELAPSING FEVER OCCURRING WITH THE
BRITISH FORCES IN FRANCE.

BY

CAPTAIN J. W. MCNEE, M.D., R.A.M.C.,

AND

LIEUTENANT ARNOLD RENSHAW, M.D., R.A.M.C.

With the Clinical Assistance of

CAPTAIN E. H. BRUNT, M.B., R.A.M.C.

[Note by COLONEL SIR WILMOT HERKINGHAM.

DURING the whole time that the army has been in Flanders cases of short fever have continually occurred.

In a comparatively small number there has been a little bronchitis, or some diarrhoea, or tenderness of the muscles or nerves in limited situations. These have been called bronchitis, or influenza, enteritis, colitis, myalgia, and neuritis. But, as a rule, the symptoms have not included more than the general aches and pains which are the common denominator of all fevers. The patients have been very slightly ill, and except in a small number of cases have quickly returned to duty.

It has been very difficult to know what to call these cases. They have been sent in as influenza, myalgia, neuritis, pyrexia of unknown origin, and even as rheumatic fever. Of genuine rheumatic fever I have seen only five instances. Its absence has been one of the most striking things in the campaign, and effectually disposes of any connexion between this fever and wet or cold.

These undetermined fevers have from the first been the hunting ground of the bacteriologists, who with their laboratories are disposed in a line along the front, together with a few in special places further back. The bases have, of course, their own bacteriologists, and are not now under consideration.

The diagnosis of the enteric group of fevers is of such consequence to an army that the first task of the bacteriologist is always to exclude them. In consequence these cases of pyrexia have throughout been examined from that point of view. As they were usually seen quite early in the disease cultivation of the blood has been practised regularly, but cultivation of the excreta and agglutination tests have also been carried out in many hundreds of cases. In any case where either abdominal symptoms, or a dry tongue, or an enlarged spleen, or suspicious spots, gave clinical grounds for suspecting an enteric fever, the patient was sent down as "suspected typhoid" even if the bacteriological evidence was absent. But after all this had been done we were left with a large mass of cases in which neither the clinical nor the bacteriological evidence afforded any ground for this diagnosis.

In the early part of the summer Major J. H. P. Graham called my attention to a type of fever characterized by two bouts of pyrexia separated by a normal interval. He afterwards published two cases of the kind.¹ About the same time Captain Wells reported several similar cases. Colonel Sir William Leishman came round with me to see these cases. Their resemblance to sandfly fever and also to dengue struck those who had had experience in these fevers, but there were several points which effectually disproved identity. Other officers were good enough to look out for similar cases. I should like especially to thank Captain Stirling and Captain Bolus for their help. In the *Lancet* of November 20th, 1915, appeared a paper by Captain G. H. Hunt and Major A. C. Rankin, describing 30 cases and mentioning for the first time the name "trench fever," which by this time has come into common use. From these papers and from the paper now published I think we can say that from the mass of cases of obscure fevers one type has been isolated in which the clinical symptoms, the course, and to a certain extent the pathology, have been established. We are, however, still ignorant both of the nature of the infection and of the way in which it is introduced into the human system. It is still occurring, and this renders the agency of a flying insect improbable, though I was shown *A. maculipennis* only two days ago (January 29th).

The present paper needs no praise of mine, but I may

say that I have followed the work throughout with the deepest interest.]

The cases of the type to be described first began to be recognized in this laboratory area about the beginning of July, 1915, although, on considering the matter later, it was certain that a small number of men seen during the previous month had suffered from the same disease.

It will be of interest to give an account of how our attention was drawn to the condition in the first place. In the first few days of July a number of men, about twenty in all, were sent in to an isolation hospital labelled "suspected enteric." These men all belonged to a division which had recently arrived in the area, and all had headache and varying degrees of pyrexia, in addition to other symptoms to which less attention was paid at the time. Since it was known that during the previous two months cases of paratyphoid B had occurred both in the civilian population and in the division then in occupation of the area, it was at first thought that these new cases might be of the same nature. Blood cultures were made in bile salt broth in the usual way, and thereafter the cases were immediately transferred to a stationary hospital further from the front. These blood cultures proved one and all sterile. The men reached the stationary hospital within a week of the onset of the febrile symptoms, but, on admission there, their temperatures were either found normal or fell to normal within a day or two, leaving the patients apparently quite well. As the cases did not resemble clinically any of the enteric group, an inquiry was at once addressed to this laboratory to find out the results of the blood examinations. The bacteriological and clinical findings seemed to exclude the enteric group, although the possibility of previous inoculation modifying the course of genuine enteric had still to be considered at the time.

Cases of the same kind occurred immediately afterwards, and on these being watched it was found that the fever ceased after five to eight days. These men were examined carefully, and other symptoms recognized, which will be described in full later on. None of these early cases, however, remained under observation for long after the temperature fell to normal, so that their subsequent history is unknown. The point of this remark will be seen when the course of cases watched over a long period is considered.

As has been already indicated, all the early cases remained under suspicion of belonging in some sort of way to the enteric group. As more and more cases were observed, however, each with a similar and constant group of symptoms, the disease soon became recognizable as a definite clinical entity, and early became known to officers and men under the name "trench fever."

Since attention was attracted to the condition, great numbers of cases have come under our observation. During the months of July, August, and September, in fact, it was impossible to visit three or four field ambulances on any day without seeing at least half a dozen fresh cases.

During August and September arrangements were made, especially at one casualty clearing station, to keep a series of cases under constant observation for some weeks, and it is as a result of this that we have been able to carry out most of the clinical, pathological, and experimental work detailed below.

DISTRIBUTION OF THE DISEASE.

The cases have been met with, curiously enough, only among two classes of men—namely, those direct from the trenches, or at least from near the trench zone (artillerymen, etc.), and men of the Royal Army Medical Corps. On looking into our records no real exception can be found to the above generalization. Thus in our experience only those who have actually lived in or near the trenches and those who by reason of their work are constantly in contact with sick and wounded men from the firing line, have suffered from this disease. This seems important in searching for the means of transmission of the malady, and shows, at any rate, that the name "trench fever" is not without some justification.

No case has been met with in units such as ammunition columns, ordnance, head quarter troops, etc., which, although in the army area, are situated at some distance

from the lines. Of the Royal Army Medical Corps units, the personnel of both field ambulances and casualty clearing stations have suffered. No stationary or general hospitals being in the zone of the laboratory, we are unable to speak of them.

Age and service, foreign or otherwise, have had no influence, both old soldiers and newly joined men being

differ in their course, and that in a very curious and interesting way.

CLASS A.

The patient as a rule feels suddenly ill—headache, dizziness, and pain in the lower limbs being the most constant initial symptoms. Some men give a history of having been so suddenly overcome by headache and dizzi-

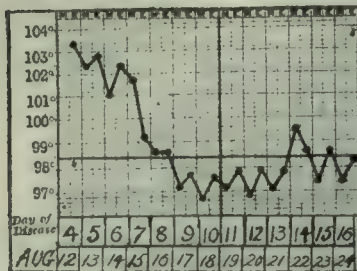


CHART 1.

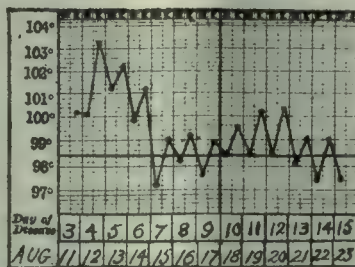


CHART 2.

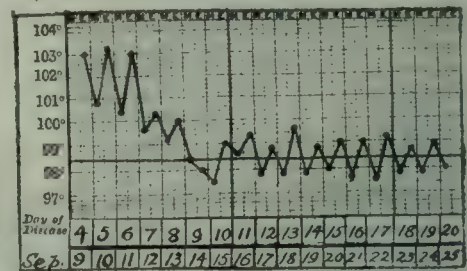


CHART 3.

CHART 1: This man was admitted on the fourth day of illness; a typical single relapse is shown. CHART 2 shows in part the tendency to remission often seen about the third day; the relapse is more gradual and prolonged than in the first chart.

equally involved. Officers and men too have apparently been affected in the same proportion.

It is important to observe also that in a casualty clearing station, where a room was specially set apart for the observation of such cases, four of the orderlies developed typical attacks of the disease. Other men affected in the same unit included the attendant of the incinerator, the man in charge of the Thresh disinfectant, an officer's cook, as well as other men on ordinary duty.

The question of the occurrence during the past summer of a similar disease among the civilian population has been gone into, and although it is difficult to get sufficient accurate information, it seems highly probable that such cases have existed.

In the course of inquiry some interesting particulars of the types of fevers found in the Flanders area have emerged, but no help has been gained with regard to a past history of this disease.

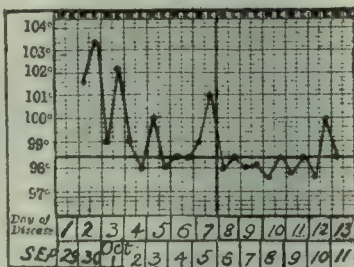


CHART 4. This chart shows a more irregular type of fever. The patient was admitted on the second day of illness. The symptoms continued until the eighth day, after which a relapse occurred on the twelfth day.

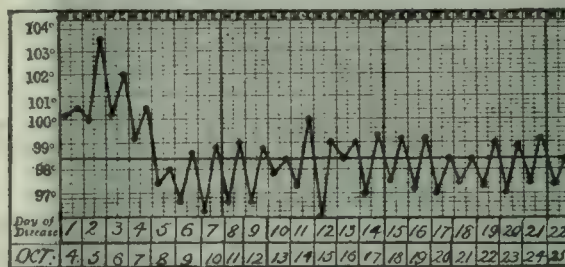


CHART 5.—This man had been slightly wounded in the shoulder, and came to the convalescent hospital with a normal temperature. The chart therefore begins on the first day of the attack. He had not been, when the illness commenced, in the ward where the other febrile cases were kept.

seated in the limb. It often gives rise to an intense feeling of restlessness, so that the patient is unable to keep his legs still for any length of time.

No diarrhoea is ever present, but, on the contrary, a tendency to constipation is frequently observed.

The fever varies in intensity, ranging up to 103° F. or 104° F. in the first day or two. The face is flushed, the

be confined to the "shins," but is often present in the thighs and behind the knees. It is difficult to say whether the pain is periosteal, or muscular, or both, but all the men state that it feels deep-

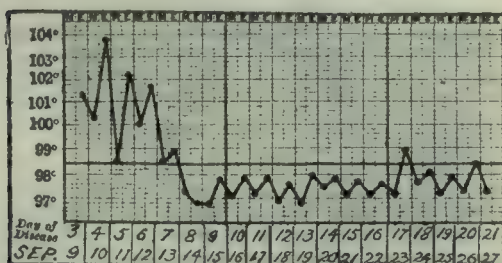
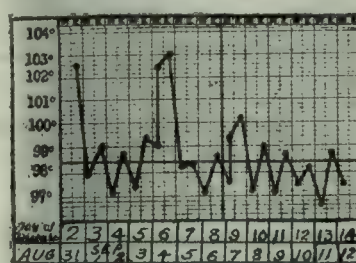
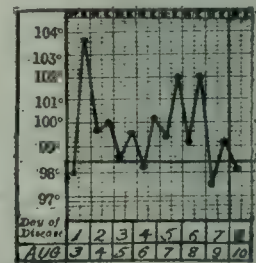


CHART 6.—It will be noticed that only a slight relapse occurred nine days after the temperature fell to normal on the eighth day.



CHARTS 7 and 8 are given as well-marked examples of the remission which may occur about the third and fourth days. Such a remission is well shown in two of the experimental cases.

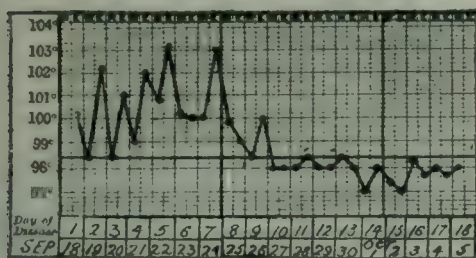


TYPES OF FEVER.

Two types of fever will be described, and at first it was quite impossible to be sure whether both were varieties of the same disease or were two distinct entities. When the experimental work comes to be dealt with, however, evidence will be given which to our mind makes it practically certain that one disease alone is under consideration. Both types have identical symptoms, and the initial history of both is essentially the same. The cases only

eyes generally clear and bright, and free perspiration occurs. The tongue is furred, and there is great loss of appetite. No signs of catarrh are ever present in the chest. The pulse rate is only slightly raised, a common figure being about 100. Often about the third day there is a sudden drop of the temperature to normal or even subnormal, without abatement of the symptoms. Thereafter, however, the temperature rises at once, to fall again, in our experience, about the sixth to the eighth day. In

other cases, however, there is no such intermission, the temperature remaining continuously elevated for a week. When the temperature drops at the end of this period



• CHART 9.

not in all, is complicated by a single relapse. This is in contrast to the second type of case to be described, where the initial period of fever is not so long and relapses frequent. It seems as if, granting that the same disease is under discussion, a longer initial attack may give rise to only a single relapse, whereas a shorter period of fever at the beginning may be followed by several relapses. Enough evidence has not yet been accumulated to render this supposition certain, but we wish to suggest as additional evidence in favour of the disease being a single one that the duration of the malady with its relapses may be inversely proportional to the severity and duration of the initial attack.

The relapse is met with as a rule within four days of the temperature falling to normal. The fever is never very high, reaching perhaps 100° F. to 101° F. The duration is one or even two days, and during this period all the previous symptoms return, although with lessened severity.

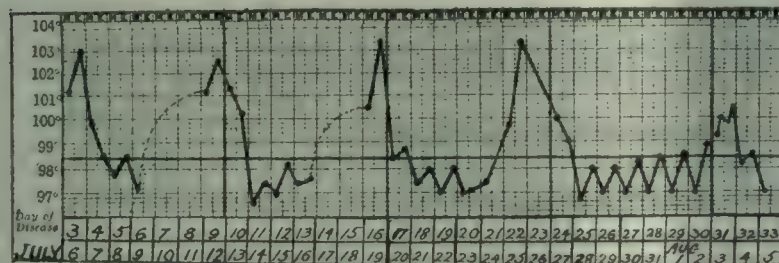


CHART 10.—The above chart, from the case of an infantry officer, was the first case of the kind met with. Hence a great deal of attention was paid to it, and until subsequent similar charts became available, the nature of the illness remained a puzzle. Many examinations of the blood were made during and just before the attacks to see if any parasite could be found, but all proved negative. In the intervals between the pyrexial periods the patient was so well that he was out of doors all day; hence the interruptions in the chart shown by the dotted lines.

A series of nine charts, all from cases of the type described, are reproduced. It seems superfluous to give a clinical account of each example, so only points of special interest will be alluded to in the text.

CLASS B.

The chief distinction between this type and the first is the number and periodicity of the relapses, so that the disease takes on the characters of a true relapsing fever. This variety is less common than the first, only about twenty characteristic cases having been observed. Apparently, however, more have been seen so far in this than in any other zone of the British front.

This type of case begins with symptoms indistinguishable from the shorter illness already described. The headache, dizziness, pain in the legs, and tendency to

constipation, all are there, and there is high fever. In short, it is at this stage impossible to foretell into which class the case will fall. A point of importance, however, is that the initial fever does not last so long as in Class A. The duration of the initial rise of temperature is naturally the most difficult part of the disease about which to obtain accurate information, most of the cases having already passed through a field ambulance before coming under our observation. In cases seen from the very beginning, however (for example, two of the personnel of a field ambulance), the duration of the initial attack was about three days, and this bears out the story of other men who only came under observation later.

After the primary rise and fall of temperature the patient feels perfectly well, so well, indeed, that in several instances he has returned to his ordinary duties. Then, suddenly, after a varying number of days, the man is again aware that he is unwell. Headache is, as a rule, again the initial symptom, and is often accompanied by a sensation of cold, although no actual rigor has ever been observed. Pain in the legs and small of the back return with great

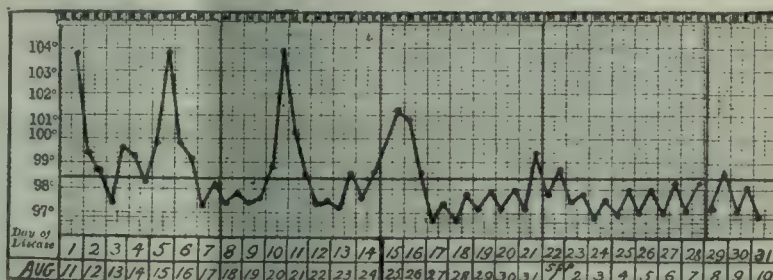


CHART 11.—This case was observed from the onset, the man affected being one of the personnel of a field ambulance. Note the short duration of the first febrile period, the temperature being subnormal on the morning of the third day.

severity, and on taking the temperature it is found to be high, often reaching 103.8° F. As a rule the onset of the attack is some time in the afternoon, and the height of the fever is reached the same evening. This relapse differs from that described under Class A in the following particulars:

(1) It is the first of a series of similar attacks; (2) it is sharper, the temperature is higher, and the symptoms are just as severe as in the initial attack.

The duration is short, the temperature rising quickly one day, to fall to normal, or almost normal, within the next thirty-six hours. Occasionally, however, the rise is not so rapid nor the fall so sudden, so that the relapse from start to finish covers a period of about three days (see Chart 13). The interval between the end of the initial attack and the onset of the first relapse is most frequently about four days, and once the relapse is over the patient returns again to a period of well-being.

With regard to subsequent relapses the periodicity varies, as is shown in the charts, the intervals never being exactly regular even in individual cases.

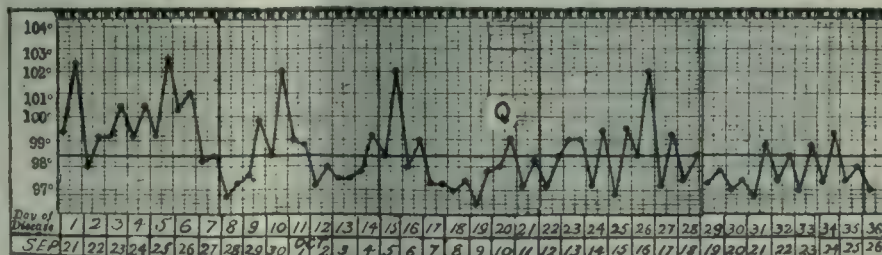


CHART 12.—This case was admitted to hospital suffering from scabies, and only fell ill after some days. The chart thus dates from the first day of the disease. On the twentieth day, when the third relapse was calculated to be due, the patient was given 20 grains of quinine. The effect was interesting, as, although the symptoms developed in marked degree, the temperature did not rise above 99° F. Q = Quinine sulph 20 grains.

The symptoms during the second and third relapses are, as has been already indicated for the first, of considerable severity, constant in character, and just as severe as in the

first days of the disease. In subsequent relapses, however, the symptoms are not so severe, nor does the temperature rise so high. It is the headache, however,

(c) there are the periodic short relapses—the most distinctive feature of all.

(5) *Malaria* and (6) *Relapsing Fever*.—These were both excluded by the absence of any parasite in the blood films or of any splenic enlargement.

PATHOLOGY OF THE DISEASE.

Work in connexion with the types of fever described has been carried on from various standpoints, and divides itself into bacteriological, pathological, and experimental. It may be said at once that the first two lines of investigation have yielded little information, but a brief account even of purely negative results must be given to complete as far as possible our knowledge

of the disease. From the experimental work, on the other hand, much important information has been gained.

Blood cultures have been made in a variety of ways. At first many of the cultures were made in the ordinary bile salt peptone broth used for the cultivation of the typhoid

which is chiefly mitigated, the pain in the shins remaining very troublesome.

It was interesting in these cases how often the men could accurately foretell the onset of a relapse, even before the temperature was raised. They "felt something coming on" in an indefinite sort of way, and later complained of slight headache. Thus sufficient time was often given to warn us at the laboratory that a case was relapsing, in order that various blood examinations could be made during the pyrexia.

DIFFERENTIAL DIAGNOSIS.

The chief diseases coming under consideration in this respect appear to be:

(1) *The Enteric Group*.—

This was excluded by (a) the numerous negative blood cultures; (b) the negative examinations of stools and urine; (c) the negative Widal reactions in the case of paratyphoid A and B; and (d) the periodicity of the relapses.

(2) *Malta Fever*.—This was excluded by the negative agglutination tests.

(3) *Dengue*.—The absence of any rash seems to rule this out.

(4) *Influenza*.—The differentiation from this disease is very important, because probably the majority of the cases came into hospital with a diagnosis of influenza. It is quite certain that a great

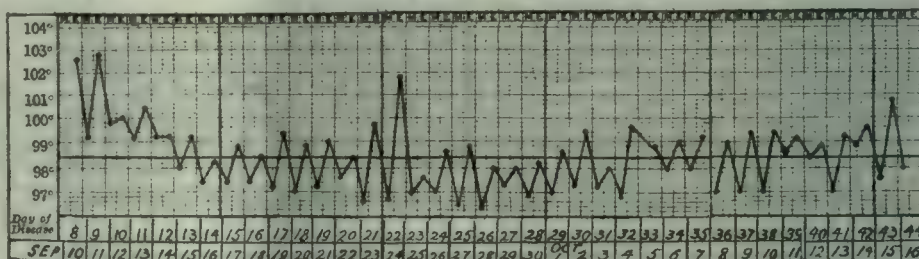


CHART 14.—This case is included as it shows a rather irregular type of chart. The man had taken ill a week prior to admission, with characteristic symptoms, and was presumably, when first seen by us, in his second period of fever.

group of organisms. This was done because at first, as has been indicated, nearly all the cases were suspected of being enteric fever owing to the pyrexia. It is sufficient to say here that at least 100 such blood cultures have been examined, all with negative result. All these cultures were made in the first few days of the disease, and this set of observations alone seems amply sufficient to exclude the idea first mooted that the disease might be enteric in reality, much modified by inoculation. The Widal reaction, so far as *B. typhosus* was concerned, gave no assistance,

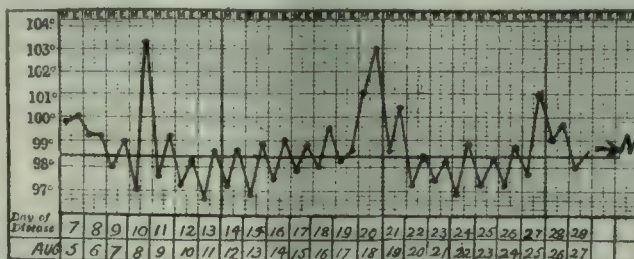


CHART 15.—N = Normal.

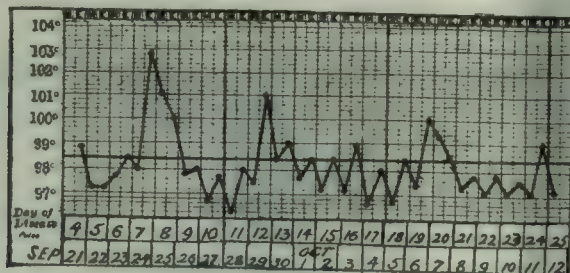


CHART 16.

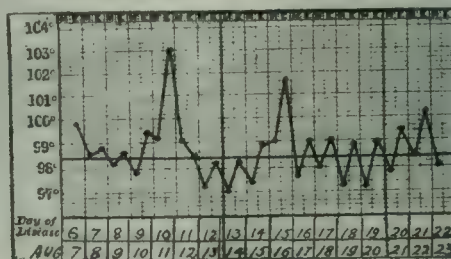


CHART 17.

CHARTS 15, 16, and 17.—These three charts all show the well-marked relapsing character of the fever. In each case the first attack had occurred before the case was admitted, the men only coming under observation on the seventh, fourth, and sixth days after the onset of the illness.

many will go down permanently into army records under that name. Influenza is excluded by the following points: (a) Absence of all catarrhal symptoms in the chest; (b) there is not the same prostration, cases often being found walking about with high temperatures;

owing to the high rate of inoculation. At one period a search was made for a case of the disease in an uninoculated man, but no such case on which to make agglutination tests could be found. Agglutination tests with *B. paratyphosus* A and B, and with *Micrococcus melitensis* and

paramelitensis, were made towards the end of some cases both of long and short type, but being always found negative were not persisted with.

A considerable number of blood cultures were also made using ordinary bouillon as the culture medium, again with negative results even when the culture was left for a week or longer at 37° C. More recently anaerobic shake cultures of the blood in a large volume of glucose agar have been tried, without success.

The faeces and urine have been searched culturally in a number of cases, both during and at the end of the pyrexia, but no abnormal organisms were found.

Blood films have been thoroughly searched, both in the short and especially in the relapsing cases, for the presence of any parasite, whether intracellular or extracellular. In a few instances the blood has been examined daily during the fever and between the febrile attacks, but nothing resembling a parasite has so far been discovered. Various stains have been employed, but especially Leishman, Jenner, and Giemsa, films being even left in the last stain for a period of several days. Fresh films of blood from some typical cases have been searched under dark-ground illumination, but no unusual appearance was detected.

The morphological changes seen in films are of some interest. As regards the red cells, only one pathological feature occurred with any degree of frequency. This was the presence of polychromatophil cells above the normal in size; and also, especially in the relapsing cases, of well-marked punctate basophilia. In several cases this latter change was so well marked that very careful examinations were made to make sure the appearance was not really due to an intracellular parasite. An explanation of these morphological changes was found when blood counts came to be made, as all the men examined showed a definite defect in the percentage of haemoglobin, the average colour index of a series of cases being 0.8.

Although the defect in the percentage of haemoglobin was constant, there was no loss in the number of red corpuscles, as will be seen from the table.

The leucocytes showed no morphological changes, and differential counts only indicated a slight relative increase in lymphocytes (large and small), with a rather low figure of hyaline cells. The details are given in full in the table.

EXPERIMENTAL WORK.

The experimental work was undertaken to satisfy any or all of the following questions:

1. Is the disease transmissible by the blood (a) to animals, (b) to man? If so,
2. What part of the blood is infective—the fluid or the cellular elements?

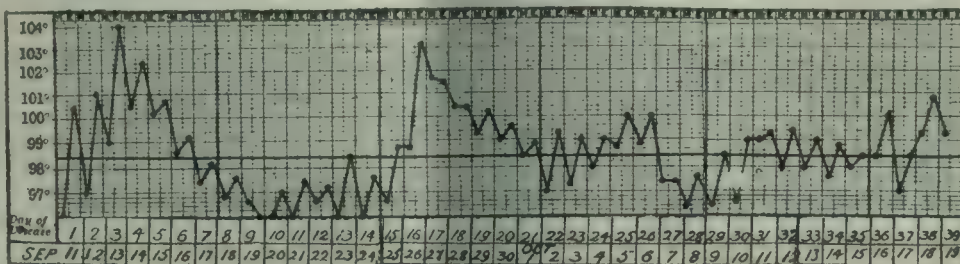


CHART 18.

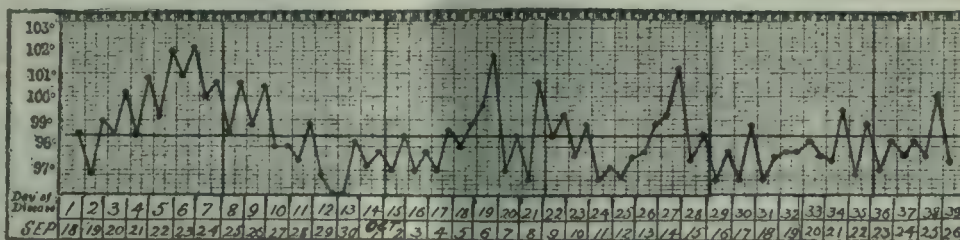


CHART 19.

CHARTS 18 and 19.—The above two charts show types of fever different in their course from any of the others described. The clinical symptoms were, however, typical enough.

3. Can the disease be transmitted by any or all of the following: (a) Whole blood, (b) plasma, (c) serum, (d) corpuscles?

4. If the virus is transmissible, is it a "filter passer" or not?

5. If ultramicroscopic, is the virus in the fluid part or only in the cellular elements of the blood?

6. If a virus be proved, what is the method of transmission in nature?

Following out this scheme, experiments were first made by injecting the separated serum from marked cases into animals, rats and rabbits being used. Later whole blood (citrate) was tried, but none of the animal experiments bore any fruit.

Thereafter, with the approval of the authorities, it was resolved to extend the experiments to men who would

TABLE.—Blood Counts.

Case.	Date.	Days Ill.	Haemoglobin Percentage.	Red Corpuscles.	Leucocytes.	Colour Index.	Poly-morphs.	Large Lymphocytes.	Small Lymphocytes.	Eosino-philic.	Hyalines.	Mast Cells.
J.	1915. Sept. 3	8	82*	4,470,000	10,000	0.93	58.5	8.0	26.5	3.0	4.0	0
M.	Sept. 7	5	81	5,210,000	5,200	0.8	58	5.5	17.5	2.5	6.5	0
C.	Sept. 13	11	83	5,380,000	8,800	0.78	73.5	10.0	10.5	2.0	3.5	0.5
11	—	—	—	—	—	—	67.3	22.9	4.2	0.7	4.9	0
13	Sept. 6	11	83	5,390,000	7,000	0.78	64.5	7.5	16.0	3.5	8.5	0
21	Sept. 11	2	81	5,390,000	18,200	0.84	—	—	—	—	—	—
21	Sept. 18	11	83	5,560,000	6,800	0.75	71.5	6.0	17.5	2.5	2.5	0
21	Sept. 19	11	83	5,230,000	9,800	0.79	69.6	5.6	18.4	2.0	3.6	0.8
21	Sept. 20	11	82	5,720,000	13,800	0.72	74.4	7.2	14.0	1.2	2.8	0.4
21	Sept. 21	12	86	5,160,000	12,800	0.84	68.6	6.6	17.3	2.6	4.6	0.3
22	Oct. 9	4	84	5,200,000	7,800	0.8	53	12.0	28.0	3.0	3.5	0.5
24	Oct. 4	3	85	5,460,000	6,400	0.81	61	12.0	15.5	3.0	5.0	0.5
24	Oct. 5	4	—	—	—	—	63	8.5	20.0	4.0	4.0	0.5

* A Gowen's haemoglobinometer was used.

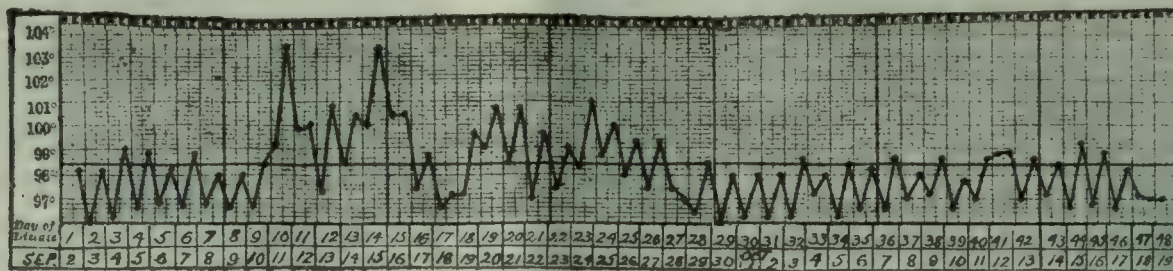


CHART 21.—Private W.

volunteer for inoculation. The experiments made in this way have been carried out in a casualty clearing station which by reason of its special situation has, during the past summer, acted as a convalescent station. Until special arrangements were made, however, no case could by rule be kept in this hospital for longer than a week, a fact which, as subsequent events proved, militated against the success of the first experiments. The men from whom volunteers were selected were almost all cases of minor injuries (sprained ankles, etc.), that is, men who although unfit to return to the trenches for some weeks were otherwise healthy.

The cases from which blood was taken for transmission were carefully chosen, only those in which no sign or history of past disease could be found being used. A number of typical cases were passed over at the time for this reason.

The experiments were begun on August 11th, 1915, when 5 c.cm. of blood were taken from each of two typical cases, and transferred immediately into the veins of two other men. Nothing occurred during the week these men remained under observation, and the men were then evacuated to the base and lost sight of. Positive results began to be obtained when permission was received to keep the cases, and the men inoculated from them, for a longer time under observation.

An account will now be given in detail of the first case in which the transmission was accomplished:

Transmission by Whole Blood.

On September 2nd an R.A.M.C. orderly, Private S., who had been on duty in the ward in which the "trench fever" cases were being kept, was in the middle of a brisk and typical attack of the disease. His temperature chart is given below (Chart 20).

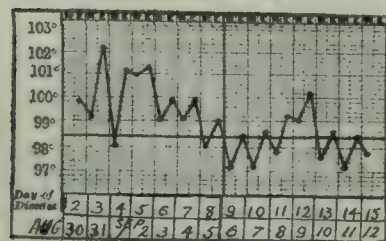


CHART 20.—Private S.

the inoculation. On the evenings of the third and fourth days his temperature reached 99° F., but he felt perfectly well at the time.

On the morning of September 11th he awoke at day break, feeling unwell. He had a slight headache, and his temperature at 6.45 a.m. was 99.2° F. He got up, but could not remain out of bed for longer than an hour, as the headache became more and more severe, and he felt cold and "shivery." He returned to bed at 9 a.m. and soon after was attacked by pain, chiefly in the thighs and small of the back. Unlike other cases, he had no pain below the knees. By evening he felt very ill, and at 6.30 p.m. his temperature was 103.8° F. and pulse 88. Next morning he was rather better, the pain being easier, although the headache remained severe. His temperature, too, had fallen, being 99.8° F. in the morning and 100° F. at night. On the third morning his temperature was normal, but the headache remained, and the pain did not entirely pass off. The same evening, however, he was perspiring profusely, and felt just as ill as on the first day of the attack. His temperature on this occasion was 100.8° F. The following morning there was again a slight remission, but only for a short time, and during the next few days he was

very ill, until the temperature reached normal once more on the seventh day after the onset (Chart 21).

Immediately the temperature became normal he felt comparatively well, and was able to sit up for a short time. His headache was completely relieved, but he still had slight pain in the thighs. Thereafter two definite relapses occurred, the one reaching its acme on September 19th and the other on September 23rd. During these relapses headache and pain in the thighs and back returned with considerable severity, without being, however, quite so severe as at the beginning. It will be observed from the chart that one relapse was at its height about four days after the temperature fell to normal on the seventh day, and that the other followed after a precisely similar interval.

Various symptoms, etc., of lesser bearing have been purposely omitted in the account of this case, so as to bring those of importance into prominence. It is sufficient merely to mention that anorexia and a definite tendency to constipation—both symptoms common to many febrile diseases—were present to a considerable degree.

The subsequent course of the case was towards complete recovery, but it is a noteworthy fact that whenever the temperature rose in the least degree above normal (as, for example, on October 15th, thirty-five days after the initial fever), the pain in the thighs returned with severity. This has been observed in other cases, the patients being able to tell that their temperature was a little high by the return of the pain.

Fairly numerous blood examinations, made on Private W. during his illness, are shown in the table already given.

It was resolved to try to carry on Private S.'s infection through Private W. to a third generation, but no opportunity for doing so occurred until September 19th, nine days after the beginning of Private W.'s attack.

Transmission by Whole Blood.

On this day 10 c.cm. of blood were taken from Private W. into a syringe previously washed out with citrate solution, and injected intravenously at once into Private D.

This man kept well until September 24th, five days after the inoculation, when a typical attack of the disease was again reproduced (Chart 22).

He took ill in the evening, feeling "shivery" and out of sorts. His temperature was found to be 99.8° F., and during the night intense headache and pain in the thighs developed. Next morning when seen he was very ill, complaining especially of pain behind the knee-joints, and at noon his temperature stood at 102.4° F. The following day his temperature was normal, and all the symptoms practically abated, so that he wished to get up. Thereafter, although a slight rise of temperature occurred on three successive evenings, he kept perfectly well until October 4th. During this interval of ten days he was able to go out of doors every day, and felt quite in his usual health. A relapse then occurred, all the original symptoms returning with even more severity than in the first attack. His temperature reached 103° F. on the 5th, and then fell, all symptoms and fever having passed off by October 7th. A period of well-being again followed, lasting until October 15th, when a further

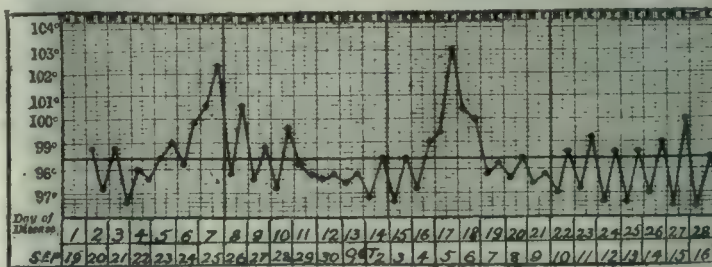


CHART 22.—Private D.

relapse developed with the usual set of symptoms. These were not severe, the temperature only rising to 100° F., and next day the patient was better again.

It is important to observe that the highest temperatures recorded in the three attacks occurred on the seventh, seventeenth, and twenty-seventh days after the inoculation—that is, the interval between the height of each illness was exactly ten days. The periodicity in this case has, we also consider, a further importance in helping to establish the unity of the "short" and "long" types of disease described in the earlier part of this paper. The first case, Private S., represents in our original description a fairly typical "short" type. The second, Private W., seems merging into the other or "long" type; and the third, Private D., if the case had occurred naturally, would have been put without hesitation into the latter group. The results of the experiments just described, taken along with the identity of the clinical symptoms in every case, seem to constitute very strong links in the chain of evidence supporting the view that all are simply varieties of one and the same disease.

The next experiment to be referred to had its origin also in an R.A.M.C. orderly, who had also been in contact with a number of cases.

Transmission by Whole Blood.

This man, Private C., took ill on September 15th, with the by this time well-recognized symptoms. His chart is appended, and shows a fairly typical curve (Chart 23).

On September 19th, when his temperature was 102.4° F., 10 c.cm. of blood were transferred immediately into the veins of Sapper M. This man kept well until October 2nd, thirteen

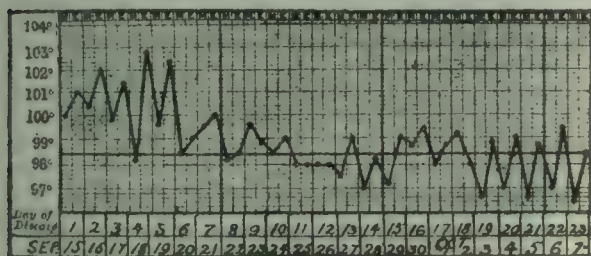


CHART 23.—Private C.

days after the inoculation, when he suddenly felt dizzy, cold, and shivery while going down the long hospital stairs. He had no headache until the evening, when his temperature had risen to 102.6° F. (see Chart 24). Pain in the legs had come on previously (at 4 p.m.), and was at first worst round the hips. During the night the pain became more localized to the back of the knees and to both ankles, and felt, so he said, deep down in the bones. The symptoms continued until October 7th without remission, when they passed off quickly. A relapse occurred on October 10th, four days after the end of the first pyrexial period, and a second on October 13th, after a similar interval of four days. On neither occasion were the symptoms severe, the temperatures only reaching 99.2° F. and 99.8° respectively.

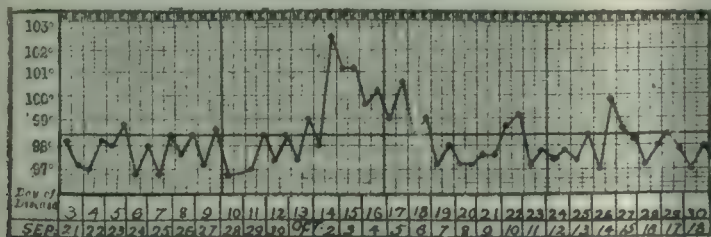


CHART 24.—Sapper M.

Having shown in these three men—Private W., Private D., and Sapper M.—that the disease in typical form could be transmitted from cases by immediate inoculation with "whole blood," it remained to continue work on the scheme outlined at the beginning of this section.

Filtered Serum.

Serum experiments had been begun early, as the blood from typical and suitable cases could be collected at different field ambulances, the serum separated in the laboratory, and thereafter injected into volunteers. The first experiment with the blood serum, made on August 20th, was a failure, but the two men were only under observation for about a week. The serum was in this experiment

passed through a Doulton filter candle without dilution before being injected. On August 22nd the pooled serum from four typical cases was, after the addition of an equal bulk of saline, passed through a Doulton filter, and injected

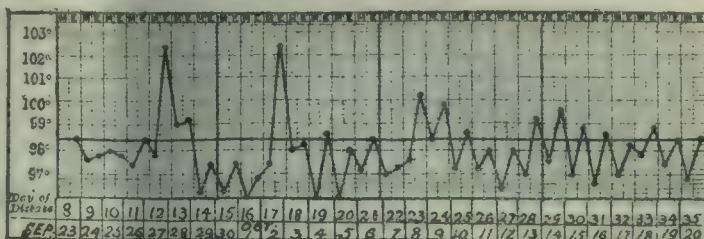


CHART 25.—Private B.

into two men. Nothing happened, although the men were kept for a fair time under observation. This attempt to prove whether the virus was a "filter passer," before the infectivity of the unfiltered serum was tried, seems to indicate rather a cart-before-the-horse procedure, but it was adopted at the time for the following reasons: It was thought from analogy, in the first place, that the virus might be somewhat of the same nature as those of yellow fever or sandfly fever, etc.; and also, the blood being at the time collected, often under difficult conditions, from field ambulances, the sterility of some of the samples might be in question. We felt safe, however, in injecting the serums after they had passed through the porcelain filter candle.

Two other men were again, on August 25th, inoculated with the pooled serum of three typical cases, the serum being previously filtered through a Doulton candle. A negative result was obtained. The same type of experiment was carried out on August 27th, the pooled serum of four typical cases being filtered as before. A negative result was again obtained.

It was then suggested to us by Sir William Leislman that our failure to get the virus through the filter was possibly due to the serum not being sufficiently diluted with saline, in none of the experiments so far described more than an equal volume of saline having been employed. In our subsequent filtration experiments, therefore, the serum was always diluted with ten volumes of saline.

These experiments now to be detailed were conducted under the best conditions in the casualty clearing station where so much of the work has been done, and were designed to satisfy several questions at once. They must, therefore, be described as separate experiences, leaving the conclusions to be drawn at the end.

On October 7th blood was withdrawn from Private B., on the day before his fifth attack of fever, and in the fourth week of his illness. 5 c.cm. of blood were taken into a syringe washed with citrate solution, and injected at once into Private D.—m. The remainder was allowed to clot, the serum separated, and divided into two parts, each of 3 c.cm. One of these parts was diluted with ten volumes of saline and rapidly filtered through a Berkefeld "V" filter. Thereafter the 3 c.cm. unfiltered serum were injected into Private T., and the filtered and diluted serum (now 30 c.cm. of fluid) was transferred intravenously to Private M. These two injections were made about four hours after the blood was withdrawn.

The chart of Private B. (Chart 25), from whom the blood was withdrawn, is reproduced. When admitted he gave a history of two previous attacks of fever, and four relapses, shown on Chart 25, occurred in hospital.

Private D.—m (Chart 26), into whose veins the "whole blood" was injected, began at once to run an irregular temperature, but without obvious symptoms until the evening of the eighth day. Then the usual symptoms of headache, pain in the back and legs, etc., appeared, and continued until the temperature fell to normal three days later. Thereafter three relapses occurred, each reaching its acme, as shown by the highest temperature recorded, five days after the previous one.

Private T. and Private M., who received respectively serum and serum after dilution and passage through a

filter kept perfectly well for four weeks under observation, their temperature charts not showing any deviation from the normal.

In this experiment, therefore, only the "whole blood"

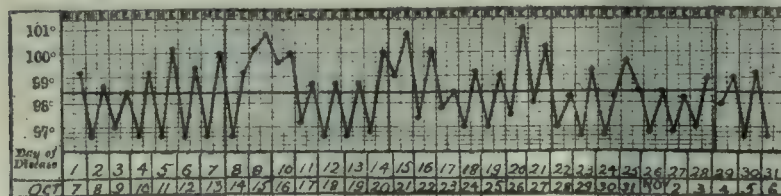


CHART 26.—Private D—m.

was infective, no result being obtained with serum, filtered and unfiltered.

The next experiment had as its basis the case of Private D—m (Chart 26), just described, whose attack followed the injection of the blood of Private B. The blood was withdrawn on October 15th, when the temperature was 100.8° F., and the symptoms well marked. Private W—x was injected at once with 5 c.cm. of blood, taken into a syringe washed with citrate solution. The remainder of the blood was taken to the laboratory in two parts, one being citrated to prevent clotting and the other being allowed to coagulate. The citrated blood was centrifugalized at once, 8.5 c.cm. of plasma being thus obtained. The other part of the blood yielded after coagulation 10 c.cm. of serum. This was divided into two, 5 c.cm. being set aside, while the other portion was diluted with ten volumes of saline and filtered as before through a Berkefeld V candle. The total bulk of the diluted fluid was thus 50 c.cm. It must be pointed out

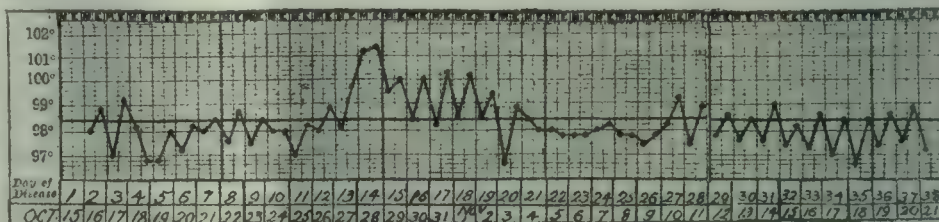


CHART 28.—Private O.

times with normal saline solution to completely free them from traces of plasma. The washed corpuscles corresponding to 5 c.cm. of blood were then taken, suspended in sufficient saline to make up to 5 c.cm., and injected intramuscularly into Lance-Corporal B—x. The remaining washed corpuscles (equivalent also to about 5 c.cm. of blood), were mixed in a bottle with fine sand and glass

beads, and shaken thoroughly so as to break up the corpuscles as far as possible. The mixture was then extracted with saline and the bright red haemoglobin tinted fluid passed through a Berkefeld V filter. The filtrate (16 c.cm. in bulk) was injected intramuscularly into Gunner S. This last part of the experiment, in which an attempt was made to break up as much as possible the corpuscular elements, was undertaken to see if possibly (a thing hitherto unheard of) the virus might be ultramicroscopic and a filter passer confined to the cellular elements of the blood.

Of the three men injected in this experiment, only one developed the disease—namely, Private A., into whom the citrated whole blood was injected intramuscularly. The incubation period was twenty-one days, and the attack, which was typical, is shown on the accompanying chart (Chart 31).

The other two men were watched for over a month, and they remained perfectly well.

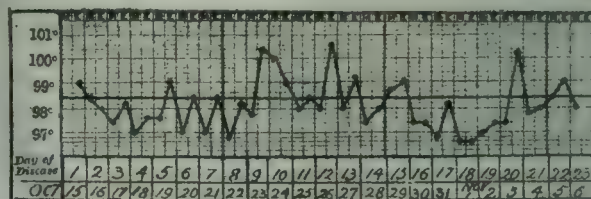


CHART 29.—Private N.

The only positive result obtained from this experiment was, therefore, the fact that citrated whole blood is infective when inoculated intramuscularly as well as intravenously.

Plasma: Corpuscles.

The last experiment of our series had as its basis Private A. (Chart 31), who had been infected with the

here that when ready for injection, owing evidently to some fault in technique, both the plasma and the serum were considerably haemoglobin-tinted, that is, some red corpuscles had been damaged and the haemoglobin liberated. The importance of drawing attention to this will be realized when the results of the experiment are noted.

Private W—x (Chart 27), into whom the "whole blood" was transferred, developed, as is shown in the chart, an extremely typical attack, with the usual relapse and the customary symptoms. The incubation period was in his case seven days.

In the case of Private O. (Chart 28), into whom 8.5 c.cm. of plasma were injected, a quite characteristic positive result was obtained after a period of thirteen days, as is shown in the chart.

A positive inoculation also resulted on the ninth day after the introduction of 5 c.cm. of serum into the veins of Private N. (Chart 29), whose chart is also given.

Clinically, the illness caused by the introduction of the "whole blood" was much more severe than that brought about by inoculation with either serum or filtered serum, a fact well shown by comparing the three temperature charts.

The man, Private R., into whom the filtered serum was introduced, remained absolutely without symptoms, even when watched carefully for over a month, and his temperature taken night and morning.

sitrated whole blood of Private P., injected intramuscularly. On November 10th, when Private A. was in his first day of illness, and his temperature 102° F., some of his blood was withdrawn into sterile citrate solution. All of the citrated blood was taken back to the laboratory for the following reason: It will have been observed that in all the previous experiments the citrated whole blood was injected at once, whereas the remainder of the blood had to be taken to the laboratory for preparation. Thus two or three hours generally elapsed before the remaining injections could be made. It was resolved on this occasion to make all the inoculations at the same time, so as to exclude the possibility of the virus dying out in the intervening two or three hours. All the injections in this experiment were thus made at the

final washing the corpuscles were made up to 10 c.cm. with saline before injection.

For the remaining part of the experiment the corpuscles corresponding to about 10 c.cm. of blood were obtained by the centrifuge, and washed, as before, five times with normal saline. The solid corpuscles were then mixed with fine sand and pounded up thoroughly in a mortar. The mixture was extracted with saline, and the product filtered through a Berkefeld V filter as usual, the result being 22 c.cm. of a clear, deep crimson fluid.

The results of the inoculations in this experiment may now be given.

Private R., into whom the citrated whole blood was injected, took ill thirteen days after inoculation, and his chart is given. (Chart 32.)

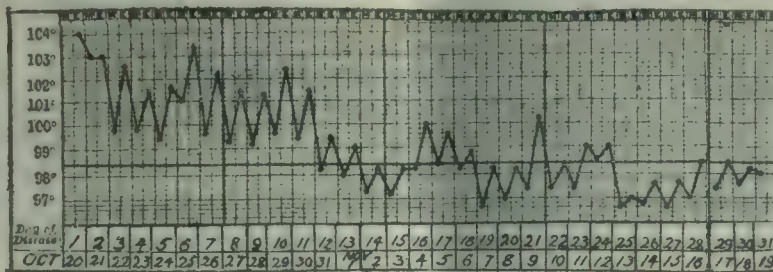


CHART 30.—Private P.

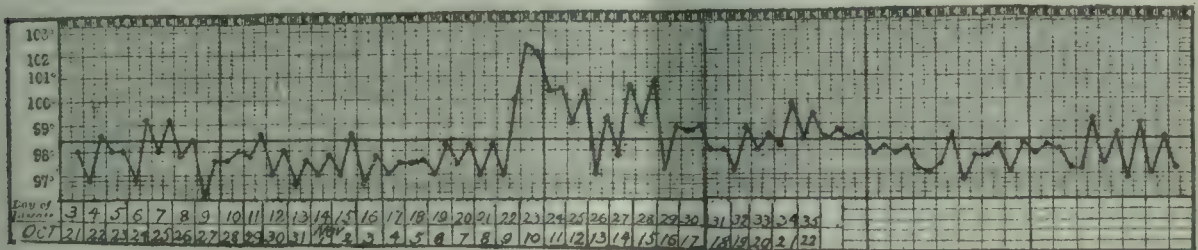


CHART 31.—Private A.

same time, about three and a half hours after the blood was obtained.

In this, our last, experiment the following tests were made, all the inoculations being intramuscular:

1. Citrated whole blood, both as a control and for the reason referred to in the preceding paragraph.

Private P.—d, into whom the washed corpuscles of 5 c.cm. of blood were injected, took ill with the usual symptoms sixteen days after inoculation. (Chart 33.)

Neither of the other two men, into whom, respectively, 4.5 c.cm. of plasma after passage through a Berkefeld filter, and 22 c.cm. of haemoglobin-tinted fluid (obtained by breaking up corpuscles and filtering as described) were injected, fell ill in any way during the full month they were observed.

All the men who were voluntarily inoculated with the disease have returned to normal health. Communication has been maintained

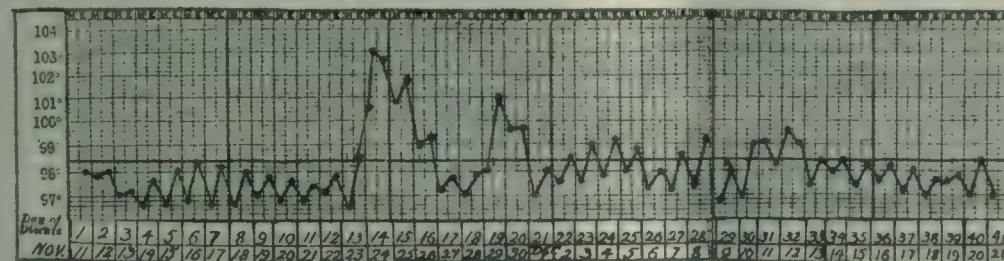


CHART 32.—Private R.

2. Corpuscles freed from plasma by washing with saline.

3. Plasma filtered through a Berkefeld filter candle.

4. The filtered product of broken-up corpuscles previously washed with saline.

The technique of the preparation for the last three parts of the experiment must be briefly recounted. The plasma was obtained readily enough by prolonged centrifugalization, and was quite clear and free from haemolysis. After separating the plasma, the corpuscles corresponding to 5 c.cm. of blood were taken, and washed five times in saline. The corpuscles were always thoroughly mixed with the saline before centrifuging, and 10 c.cm. of normal saline were used for each washing. After the

with some of them, and the only complaint has been a slight return of pain in the legs when fatigued in a few cases.

Other experiments throwing some further light on the illness could have been attempted, but it had always to be

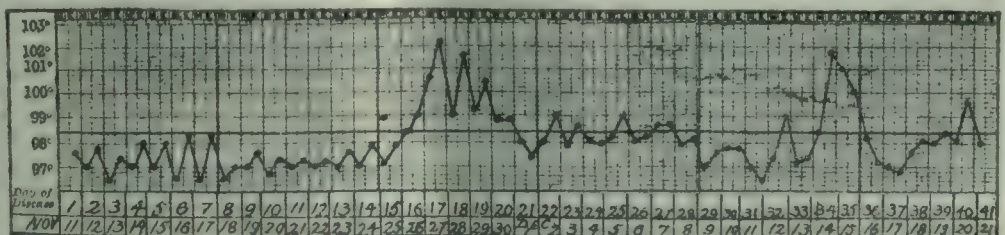


CHART 33.—Private P.—d.

remembered that soldiers were the subjects of the tests. An important point to settle, for instance, would have been the question of whether one attack of the disease conferred immunity or not against a second inoculation.

SUMMARY AND CONCLUSIONS.

1. The disease is a definite entity, and of infective nature, as is proved by its ready transmission from one person to another by the blood.

2. There are two clinical types of the disease: (a) A short fever of about a week's duration, followed frequently after a few days by a short single relapse; (b) a longer illness characterized above all by the number, sharpness, and periodicity of the relapses.

3. The symptoms of both types are clinically identical, the most constant and characteristic being headache, and pain in the legs and small of the back.

4. The two types described are, in our opinion, merely varieties of one and the same disease. In addition to the identity of symptoms, the experimental evidence for this is strong, a typical "short" variety having been shown capable of giving rise to a typical "long" one.

5. The incubation period varies, possibly with the dose of the infective virus introduced. The shortest incubation period in our experimental transmissions was six days, and the longest twenty-two days.

6. The disease is transmissible in every case by the whole blood, whether injected intravenously or intramuscularly.

7. The disease is not transmissible by the serum. In the one instance in which the serum proved infective, haemolysis of corpuscles had occurred before injection.

8. It follows as a corollary to the preceding statement that the virus is not a "filter passer" in the serum, as we thought from analogy that it might be. All our experiments with filtered serum were negative.

9. The plasma was infective in one experiment, but haemolysis of red cells had occurred, so that the plasma was haemoglobin-tinted. The filtered plasma in another test was not infective.

10. The above results seemed to point to the virus being contained within the blood corpuscles themselves, whether leucocytes or red cells.

11. Blood corpuscles, after washing five times in saline to remove the plasma, were still found to be infective. This further supports our view that the virus is intracorporeal.

12. Very many blood films at all stages of the disease have been examined without a parasite being detected. The blood has been examined fresh, under dark-ground illumination, and dried films have been stained in varying ways, without result.

13. Blood corpuscles were broken down, and the haemoglobin-tinted fluid passed through a filter in an attempt to prove the virus an ultra-microscopic one confined to the corpuscles. The fluid when injected, however, was not found to be infective.

14. The only constant morphological change in the blood is the presence of punctate basophilia. This was so marked in some cases as to require very careful investigation to differentiate it from an intracellular parasite. The blood counts, differential and ordinary, did not yield any important results.

15. As regards the means by which the disease is transmitted in nature we have as yet no evidence to offer. The fact that only two classes of men are affected—those from the trench zone and men of the Royal Army Medical Corps—is, however, suggestive. The disease is either contagious from man to man or, what seems much more likely, is carried by one of the common flies or parasites found in the trenches. During the past summer lice, mosquitos, midges, and flies of other kinds have all been common in the Flanders war zone.

We wish to express our thanks to all officers of the Royal Army Medical Corps who have helped so much in this investigation, and especially to Surgeon-General Porter, Colonel Sir William Leishman, Colonel Sir Wilmot Herringham, Lieutenant-Colonel W. P. Peake, Captain G. W. M. Andrew, and Captain Vick.

REFERENCE.

¹ *Lancet*, September 25th, 1915.

UNDER the auspices of the Mental Hygiene Committee of the State Charities Aid Association of New York, a campaign for the prevention of insanity by education of the public has been organized. A number of recognized authorities on mental disease have consented to help by delivering popular lectures.

ANTENATAL CLINICS AND PREMATERNITY PRACTICE AT THE EDINBURGH ROYAL MATERNITY HOSPITAL IN THE YEARS 1909-1915.

By J. W. BALLANTYNE, M.D., F.R.C.P.E.,

PHYSICIAN, EDINBURGH ROYAL MATERNITY HOSPITAL; LECTURER ON MIDWIFERY AND GYNAECOLOGY, SCHOOL OF MEDICINE OF THE ROYAL COLLEGES, EDINBURGH, ETC.

(Continued from p. 192.)

Autumn Quarter, 1912.

THE prematernity cases in the autumn quarter of 1912 were more than usually interesting. In all, 36 women, of whom 7 were unmarried and the rest married, passed through the ward. In two instances only did the mothers leave the hospital undelivered, and in both of these cases the conditions for which they were admitted (vomiting and pyelitis) were relieved. One or two of the other patients went out for a time, but returned for their confinements. As in the preceding autumn (1911), and as in that of 1909, there was one maternal death (from acidosis in early pregnancy); the remaining 35 mothers all did well, although some of them were very ill at the time when they were admitted. The fate of the fetuses and infants was more varied; 17 were born alive, and were living at the time they left the hospital; 2 were alive but still *in utero* when their mothers went out; and 20 perished at different ages, 2 dying a few days after birth, 1 succumbing in labour, and 17 having died antenatally. Seventeen is a large number, but it was swollen to that size by the occurrence of a triplet abortion and by the incidence of at least seven other abortions.

As usual, the indications for the admission to the ward of these expectant mothers varied within wide limits. There were seven cases in which abortion occurred, but the premature termination of pregnancy differed as to its causation. In one of the seven the woman had had repeated miscarriages, and in this her twelfth pregnancy she aborted once more; she had twice given birth to twins. There was no evidence of specific disease in her. Another woman was admitted as probably suffering from tubal pregnancy, but an ordinary abortion occurred; two others aborted because of retroversion of the gravid uterus, and another because of hydramnios. In one case of inevitable abortion no cause at all could be assigned. The seventh case was the triplet pregnancy.

The patient was 35 years of age, and had had four full-time confinements, and a miscarriage at the third month in March of the same year (1912). Her last period was in June. About a week before her admission to the Maternity Hospital (September 17th) she began to bleed and had pain in the lower part of the abdomen, and the day before her admission these symptoms returned. (A puzzling fact about her condition was that the fundus uteri reached almost to the umbilicus, and yet her amenorrhoea was only about two and a half months' duration.) Three months later she expelled a macerated three months fetus; since the membranes were not expelled she was given chloroform and the uterus was explored, when two more fetuses were extracted, along with a commencing placenta and what appeared to be one chorion and one amnion. One of the three umbilical cords was inserted into the placental mass in a velamentous fashion.

Three patients were admitted on account of albuminuria and three because they had had eclamptic fits. One of the albuminuric patients gave birth to twins, one of whom was still born and could not be resuscitated; another expelled a fetus weighing 8 lb. 10 oz., which had been dead *in utero* for some days; and the third delivered herself of a premature infant weighing only 3 lb. 12 oz., which nevertheless survived and did well. In all these three patients the usual dietetic and medicinal treatment was administered, and none of them developed eclampsia. The other three patients all had fits before their admission, and they were all somewhat serious cases; but they got treatment in the prematernity ward for at least two days before labour came on. They all had the stomach washed out, and a large dose of solution of magnesium sulphate was left in it; and two of them had venesection and the intravenous transfusion of a solution of calcium chloride (30 grains to a pint in one and 15 grains in the other). The three mothers all recovered, but one of the infants

was dead-born and one of the other two died a few days after birth.

The other prematernity patients were admitted for the following conditions: Hyperemesis and sickness (3), pyelitis (2), accidents in pregnancy (2), contracted pelvis (2), convenience, for example, poverty (3), acidosis (1), chorea (1), recurrent fetal death in previous pregnancies (1), phthisis (1), myxoedema and dilated heart (1), pernicious anaemia (1), haemorrhage from placenta praevia (1), nervous breakdown (1), spurious pains (1), venereal disease (1), and expected difficult labour from large size of child (1). Two of these cases may be referred to more in detail on account of their special interest, for in one there was marked acidosis which proved fatal, and in the other there was grave chorea which was completely cured by calcium chloride.

Acidosis with Choreic Movements.

The patient was an unmarried girl, 17 years of age, who was about three and a half months advanced in her first pregnancy. The twitching movements had been noticed for two months and bilious vomiting had first occurred a month before her admission. For a fortnight she had been under medical observation, and during that time she had been taking arsenic and chloral hydrate and potassium bromide, but without appreciable effect. There was no past history of chorea, of urticaria, or of erythema circinatum. When admitted to hospital she was found to be suffering from choreic twitchings which affected both sides of the body; she vomited everything taken by the mouth, and she retched frequently, bringing up bile-stained fluid. With an enema a good action of the bowels was obtained. The stomach was washed out with sodium bicarbonate solution and a large dose of magnesium sulphate was left in. Since I had found that calcium chloride had a good effect upon another case of simple chorea gravidarum, I tried it in this case, but it had no apparent effect. The urine had a specific gravity of 1025, was acid in reaction, contained a trace of albumin, showed 5 grains of urea to the ounce, and revealed the presence of both acetone and diacetic acid in considerable amount. The choreic movements ceased, but the bilious vomiting continued. The stomach was washed out on several occasions with the soda solution, some of which was always left in, and an intravenous transfusion of one pint of sodium bicarbonate solution (60 grains to the pint) was given into the median basilic vein. Her pulse began to fail notwithstanding the injection of strychnine and other means of stimulation, and she died six days after admission to the ward.

Chorea Gravidarum.

The patient was an unmarried girl, 20 years old, about the fifth month of her first pregnancy. When 7 years old she had an attack of chorea following upon a fall, and lasting for ten months. It was a severe attack, and a second, also severe, came on with no apparent cause when she was 14; the latter lasted for three months. For three weeks before admission she had noticed twitching movements, but two weeks later these became worse; she had something resembling a fit, and immediately the chorea came to be of a most pronounced and aggravated type. The movements were most violent, her clothes being torn, and her body tossed about in all directions; she was unable to articulate, she bit her tongue when she tried to swallow, and she bruised herself in various places. On her admission to the Maternity Hospital it was found necessary to lay her on a mattress on the floor, as she rolled out of bed on account of the uncontrollable nature of her movements. She had only had a few minutes' sleep for some days. She was given a dose of chloral hydrate and potassium bromide by the rectum, but without effect. On the evening of her admission she was given chloroform, and the following procedures were carried out: 10 oz. of blood were drawn off by venesection; 12 oz. of a solution of calcium chloride (60 grains to the pint) were run into the vein; the stomach was washed out; and a large enema was given. This was followed up by rectal injections of calcium chloride (20 grains in 6 oz. of water) every four hours during the night. No other means of treatment were used. During the first part of the night she was restless, but during the second part she slept continuously for the first time for a week. The movements on the following day were not so uncontrollable; and the rectal injections were continued. On the next day she was able to swallow, the movements were much better, the bowels had moved well, and the calcium chloride was now given (in 15-grain doses) by the mouth every four hours. She was able to take nourishment. A day later she was found lying quite quietly on her mattress, but she became excited a little if looked at by strangers; soon after this she was put into a bed, there being no longer any risk of her falling out. From this point onwards her progress was steady and remarkable. She remained in the hospital for six weeks, partly because her circumstances there were better and partly that she might be under medical observation. An interesting series of observations were made during the time upon her tendon reflexes, and in the later part of her stay the calcium chloride was reduced to 15 grains thrice daily. She then returned to her home, where she remained for a little over two months, returning to the hospital for her confinement. She delivered herself easily of a healthy male child weighing 8½ lb., and both she and her

infant did well. There was not the slightest return of the chorea. The case was particularly interesting on account of the immediate and very satisfactory effect of the calcium chloride, for practically no other medicine (save an occasional dose of castor oil) was given.

This was just the kind of case in which in earlier years I should almost unhesitatingly have induced abortion. The stomach-washing may, of course, have had some good effect; but I can hardly doubt that the calcium chloride was the chief agent.

Several of the other patients treated in the prematernity ward in 1912 were of more than passing interest—for example, the cases of myxoedema, pernicious anaemia, pyelitis, and phthisis; but considerations of space forbid their presentation in detail. Suffice it to say that in each instance the mother did well, but one of the infants, that of the woman suffering from pernicious anaemia, was dead-born.

Autumn Quarter, 1913.

Thirty-two patients passed through the prematernity ward during the autumn quarter of 1913. As usual, there was a striking diversity amongst the causes for which they were sent into hospital. Four came in on account of false pains, and two for convenience (poverty, distance from home); to these no further reference need be made. Two patients came in suffering from hydramnios; in one the distension pain was extreme, but labour was not much delayed, there was no *post-partum* haemorrhage, and both mother and child (weight 8 lb. 2 oz.) did well; in the other labour came on at five and a half months, there were uniovular twins, the hydramnios (about two gallons) affected only the second twin, and the mother made a good recovery. There were two cases of threatened abortion, staved off by appropriate treatment, and there was a third case in which a retroversion of the gravid uterus was detected, the uterus was replaced and kept in place with a Hodge-Smith pessary, and the gestation continued. There was one inevitable abortion (due to a recent infection with syphilis). There were three instances of albuminuria; in all three cases, under dietetic and medicinal and other treatment (stomach washing in one), the mothers did well and the children survived. There was a striking difference in the weight of the infants, one weighing 5 lb. 4 oz., another 5 lb. 5 oz., and the other 8 lb. 6 oz. Another patient with albuminuria had gone on into eclampsia (six fits) before her admission to the prematernity ward; she was treated there for a fortnight, had no more fits, and then gave birth to a dead and macerated fetus; her recovery was complete. There were two cases (first pregnancies) in which it was feared that apical disease (Pott's disease) would seriously interfere with labour. In one of them the spinal disease was accompanied by sinuses, excision of the left hip had been performed, and the adduction of the thigh was very marked; but delivery was accomplished with less difficulty than had been anticipated (forceps being used). In the other case there was very marked kyphosis, but the outlet of the pelvis was not contracted, and with the help of forceps the labour was completed. In both cases the baby survived and did well; the infant's weight in the first was 8 lb. 4 oz., and 6 lb. 8 oz. in the second. There were two interesting cases in which labour was induced before term, not because of contraction of the pelvis, but because in former labours the child had perished on account of its large size. In each case the medical attendant sent the woman into hospital.

In the one woman, a 4-para, the three previous infants had perished; she was already eight months pregnant, and when I tried to push the head into the brim I failed, and had made up my mind to recommend Caesarean section at the full term. On the following day, however, I found the fetal head lying in the brim. Acting on Nature's hint, I induced labour, and succeeded in getting a living child born (weight 8 lb. 10 oz.). Mother and child both did well. The other woman was a 10-para, who had had several miscarriages, and seven full-time labours, all made extremely difficult by reason of the great size of the infant. On the present occasion labour was induced, and a living infant, weighing 8 lb. 10 oz., was born without instrumental aid.

Another patient, a 1-para, came in on account of pendulous abdomen; she rested in the prematernity ward for a few days, during which it was discovered that she also had a large child. Labour would probably have been induced, but her pains came on, and with great difficulty a living male child, weighing 9 lb. 7 oz., was extracted by forceps. Yet another case may be named here:

it was one in which a medical man sent in a woman who had had two difficult labours, in one of which the child perished during its extraction, and severe *post-partum* haemorrhage occurred; the cervix was torn, and the doctor thought that septic infection could be better safeguarded against in the hospital. At any rate, the result was satisfactory for both mother and infant. She was given calcium chloride during her stay.

There was also a woman admitted who was thus able to get several days' rest in the ward between the initial bleeding from placenta praevia and the labour. Both mother and infant did well.

It was certainly an advantage to have this patient under medical supervision, and aseptic precautions were thus facilitated. A patient with cystocele and another with prolapsus uteri were both benefited by a fortnight's rest in the ward before they went into labour. There was also a patient who was sent in supposed to be suffering from hyperemesis, but four days' stay in the ward served to show that it was a passing dyspepsia, and she went out well.

The remaining six patients all suffered from medical disorders—one from icterus gravidarum, one from gastric ulcer, one from chlorosis, one from marked anaemia, one from thromboses of the femoral veins, and one from sarcoma of the thigh. To take the last named first—the woman, whose age was 34, a 7-para, was sent in from Leith Hospital, where it was intended that she should have the left leg amputated for a large and rapidly growing sarcoma. Since the child was viable labour was induced and a living child born, and ten days later the mother was removed to Leith Hospital, where the amputation was carried out. The patient suffering from catarrhal jaundice also came from Leith Hospital. It was her fifth pregnancy. After a few days under appropriate treatment in the ward she went into labour and was delivered of a living child, weighing, however, only 4 lb. 3 oz. The fetal surface of the placenta and the umbilical cord were deeply bile-stained. On the fifth day of the puerperium the last trace of jaundice had disappeared, and the patient was able to go home on the tenth.

Chlorosis.

Another patient, 34 years of age, showed chlorosis in a marked form. She had had five previous pregnancies, and in the fifth she had suffered from anaemia, which caused pallor, dyspepsia, oedema of the feet, and breathlessness, and there had been albuminuria. She was now pregnant for the sixth time, and had arrived at the eighth month; she had the same symptoms as in the previous gestation; and the examination of blood films revealed the characters of chlorosis. There were anemic bruits and a considerable degree of cardiac dilatation, with pulsation in the neck. On the third day after admission she went into labour prematurely and gave birth to twins, the one weighing about 4 lb. and the other about 3 lb.; the smaller twin died three days later, but the other survived. The mother was kept in hospital for a month, and was given iron and arsenic in large doses; she was much better when she left the hospital.

Acute Anaemia.

Another patient suffered from a somewhat similar group of symptoms, due to acute anaemia (haemoglobin 40 per cent.), with breathlessness, and oedema of the whole body; she was in her ninth pregnancy, and had not suffered so seriously in any of the previous ones. She was put on digitalis and diuretin, and 13 oz. of fluid were withdrawn from the left pleural sac. Nine days after admission she gave birth prematurely to a male child weighing 5 lb., who lived for five days. During the puerperium strong measures had to be taken to keep her alive, and they were so far successful that at the end of fourteen days she went home, although I was willing and indeed anxious she should have stayed longer.

The two remaining cases—that of gastric ulcer and that of femoral thrombosis—both proved fatal, the latter during my term of service and the former under Sir Halliday Croom's care, towards the end of October.

Gastric Ulcer.

I need not enter into details regarding the patient suffering from the gastric ulcer, save to state that she had a number of very severe haematemeses both before and after her admission; she was much benefited by her stay in hospital and by the treatment she received (rectal feeding, etc.), and left, contrary to my advice, after a five weeks' stay. She returned in four days in a very serious state, having had vomiting and haematemesis following upon gross dietetic indiscretions. Slowly she was again brought back into a fair condition, and at the end of my quarter I left her almost as well as when she first went out. For a fortnight, as Sir Halliday Croom informed me, she continued satisfactory; and then the old symptoms returned, vomiting was continuous, making all feeding by the mouth impossible, and persisting even when rectal nourishment alone

was given. Consequently, as she was now near the full term, labour was induced. The uterus from the first acted very poorly, and the fetal heart ceased to beat; in the second stage she was much collapsed, so forceps was used to extract, but without success, and finally she was delivered by craniotomy, but she was then moribund.

Of the other fatal case a few details may be given:

Extensive Thrombosis.

The patient, an unmarried woman aged 36, was pregnant for the first time. She was admitted on account of pain in the left leg, and she was found to be suffering from thrombosis of the left femoral vein. Contrary to what one usually finds, rest in bed, supporting the limb in cotton-wool, the use of sedative lotions, and careful regulation of the bowels, failed to improve matters, and in a few days thrombotic changes began in the right leg also. She then rapidly became seriously ill, suffering markedly from abdominal distension and from pain lower in the legs. Induction of labour was begun by means of packing the cervix; but her pulse rapidly mounted to 120 and then to 136, and I decided to open the abdomen as a last resort and deliver by that route. With the co-operation of Dr. Fordyce I opened the abdomen, finding a greatly distended intestine, a thrombosed condition of all the pelvic veins and of some of those of the inferior mesenteric system, and a small perforation of the ileum. I opened the uterus and extracted a dead child (nearly 5 lb. in weight); then hysterectomy was performed, but the patient died before the abdomen was completely closed. I had never before seen so far advanced a case of thrombosis in pregnancy or in the puerperium.

The two cases just described were the only ones in which a maternal death had to be recorded, and the remaining 30 mothers all left the hospital well or much improved. Of the 34 babies (for twins occurred twice), the after-history of 4 is not known, for the mothers left the hospital before delivery; 21 survived and left the hospital well, and 9 died, 4 post-natally and 5 ante-natally or intranatally.

(To be continued.)

BRILLIANT-GREEN AS AN ANTISEPTIC.

BY

ARCHIBALD LEITCH, M.B.,

PATHOLOGIST TO THE CANCER HOSPITAL, LONDON;
CAPTAIN R.A.M.C.T.

Much doubt has been cast on the efficacy of the more commonly known antiseptics in the treatment of septic wounds in war surgery. Indeed, the doubt has gone so far that some surgeons have given up the use of antiseptics altogether in these circumstances and rely on physical measures entirely, partly because most antiseptics restrain the reparative action of tissues, and partly owing to an enthusiastic, if somewhat tardy, appreciation of the fact that the phenomena of inflammation are not wholly baleful. No one with any experience of the shell wounds with which we have to deal would rely solely on antiseptics for their treatment, neglecting the means of assisting the natural processes of defence against bacteria, nor, on the other hand, should one blind himself to the fact that these natural defences, even at the best, are defective. In the use of the older antiseptics, their good effect, as regards the bacteria that could be directly affected, had to be balanced against the harm they might do to the tissue cells and fluids concerned with the bacteria not susceptible to their localized action. Recognizing these drawbacks, the surgeon demands an antiseptic that is without harmful effect on tissue cells, that is an adjuvant and not a hindrance to the processes of repair. Certain endeavours, notably by the use of preparations of hypochlorous acid, have recently been made to this end, but much remains to be done before we attain the ideal antiseptic.

I have been pressed by several people who have become aware of my employment of a new antiseptic in France to give an account of our experiences with it. As the method is still in a more or less experimental stage, I can only speak in a general way about it, trusting that others who may be interested will assist towards its improvement.

A brief note by Drs. C. H. Browning and W. Gilmour¹ on the bactericidal properties of various aniline dyes first attracted attention to the possible use of such substances in clinical practice. One of the triphenylmethane compounds used by these workers in test-tube experiments—namely, brilliant-green—was shown to have a very marked bactericidal value; in such excessively weak concentra-

tions as 1 in 5 millions it inhibited the growth of staphylococci, whereas concentrations of 1 in 250,000 of mercury perchloride were required to effect the same result under identical conditions. I have repeated some of their test-tube experiments. No two sets of experiments by different workers, especially in such a matter as this, can be expected wholly to coincide, but the conclusions are in practical agreement. I found that brilliant-green in concentrations of 1 in 500,000 inhibited the growth of staphylococci and streptococci under conditions in which concentrations of mercury perchloride of 1 in 50,000 were required. With colon bacilli stronger concentrations were needed, but the proportion between the two bactericidal substances still held. The method used for the test—Professor Delépine's, I believe—is, of course, only one of several means of estimating the bactericidal properties of chemical substances, and different methods might give different, though not conflicting, results, but still one would be safe in saying that brilliant-green is five to ten times as powerful as mercury perchloride for our purposes.

Browning and Gilmour pointed out that the presence of serum greatly diminishes the bactericidal potency of perchloride solutions, but to a much less extent that of brilliant-green. This effect of serum holds with regard to many antiseptics, and is a most important point in practice, seeing that all wounds are serum-soaked. The potency of an antiseptic in the treatment of wounds is not therefore to be measured by the ordinary test-tube experiments. The practical results alone can give us an estimate of its value, and so many factors enter in that even a very lengthy experience can provide us only with a rough approximate of the relative values of different antiseptics. Fortunately, with brilliant-green we have evidences of its outstanding merit as compared with older antiseptics. Several other aniline dyes have undoubtedly high bactericidal values, and some of them are innocuous to tissue cells, and when it comes to trying them in clinical practice, as almost certainly will be the case, we shall then have the difficulties to face in assigning them their relative values.

I had the opportunity of trying brilliant-green in certain septic conditions previous to the outbreak of war, and was convinced that, in addition to its marked antiseptic property, it had no apparent harmful action on tissue cells; on the contrary, it seemed to stimulate strongly the formation of granulation tissue. These first impressions have been amply borne out by the experience gained in the treatment of wounds at one of the base hospitals by my colleagues and myself. They are probably more enthusiastic than I am myself about its virtues. What the proper strength of solutions should be can only be settled after many trials, but we have used it mostly in solutions of 1 in 1,000. Very often the ordinary tap water gives a precipitate, but this is certainly avoided by the use of distilled water. I have been accustomed to make the solutions in sterile distilled water, but this precaution is probably unnecessary. Generally we used normal saline solution, and the brilliant-green can be dissolved in hypertonic salt solution without fear of precipitation. The solution is a very dark green, slightly turbid sometimes when freshly prepared, but clearing up on standing. It stains the skin very readily, but the stains can be removed by spirit, and should be avoided altogether by the use of rubber gloves, and care has to be taken to avoid staining the bedclothes, though, as a matter of fact, the colour comes out in the washing.

The wound is cleaned out as far as possible by dry swabs and well syringed with saline solution, any foreign material, of course, being removed. With a syringe, then, we apply a small quantity of the brilliant-green solution, perhaps an ounce or so. The stain diffuses quickly over the whole surface of the wound, temporarily colouring everything a dark green. The wound is packed lightly with gauze swabs dipped in the solution, and covered with jaconet to prevent the dye spreading to the patient's clothing. I have not hesitated to plug deep wounds tightly with gauze so saturated, and experience under such circumstances has shown that free drainage is not so necessary as we have been taught to believe. I have removed foreign bodies, such as pieces of clothing, from recesses of wounds after the temperature and sepsis had subsided. Hitherto I have not tried the introduction of brilliant-green into closed septic cavities, such as wounds

of the knee-joint, owing to lack of opportunity and perhaps excess of caution. Once we had the opportunity of using it in a case of gonorrhoea, much to the patient's satisfaction.

Ordinary wounds were dressed once a day; very septic wounds twice daily for the first day or two, and then only once afterwards. The results, even after the first dressing, are very striking. The first thing we mark is the cessation of the foul smell. Almost invariably this is achieved as the result of one dressing. It is a very strong antiseptic so far as anaërobic organisms are concerned, and though the rôle of the anaërobic, that contaminate practically all the wounds we see, may not be very deadly, yet their subordinate effects are not negligible. When the first dressing is removed we see that only the skin and necrotic tissues are stained. Living tissues in the wound retain their normal colour. The fact that dead tissue is stained an intense green is a great advantage, as it enables us without any trouble to identify and remove it. Before the wound was first dressed it might be that there was a thin serous discharge with no really healthy reaction of the tissues—the tissues were stunned, as it were—but after one or two dressings the repair is evident. It may seem a strange thing to be glad to welcome, but the brilliant-green does at first encourage the formation of pus in such wounds, and we have learnt to appreciate what in our youthful ignorance we scoffed at, the desideratum of our grandfathers, "laudable pus." But this evidence of the natural defensive powers of the body, welcome though it is, does not outstay its strictly necessary time. It fairly quickly diminishes, and is at no time copious.

Another very striking feature is the rapidity with which good red granulations appear and progress. Undoubtedly the impression is accentuated by the contrast in colours between the adjacent skin and the granulation tissue—the green and the red; but, allowing for that, the tissue reaction is indeed well marked. It sometimes happens that after a few days the diminution of sepsis ceases to be progressive, and the granulations are paler and flabby. It seems, then, as if the brilliant-green had lost its virtue. Our enthusiasm is tempered. What is the cause of this arrest I have not yet determined; whether it be that the tissues are over-stimulated, or there has remained a strain of bacteria that have learnt to be resistant to the action of the dye, or the concentration of the substance is not suitable. In a few cases in which I made cultivations I found practically pure cultures of long-chained streptococci that grew very sparsely, whereas previously the growth had been very mixed and very abundant. When we came across such a condition of arrest we found that if we changed our treatment the healing process was resumed, and our main stand-by was iodine water. Doubtless many other antiseptics would get over the difficulty. Other aniline dyes such as crystal violet have been shown to be strongly bactericidal, and are probably innocuous to tissue cells, and might usefully be employed to supplement the action of brilliant-green.

The results though striking are not marvellous. Some cases are disappointing in that we have not to evacuate them to England with the sepsis still going on, but these cases have resisted all other modes of treatment, and are allied with a general low condition that the associations of home and freedom from anxiety may be expected to cure.

The manufacture of brilliant-green as well as most of the other aniline dyes was confined to Germany, and probably the available stock in Britain is very small, but any one who has seen the results of its use in septic wounds would not hesitate to press on the newly started industry the advisability of preparing this substance for a more extended clinical test of its utility. Fortunately a little goes a long way.

REFERENCE.

1 *Journ. of Path. and Bact.*, vol. xviii, No. 1, p. 144.

DR. SOMERVILLE OLIVER, of Corstorphine, Midlothian, left personal estate in the United Kingdom valued at £27,714.

DR. WILMER KRUSEN, director of the department of health and charities, Philadelphia, has appointed a commission to study the problem of pneumonia. The chairman is Dr. David Riesman, professor of clinical medicine in the University of Pennsylvania, and among the members are Professor Hobart A. Hare, Jefferson Medical College, and Professor Judson Daland, of the Medico-Chirurgical College in the University of Pennsylvania.

THE PHYSICS OF A SURGICAL DRESSING, WITH SPECIAL REFERENCE TO THE HARMFUL EFFECT OF USING IMPERMEABLE MATERIAL OVER SEPTIC WOUNDS.

BY

LIEUT.-COLONEL A. PRIMROSE, M.B., C.M.EDIN.,
M.R.C.S.ENG.,

CANADIAN GENERAL HOSPITAL.

A NUMBER of most interesting papers by Sir Almroth Wright have recently appeared in the BRITISH MEDICAL JOURNAL, in which he demonstrates by a most complete series of ingenious laboratory experiments a method of securing the drainage of septic wounds received in war. He further gives an account of the practical value of these methods as employed in the treatment of men wounded in France during the present war. In his last communication, Part III of his lecture on "Wound infections and their treatment," he gives his scheme for the practical treatment of wound infections "from the first-aid post back through the whole system of hospitals." In the field ambulance he applies a wet dressing of 5 per cent. solution of sodium chloride and 0.5 per cent. sodium citrate, and he states, "over the top of all ought to come a layer of *impermeable protective tissue*" (the italics are mine). I wish to suggest that as a scheme for "drainage," the effectiveness of the dressing is entirely upset by the "impermeable protective." It should be noted, too, that in the same paragraph he definitely states that his object is "the procuring of drainage."

My attention was first called to the harmful use of impermeable material such as protective, oil-silk, rubber adhesive, etc., by a paper on the physics of a surgical dressing published about ten or fifteen years ago in the *Annales de l'Institut Pasteur*. Since reading it I have had many opportunities of observing clinically, in my hospital wards in Toronto, the deleterious effects of impermeable dressings.

The experiments, so far as I can recall them, were of the following character: An animal was prepared by shaving a portion of the skin surface and then an area was excoriated sufficiently to draw blood. This area was covered with powdered strychnine and a piece of oil-silk was secured over it, so that evaporation from the surface was prevented. The animal died of strychnine poisoning. Another similar experiment was done, save that the oil-silk was replaced by an absorbent dressing, allowing of evaporation from the surface and absorption of secretions into the dressing. These animals showed no symptoms of poisoning. Similar experiments were done with some virulent bacteria, with similar results: under impermeable oil-silk septic absorption occurred, and under a simple absorbent dressing no sepsis resulted. There were, too, a series of laboratory experiments conducted to show the value of absorption into the dressings and the method of securing it by free evaporation from the surface. A flask was filled to half its capacity with water, and a wick of absorbent gauze saturated with water was placed so that one end of the wick lay in the water and the other projected beyond the mouth of the flask so as to form a tuft. A fragment of some aniline dye was placed in the gauze level with the neck of the flask, and very soon the gauze tuft projecting beyond the mouth of the flask was stained with the dye. A similar experiment was carried out with, however, the addition of a bell jar placed over the flask to prevent evaporation; the addition of the bell jar not only prevented the aniline dye from rising into the projecting tuft, but the dye actually descended to some extent towards the water in the flask. I will not vouch for the accuracy of detail, but I attempted to repeat one of these experiments in the laboratory tent in our hospital here. I took two small flasks, each about one-third filled with water; I saturated wicks of gauze in water, and immersing one end of the wick in the water in the flask, the other end was allowed to project as a tuft beyond the mouth of each flask. I inserted a fragment of crystal violet in the gauze at the level of the neck of the flask; I then tied a piece of oil-silk as a cap over the top of one of the flasks, allowing the gauze tuft to project within this protective cap. After some hours the dye had risen into the tuft of gauze projecting from the unprotected flask; on the other hand, in the flask covered by oil-silk

the dye had failed to rise in the tuft, and had descended somewhat in the wick. This last flask was left overnight, and next morning the oil-silk was removed. Within an hour the dye mounted to the top of the tuft.

I have made many clinical observations as to the effect of impermeable dressings. I may cite one example: A woman was desperately ill with subphrenic abscess. I succeeded in establishing drainage, and her condition improved. Some ten days afterwards I was disappointed to find her temperature rising; the frequency of the pulse increased, and there was every evidence of a recrudescence of serious symptoms. I had not seen the dressing for a few days, and I found that the nurse had placed a large piece of oil-silk over my dressing in order to protect the bedclothes from getting soiled. I at once suspected the impermeable covering as responsible for the trouble, and therefore continued to apply the same type of dressing, with, however, the omission of the oil-silk. The patient improved promptly, and all symptoms of absorption disappeared. The sister in charge of the case, on my explaining what had occurred, made a somewhat shrewd observation. The sister told me that she had observed, when a moist piece of alembroth gauze (charged with aniline dye) was applied under oil-silk to the unbroken skin, the dye stained the skin deeply so that it could not be removed by washing; on the other hand, moist alembroth gauze without oil-silk never produced staining. This, indeed, is a good demonstration of the effect of impermeable coverings over the dressing.

The hospital with which I am at present connected has only been in operation some six weeks, and hardly a day passes but patients are admitted with impermeable coverings over septic wounds. In one a septic thumb had been opened two days previously, and when the patient came to me a piece of oil-silk formed a cap over the entire thumb; outside that was some wool and a bandage. Another man had a septic wound of the leg dressed with moist gauze held in place by a patch of adhesive plaster, which overlapped the gauze in all directions. We have already seen dozens of similar cases in our short experience here of the employment of impermeable coverings over moist dressings. We have been able to note, too, the prompt improvement on the omission of that covering in our dressings; frost bites with broken skin, shrapnel and bullet wounds—I am within the mark when I say that by far the majority of all septic wounds admitted have had an impermeable covering. The custom is unquestionably widespread.

What has tempted me most to write this note is the fact that so high an authority as Sir Almroth Wright advocates the use of impermeable protective over his dressing. This covering, I fancy, is added for some specific purpose, but its object is not stated and there has been nothing of similar character used in his laboratory experiments. It is true it increases the penetrating power of an antiseptic, but Sir Almroth Wright's avowed object is drainage, and beyond all doubt it is infinitely better to depend upon drainage into the dressing than attempt to render a wound aseptic by confining the discharges and driving the antiseptic in.

Impermeable coverings used for the purpose of preventing evaporation are, indeed, sometimes useful. Thus, in a healing ulcer one finds the healing process will proceed well under a moist piece of lint entirely covered by protective; so, too, one uses it in skin grafting. Such dressings are removed easily, they do not stick, and the delicate epithelium is not disturbed on taking off the dressing. The impermeable covering is often a favourite dressing, too, for the very reason that "it does not stick," and particularly in children one is tempted to use it because the dressing can be changed without pain. The cases, however, in which its use is justifiable are only those which are either aseptic or have a very small degree of infection—cases, in fact, comparable to those Sir Almroth Wright speaks of as capable of being closed by secondary suture. Even in these cases, however, we sometimes fail to secure success, and when employed we should carefully watch the results.

In my opinion the best dressing for septic wounds is a moist dressing, and we found the hypochlorous acid solution wonderfully effective. The moist dressing is applied directly to the wound, and over this dry gauze. Everything should be done to favour free evaporation from

the surface and absorption into the dressing, which should be frequently changed. I am convinced it would be greatly to the advantage of the wounded if impermeable protective and oil-silk were entirely removed from the surgical armamentarium of the army. Their use in surgery is very restricted, and as they are employed in military surgery at present they do far more harm than good.

REFERENCE.

¹ BRITISH MEDICAL JOURNAL, November 13th, 1915, p. 717.

Reports

ON

MEDICAL AND SURGICAL PRACTICE IN HOSPITALS AND ASYLUMS.

FULHAM MILITARY HOSPITAL.

SEPTIC COMPOUND FRACTURES.

At the fourth clinical meeting of the staff of this hospital, on January 11th, Dr. BELFRAGE opened a discussion on septic compound fractures due to gunshot wounds. He outlined the chief indications as follows: (1) Vigorous treatment of the sepsis; (2) the securing of comfort to the patient and ease of nursing; (3) early movement of the joints; (4) correction of deformity. He had found the ordinary splints of little use, and anticipated much help from Mr. Hey Groves's modification of Hodgen. He emphasized the desirability of paying more attention to obtaining a useful limb than to accurate apposition of the fragments. It was doubtful whether extension could be usefully employed in the early stages; later on the fragments could be adjusted under an anaesthetic.

Mr. CHAPPEL thought that in the arm the exact position of the fragments was often not of vital importance in securing a useful limb; but in the leg the necessity of parallelism for walking dictated the greatest care as to their position. He advocated operation where the disturbance of the fragments rendered it necessary, but in septic cases it was essential to wait until the sepsis had been dealt with before attempting plating. He also referred to a great truth established by Sir Arbuthnot Lane—that in dealing with a much comminuted fracture it was not necessary to get the whole circumference of the ends approximated. If a small portion were put in apposition the gap would be filled by new bone laid down if the after-treatment were suitable.

Mr. LEE said that generally there was too much haste to remove sequestra. They should be left till complete separation occurred, for frequently an apparent sequestrum proved to be a focus of new bone formation. He emphasized the importance in the treatment of sepsis of leaving, or if need be making, a very widely open wound; the surgeon should not meantime be too anxious about the displacement of the fragments.

Dr. CARNEGIE DICKSON, pathologist, referred to the extreme rapidity with which cancellous tissue might be absorbed to make room for active marrow in acute general diseases, and with regard to the duration of a septic focus, referred to a case in which a projectile had been removed six months after complete healing, and at the operation pus was found containing organisms of feeble vitality but still capable of growth.

Dr. KINNIE WILSON expressed the opinion that in some cases the late disability of muscular movement was greater than could be explained by mere disuse. Some cases were explicable on the theory that a defect was present in the reflex arc through the spinal cord. Possibly the constant afferent impulses from the diseased focus produced a dynamic functional change in the anterior horn cells and consequent muscular atrophy. Electrical treatment in such cases was more important than massage. Repeated efforts on the part of the patient sometimes sufficed to reawake innervation through the reflex arc.

The chairman, Major PARSONS, O.C., advocated putting up fractures under x-ray illumination. The prevention of movement in the injured tissues was of great value in limiting sepsis. The joint involved in a septic process required immobilization, while the other joints required to be moved. Continuous extension was valuable; often the weight applied was too small; attempts should be made from the first to rectify deformities. In treating sepsis

transverse incisions, which tended to remain gaping, were very important. The introduction of solid sodium chloride, which had given good results in France, should be tried, as also the introduction of solid urea, on which Professor Symmers of Belfast had reported favourably. He had obtained good results in septic conditions by Bier's treatment before the war and thought greater use might be made of it.

Reports of Societies.

THE DAILY FOOD RATION OF GREAT BRITAIN.

At the meeting of the Section of Anatomy and Physiology of the Royal Academy of Medicine in Ireland on January 14th, Professor W. H. THOMPSON made a communication on the daily food ration of Great Britain. He said that from a survey of the total food supply of Great Britain for the year of the first census of production (1908), the only year for which it was so far possible to make anything like an accurate computation, the daily food supply per man of the population, as calculated from the returns, came out to be as follows:

Flour and meal ...	14½ oz.	Cheese ...	¼ oz.
Flesh meat ...	8 oz.	Condensed milk ...	3 oz.
Fish ...	2 oz.	Less than half an egg.	
Potatoes ...	15½ oz.	Fresh fruit ...	3½ oz.
Other vegetables ...	4½ oz.	Dried fruits and nuts ...	½ oz.
Milk ...	4 pint.	Cocoa and choco ato ...	1½ oz.
Butter ...	1 oz.	Salad oil ...	160 oz.

This ration provided the following:

Protein ...	101.49 gm.	Fat ...	136.36 gm.
Carbohydrate ...	587.12 gm.	Energy value ...	4,127 calories.

The returns did not, however, include all the home supply of cheese, eggs, poultry, or rabbit meat. The estimate of green vegetables consumed as human food, particularly of cabbage, was probably also too low. Making additions to cover these omissions, would bring the ration up to:

Protein ...	104.26 gm.	Fat ...	138.83 gm.
Carbohydrate ...	587.84 gm.	Energy value ...	4,167 calories.

As a fair estimate it would be safe to say that the British food ration per man per day does not exceed:

Protein ...	105 gm.	Fat ...	140 gm.
Carbohydrate ...	590 gm.	Energy value ...	4,190 calories.

Making deductions for loss in distribution, the value of the ration, as purchased, would approximately be:

Protein ...	97 gm.	Fat ...	129.5 gm.
Carbohydrate ...	546 gm.	Energy value ...	3,875 calories.

This did not provide more than enough for moderately hard muscular work. Dr. Langworthy placed the energy value of the ration, as purchased, for moderate work at 3,800 calories. The ration was remarkable in the relatively large amount of fat it contained, but in this respect it corresponded closely with the estimate of the German food supply before the war, as published by the Eltzbacher Committee. Professor Thompson drew two conclusions: (1) That the tendency in urban and industrial populations is to increase the consumption of fat at the expense of the protein; and (2) that the ration could not well be reduced without endangering the efficiency of the working man. Economy could, however, be introduced by substituting protein from vegetable sources for a further part of the more costly meat supply.

THE *Journal of the American Medical Association* states that 2,451 members of the medical profession in the United States and Canada died during 1915. The average annual mortality for the period from 1902 to 1915 inclusive was 15.71 per 1,000. The chief causes of death in order of frequency were senility, heart disease, cerebral haemorrhage, pneumonia, accident, and nephritis. The age at death varied from 21 to 102, with an average of a little over 59 years. The number of years of practice varied from 1 to 79, the average being 32 years 4 months and 26 days. There were 104 deaths from accident and 44 cases of suicide. Of those who died, 1 had been a member of Congress; 2 governors of States; 4 United States consuls; 11 members of State senates; 39 members of the lower houses of legislatures; 35 had been mayors; 33 aldermen, and 62 had served as justices of the peace, as clerks in the Government service, or in various other civil positions.

Rebielus.

NERVE STRUCTURE AND THE MIND.

PROFESSOR LLOYD MORGAN has defined instinctive behaviour as "that which is on its first occurrence independent of prior experience; which tends to the well-being of the individual and the preservation of the race; which is similarly performed by all the members of the same more or less restricted groups of animals; and which may be subject to subsequent modification under the guidance of experience." He regards it as a more or less complex response to a more or less complex internal or external stimulation, dependent upon inherited nerve structure. This is as much as to say that instinctive action is action based primarily upon organized racial experience, whereas, of course, intelligent action, properly so called, is based upon individual knowledge and experience. Taking this definition as his point of departure, Mr. N. C. MACNAMARA, in his manual on *Instinct and Intelligence*,¹ traces the parallel developments of the physical structure and the psycho-physiological functions of the nervous system from its rudimentary dawn in the nucleus of the protozoa and the palpoils of certain hydro-medusae, through the circumoral and radial nerves of the starfish, the gangliated chains of the earthworms, the primitive brain of the crustacea and of insects, and through the various grades of vertebrate animals up to its consummation in man. He shows how side by side with increasing complexity of structure there appears a corresponding power of self-adaptation on the part of each new organism to a wider range and more intricate quality of demands in response to stimuli from within and from without. He shows, too, how the power of modifying instinctive response by the results of individual experience and of ultimately controlling the former by the latter to a considerable extent is conditioned by the development of those pallial or cortical elements which culminate in the sensori-motor and association areas of the human brain. Broadly speaking, it may be taken as proved that the ratio of development of the cerebral cortex to that of the basal ganglia is that of the transcendence of instinctive by intelligent behaviour. The functional ideal is not, however, a tyrannous domination, still less a suppression of the one set of activities by the other, but a harmonious co-operation between them, in so far as that is compatible with the due supremacy of the higher and later evolved.

In Mr. Macnamara's opinion the prevailing methods of education tend to ignore the just claims of instinctive capacities, which, as he justly remarks, can be modified but not eradicated. In his last chapter he has given some suggestions as to the means of remedying this defect, which are worthy of careful attention by those concerned. But, apart from this practical purpose, the book is well worth reading as a singularly clear and concise account of an important and interesting subject.

PATHOLOGY.

In the preparation of the sixth edition of his *Textbook of Pathology*² Dr. ALFRED STENGEL has associated himself with Dr. HERBERT FOX, Director of the Pepper Laboratory of Clinical Medicine, University of Pennsylvania. Dr. Stengel states in his preface that several sections of the book have been very largely recast or almost wholly rewritten. New sections on transmissible diseases and on the pathology of diseases of the eye, ear, and skin, "brief and general in scope," have been added, and the chapter on "technic" has been omitted. It seems doubtful whether the new sections have done much, if anything, to enhance the value of the work as a textbook for students. Twenty pages, several with illustrations, are made to suffice for the pathology of diseases of the eye, with the result that this chapter is little more than a glorified dictionary of medical terms. Unfortunately in this chapter, as well as in other parts of the book, sufficient care has not been taken to bring

statements made elsewhere in the work into line. Thus on page 964 we read that "the body of the cornea is composed of lamellated epithelium," a statement which cannot be accepted, whereas on p. 119 we are told that the cornea is composed of "layers of parallel fibres." On p. 953, under the heading "The Lids," is the following paragraph: "Edema may be traumatic or accompany ocular inflammation. It occurs in angio-neurotic edema and exophthalmic goiter." Brevity of this kind is misleading. The claim that the book has been subjected to extensive revision to bring it up to date is undoubtedly justified, but the process might have been carried further. For instance, in discussing fat embolism, the statement that sudden death may occur when a large number of pulmonary vessels are obstructed by oil-drops still stands unqualified. Experience has shown that death, certainly due to this cause, may not ensue for many hours or even days, and that a train of symptoms is set up which are sufficiently characteristic to be of real diagnostic value. In the section on "Edema" on p. 73 the authors state that increased blood pressure alone is a sufficient cause, and make no mention of Starling's well-known work controverting this view. Yet on the next page they say that increased permeability of the capillary walls "probably plays a part in every case of edema." The sections in the chapter on retrogressive processes suffer from want of a clearer arrangement of the subject matter. The section on fatty degeneration is a case in point. Under pneumonokoniosis we are told that inhaled substances probably do not reach the alveoli, but are caught up by the "bronchial cellular cilia"; and yet, in dealing with pulmonary tuberculosis, it is said that "the tubercle bacillus is carried directly to the lungs in the inspired air, or more rarely it may lodge in the pharynx," etc.

No attempt is made to classify tumours. The term "lymphadenoma" is used for any tumour of a lymph gland, such as lymphosarcoma, and the terms "destructive adenoma" and "malignant adenoma" are retained; the student may find them misleading. Splenic anaemia is dismissed in nine lines; Gaucher's disease is mentioned in the text, but not in the index. In the latter anaemia of the spleen and splenic anaemia are twice grouped together under the same heading, as though synonymous terms. The section on congenital diseases of the heart is inadequate, and although full discussion of such a subject is not possible in a general textbook of pathology, it was to be expected that some reference to Keith's work on the bulbus cordis and its bearing on pulmonary atresia would have appeared. In the etiology of haemoptysis (p. 541) no mention is made of infarction, whilst elsewhere occlusion of a bronchiole is given as a possible cause of the latter lesion. The statement on p. 627 that "herniae occasionally are congenital, more often they are acquired," seems to be an inversion of the fact. Under "Diseases of the bones," on p. 837, is a paragraph headed "Congenital rickets, or chondrodystrophia foetalis or achondroplasia, etc." The essential difference between rickets and chondrodystrophia, and also osteogenesis imperfecta, has now been made sufficiently clear, from the point of view of morbid histology, for the term "congenital rickets" to be deleted in this connexion. Its retention obscures the pathology of these diseases. The essential underlying change in rickets—namely, the excessive production of uncalcified osteoid tissue in the bones affected—is not brought out.

ZOOLOGY.

THE fact that SHIPLEY'S and MACBRIDE'S elementary textbook of *Zoology*³ has now passed into a third edition is sufficient testimony to its merits and popularity. Written primarily for students of zoology, it is in only a slightly less degree valuable and helpful to the student of medicine. The growth of our knowledge of such subjects as embryology, cytology, parasitology, and tropical medicine has shown how important to medical men is a knowledge of zoology. The book is comprehensive, dealing in turn with all the orders of invertebrata and vertebrata. The method adopted is to deal in some detail with a typical representative of the order, and then to add a short account of those

¹ *Instinct and Intelligence*. By N. C. Macnamara, F.R.C.S. Oxford Medical Publications. London: H. Frowde, and Hodder and Stoughton. 1915. (Cr. 8vo, pp. 224; 17 figures. 6s. net.)

² *A Textbook of Pathology*. By A. Stengel, M.D., Sc.D., and H. Fox, M.D. Sixth edition, reset. Philadelphia and London: W. B. Saunders Company. 1915. (Roy. 8vo, pp. 1045; 15 plates, 468 figures. 25s. net.)

³ *Zoology: An Elementary Textbook*. By A. E. Shipley, Sc.D., F.R.S., and E. W. MacBride, M.A. Cantab., D.Sc. Lond., F.R.S. Third edition. Cambridge Zoological Series. The University Press. 1915. (Demy 8vo, pp. 772; 360 figures. 12s. 6d. net.)

which have undergone special variation. The detail in which these types are considered naturally varies, and a special effort has been made in the cases of the cockroach, the garden spider, and the crayfish to give the student a conception of insects, arachnida, and crustacea as "going machines." All through the book, moreover, as the authors claim in their preface, they have endeavoured—and we think successfully—to associate the description of structure with an account of its purpose and function. If we have any complaint to make it is that so meagre an account is given of the theromorphs, a group of animals of special interest because they have thrown a flood of light on the evolution of the mammalia. The authors would have been well advised to have spared some few pages and illustrations for this particular group. The book is written in an easy, interesting style, and forms an admirable introduction to such larger works as *The Cambridge Natural History* or *The Treatise of Zoology*, edited by Sir Ray Lankester.

NOTES ON BOOKS.

PROFESSOR E. B. POULTON, in his Romanes Lecture¹ delivered at Oxford in December, anticipated a good deal of what is contained in the memorandum put out by a committee of men of science to which we referred at some length last week (p. 209). He gives chapter and verse for the glycerine story, tracing it to a statement made in the Prize Court by the Solicitor-General, Sir F. E. Smith, on July 20th, when, according to the report in the *Times*, he said "it had been discovered recently that glycerine could be made from lard." The oddest thing about the incident is, perhaps, that the Solicitor-General was appearing for the Treasury, which, one might have supposed, must have had the assistance of the Board of Trade in framing his instructions. In a debate in the House of Commons a few days afterwards (July 26th), the Parliamentary Secretary to the Foreign Office grew very angry with Major Hunt because he had said that the Government was saying to men, "Come and defend your country; you are badly wanted; your country is in the greatest danger," and at the same time said to the most inhuman nation that probably any nation has ever had to face in modern times, "We will allow you, although we could prevent it, to be provided with the ammunition to kill our soldiers, whom we are begging to defend us and our country." Lord Robert Cecil exclaimed that Major Hunt seemed really to believe what some of the more ignorant and more venomous public prints were not ashamed to say. The discussion was about cotton, but it might equally have been about glycerine and the lard or other fats from which it can be made. The main object of the lecture was to show what the country had lost by the national neglect of science, and in repelling the suggestion that improvement in this respect would foster the callous materialism and brutality which have been such a shock to the world, Professor Poulton said: "It is not German science which is responsible for the horror, but the German spirit, which has used science, as it has used everything else except a sane psychology, for its own ends."

The *Medical Clinics of Chicago*² is a bi-monthly periodical started by its publishers to satisfy a demand of the medical practitioners in and about that great city. Its matter is furnished by clinical teachers in Chicago, and covers the field of internal medicine. It consists of transcripts of expositions and discussions of cases held at the bedside or in the lecture theatres of the Chicago hospitals. Among the cases dealt with in the first number of the periodical are instances of lung abscess, nephritis, gout, infantile tuberculosis, leukaemia, heart failure, aortitis, aneurysm, and the like. There is a natural directness about these transcripts that makes them easy reading. This feature, perhaps, militates against the attainment of the completeness and exactitude of statement met with in carefully composed papers as contrasted with speeches and orations. The reader will find cases of greater and of lesser interest described in these pages. He will not learn much that is new as to their symptoms, signs, or etiology, and no great calls will be made upon his intelligence. The periodical should be of interest to medical men who wish to furnish up a somewhat casual and out-of-date acquaintance with practical medicine.

¹ *Science and the Great War*. By E. B. Poulton, D.Sc., M.A. The Romanes Lecture, 1915. Oxford: The Clarendon Press. 1915. Obed. 8vo, pp. 47. 2s. net.)

² *The Medical Clinics of Chicago*, July, 1915. Vol. I, Number I. Philadelphia and London: W. B. Saunders Company. 1915 (Med. 8vo, pp. 208; 37 figures. Published bi-monthly, six numbers a year. 8.00 dols. per year. Foreign, 55s. net.)

MATERNITY AND CHILD WELFARE.

DURING the last few years the focussing of attention on the loss to the community caused by excessive infant mortality has resulted in many voluntary efforts for dealing with some of the causes of the evil. Numerous mission stations of a modern order have been opened in the poorer quarters of our cities under such names as "The Baby's Welcome," "Babies' Clinics," "Infant Consultations," "Mothers' Kitchens," "Schools for Mothers," and the like. When in the hands of ordinarily capable workers these centres have had a degree of success that has speedily called for the extension of their work, and with that the demand for more money and State support. The State, in the guise of certain Government departments, has lent a considerable measure of support, and from the early tentative efforts at baby culture there has now sprung a full-fledged State scheme which is urged for adoption by the country as a whole.

In several circulars issued by the Local Government Board during the years 1914 and 1915 the scope and intention of this organized scheme of baby culture is set forth. The following is a summary of that scheme.

It is intended that the work of each local authority should be directed along two main lines of endeavour—first, the visiting of all mothers *in fact*, and, in so far as may be possible, of all mothers *in expectation*; secondly, the establishment in every area of centres where the examination of mothers, babies, and children under school age should be undertaken at regular intervals. The purpose of these visits and examinations is stated to be in the main to give advice, in general on domestic hygiene, and in particular on the difficulties of the individual mothers and children. But the possibility of some sort of simple medical treatment is held out as one of the advantages of the centres.

The scheme crystallizes round the Notification of Births (Extension) Act, 1915. With the extension of compulsory notification of birth to the whole country, each medical officer of health has immediate information of the birth of a child. From that notification radiates the health visitation as part of the normal public health work of the district. Within two or three days of the notification an official visitor is sent by the medical officer of health to such homes as he judges advisable. The visitor sees the mother and baby, gives advice on the care of the infant, takes a general survey of the home, the cleanliness and sanitation thereof, and in particular urges the mother to take her baby as soon as possible to the "centre," and to consider that centre as in some sort the place for the standardization of her infant; there she will know how it fares, if its height, its weight, and its health are as good as may be, and there she will receive advice on all the difficulties that occur in the upbringing of the little one, and all this right on until the child is entered on the books of the local elementary school, when the record will be handed on to the school doctor. When the little one comes to learn of all this it will be able to echo in truth the words of the psalmist: "In thy book all my members were written." But the work of the centres will not be limited to the oversight of the mothers *in fact* and their infants. It is intended that the work should have a very definite extension to the mothers *in expectation*. There is no legal notification of pregnancy, so that the medical officer of health has to trust to the willing co-operation of the medical men and midwives of the district for information concerning the mothers in expectation, or to such chance knowledge as may come to him through voluntary agencies or his own health visitors. The object of obtaining this information is that the expectant mothers should be urged to attend the centres for medical examination and that the health visitors should visit them at their homes.

The Health Visitors and Their Work.

Up to the present the nature of the qualifications of the visitors has not been fixed on definite lines. It is suggested by the Department that the three most useful qualifications for non-medical health visitors are those of: (1) A trained nurse, (2) a certified midwife, and (3) a certified sanitary inspector. The first training will enable the visitor to give important instruction in the hygiene of child life; the second will enable her to supplement the work of the

midwife even to acting as an inspector of midwives; and the knowledge of sanitary work will enable the visitor to appreciate the state of a house and its sanitary arrangements, and bring her into intimate relation to the regular sanitary officers of the district.

The nature of the advice to be given to the mother *in fact* is not outlined: it may be presumed to depend on the individual case of mother and child. But on the visitation of the expectant mother there is an indication in some notes prepared by Dr. Janet Lane-Claypon. The feeding and clothing of the woman are subjects for suggestion, the improvement of her health, and in particular the state of her teeth, the care of the breasts, the best methods of combating constipation and the recommendation of aperients are to be dealt with. The state of the house is to be looked into. The provision of clothing for the expected infant is to be a matter of kindly inquiry and suggestion. Much stress is laid on the necessity for impressing on the woman the advantages of breast feeding, the best means for securing a good supply of milk, and the best times for feeding. The scope and character of the advice suggested is excellent, and if that given to the mother *in fact* is as good as that proposed for the mother *in expectation*, many women and many infants will be the better for the advice.

With regard to the number and frequency of the visits, the official suggestion is that the health visitor should go first within two or three days of the notification of birth, and that eight visits should be made during the first year of the child's life. Thereafter only sufficient are to be made to keep in touch with the child, so as to encourage attendance at the Child Welfare Centre for purposes of medical inspection at such intervals as will enable a record to be kept of health and sickness up to the time when school attendance begins.

The Centres.

It will be evident from the foregoing that the main work of the centres will be with the mothers and the children. But the circulars show that a very strenuous effort is to be made to increase to the greatest possible extent their work in relation to the expectant mothers.

The actual scope of work of the centres is best given in the official terms: "The chief object of the centre is to secure the medical supervision of the expectant and nursing mother and of her child. This supervision takes the form of a medical consultation, followed by the giving of hygienic advice, and by treatment, especially for minor complaints, when local circumstances indicate the need for this."

It would appear that the expectant mother, when persuaded to attend the clinic centre, will only be seen once in the ordinary course of events. She would be examined, the urine may be tested, and advice on the care of her general health, with particular instructions on any obvious difficulties, given. A supply of abdominal belts and bandages for varicose veins would be available for sale at cost price. Patients found to have serious symptoms would be referred to a private practitioner; "no responsibility should be undertaken at the centre for the continuous treatment of serious illness."

Three sets of records are to be kept, thus:

A. Mother.

Name.....	Age.....	Address.....
Patient of		
Date of first attendance.....		
Date of expected birth		
Occupation (Present		
Occupation (Before marriage		
Occupation of husband		
Former pregnancies	1st	4th.....
(including miscarriages)	2nd	5th.....
	3rd	6th.....
(State in each case whether the child is still living, and if not, cause of death.)		
Previous medical history of patient.....		
Present health (teeth, constipation, digestion, obstetrical, etc.)		
Adequacy of food		
Arrangements for confinement:		
Present condition (doctor's note)		
Treatment recommended		
General notes		
Dates and notes of subsequent attendances (on back page).		

When the baby's turn comes to attend the centre it is natural that it should be the chief focus of attention. "Commonly, it will be desirable to secure that each infant attending the centre is seen by the doctor at least every

four or six weeks. These consultations should be arranged more frequently, if the health visitor in the intervals finds that the infant is not progressing favourably. After the early months of life less frequent attendance will be needed, but the consultations should suffice to secure early recognition of rickets, etc. After the child has reached the age of 2 or 3 years, efforts should be made to secure a medical examination at quarterly or half-yearly intervals, until the child is entered on a school register." Record of the state of the infant is to be kept, thus:

B. Infant.

Name.....	Date of first attendance.....
Address	
Date of birth.....	Maturity.....
Weight at birth	
Health prior to attendance	
Method of feeding.....	
Digestion and bowels	
Sleeping	
Clothing	
Bathing	
Open air	
Present state and weight	
Doctor's notes (including nutrition)	
Dates and notes of subsequent attendances (on back page).	

Besides these records of the mother and child there is to be a record kept of the visits to the home, thus:

C. Home Conditions.

Occupants of house.....	Adults.....	Under 15.....
Number of rooms and size		
Sanitary conditions		
Ventilation		
Light		
Repair		
Dampness, etc.		
Cleanliness		
Refuse receptacles.....		
Social conditions and habits		
Dates and notes of revisits (on back page).		

So much for the general scope of the work. There remains to discover the medical arrangements.

At the end of Dr. Newsholme's report we find the following:

The value of a centre depends chiefly on the medical advice given in it. The late Professor Budin, the distinguished founder of infant consultations, said: "An infant consultation is worth precisely as much as the presiding physician." This is even more true for the antenatal work of the centre.

The medical arrangements for the centres are left entirely in the hands of the local authority:

Each local authority opening a centre will decide the best arrangement for medical service. An officer of the local authority may undertake this. The arrangement made should, so far as practicable, be one which will receive the general approval of local medical practitioners. This may sometimes be secured by appointing a practitioner not practising in the district. It is less satisfactory to have a rota of doctors. The last-named arrangement should not be entertained unless it is provided that the same doctor will attend at consecutive consultations for not less than six months.

With regard to the cost, the memorandum assumes that the health visitors will be officers of the sanitary authority, so that their salaries need not be reckoned as part of the working expenses of the centre, which would comprise "the doctor's salary, rent, rates, taxes, lighting, heating, caretaking, and a few minor items, including drugs and medical appliances." The Local Government Board will pay 50 per cent. of the amount spent on approved expenditure for the above purposes, but it is thought that in many instances the centre can be conducted on premises used for other purposes, so that no rent need be paid.

(To be continued.)

SOME years ago the New York Department of Health established a number of clinics for school children suffering from diseased tonsils and adenoids. Nearly one-third of all the operations on school children for these conditions in the city during the past three years have been performed in them. It is now considered that the dispensaries and hospitals should take this work in hand. The Associated Out-patient Clinics have, we learn from the *New York Medical Journal*, recently called attention to the need of suitable provision for dealing with children suffering from these affections, and the State Charities Aid Association and the Public Health Committee of the New York Academy of Medicine have expressed the opinion that all adenoid and tonsil operations on children should be done under general anaesthesia, and that hospitals where such operations are performed should be equipped to keep their patients in the wards for at least eighteen to twenty-four hours after operation.

MOTOR NOTES FOR MEDICAL MEN.

By H. MASSAC BUIST.

EXPERIENCE OF THE NEW LIGHTING REGULATIONS.

THE restrictions introduced in January by the Home Office Order concerning lights on motor cars form the subject of complaints by many doctors, on the ground that these new regulations make it impossible for them to drive on dark country roads, with their lighting equipment masked in accordance with the new regulations. It will be recalled that the Medical Secretary of the British Medical Association wrote, on December 31st, 1915, to the Home Office stating that a number of letters had been received by the Association from practitioners in rural areas pointing out the inconveniences and dangers which might arise from the new Order that has come into force this year, and asking for some relaxation of it to be made as regards the cars of doctors when in use for professional purposes. The official reply claimed that in the framing of the new regulations the needs of medical practitioners who had to travel by road at night had been specially had in mind, that the new Order permits the use on country roads of sidelights giving a brighter light than has been allowed in many areas under the existing orders, and will be found to allow sufficient light for driving at ordinary speeds, even on narrow and winding roads; and concluded with an expression of the Secretary of State's regret that he could not authorize any general exceptions from the provisions of the Order. This correspondence was published in the SUPPLEMENT to the JOURNAL on January 15th. Subsequently a question was asked by Mr. Perkins in the House of Commons on January 19th. In commenting on it editorially in the JOURNAL it was remarked that it was understood that experiments had shown that, by suitable alteration of sidelamps, the full amount of light allowed by the Order could be obtained.

FALSE PREMISES AND REAL DIFFICULTIES.

Now there come complaints from many doctors concerning the new regulations. These objections differ from former medical comment on the subject in this important particular, that they are the result of actual individual experiences of the working of the new regulations. Inasmuch as the sum of the whole is the allegation that the new restrictions are frankly impracticable in many cases, and as there appears to be some doubt as to the manner in which the degree of restriction imposed was arrived at, I ought to make it clear that the authorities did not confine their preliminary experiments to the experience of a single make of very powerful and considerably expensive electric lighting equipment, as appears to be rather widely assumed. Not only was advice, criticism, and suggestion sought from the Royal Automobile Club and the Automobile Association, which is the largest organization of motorists in the world, but the leading lamp makers, including those not concerned with the electric variety, were besides called on to assist. Each placed its technical experts at the disposal of the authorities.

It is necessary to point this out because, if the Order were the result of an experiment with only one variety of an expensive electric lamp, it would be practically equivalent to compelling medical men, in common with other motorists, to scrap their car lighting equipments, and, at heavy expense, to fit something at least as costly as the electric plant wrongly assumed to be the only type tested.

The real difficulty appears to be that medical men in general, like other motorists, have relied hitherto mainly on their headlights for night driving. It is only of recent years that the power of sidelights has been sufficiently increased to render them really serviceable, especially when equipped with discs in accordance with the new regulations affecting wide areas. The oil lamp is admittedly lacking in sufficient power. It is therefore in any case a choice between the acetylene variety and the electrical. Acetylene is the cheaper sort if the car is not already fitted with accumulators, if not a dynamo.

COST AND AVAILABILITY OF ACETYLENE LAMPS.

But the acetylene variety is perhaps not so absolutely steady as the electrical sort on more or less indifferent road surfaces, such as the medical practitioner has to reckon

on traversing in these days. The cost to the medical man who has hitherto had only oil lamps is, for example, £5 17s. 6d. for the English-made Lucas "King of the Road" acetylene side lamp, specially designed to comply with the new lighting order, this price including generator and tubing, but not new brackets should the dimensions of the existing ones be unsuitable. Without the generator the cost is £4, the aim of the design being to meet the requirements of motorists whose cars are not electrically lighted. These lamps are fitted with Mangin lens mirror-reflectors and provide a light sufficient for careful night driving. They fit standard flat brackets, can be supplied with frosted glass if so desired, and have a glass diameter of 5 in. That there is a considerable demand for this acetylene lighting is evident by the fact that immediate delivery cannot be given, though sets can be supplied at about a week's notice.

Admittedly the cost involved is a serious item to the country doctor; but it is scarcely comparable in importance to him with the rise of 4d. a gallon for petrol that has occurred this week. Discarded acetylene side lamps of unsuitable patterns are, of course, of no realizable value; but discarded oil lamps are in more demand now than they have been for many years. This is evident by the rush there has been on some of the secondhand dealers for oil lamps for service on the most luxurious types of town cars off which the electric lights have been taken temporarily because of the lighting regulations that are in force in the metropolis itself. For my part, I could not recommend the medical practitioner having oil lamps adapted to acetylene; at least, I have not yet come across anyone who has had absolutely satisfactory experience from this method of procedure. The best thing to do is to sell unsuitable oil lamps to dealers in the metropolis, where there is some use for them.

THE POSITION TO DATE.

As far as the position goes to date it does not appear to be gainsaid that, if suitable electric or acetylene sidelamps are installed, the new regulations are practicable, though not desirable, from the individual driver's point of view. In point of fact, no restriction of lighting could be desirable when considered from the sole aspect of driving as driving. The practical point, from which there can be no getting away, is that during this war, in face of the advent of aerial navigation and of the enemy's enterprise in that connexion, we must all make shift with lighting that is frankly inadequate. The contention that all this insistence on darkness at night is mere "fussiness" and quite unnecessary fails in face of the fact that Paris, hitherto illuminated at night, is henceforth to be kept dark, like London. This has been found necessary in the light of experience of the last Zeppelin raid on the French capital. Likewise, during the last raid on the midlands, through distribution of authorities, one important manufacturing centre was illuminated as usual in a manner that could be seen by aerial navigators for more than thirty miles away, and which gave them exact bearings for attacks on neighbouring centres. Hence the measures subsequently taken to ensure uniformity of town darkness. Therefore the vital question is, How inadequate can we have car lighting? From the military aspect, there ought to be no lighting of vehicles at all; from the civilian one, there ought to be no restriction on the average amount of lighting employed in peace time; from the point of view of the medical man, in common with other motorists who have need to drive at nights in the areas where the new regulations obtain and whose present sidelights are not sufficiently powerful when employed according to regulations, those regulations are equivalent to a cash levy on him of anything from £4 upwards. It is harsh, but there are worse things in war time. Further, unquestionably the new regulations have not been in force sufficiently long to establish evidence of a sufficiently strong and general character to call for any remodelling of them yet. We may have to do so at a later date, but this thing must be given a fair trial. The authorities cannot be blamed justly as imposing a hardship on individual motorists because they refuse to allow them to use old and less powerful lamps in other ways than are laid down for lamps in general in the areas in question.

MAKING EXCEPTIONS SPELLS CONFUSION.

To attempt to make exceptions would only lead to hopeless confusion. Proof of this is furnished by the fact that

there appears to be some variation on the part of local authorities as to points of detail in the interpretation of the new regulations. The first thing to do, therefore, is to collect evidence concerning given points that a case may be made for the Home Office to issue instructions that shall ensure uniformity of interpretation.

In regard to discs, on application most of the lamp makers supply their customers with these gratis, while the Automobile Association and the Motor Union supply specially prepared lamp-dimming discs alike to members and to non-members on application—a fact that may be of some service to medical men whether members or not. These discs are equally suitable for use with electric or gas lamps. I know of no means of increasing the power of inadequate oil or acetylene lamps not up to the standard of power allowed by the Home Office regulations; nor do I know of anything material yet being done by the industry towards evolving means of so improving inadequate sets in current use.

It has been alleged, apart altogether from the matter of cost, that new acetylene lights, specially designed in the light of the regulations, cannot be obtained in any case; but I have given above an example of a type that could be got at a week's notice at the time I inquired concerning the point, which was Tuesday of this week. Thus the unavoidable delay cannot be described as of unreasonable or impracticable duration.

THE RISE IN THE PRICE OF PETROL.

The sudden and practically all-round rise of 4d. a gallon in the price of petrol is a very serious thing for the medical profession, because it is an increase of a character on which the doctor can get no rebate on professional grounds such as he receives in respect of the Government duty on motor spirit. Moreover, even in cases where supplies are contracted over a period of a year or more the contracts that have been made recently all stipulate that the price of the fuel shall vary according to the price obtaining at the time at which each delivery of it is given.

It will be recalled that last autumn, when Mr. McKenna introduced his supplementary Budget embracing increased petrol dues, the wholesale firms thereupon advanced the retail price of fuel twopence a gallon more than the total amount of the increased duties, an act which called forth much criticism. A fortnight ago the proprietors of Shell spirit—who have imported somewhat less fuel this year than before because of the temporary cutting off of their supplies from Roumania, and passing difficulties with such of their supplies as derived from Mexico—issued a warning as to the need of every one to economize the use of petrol to the utmost, and hinted that there might be a shortage. The chief rival concern—the proprietors of Pratt's spirit—thereupon announced that there was no shortage as far as they were concerned. Yet a week ago the first intimation of the rise of fourpence in the retail price of fuel came from the group which announced there was no shortage, and the week-end passed without any announcement as to a corresponding advance in price on the part of the firm which had first issued a warning as to possible shortage, and had thereupon been accused of being panicky! Of course, the price of all petrol is going up in accordance with this fresh advance. It is an open secret that the tank steamers in which it is brought to these shores are needed more than ever to convey supplies of fuel for use in the various theatres of war, which are increasing in number so appreciably. Further, the big reduction in the amount of so-called pleasure motoring in these islands and the very appreciable percentage of cars that have been laid aside altogether this year means that the retail trade in petrol will tend to shrink all the time.

AN ANTICIPATORY MEASURE.

It has been alleged that it does not pay the wholesale distributors to sell petrol through the retail trade in this country nowadays. It should be pointed out, incidentally, that after the rise in the price of fuel last autumn the retail distributors, who were then receiving no more profit per gallon than in the days when petrol cost half as much, made an organized protest and received a concession, which also acknowledged a principle to the effect that the higher the price of petrol the more was to be their profit per gallon. Thus every time the Government increases the duty on petrol we are to look for the wholesaler to put on an increase of his own under some excuse

or other, and for the retailer also to have his proportion of the increase—three increases for and in one. Where is it to end? Obviously the future use of petrol appears as a competition in which all but the very rich will fail to continue. The few will be paying prices which will presumably yield as much profit to the trade as was derivable for the much greater quantities of petrol sold when professional men and the public were collectively consuming much more than they are to-day.

Another Budget is due in a month or six weeks, and it will certainly concern the question of imports. In its own interests the Government should see to it that the price of fuel is no longer raised to the consumer, especially of the professional class, other than by Government duty. Thanks to the British fleet, during the war the seas have been open. We have received better motor fuel supplies even than the good ones we had before the campaign commenced. The number of tank steamers in the world has been increased, and the maximum extra duty the Government has imposed in respect of petrol is 3d. a gallon, yet the price of that commodity to the general public has risen 9d. a gallon, which is an additional 6d., and it does not find its way into the Exchequer! The Government should take steps to protect itself and the public, for the importation of petrol yields a substantial revenue. Possibly the present increase in price may be due in measure to an anticipation that the Government may fix a limit of the extent to which the price can be advanced. The present figure, of course, constitutes a record in the story of the motor movement. The amount of the advance made this week in the price to the consumer can scarcely cost a medical man less than £5 a year. It will cost the majority at least twice as much.

As we go to press the Asiatic Petroleum Company, Ltd., has issued a circular to its clients, in the course of which it is pointed out that of the motor spirit requirements of His Majesty's forces the company is supplying five times as much as the whole of its competitors put together. In spite of the great and constantly increasing claims upon the firm's resources, it has determined to maintain unchanged the prices at which it has been selling Shell motor spirit to the public. It will be its constant endeavour to secure that garages shall receive at least one-third of the quantity of spirit which they have been accustomed to receive from the firm and at the old prices, which enables the retailer to sell to consumers Shell I at 2s. 2d. a gallon, Shell II at 2s. 1d. a gallon, and Crown spirit at 2s. a gallon. Obviously, however, these curtailed supplies cannot suffice for all the requirements of medical men and the public, and therefore the majority of motorists will undoubtedly have to pay the higher prices which have already been instituted in the case of other brands of motor spirit.

APPLICATION BY THE ASSOCIATION TO THE BOARD OF TRADE.

In view of the seriousness to many members of the medical profession, especially those in country districts who have to make long journeys, of the rapid increase in the price of petrol, the following letter has been addressed to the Board of Trade:

February 3rd.

Sir,—On January 22nd last I wrote asking whether the medical profession could have some assurance that no obstruction would be put in the way of their buying petrol. To that letter I have up to the present merely received an acknowledgement. A new development has occurred. I am informed this morning that petrol has gone up 4d. per gallon. This is an extremely serious thing for members of the medical profession, most of whom are engaged on work which may accurately be described as national work, for probably more than half of them are now helping to carry on the practices of men who have accepted military service, while in addition many of them are engaged on part time military service. To these men, and particularly men in country practices, an additional 4d. per gallon is a very serious tax, and I am instructed to ask whether some arrangement could not be made whereby medical men could be allowed to obtain petrol on cheaper terms.

The Association is emboldened to make this request because it believes that the recent rapid increase in the price of petrol is due, not to ordinary commercial reasons but to the fact that the Government is anxious to restrict the use of petrol for purposes other than necessary work. If this is so, the Association feels that the medical profession has a claim which is only less justifiable than that of the military authorities. The Association would be very grateful if you could give it at an early date some assurance that members of the medical profession will be given special facilities to obtain petrol for the purposes of carrying on their practices at a special price, and thus relieve the minds of the profession on a point which is causing them considerable anxiety.

I am, yours faithfully,

ALFRED COX,

Medical Secretary

The Secretary, Board of Trade.

British Medical Journal.

SATURDAY, FEBRUARY 12TH, 1916.

TRENCH FEVER.

INCAPABLE of learning by experience, the opponents of antityphoid inoculation are still carrying on their agitation against that invaluable method of protecting our troops abroad. One of their less creditable methods of attack has been to insinuate that perhaps the military medical authorities hide cases of enteric fever by falsely returning them under other names. This, at any rate, was the interpretation placed by the Under Secretary of State for War upon a question asked in Parliament on January 20th by Mr. Will Thorne, who wished to know whether "cases bearing the name of paratyphoid fever, trench fever, pyrexia, and other pseudonyms of enteric fever were included in the totals" given for enteric fever.

It is, perhaps, too much to expect that members of Parliament should follow closely the rapid progress of scientific medicine, but they ought surely to be on their guard against falling into such a trap as this and being made a means of not only diffusing information manifestly incorrect but of spreading an odious insinuation. The great value of antityphoid inoculation has been shown again and again—most recently in a reply by Mr. Tennant to Mr. Thorne in the House of Commons on January 10th—and the fact is so firmly established in this and in other countries as to require no further emphasizing here. Moreover, any one who has taken an intelligent interest in the statistics of sickness in the British army in Flanders, not to mention India, ought surely to have been aware that the disease called paratyphoid fever is distinct from typhoid fever, and that an attack of one does not protect from the other, so that inoculation for the one could not be expected to prevent the other.

With regard to trench fever, however, the belief that it is a form of typhoid has been until quite lately more difficult to combat, because it is only now that the identity of trench fever as a separate disease has been established. By a coincidence, at the very time when Mr. Thorne was asking his question the paper published in this issue by McNee, Renshaw, and Brunt, officers serving in the R.A.M.C. in France, was on its way to us, for it came into our hands on January 25th. Their investigation shows that trench fever is a distinct specific fever of relapsing type not due to any virus previously known. The relapses may be one or several in number; in either case the characteristic symptoms are headache and pain in the legs and the small of the back.

Trench fever, they find, may be transmitted to others by intravenous or intramuscular injections of the blood as a whole, but not by the plasma or serum alone, whether this be filtered or not. These observations, taken together, prove that the virus is not a "filter passer," and also that it is probably contained within the leucocytes or red blood cells themselves. Not being a "filter passer," it seemed reasonable to expect that the germ, whatever it might be, would be of sufficient size to be detected microscopically, but, though the authors have examined many blood films at all stages of the disease; no

parasite of any sort has so far been detected. Punctate basophilia in the red cells is the only abnormal change that has been noted in the cases. The present position with regard to trench fever is, then, in some respects analogous to that with regard to typhus, as recent researches have shown that the virus in this instance also is not a filter passer, and that the injection of blood will produce the disease in monkeys. From time to time different bacilli have been claimed to be the cause of typhus, but so far none has been generally accepted. It is interesting, however, to note that both typhus and relapsing fever are spread by lice, and it is possible that trench fever is another louse-borne disease. The fact that the disease has occurred only among men who have actually lived in or near the trenches or men constantly in contact with sick and wounded men from the firing line—that is to say, men of the Royal Army Medical Corps—is suggestive.

It is difficult to see how the virus of the disease can get from the blood of one man to another unless it is carried by an insect. Further research might include the possibility of the germ existing in the saliva, urine, and other excretions, and we have no doubt that in the course of the investigation other means of trying to cultivate it than those apparently hitherto employed will be tried; it is possible that it may be an organism that does not grow in bile salt broth. Some protozoa will live and thrive in the water of condensation of haemoglobin agar, and delicate bacteria will grow and multiply on its surface readily as well.

It is clear that the study of this interesting disease has been very difficult, as has been the case with others in which no definite organism can be found by ordinary bacteriological methods, and great credit is due to Captain McNee and his colleague for the great amount of light they have thrown upon an intricate problem. It is a great advance that, as is pointed out by Colonel Sir Wilmot Herringham in a note prefacing the article, trench fever can now be defined and isolated from a mass of cases of obscure fevers.

No doubt until clinical suspicions were aroused cases were confounded, not wholly without reason, with such protean disorders or symptoms as influenza, neuritis, myalgia, or even rheumatic fever. It is wholly distinct from enteric fever, though naturally, as Sir Wilmot Herringham justly says, that disease should be suspected until its presence has been disproved where armies in the field are concerned. The fever is still occurring among the British forces in France; and as it is a fruitful source of invaliding, the results of further investigations into its cause and mode of transmission will be awaited with interest.

"PATENT MEDICINES."

THE Medico-Political Committee reported to the meeting of the Council of the British Medical Association on January 26th that it had addressed a communication to Sir Henry Norman, M.P., Chairman of the Select Committee on Patent Medicines, conveying the resolution by which the Annual Representative Meeting, 1915, placed on record its satisfaction with the recommendations of his committee, and instructed the Council, as soon as it considered the time opportune, to take all necessary steps to press for legislation on the lines of the report. The letter went on to express the hope that when normal times returned the Association might have his support and influence in urging on

the attention of Parliament the very serious evils which the report disclosed, and the necessity for dealing with them drastically on the lines suggested therein. Sir Henry Norman, in his reply, said that when a return to normal times arrived he would be wholly at the service of the Association for any further help it was in his power to give. The Council of the British Medical Association, in its annual report¹ last year to the Representative Meeting, expressed the opinion that a report so radical in its scope and so satisfactory in its nature, coming from such a source as a Select Committee of the House of Commons, thoroughly justified the action the Association had taken in regard to secret remedies, but added that the present was obviously not the time at which the Government could be pressed in regard to the matter. It considered that the first favourable opportunity should be taken, and the Medico-Political Committee is anxious that medical practitioners should obtain the report and study it carefully, as the question will require energetic treatment at the earliest opportunity. Reports of the evidence, taken by the Committee during its thirty-three public sittings, were published regularly in the *BRITISH MEDICAL JOURNAL*, beginning on May 18th, 1912 (p. 1140), and terminating on June 21st, 1913 (p. 328), the Committee having closed its public sessions on June 12th, 1913. The report itself costs 3d.; the large blue book containing both the report and the full text of the evidence costs 6s. 7d. Either can be obtained through any bookseller.²

The findings of the Committee and its recommendations were published in full in the *BRITISH MEDICAL JOURNAL* of August 29th, 1914 (p. 404), and have been discussed on several occasions since.³ The general effect of the findings was expressed in two of them, where it is said that "the traffic in secret remedies, except as regards scheduled poisons and the grosser forms of impropriety, is practically uncontrolled in this country," and it is added that this is an intolerable state of things, to remedy which new legislation is urgently needed in the public interest. The Committee outlined the legislation it considered necessary. One of its recommendations was that in the case of every medicated wine and every proprietary remedy containing more alcohol than that required for pharmaceutical purposes, the law should require the proportion of alcohol contained in it to be stated on the label.

Another was that the advertisement and sale (except by a doctor's order) of medicines purporting to cure certain diseases should be prohibited. Among the diseases to which it was considered this should apply were cancer, consumption, diabetes, paralysis, locomotor ataxy, epilepsy, Bright's disease, and rupture (without operation or appliance). The Committee recommended that Parliament should make it illegal to change the composition of a remedy without notifying the Government department proposed to be set up of the proposed change, and that fancy names for recognized drugs should be subjected to regulation. It also suggested legislation which would make the practice of what is called "following-up" illegal. Under this system, which we believe originated in America, when once the vendor gets into communication with some person, he or she is plied with a series

of letters inviting correspondence, and probably, eventually, recommending other remedies for other disorders from which the person addressed may be induced to think he or she is suffering. Many instances of this plan will be found in the two volumes, *Secret Remedies* and *More Secret Remedies*, published by the Association.⁴

The Committee also recommended that it should be made illegal to use the name of a fictitious person or a fictitious testimonial in connexion with a remedy, or to publish a recommendation of a secret remedy by a medical practitioner unless his or her full name, address, and qualifications were given.

The State department for dealing with secret remedies proposed to be set up should, the Committee thought, be controlled in the meanwhile by the Local Government Board. One of its duties, it was recommended, should be to keep a register of manufacturers, proprietors and importers of patent, secret, and proprietary remedies, who should be required to obtain a certificate. Before granting this certificate the department would require the applicant to supply it, among other information, with a complete statement of the ingredients and proportions of the same in every such remedy. The Committee also recommended the establishment of a special court or commission to be set in motion by the President of the Local Government Board, which would have power to permit or prohibit in the public interest, or on the ground of non-compliance with the law, the sale and advertisement of any patent, secret, or proprietary remedy or appliance.

With regard to the amendment of existing legislation the Committee recommended that the Indecent Advertisements Act should be amended on the lines of Lord Braye's bill, and that the Stamp Acts should be consolidated and amended to remove the numerous existing anomalies and unreasonable exceptions. It did not recommend the abolition of the patent medicine stamp duty, and this seems to be the only part of the report which has hitherto had any effect on the Treasury. It will be remembered that in the Budget introduced on September 21st last the Chancellor of the Exchequer proposed to double the patent medicine duty of 1½d. in the shilling, and expected an addition to the revenue from this source in a full year of £250,000. The suggestion greatly amused the House of Commons, but as we observed on October 2nd last, it may well be asked whether it is statesmanlike to palter in this way with an evil which must cost the country in loss of health and life tens of millions a year.

There can be no doubt that the recommendations of the report are worthy of the very serious consideration of the profession, so that it may be prepared to express definite opinions upon all of them when the time comes for Parliament to deal with any proposals for legislation which it may be thought proper to put forward. The proceedings of the Select Committee themselves afford ample proof that restrictive legislation will be met by strong opposition from certain quarters—certainly from the proprietors of secret remedies, possibly also from the owners of some newspapers. It is conceivable that the proprietors might not have any strong objection to the establishment of a Government department to which they would be required to disclose the ingredients of their preparations, and from which they might hope to receive a certificate permitting them to trade. We could even imagine that they would welcome legislation which might seem to give to their trade

¹ SUPPLEMENT to the *BRITISH MEDICAL JOURNAL*, May 8th, 1915, p. 185.

² Report from the Select Committee on Patent Medicines (ordered by the House of Commons to be printed, August 4th, 1914). Price 3d. Report from the Select Committee on Patent Medicines, together with the Proceedings of the Committee, Minutes of Evidence, and Appendices. (Price 6s. 7d.) Either can be purchased, directly or through any bookseller, from Wyman and Sons (London), H.M. Stationery Office (Edinburgh), E. Ponsonby (Dublin).

³ See vol. i, 1914, pp. 479 and 548.

⁴ London: British Medical Association. Price 1s. each, post free 1s. 3d. each.

more definite public recognition than through the operation of the Stamp Acts it already enjoys. It is very questionable indeed whether such legislation would be of any value unless the same Act contained a clause on the lines outlined by the Committee forbidding the advertisement and sale of secret medicines purporting to cure such diseases as cancer, consumption, and the others enumerated. We should also regard the provisions suggested as to the regulation of the trade in medicated wines as of great importance from several points of view, but it will be observed that the Committee does not go beyond recommending a provision requiring the proportion of alcohol contained in any such wine to be stated on the label. Legislation prohibiting the publication of advertisements likely to suggest that the medicine sold is an abortifacient, would, if enforced, put an end to a public scandal. The suggestion that the publication of a recommendation of a secret remedy by a medical practitioner should be forbidden by law unless his or her full name, qualifications, and address are given would no doubt have a deterrent effect, but should be extended by making it penal to publish testimonials purporting to be given by medical practitioners long since dead. These are some of the provisions urgently needed, and the Select Committee considered that none of them would inflict injustice upon any patent or proprietary medicine or appliance.

THE INTRODUCTION OF CINCHONA TREES INTO INDIA.

SIR CLEMENTS MARKHAM, who died on January 30th in his 68th year as the result of accidental burns, succeeded in introducing cinchona trees into India after several other attempts had failed. In 1852, the year in which he retired from the Royal Navy, he paid a two years' visit to Peru, and published a book on his travels in 1856. A few years later he again went to Peru at the request of the Secretary of State for India, to superintend arrangements for the collection of cinchona plants to be introduced into India, and we are very glad to have the opportunity of publishing the following interesting note by Sir George Birdwood, M.D., K.C.I.E., relating the story of the arrival of the plants in India and the early stage of the introduction of the cultivation of cinchona into that country. "I have," he writes, "none of the official documents by me for the verification of the following particulars of the introduction by Sir Clements Markham of the cinchona trees of South America into India, but you may rely on their accuracy as a general statement, as I happened to be the official who, under the direction of Sir George Russell Clerk—'George Clerk of Umballa'—received Sir Clements, and his large nursery of young cinchonas, on his arrival in Bombay in 1860, and assisted him in taking them on to the Nilghiri Hills in Southern India, where he placed them in charge of Mr. MacIvor, one of the most skilful arboriculturists then in India, to whom Sir Clements also entrusted the subsequent supplies of young cinchonas collected under his instructions in South America by Messrs. Spruce and Pritchett. They all flourished wonderfully under MacIvor, who was able within a few weeks to send out stocks and seeds for cultivation in Ceylon and Sikkim. Earlier attempts had been made by Boyle and Weddell and Falconer to naturalize the cinchonas in India, but all had failed; and it was Sir Clements Markham's choice of the species of cinchonas (in the which he was advised by Sir Joseph Hooker) and of the Nilghiris for their new habitation (in which he was encouraged by Sir George Clerk while still Permanent Under Secretary of State for India, 1858-60) that secured the success of his arduous adventure—one of the greatest of the blessings conferred by 'the British

Raj' on the malaria-stricken peoples of India. The cinchonas grown by MacIvor were *Cinchona Calisaya*, *C. micrantha*, *C. lancifolia*, *C. nitida*, *C. officinalis*, *C. Pahudiana*, *C. peruviana*, and *C. succirubra*. *C. Calisaya* has, I believe, proved the most successful on the Nilghiris."

ALCOHOL AND THE SOLDIER.

THE Academy of Medicine in Paris has drawn up an appeal to soldiers warning them with regard to alcoholic beverages. The preamble and the first three paragraphs were adopted without discussion, but the fourth paragraph, in which a distinction is drawn between distilled and fermented beverages, was discussed at some length. As originally proposed, the paragraph contained after "aids digestion" the words "This is true"; these were struck out. The original draft did not contain the words in the second part of this paragraph as to the *petit verre* after meals, and originally stated that fermented beverages might be useful. The following is a translation of the text of the leaflet:

Soldiers—Beware of Alcohol.

Those who, like you, are exposed to exhausting labour, to perilous enterprises, and to strong emotions, are ever inclined to look to alcohol as a stimulant and a comforter, and to seek for it in the tavern as a distraction from the monotony of cantonment and garrison life.

It is therefore well that you should know what use you may make of alcohol without impairing your health.

Certain errors about alcohol are widespread.

1. It is said to *give strength*. This is not exact. The truth is, it gives a false spurt of short duration, but a grave diminution of strength never fails to follow this excitement. Thus alcohol takes away more strength than it gives.

2. It is also said that alcohol *gives warmth*. This is true for a few minutes, but the feeling of warmth which spreads over the limbs after a nip of brandy is delusive and is soon followed by a lessening of warmth and strength. Men who take nips are far more subject to chills and to diseases to which men at the front are liable.

3. It is further asserted that in the form of a "*pick-me-up*" alcohol stimulates the appetite. This is quite wrong. It would be difficult to produce any man whose appetite had ever been really stimulated by a "*pick-me-up*." These *apéritifs*, habitually taken, lead without fail to disease of the stomach, liver, and mind.

4. Lastly, it is maintained that alcohol *taken during meals* as wine, beer, or cider *aids digestion*. An important distinction must be drawn between "*distilled*" liquors like brandy and "*fermented*" liquors such as wine, cider, and beer. Alcohol is altogether noxious. The *petit verre* after meals should only be taken on rare occasions. Fermented liquors, on the other hand, may be drunk subject to two conditions. They must be consumed in great moderation, which, as regards wine, should never exceed 1 litre (a pint and three-quarters) in twenty-four hours and *only at meals*.

THERAPEUTICS OF RADIUM.

THE first report of the Manchester and District Radium Institute, dealing with the cases treated during 1915, is marked by great moderation. The Institute has its head quarters in a series of rooms in the basement of one of the buildings of the Royal Infirmary, and is admirably adapted for the work it has to do. It is a complete department, with all the usual waiting, dressing, and consulting rooms, and separate cubicles for the actual treatment. At present the physical laboratory is small, but it is probable that a more suitable laboratory, more adequately equipped, will be added. A large quantity of radium is at the disposal of the staff, and as many of the cases have to be treated at other hospitals than the infirmary, a considerable part is used for the purpose of collecting and using the emanation. The director, Dr. Burrows, points out that the treatment of cancer in its various forms has been so far the chief work of the department, and he wisely warns the general public not to take an exaggerated view of what radium can accomplish in this direction. In dealing with this aspect of the work it is worth while to lay stress upon the point that only inoperable cases of malignant disease are accepted for this treatment. When we consider and criticize the treatment from this

limited point of view, it is obvious that cures must of necessity be few and far between. The time may come when it will be justifiable to undertake the radium treatment of malignant disease in its earlier stages, that is, before it has become inoperable, but this time has not come yet. This may possibly be due to the facts that exact methods of application, exact dosage, etc., are as yet imperfectly understood. When we consider the occasional unexpected and extraordinary effects of radium in an apparently hopeless case, it is impossible to shut our eyes to the latent possibilities of both radium and x rays when the measurement of dosage, and the rationale of application, in the future, are better understood. The Manchester clinic has advanced the method of treatment by emanation, and the burying, by means of hollow needles, the emanation in the centre of tumours. This method, introduced by Stevenson and Joly, is, at the present time, that which seems to promise the best results. Dr. Burrows has a modified needle, in which the solid-pointed end, and the eyeleted end, can be screwed on and off. This means that the central portion containing the emanation can be prepared, and the two ends then fitted on to it for introduction into growths. It is of interest to note that in the general summing up of the methods of technique stress is laid on the point that, in introducing the tubes into a growth, just as much care should be adopted as to aseptic technique as in general surgery. We cordially agree with this, but we do not agree with the suggestion that large incisions should be made through the skin for the same purpose. The sound principle seems to be to make the smallest possible incisions, as it is of importance not to open up lymph channels and so encourage general dissemination of the growth. The general observations dealing with filtration and dosage are useful, and the caution against large dosage with long exposures and slight filtration, liable as it is to lead to sloughing and necrosis of tissues, is not out of place. Special attention should be called to the remarks on the treatment of the recurrent nodules after an operation for cancer of the breast; great care must be taken not only in the burying of radium, but also in its external application; a permanent ulcer is easily produced. The report states that the treatment of carcinoma of the cervix uteri by radium has, on the whole, given good results. The value of this statement entirely depends upon what is understood by the phrase "good results." Temporary amelioration in the local condition, diminution of haemorrhages, cessation of putrid discharge, often mean that the patient's general condition is for the time markedly improved, and in this respect the immediate result is good, but the term "good result" must not be taken to indicate that anything in the nature of cure is likely to result. Many surgeons, after a trial of radium in these cases, are of opinion that equally good temporary results can be brought about by scraping and the use of the cautery. During the year 519 cases were dealt with in the department, and the concluding portion of the report gives tables of the cases and the results obtained.

BOVINE TUBERCULOSIS IN MAN.

A REPORT on a continuation of the research in the pathological laboratory of the Local Government Board into the types of tubercle bacilli occurring in tuberculous disease of bones and joints has been published by Drs. A. Eastwood and F. Griffiths in the *Journal of Hygiene*.¹ It deals altogether with specimens from 313 cases, but in 5, though there was disease of bone or joint, the material was obtained from other sites, and these have been rejected in compiling the statistics, as have also 47 cases in which the results were negative. This left 261, and in 55 of these, or 21.1 per cent., the bacilli were of the bovine type. Of the 261 patients, 155 were under 10 years of age, and the percentage of the bovine type in

them was 29.0. Under 5 years of age it was practically the same (29.8). In the 106 cases over 10 the percentage of the bovine type was 9.4. Only 3 were over 16, the ages being in two cases 17 years, and in one 22. In 10 cases out of the 261, the bacilli were atypical, and their source cannot at present be stated. The medical officer to the Local Government Board, in a brief comment on this report (published in his report to the President), observed that the investigation affords evidence that in the areas from which the cases were derived tuberculous bone and joint disease in human beings is more frequently caused by the human than by the bovine type, although the latter is responsible for an important percentage—a fact which, it is admitted, affords additional proof that cow's milk is responsible for producing much tuberculosis in man. The parts of the country from which the specimens were derived are not anywhere stated, but it is to be presumed that they were all from England. In the investigation reported by Eastwood and Stanley Griffiths to the Local Government Board in 1914 the proportion of the bovine to the human type was 19 to 93, so that the percentage in the new series is appreciably higher. It will be remembered that in a similar study carried out in Edinburgh Dr. John Fraser² found the bovine bacillus in 41 out of a total of 70 cases investigated, the human bacillus in 26, and both types in 3. The cases he examined were all under 12 years of age, and he made the very significant observation that of 28 children, all 3 years old or under, the bovine organism was present in 23, and the human in 5 only. He also brought out a most interesting point with regard to the family history. In 21 instances there was a definite history of pulmonary tuberculosis in some member of the family in which the child lived, and in 15 of these children the type of bacillus present was the human. In 52 cases there was definitely no family history, and in 43 of these children the bacilli was of the bovine type. Dr. Philip Mitchell,³ also working in Edinburgh, found that in the tuberculous cervical glands of 72 children the bovine type of bacillus was present in 65, and the human in 7 only; in 27 children under 3 years of age the bovine type occurred in 25, and the human only in 2. In a subsidiary investigation on the type of tubercle bacilli found in tuberculosis of the genito-urinary tract Eastwood and Griffiths found the human type in 14 and the bovine type in 3. These three cases were affections of the kidney in persons aged respectively 25, 19, and 20 years.

THE PROTECTION OF THE X-RAY OPERATOR.

At the February meeting of the Röntgen Society a discussion was opened (to be continued at the March meeting) on the subject of the protection of the x -ray operator. Dr. Sidney Russ pointed out that while x -ray dangers were becoming less formidable owing to the widening knowledge of them, there was still a good deal of uncertainty because the modern outfit furnished perhaps fifty times more energy than the outfit of ten years ago. It would be a great advantage if effective protection could be obtained without resort to legislation, for of all the methods available for ensuring it legislation was likely to be the least popular and the least convenient. In the course of the discussion Dr. G. H. Rodman suggested that the General Medical Council be asked to include x rays in the medical curriculum, so that before qualification the student should be as fully acquainted with the dangers of the x -ray tube as he was with the dangers of strychnine. Sir James Mackenzie Davidson mentioned that while doing screen work he placed a thick lead barrier round the tube; the observer, standing completely behind this barrier, was enabled to see the screen image reflected in a fine plane glass mirror. Dr. Fred. Bailey, of Brighton, said that it was his practice

¹ January, 1916.

² BRITISH MEDICAL JOURNAL, April 12th, 1913, ii, 760.

³ Ibid., January 17th, 1914, p. 125.

to have a large screen running on castors, the upper third of it being of lead glass. His tube was enclosed in a large lead glass bulb, and under such conditions as these it did not seem probable that any x-rays were directly received by the operator. There remained the ionization of the air, which was quite possibly a source of danger, and Dr. Reginald Morton confessed that after an afternoon spent in x-raying a number of cases, he suffered from a severe sense of fatigue. The ventilation of the room did not appear to make matters much better. Dr. W. Harwood Nutt said that the effects of atmospheric ionization might be prevented by ventilating the room efficiently, having not one but two ventilators, so that a constant current of air was passing from entrance to exit. Some x-ray workers were returning from the seat of war with very bad ulcers on their arms and hands, and for his own part he did not believe that any man could protect himself adequately unless the tube itself, in distinction from the worker, were shielded. Dr. N. S. Finzi gave an interesting experience which seemed to show the negligible character of stray radiations spread over a period. One of his assistants had placed an enclosed Sabouraud pastille on the front of his apron and another on the back. The pastille in front was found to have turned to the "B" tint after about two weeks' hard work (x-raying every morning and eight afternoons), but the pastille on the back of the apron was still unturned after six weeks, and it did not seem likely that a full dose would be received there within a shorter period than three months. Such a dose, even though continued over a long time, could scarcely do the operator very much harm. Dr. Bailey stated that he had noticed a certain amount of anaemia among persons constantly receiving x-ray treatment, and Dr. Russ said that one of the hidden dangers of x-rays was undoubtedly the blood change brought about. In the cases investigated the red cell content was invariably shown to be below the normal, and in many cases the white cell content also. The lymphocytes were in almost every recorded case very greatly reduced. As to a cure for x-ray dermatitis, Dr. Rodman said that his own trouble, including split nail, had practically cleared up after he had followed the plan of avoiding the x-ray tube as much as possible and exposing himself to sunlight and fresh air.

MEDICAL WORK OF THE LOCAL GOVERNMENT BOARD

The report of the Medical Officer to the Local Government Board for 1914-15 is a much smaller volume than usual. The first part is devoted to an account of the steps taken by the Board some time after the outbreak of the war to meet the emergencies which had arisen. During the autumn of 1914 and in the first three months of 1915 twelve medical inspectors were engaged almost exclusively in visiting districts occupied by troops. They discussed local difficulties, and in numerous instances more complete co-operation of civil and military authorities than had previously been practicable was secured. A similar system of co-operation between the naval medical authorities and the local authorities was arranged as far as naval camps, dépôts, and billets on shore were concerned. From August onwards a system of internotification of infectious diseases was arranged between civil and military medical officers. In the following month the War Office issued for confidential use a weekly statement as to various infectious diseases among the troops in different commands. In most centres military disinfecting apparatus was provided, but the civil authorities also carried out disinfection on a large scale for the troops. Another task undertaken by the Board was the protection of food supplies, the Board's offer to the War Office of the loan of inspectors of foods being accepted. Steps were taken to ascertain the place of preparation of food materials, and the M.O.H. of each district was asked to keep the preparation of these foods under close observation. During the

year under report there was no large outbreak of enteric fever, and though there was an enormous rise in the number of men under arms, there was no corresponding rise in the incidence of this disease. Of other infectious diseases measles showed a decline from 10,644 deaths in 1913 to 9,144 in 1914. It is a striking fact that this figure was barely exceeded by the deaths in 1914 from small-pox, diphtheria, enteric and scarlet fever combined, the total for these four diseases being 10,450. One of the most interesting features of the report is the section dealing with tuberculosis. It is a most deplorable result of the war that the important schemes for dealing with the many aspects of this disease had not matured when the call for economy and retrenchment had to be obeyed. Before the war six medical inspectors were employed in the tuberculosis service. From August, 1914, the work has approximately occupied the full time of two inspectors. The erection of institutions for the tuberculous has in many cases been deferred. Arrangements, it is stated, have been made for the treatment in residential institutions of uninsured soldiers suffering from tuberculosis, but details are not given. It is said that the notification of non-pulmonary tuberculosis is defective, owing, it is thought, to the failure of medical practitioners always to realize that the notification of this form of tuberculosis may reveal sources of infection and undesirable housing and industrial conditions. The Board asks medical officers of health to communicate with practitioners who fail in this respect. On June 26th, 1915, tuberculosis officers had been appointed in the proportion of one for 145,000 persons in the administrative counties, and one for 110,000 in the county boroughs. By the end of that month about 30 per cent. of the tuberculosis officers had accepted military service, temporary arrangements being made for carrying on the work in their absence. The number of sanatoriums and allied institutions increased from 104 in July, 1914, to 120 in June, 1915; and the number of beds from 5,398 to 6,496. In July, 1914, about 25 per cent. of all the beds in these institutions in this group were provided in institutions belonging to local authorities; in June, 1915, this percentage had risen to 32. It is satisfactory to find that the Board has realized the desirability of treating children and adults separately as far as possible. The drawbacks of mixing children with adults are many and great. The Board has also accepted the view that for the satisfactory conservative treatment of tuberculosis of bones and joints a separate institution is desirable. The importance of making suitable arrangements for education in institutions receiving children of school age is also recognized by the Board, which has decided not to approve any children's institution in which the requirements of the Board of Education with regard to education are not satisfactorily met. The section of the report dealing with the auxiliary scientific investigations is brief. We refer elsewhere to the work done by Drs. Eastwood and Griffiths, but it may be noted here that a comparative study by Dr. Gauvain at the Lord Mayor Treloar Cripples' Home, of the reactions to human and bovine tuberculosis in cases of tuberculous disease of the bones and joints, appears to show that it is not possible to discriminate between infection by the human and bovine type of bacilli by means of the von Pirquet test. To a memorandum by Dr. Newsholme on health visiting and on maternity and child welfare centres we hope to refer on another occasion. One of the appendices contains a voluminous report by Dr. Bruce Low on typhus fever in recent years, giving an account of the incidence of the disease in various countries.

CIVIL HOSPITAL STAFFS OF MILITARY AGE.

A few weeks ago we gave some account of a difficulty which had been raised by certain members of the committee of the Worcester Infirmary in accepting an arrangement proposed by the medical staff for carrying on the work of the infirmary during the war. Four members of

the staff and the qualified house-surgeon had joined the R.A.M.C., but the remaining members of the staff had undertaken to carry on the work, arranging that a member of the honorary staff should sleep at the infirmary in rotation for some days. Subsequently the honorary medical staff accepted an offer made by three medical men in the city to give their assistance as required. This did not satisfy some members of the committee who were anxious that the offer made by a fourth doctor should be accepted. The committee by a majority accepted the offer, but the members of the consulting and acting staff subsequently sent a round robin declining to work in the infirmary with any man of military age appointed temporarily to take the place of their colleagues who had joined the army. If we understand aright what happened at a recent meeting, the committee took no definite action on this letter, the medical staff being left to ask for assistance as and when required, but the vice-chairman, Mr. Harris, took the opportunity of making an attack upon the staff, and indeed upon the profession generally. Mr. Harris worked himself up to such a pitch of excitement that he proposed to have the difficulty he anticipated settled under the provisions of the Defence of the Realm Act. This wild suggestion did not commend itself to the committee, but the attitude of mind disclosed is curious, though not very unusual; outbursts of the kind are not by any means all directed against the medical profession. There are quite a number of people who get an obsession of the sort against certain other classes of their fellow citizens. There are some—and they seem to be very numerous just now—who look upon all lawyers as sons of Belial; others who regard clergy of all denominations with particular aversion; and others, again, who can never see a brewer without looking for horns and a tail. It seems to be a phase of the mental state on which the Germans sought to found their now discredited so-called science of *Völkher-psychologie*.

EDUCATIONAL UNREST.

THE letter from Sir Philip Magnus, the representative of the University of London in the House of Commons (published in another column), will, we feel sure, attract the attention of all those among our readers who are interested in the development of secondary and higher education in this country. Before the war there was in some influential quarters a tendency to blind admiration of German educational organizations, and a reaction had already begun. It has been greatly accelerated by the revelation, through their conduct in Belgium and other districts overrun, of the low ethical standard which has been produced under the German system. But the choice does not lie between a slavish imitation of Germany and the maintenance unchanged of our own system, in spite of the patent faults disclosed. It is a grievous thing to find young men of high attainments going out into business and politics without any knowledge of natural phenomena and how they may be investigated, explained, and applied to the advancement of knowledge and industry. There can be no reason why this particular fault should not be corrected without destroying the valuable characteristics of English schools and colleges. As the Vice-Chancellor of the University of Leeds said over a year ago, "In the difficult days of social readjustment which will follow the war there will be more need than ever for variety of experiment, for variety of educational tradition, and for variety of responsible initiative." "Freedom," he went on, "from the iron band of State control allows teachers and pupils the training in individual responsibility which develops and fortifies character; and the higher kind of freedom, though indocile to external pressure, realizes itself in willing subordination to the common good." It is, we believe, with some such thoughts in his mind that Sir Philip Magnus appealed to the Prime Minister to take steps now

to see that the scheme which the Board of Education has in hand shall be so moulded that it shall not act as an iron band to restrict and deform the natural growth of education in this country.

MILITARY HOSPITALS' JOURNALS.

THE *Craigleith Hospital Chronicle* continues its interesting and amusing way. The issue for February is the fourteenth. Many of the contributors are or have been connected with the 2nd Scottish General Hospital, and the editor is fortunate to have on his staff some person or persons who can draw most effective initial letters and tailpieces. Running through recent numbers is a series of articles entitled "The Story of Some Scottish Regiments," by Dr. J. A. MacDougall. The last two dealt with are the Black Watch and the King's Own Scottish Borderers. The articles are illustrated by drawings of the regimental badges and of the medals and clasps which men of the regiments have been entitled to wear. As was said in an effective little article in a recent number of the *Gazette* of the 3rd London General Hospital, Wandsworth, though men pass away the regiment goes on. The editor of the Wandsworth magazine, like his brother in Edinburgh, is fortunate in having some very excellent artists on his staff, and Mr. Nevinson, by his drawings of the arrival of an ambulance at night, a month or so ago, and of the receiving hall in the issue for February, almost reconciles us to Futurist art. Nobody, from the C.O. to the ward orderly, seems safe from caricature, but it is all very good-natured. Some day sets of these periodicals will be valued curiosities, and already Dr. W. W. Keen, the veteran surgeon of Philadelphia, is collecting them for presentation to the great library of the College of Physicians in that city. It is also hoped to preserve them in the library of the British Medical Association, but the first number of the Wandsworth *Gazette* is missing, and the editor informs us that it is out of print. The same has happened to the first and second numbers of the *Craigleith Hospital Chronicle*. Unfortunately our file of the *Craigleith Hospital Chronicle* is still more incomplete, as all the numbers of the first volumes are missing—in fact, only the ninth, twelfth, thirteenth, and fourteenth numbers are in hand. Any one who has spare numbers which he does not propose to preserve will be doing a good deed by sending them to us for preservation.

CEREBRO-SPINAL FEVER.

IT will be within the recollection of many of our readers that in the course of the outbreak of cerebro-spinal fever among the civil population of Salisbury last winter prophylactic inoculation was employed on a considerable scale by representatives of the Lister Institute working in co-operation with the medical officer of health. A preliminary note on the results was communicated by Dr. Fison, M.O.H. for Salisbury, to the Royal Sanitary Institute, and it appeared that the method had been productive of some decided advantages. In view of the great practical importance of the subject it is very desirable that further work should be undertaken. The authorities of the Lister Institute are anxious to hear from any medical officers of health who may have to devise measures for dealing with local outbreaks of cerebro-spinal meningitis with a view to co-operating with them, as it is not improbable that protective inoculation may prove the solution of a difficult administrative problem. Inquiries should be addressed to the Director, Lister Institute of Preventive Medicine, Chelsea Gardens, S.W.

Two convoys of tuberculous prisoners—French and German—arrived in Switzerland ten days ago. The Germans coming from Lyons, and numbering 100, were sent to Davos; the French, numbering 101, coming from Constance to Leysin, where they were welcomed by the authorities.

THE WAR.

WAR NEPHRITIS.

(From a Correspondent in Northern France.)

Cases of war nephritis continue to be seen in considerable numbers, but there is no really fresh development to record in connexion with this particular source of wastage. Certain points have, however, been emphasized by the experience of the past six months, and there is also perceptible some degree of change in the general medical attitude towards the prognosis of these cases. After two marked swings in either direction, the pendulum is now stationary and fairly perpendicular.

In civil life acute nephritis occurring in young adults, and independently of any other apparent disorder, is often fatal, and at the best runs a very protracted course, months elapsing before the albumin disappears. On this analogy the initial view taken of war nephritis was grave, but a difference between the two conditions was very soon noted. In case after case the dropsy and albumin disappeared within a fortnight or three weeks, and all direct evidence of kidney mischief vanished rapidly. The belief then arose that war nephritis was a disorder *sui generis*, and not likely to affect permanently the well-being of the individual concerned, or to do away with his military value for more than a month or two at the most.

This was the position of affairs about the date of the appearance of the first note on the subject (July 17th, 1915, p. 109). Present views are somewhat different. It is now thought that the prognosis should be guarded in respect of the ultimate effect of the disorder on the future of any given individual concerned, and that the previous belief as to the comparative unimportance of the disorder from the point of view of military efficiency was mistaken.

It is true that the case-mortality continues to be very low, and it is also true that as soon as the initial anasarca has disappeared—and this, as a rule, is within a fortnight—patients generally regain an appearance of well-being. It is also true that within three or four weeks albumin, casts, and blood cells generally disappear entirely from the urine. But this is not always the case, and sundry reports from home suggest that in certain instances, at any rate, evidence of continued or renewed kidney trouble may be found at a much later date.

As to other points, the experience of the past summer and autumn has confirmed the belief that though exposure may aggravate an existing case, it is not in itself an originating cause. The belief is also confirmed that though a certain number of the patients may be persons in whom the nephritis is merely a recrudescence of a pre-existing disorder, the great majority of cases occur in individuals who have been perfectly healthy in regard to their renal systems and all other respects. Nothing, in short, has occurred to disturb the view that the condition is a new disease in the sense that as a whole its phenomena do not correspond precisely with any symptom-complex previously familiar to clinicians. No pathologist of my acquaintance is disposed to be very confident as to its etiology, or has put forth any view which, from a laboratory standpoint, brings the condition entirely into line with the idiopathic acute nephritis of civil life. Consequently "war nephritis" is about as near as one can get in the way of a specific label for the condition.

Objectively, facial oedema with some elevation of temperature is found to be the most conspicuous phenomenon in early cases; subjectively, headache, aching pains, and especially a feeling of breathlessness.

With these early subjective symptoms a certain degree of bronchial catarrh sometimes coexists, but it is never sufficient to explain the breathlessness mentioned. A history of the latter may be obtained in practically all cases, and it is probably to be attributed to an increase in the acid contents of the blood. No attempt has been made as far as I know to examine the blood from this point of view, but the causative connexion between acidosis and breathlessness is well recognized in renal disease of civil life.

Another feature is an increase in the blood pressure. This has been found to be invariably present when the point has been tested at the hospital in France which has received a large proportion of all these cases, and a series

of pressure records shown me by one observer (Captain Abercrombie) indicated that in respect of the systolic maximum a rise up to 200 mm. is by no means rare.

The breathlessness is, however, not an enduring feature, and the blood pressure seems to fall rapidly under the influence of rest in bed and a fluid diet. The same treatment also quickly converts an initial oliguria into polyuria, and the output of albumin and blood soon begins to lessen. The latter is at first usually present in perceptible quantities in the urine, and is always to be found by the microscope. Febrile symptoms usually disappear within ten days or so of their first appearance, and the patients seem to be generally sufficiently recovered to be sent home within three weeks of their arrival at a base hospital—that is to say, within a month of the time they first began to feel unwell.

Meantime, however—that is to say, in the stage of acute illness—comparatively few patients fail to exhibit some of the minor phenomena of uraemia, for example, generalized headache, or sleeplessness, or vomiting, and actual fits are not very uncommon. Nevertheless, right from the beginning I have not heard of more than three or four deaths, and only one of these seems to have been a typical case. In the rest there was evidence of pre-existing renal disorders, and even in the typical case the tendency towards death seems to have been increased by a large pleural effusion of renal origin.

In regard to the etiology of the disorder, there are those who favour the idea of a streptococcal infection, but direct evidence is lacking, and the subacute tonsillar inflammation which is so common in disorders of streptococcal origin figures with comparative rarity in the history of war nephritis. The grounds for holding it to be due to infection by *B. coli* seem even less assured. Association of the condition with intestinal troubles does not appear to be common, and though *B. coli* may be identified in the urine, the frequency with which this occurs seems to diminish with the care taken to exclude from the count cases in which cystitis coexists. Commonly, indeed, the urine is absolutely sterile.

On the whole, therefore, it seems not improbable that definite evidence will one day be forthcoming in support of the belief that the *causa causans* is a germ capable of passing through a filter and at present unrecognized.

Such a conception is already favoured by clinical observation of early cases. The picture that they then present is fairly constant, and the fashion in which they evolve is in keeping with that of various zymotic disorders of common occurrence. The grouping likewise of some of the cases points in the same direction, though it certainly may be explained on other grounds.

At the beginning it was believed that the cases might possibly be due to some form of metallic poisoning—an obvious possibility, in view of the fact that tinued rations are often consumed by the troops—and consequently hundreds of specimens of urine were tested by expert chemists. Search, however, failed to afford any support for the suggestion.

Finally, it should perhaps be mentioned that since most of the water used by the troops for drinking purposes is subjected to treatment by hypochlorites, there are those who mutter darkly as to the effect of a possible idiosyncrasy to minute quantities of chlorine; correspondingly there are others who dilate upon the circumstance that very few cases have been observed among Indian troops that are non-meat eaters. I am told also that they are immune to scarlet fever, but on none of these latter points have I any assured information.

THE ORGANIZATION OF A FRENCH "HÔPITAL DÉPÔT."

THE "Hôpital Dépôt" is in reality a centre where wounded or sick soldiers are classified and distributed. All the hospital formations of the district send their convalescents to this central dépôt as soon as the state of the latter is such either that they no longer require medical attention or are more or less permanently unfitted for military service. There is a large dépôt of the kind at Aix-les-Bains to which convalescents are sent from an extensive district comprising Chambéry, the valley of the Isère, La Maurienne, Montiers, Bourg St. Maurice, Brides-les-Bains, Les Marches, Challes, etc.

On their arrival at the Hôpital Dépôt the convalescents are examined and distributed according to their state of health as (1) "fit for service" or "fit to return to the front," in which case they are returned to their regimental dépôt for reincorporation; (2) convalescents who are recommended for a furlough of one or two months or more, according to circumstances; (3) for "réforme" (discharge), according as the infirmity has been contracted in the service from operations of war or the disease is the consequence of constitutional predisposition, in which case the discharge does not carry a pension; (4) men whose wounds have diminished their military value, but who are nevertheless capable of rendering service elsewhere than at the front—these are drafted into the auxiliary services; (5) patients suffering from diseases of the organs of special sense, or whose wounds have left infirmities calling for orthopaedic measures—cases of disease of the nervous system, etc., are classified at the Hôpital Dépôt and dispatched to special institutions; (6) wounded soldiers whose disablement constitutes the base of a claim for immediate discharge and pension. These cases are inquired into by a medical commission which reports in due course.

One of the special duties of the Hôpital Dépôt is to classify and complete the medico-military documents that accompany each man on his transfer to hospital and should follow him on his peregrinations. These highly important documents contain the data upon which his right to a temporary or to a permanent pension is based. The "billet d'hôpital" is the most important of these documents. The medical officers of the various hospital formations apparently do not grasp the paramount importance of this document and too often omit all mention of serious surgical interventions, as well as details of the original injury. The rectification and completion of this document entails an immense amount of avoidable administrative work. No patient is allowed to leave the Hôpital Dépôt until his papers have been put in order and brought up to date.

We are indebted to Dr. Baradat, Chief Medical Officer for the Aix-les-Bains district, for the information on which this note is founded.

CASUALTIES IN THE MEDICAL SERVICES.

ARMY.

Killed in Action.

CAPTAIN H. S. MONKHAM, C.A.M.C., of Vegreville, Alberta, killed in action in France on December 2nd, 1915, was second in command of the 3rd Canadian Mounted Rifles. He was born in 1876, and took the degree of M.D. of the Toronto University in 1906.

Captain Edward Herbert Wyand, 16th King's Royal Rifles, killed in France on January 31st, was the youngest son of Mr. F. S. Juler Wyand, and was educated at St. Paul's School and Guy's Hospital. He took the diploma of L.D.S. R.C.S.Eng., in 1901, and served as a dental surgeon during the South African war.

Lieutenant George Dewar, R.A.M.C., killed in action in France, was the son of the late Mr. James Dewar, of Aberdeen, and was 23 years of age. After serving with the colours for a few months' training, he obtained permission to return home to complete his medical studies at Aberdeen University, where he passed his final examination with distinction. He was gazetted a lieutenant in the R.A.M.C., and was almost immediately sent to the front.

Died on Service.

Major Archibald V. Becher, C.A.M.C., of London, Ontario, died at Quebec on December 25th from double pneumonia. He was medical officer of the 33rd Battalion. His brother, Lieutenant H. Campbell Becher, was killed in action at Givenchy.

DEATHS AMONG SONS OF MEDICAL MEN.

Cummins, Harry Jackson, Lieutenant 15th Gurkhas, fourth son of Dr. Ashby Cummins, Professor of Medicine, University College, Cork, killed in the Dardanelles on August 21st, in an attack on Turkish trenches near Sari Bair, aged 26. He was born in Cork, educated at Cheltenham College, and attained the rank of Lieutenant on April 20th, 1911.

Reed, J. Sleeman, Second Lieutenant, 1st Battalion the Buffs, attached Royal Flying Corps, only son of Dr. J. Sleeman Reed, of Gorleston, Suffolk, died in the Cambridge Military Hospital, Aldershot, on January 31st, aged 19, as the result of injuries

received in a flying accident at Farnborough on January 29th. He was educated at Dulwich.

Rieu, Henry, 16th Middlesex Regiment (Public Schools), killed in France on January 29th, was the third son of the late Dr. Charles Rieu, of Woburn Square, and was on the staff of the Merchant Taylors' School. He was 39 years of age.

NOTES.

ANGLO-RUSSIAN HOSPITAL.

THE Anglo-Russian Hospital, formed by a committee of which Lord Cheylesmore is chairman, Sir Starr Jameson vice-chairman, and Lady Muriel Paget honorary organizing secretary, was opened in Petrograd last week. The ceremony was attended by the Empress Marie, sister of Queen Alexandra, under whose patronage the hospital has been formed, and other members of the Russian royal family. The hospital provides 200 beds, and is established in the palace of the Grand Duke Dmitri. The equipment of the hospital—including an operating theatre, x-ray installation and bacteriological outfit—is complete. The staff is as follows: *Commandant and Chief Sanitary Officer*: A. M. Fleming, C.M.G., M.B., F.R.C.S., D.P.H. *Surgeons*: H. F. Waterhouse, M.B., F.R.C.S.; W. D. Harmer, M.C., F.R.C.S. *Physician*: T. J. Horder, M.D., F.R.C.P. *Assistant Medical and Surgical Staff*: C. Gould May, M.D.; M. Gardner, M.D.; H. F. Thompson, F.R.C.S.; A. B. Rosher, M.R.C.S. (bacteriologists); G. A. Jones, L.S.A. (anaesthetist); J. M. Flavelle, M.R.C.S., D.P.H. (radiographer). The committee also hopes to establish three field hospitals in places selected by the Russian military authorities, and the whole movement is intended as a practical sign of British admiration and gratitude towards the Russian people. That this feeling is widespread is shown by the fact that the Dominion of Canada has recently sent £10,000 to the committee to express Canadian appreciation of the valour and heroism of the Russian armies.

HONOURS.

The King has given permission to a number of naval officers to wear various decorations conferred upon them by the Czar of Russia. Among them is temporary Surgeon T. S. Bradburn, R.N., who receives the third class of the Order of St. Anne.

SIR IAN HAMILTON'S DISPATCH.

In the list of officers mentioned in Sir Ian Hamilton's Gallipoli dispatch of January 28th are four medical students of Trinity College, Dublin, who hold or held temporary commissions as combatant officers—namely, Captain R. R. Tobin, 7th Royal Dublin Fusiliers (third-year student), since killed; Captain G. H. Davis, 7th Royal Munster Fusiliers (second-year student); Lieutenant A. L. Gregg, 6th Royal Irish Fusiliers (third-year student); and Second Lieutenant F. G. Heuston, 6th Royal Irish Fusiliers (fourth-year student), since killed.

THE INDIAN SOLDIERS' FUND.

The second report of the Indian Soldiers' Fund deals with the period from April 1st to November 20th, 1915. It gives an account of the work of the fund under many headings, and includes a description of the admirably designed and administered Lady Hardinge Hospital at Broekenhurst. It is illustrated by photographs of various parts of the building, including a kitchen when the process of making chapattis was in progress. The fund works in close co-operation with the joint committee of the Order of St. John of Jerusalem and the British Red Cross Society, and in addition to all its other work the fund has taken up systematically the supply of comforts, and such clothing as is required, to the Indian prisoners of war in Germany. Most of the men are interned at Zossen, and in an appendix a report by an official of the embassy of the United States in Berlin is reproduced; it is of a favourable character.

CANADA.

In view of the demand for medical officers for service overseas, the military authorities have requested the A.D.M.S. of each division in the Dominion to take a census of all qualified practitioners who are available for service.

The fourth year medical students at the Universities of McGill and Manitoba have requested that instruction be given throughout the summer months of this year so that they may be given their degrees in the autumn and be able to enlist at once, they, on their part, agreeing upon graduation to offer themselves for service overseas. The faculties of medicine, however, do not consider that it would be in the interests of the students themselves to crowd the work of the final year into a short six months, and it is doubtful whether the licensing boards would agree to consider this an *annus medicus*.

MEDICAL OFFICERS WANTED.

32nd East Anglian Field Ambulance.

A medical officer is required for this ambulance. Imperial service obligation. Pay and allowances as in regular army, also unit and field kit allowance. Applications to the Officer Commanding, Hulton Park, Tring.

21st Highland Mounted Brigade Field Ambulance.

Three medical officers are required for this ambulance. Full particulars to be obtained from Captain Mowat, Officer Commanding, 2, Mount Street, Diss, Norfolk.

Scotland.

CENTRAL MIDWIVES BOARD FOR SCOTLAND.

The Central Midwives Board for Scotland has been provisionally constituted as follows: Lady Balfour of Burleigh, appointed by the Lord President of the Council; Sir Archibald Buchan-Hepburn, Bt., by the Association of County Councils for Scotland; Sir Robert Kirk Inches, by the Convention of the Royal Burghs of Scotland; Lady Susan Gordon Gilmour, by the Scottish Branch of the Queen Victoria Jubilee Institute for Nurses; Dr. A. Campbell Munro, by the Society of Medical Officers of Health for Scotland; Professor J. Halliday Croom, M.D., F.R.S., by the University Courts of the Universities of Edinburgh and St. Andrews conjointly; Professor Murdoch Cameron, M.D., by the University Courts of the Universities of Glasgow and Aberdeen conjointly; Dr. J. Haig Ferguson, by the Royal Colleges of Physicians and Surgeons of Edinburgh and the Royal Faculty of Physicians and Surgeons of Glasgow; and Dr. M. Dewar and Dr. J. Wishart Kerr, by the Scottish Committee of the British Medical Association.

THE EDINBURGH SCHOOL BOARD.

The report of the Board for 1914-15 gives some interesting information concerning the care of necessitous children. The nominal roll of the schools under the Board's care was 45,721, a small increase on the previous years, but the attendance showed a decline. The best attendance is in the autumn, the worst in midsummer. An account is given of the excellent arrangements for Special Children's Courts. These are held on Saturday mornings; cases for prosecution are notified by the police to the Board, the Board's officers attend the court and present the school record of the child. Equally effective are the arrangements for dealing with defaulting parents—a second fine is rarely necessary, and in a large number of cases a decision is held over on the parent giving a promise to keep the child in regular attendance in future. "The promise was invariably kept, and the case was withdrawn."

The Board has established, in a convenient central situation, a fully-equipped school clinic where children attend daily for treatment. The clinic has been working for two years. There are two dental chairs and apparatus for eye work. Four dentists, two oculists, and four nurses are employed. From September, 1914, to August, 1915, the following work was done:

	No. of Pupils.	Attendances.
Defective vision ...	944	967
Defective teeth ...	2,341	2,622
External eye diseases ...	721	4,680
Ear diseases ...	72	588
Skin diseases ...	93	594
Fitting of spectacles ...	626	626
Total ...	4,197	10,077

Ringworm is treated by x-rays at the Royal Infirmary by arrangement—213 cases were dealt with and 188 cured; 686 pairs of spectacles were supplied and all were paid for by the parents, save 16, which were given free. The spectacles are contracted for at a low price. At the outset of the war there was a considerable increase in the need for feeding children, owing to the delay in the arrangement for the support of the dependants of those on military service; free dinners were given to all those whose fathers were on service from the outbreak of the war until Christmas when the arrangement was suspended. At present penny dinners are supplied to necessitous children, the average cost of the meal is 1.7 pence. The close working of the school authority and the police is a matter for remark. It is written: "The requirement as regards clothing and boots for necessitous children continues to be

met by the operations of the police-aided clothing scheme and other charitable agencies. During the session 2,043 children were supplied by the police with boots and clothing according to their needs. The following arrangements have been come to between the Board and the Committee of the police-aided scheme in dealing with applications for boots or clothing. The schedules which contain reports by the headmasters of the needs of the children are forwarded to the chief constable as they are received from the schools. Inquiries are then made by the police as to the character and circumstances of the parent, and the decision of the Committee with regard to each case is communicated to the Board." (The same arrangement, we are told, works very satisfactorily in Brighton.) A special point appears to be made of visiting the homes of neglected children and bringing into play the arrangements of the City Corporation for the cleansing of the bodies of the children and the furniture and fabric of the homes.

Ireland.

A MEETING of medical practitioners was held in the Adelphi Hotel, Waterford, to promote a testimonial to Dr. Joseph Power (Ardhunan, co. Tipperary), formerly President of the South-Eastern of Ireland Branch of the British Medical Association, in recognition of the very valuable services rendered by him to the medical profession throughout Ireland in connexion with the certification question under the Insurance Act. The meeting was of opinion that, owing to the financial and professional advantages conferred on the entire profession, the testimonial should command the spontaneous support of every one of its members. During the dispute between the profession and the Insurance Commission Dr. Power contributed to the daily press many able letters, which were the means of gaining much influential lay support. It was, however, as the author of the pamphlet *Facts about Irish Doctors and the Insurance Act*, which was circulated amongst Irish public bodies, that perhaps Dr. Power conferred the greatest service upon his colleagues. At the cost of much valuable time and at considerable personal expense, he organized, with local assistance, the profession in the south-east of Ireland, with the result that in this district the objectionable scheme for certification of sickness benefits, adopted by the Insurance Commissioners, met, perhaps, in all Ireland, its most formidable resistance. Subscriptions are limited to £1 ls. Dr. J. H. Jellett, 11, Beresford Place, Waterford, has been appointed treasurer, and will receive all subscriptions, which should be forwarded without delay, as the fund will be closed on March 17th next.

HOUSING PROBLEM IN DUBLIN.

Dr. P. C. Cowan, Inspector of the Local Government Board, recently delivered a lecture at the College of Science, Dublin, on the housing problem, in the course of which he said that it was estimated that about eight million men were employed in regular occupations in the United Kingdom, and that about one million of them had wages of less than 20s. a week. In Dublin, out of a total of 42,000 families, at least 14,600 were in a like condition, and 5,600 men earned not more than 15s. a week. Mr. Seebohm Rowntree had calculated that the minimum cost of the necessities for physical efficiency of families left no margin for rent in the wages of a man with a wife and three children, unless he earned more than 18s. 8d. a week, and controlled himself and his family with almost impossible austerity. Food was put down at 13s. 9d., coal at 1s. 10d., clothing at 2s. 3d., and sundries 10d.; total, 18s. 8d. The root difficulty of the housing question was the low wages of a large section of the working classes, and the calculation explained why the town population had to be recruited from the country, owing to the feeble physique of the young people brought up under the hard conditions of the poorer classes in towns. In 1911 the approximate numbers per 1,000 of families living in single rooms were: In England and Wales, taken as a whole, 32; in Ireland, 64; in Scotland, 125. The worst local figures in the three kingdoms were: In Finsbury, 277 per 1,000; in Dublin, 340 per 1,000; in Coatbridge (near Glasgow), 273 per 1,000. With a similar population, Scotland had more than twice the number of single-roomed houses than Ireland

In Irish cities and towns, and especially in Dublin and the adjacent townships, good examples of improved working-class houses provided by the sanitary authorities were to be found. The munificence of Lord Iveagh in respect of housing and the wisely-guided activities of the Dublin Artisans' Dwelling Company, a company founded mainly on philanthropic basis, were specially notable. In Cork 420 pleasing and suitable houses had been erected by the Cork Improved Dwellings Company, which, by careful management, was able to pay 5½ per cent. to its shareholders.

Dr. Lorcan Sherlock, in moving a vote of thanks, said that the Dublin Corporation did not always receive fair play from those who did not fully understand the many difficulties which had to be dealt with. The principal of these was the intense poverty of the working classes in Dublin and their absolute inability to pay an economic rent for the houses being built under the corporation schemes. If the workers of Dublin were to be properly housed, the responsibility fell on the employers to pay a wage sufficient to enable them to pay the rent for decent housing accommodation. Liverpool for £1,350,000 had only provided accommodation for about 2,000 families, whereas Dublin had provided for £400,000 accommodation for 1,200 families, and the annual charge on the rates of Dublin was only £14,000, as against £35,000 in Liverpool. He paid a tribute to the time and judgement the members of the Housing Committee were devoting to this question in Dublin, but the great difficulty they had to contend with was the want of sufficient money. Sir Lambert Ormsby, F.R.C.S.I., mentioned that the Association for Housing of the Very Poor, of which he was chairman, had for sixteen years paid a dividend of 2 per cent. on the houses rented at 1s. 6d. and 2s. a week to the very poor of the city. The Artisans' Dwelling Company had always paid 5 per cent. These two companies showed what could be done by a united and philanthropic effort.

England and Wales.

SOME time ago, while a number of nurses and patients of the Epileptic Colony at Warford, near Alderley Edge, were skating on a frozen pond, the ice gave way, and eight persons—nurses and patients—were drowned. Dr. McDougall, the medical superintendent of the colony, was quickly on the spot, and at the risk of his life, without divesting himself of his clothing, plunged into the water and saved three patients. His heroic conduct was highly spoken of by the coroner, and the Alderley Urban Council passed a special resolution. The Royal Humane Society has now notified its intention to award special testimonials to Dr. McDougall and other persons for their rescue work.

THE MANCHESTER AND DISTRICT RADIUM INSTITUTE.

The first annual meeting of the Manchester and District Radium Institute was marked by a sad incident. The meeting, which was held at the Manchester Royal Infirmary, was presided over by the Lord Mayor of Manchester at first, and later by Sir William Cobbett; as the Lord Mayor attempted to rise to move the adoption of the report it was noticed that he had great difficulty in speaking, and had to sit down again. He was seen to be seriously ill and was removed to a private ward of the infirmary. The attack, we regret to state, has since proved fatal.

The report stated that most of the work done during the year had been in the treatment of cancer, but it was hoped that the treatment of other diseases might soon be undertaken. The difficulties in the treatment of cancer were very numerous, and until a sure method was devised of checking the formation of secondary deposits it would be impossible to claim cures. The investigations of the Middlesex Hospital Cancer Research Laboratories on carcinoma and sarcoma in mice and rats had suggested the possibility of producing immunity by means of radium, but so far no methods had been devised to do this with certainty in human malignant disease. The practice of the London Radium Institute of only treating inoperable cases had been followed. All cases presenting themselves

were first seen by a surgeon, and only when he refused to operate was treatment by radium or x rays considered. The treatment of tumours by embedding tubes of radium had been carried on extensively, and in the case of large and deep-seated growths the results obtained by embedding were on the whole better than those obtained by the application of superficial plates. In a number of cases the primary growth had entirely disappeared, and much pain and suffering had thus been saved, but secondary growths, many of which in turn had been lessened in size, had prevented the attainment of the desired result. The number of patients registered during the year was 655, of whom 519 had received treatment, 93 had been found unsuitable, and several were still on the waiting list. The honorary secretary-treasurer, Sir William Milligan, in presenting the financial report, said that the last year began with a balance on deposit in the bank of about £9,000, but in July a further supply of radium was bought, costing £3,987, and the balance now in hand was £5,027. The director, Dr. Burrows, urged the establishment of a research laboratory, and in this he was supported by Sir E. Rutherford, who said that the radiologist and the physicist, though engaged in independent investigation, might be of the greatest assistance to one another. A committee was accordingly appointed to consider the question.

Correspondence.

EDUCATIONAL UNREST.

SIR,—I see you have reproduced in the pages of your JOURNAL [February 5th, p. 213] the question which just before the close of the session I addressed to the Prime Minister as to the appointment of a committee to inquire into the organization of our present educational system, with special reference to the changes to be introduced when the war is over. The Prime Minister's answer was not altogether satisfactory. Possibly he did not quite well realize all that my question suggested. He said that partial effect had already been given to the scheme foreshadowed last year, which was concerned with the development of scientific research, and that the President of the Board of Education would be prepared to consult all persons and bodies competent to advise. More than this, however, is needed if our educational system is to be brought into harmony with the conditions that will prevail after the war. The *Westminster Gazette* of Monday last devoted its leading article to "The Educational Unrest." That unrest undoubtedly exists. Numerous bodies have recently held meetings, and have referred in general terms to changes that are already overdue, the necessity of which the war has brought into striking prominence.

It may be that the committee which was appointed to advise as to further facilities for scientific research will offer many useful suggestions. But some more practical proposals are needed. It is to the application of science to the different problems that now confront us that our attention should be directed. No country has men who are more distinguished in the various branches of science than we possess. Where we seem to fail is in close association of science with the several activities, whether professional, commercial, or industrial, in which our people are engaged. To bring about this more intimate connexion of science with our daily work it is essential that those who direct our schools and colleges should be in full sympathy with scientific study, and should have had the experience necessary to realize its essential value.

There are many other problems connected with the organization of education that demand attention. Among them are questions affecting the relations of the central to the local education authorities, and questions affecting the duties of the citizen to the State and of the State to the citizen. In order that a beginning may be made in the consideration of these pressing matters, I have suggested the appointment of a committee, independent of any Government department, and I still hope that the Prime Minister may see his way to accept this suggestion.—I am, etc.,

Chilworth, Feb. 8th.

PHILIP MAGNUS.

DUTIES OF MEDICAL PRACTITIONERS IN CASES OF CRIMINAL ABORTION.

SIR.—Your summary of the position of the profession towards criminal abortion is open to serious criticism. You summarize it thus:

1. Any one who, knowing of the commission of a criminal offence, attempts to conceal his knowledge from the authorities may himself be guilty of the offence of misprision of felony—an offence, however, which is practically obsolete.

None of the published utterances on this matter—whether of judges, counsel, public prosecutor, the Council of the Association, or the Royal College of Physicians—makes any reference to attempts to conceal the offence of criminal abortion. All the references, without exception, are to abstention from giving information. There is all the difference in the world between active concealment and passive non-revelation. No one proposes that doctors should actively assist their patients to conceal offences. All that is contended for is that doctors should not be compelled to use, for the purpose of rendering their patients and others liable to prosecution for felony, information obtained by professional attendance on those patients. The difference is material. By actively assisting in concealment the doctor would be guilty of misprision of felony; it does not follow that he would incur the same guilt by mere passive abstention from action.

2. An ordinary citizen, not being a barrister or solicitor, is under a moral duty to inform the authorities when he has knowledge of the commission of a criminal offence.

This is incorrect. The obligation under which the ordinary citizen lies is not a moral, but a legal, obligation. The moral obligation is in many cases exactly the reverse. A priest is in this country, though not in France, under a legal obligation to reveal the knowledge, that may come to him in the confessional, of the commission of a crime; but, so far from being under any moral obligation to do so, he would by doing so not only violate his moral duty toward his penitent, but would also bring upon himself, on moral grounds, very serious disciplinary measures from his ecclesiastical superiors. Your pronouncement is in flat contradiction to that of the Royal College of Physicians, which states explicitly that the moral obligation of the medical practitioner is the reverse of what you say it is.

3. A medical man, however, is under no such moral duty where his knowledge is obtained in his professional capacity, so far, at any rate, as the offence of abortion is concerned.

This puts the exemption of the medical man much too low. It is a misnomer that amounts to *suppressio veri*. Not only is the medical man under no moral obligation to inform the authorities, but he is under a moral obligation not to inform them; and with this moral obligation his legal duty does not conflict. This is the kernel of the matter. This is the really important knowledge that emerges from the discussion. As to the moral obligation, few doctors, I think, have had much doubt; but many of us had an uneasy suspicion that the law laid upon us a duty in certain circumstances to violate that obligation. We now know that this suspicion was baseless; and the very important result of this discussion is that we have it now on unimpeachable authority that we can perform our duty as medical practitioners towards our patients without in the slightest degree encroaching upon our duty as citizens towards the State.—I am, etc.

Parkstone, Dorset, Feb. 7th.

CHAS. A. MERCIER.

* * * As our correspondent correctly points out, the offence of misprision of felony is a very different matter from the mere non-user of knowledge by neglecting to communicate it to the authorities. The fallacy in the above criticism lies, however, in the fact that Dr. Mercier has confused moral and legal duties. A legal duty is one to which the law will enforce obedience, whilst a moral duty is one which rests for its observance upon public censure only. Inasmuch, therefore, as the duty which lies upon ordinary citizens to inform the authorities of the commission of a criminal offence is one to which no legal

consequences attach, it is, as stated in our article, a moral and not a legal duty. This being so, there were in the case of medical practitioners, and also, as our correspondent points out, in the case of priests, two conflicting moral duties—the one owed to the patient and the other to the State; the result of the conflict being to establish the former at the expense of the latter in cases of abortion.

TEMPORARY DEAF-MUTISM AND BLINDNESS.

SIR.—Some cases of recovery from deaf-mutism during fits of laughter seem to point to vascular occlusion as a possible cause of the loss of function. From time immemorial it has been observed that shock or fright is accompanied by pallor, and the fact that the hairs sometimes stand on end is mentioned by Homer, who tells us that King Priam was so perturbed on a certain occasion that the hairs stood upright on his limbs:

Ὅρθαι δὲ τρίχες ἔσταν ἐνὶ γναμπτοῖσι μέλεσσιν.—

H., xxiv, 359.

This and Job iv, 15, being undoubtedly the earliest records of cutis anserina. The pallor which accompanies this condition of the skin, when not wholly due to splanchnic engorgement, being probably caused by paralysis of the vaso-dilator nerves; the unopposed and overaction of the vaso-constrictors, and possibly the natural contractility of the vascular tissue, resulting in partial or complete occlusion of the blood vessels, and consequently a diminution or complete cessation of the blood supply—a condition which in the case of the cerebral blood vessels seems to be an adequate explanation of those cases of hemiplegia simulating that caused by cerebral haemorrhage, though the cause may be very different from that of shock, the sudden recovery, however, from paralysis naturally precluding the supposition of cerebral haemorrhage or lesion. It is therefore reasonable to suppose in cases of deaf-mutism, that a similar and circumscribed occlusion of blood vessels to the centres for speech and hearing or their communications, and probably also to the centres for vision in cases of blindness, is responsible for some, at any rate, of such conditions originally brought on through peripheral shock and also by fright. During laughter the sudden increase of blood pressure to the head would, it seems likely, upon up the occluded blood vessels in the bloodless areas, and these flushed out with healthy blood, speech and hearing would return as suddenly as they disappeared, and the vascular nerve control stimulated to its normal activity prevent a return of occlusion, and permanent recovery ensue. Such recovery, however, could of course not take place if the occlusion became so complete or prolonged as to cause degeneration of tissue. The practical application of such theory would naturally be the stimulation of the flow of blood to the head by whatever means might be deemed advisable.—I am, etc.,

Liverpool, Jan. 25th.

WILLIAM BRAMWELL.

OUR BELGIAN COLLEAGUES AT HOME AND ABROAD.

THE WEEK'S SUBSCRIPTIONS.

The subscriptions to the Belgian Doctors' and Pharmacists' Relief Fund received during the week have been as follows:

	£ s. d.		£ s. d.
Mr. J. Lynn Thomas, C.B.	5 0 0	Collected by Liverpool	
Association of Medical		Chemists' Association	6 10 6
Women in India (per		Miss A. Singha	1 0 0
Dr. M. O'Brien)—		Australian Pharma-	
Dr. Mackenzie	1 0 0	ceutical Conference	
Major Godkin, I.M.S.	4 0 0	(per the Agent-General	
Mr. A. Chapman, pro-		for Queensland) (total,	
ceeds of dependants' prescriptions	0 10 2	1986)	127 0 0

Subscriptions to the Fund should be sent to the Treasurer of the Fund, Dr. H. A. Des Voeux, at 14, Buckingham Gate, London, S.W., and should be made payable to the Belgian Doctors' and Pharmacists' Relief Fund, crossed Lloyds Bank, Limited.

Obituary.

JAMES STANLEY NEWTON BOYD, M.B., B.S.LOND.,
F.R.C.S.ENG.,

SENIOR SURGEON TO CHARING CROSS HOSPITAL.

MR. STANLEY BOYD, whose death was announced in the last number of the JOURNAL, was born at Shrewsbury, May 18th, 1856, his parents being Major James Boyd, 86th Regiment, and Emma, daughter of Henry Newton, a Burgess of Shrewsbury. He spent his boyhood at St. Heliers, Jersey, where his parents resided, and was educated at a private school there. He came to London in 1872 with an introduction to G. A. Parkes of Netley, by whose advice it is probable he was guided in taking up medicine as a profession.

He began his medical education at University College, London, in 1872, where he had a distinguished academic career. Pearce Gould, Pepper, Horsley, C. J. Bond, Stonham, and others who have become distinguished surgeons, were among his contemporaries. He was house-physician to Wilson Fox and house-surgeon to John Marshall, and was no doubt much influenced by the latter's teaching, especially in the application of scientific investigation to the practice of surgery. Boyd, like several of his contemporaries, owed much of his subsequent success to that disciple of Lister and Billroth, Marcus Beck, whose teaching of the science and the art of surgery was an outstanding feature of University College Hospital at that time.

He passed his examinations with honour to himself and his medical school, taking the Gold Medal in Anatomy at the first M.B. at the London University, and honours in his final M.B., B.S., in Medicine and Obstetrics in 1879. He became F.R.C.S. Eng. in 1881.

After taking his degree he became demonstrator of anatomy and of practical surgery, and surgical registrar, and the experience of this latter post had doubtless a great influence on his future career. By conscientious devotion to the duties of this office he laid the foundation of his thorough knowledge of pathology and of its important bearings in surgical practice. It made him a master of precise description of an operation and of the subsequent microscopic investigation, if necessary, to make the case record complete. In later life he would often refer to the value which such an appointment is to a young surgeon, if he took full advantage of the great opportunities it offered, and those who acted on this suggestion have never regretted it.

In 1882 he was appointed assistant surgeon to Charing Cross Hospital, and it was soon evident that he was an acquisition to the anatomical and surgical teaching of the hospital.

He became full surgeon in 1891, and since 1905 he had been senior surgeon to the hospital in succession to John H. Morgan, F.R.C.S., C.V.O.

He held most of the important posts at the hospital and school, such as lecturer on anatomy from 1888 to 1897, dean of the school from 1890 to 1895, pathologist 1886 to 1888, lecturer on surgery from 1896 to 1905, and on operative surgery from 1899 to 1901.

He was chosen as treasurer to the school in 1906, and held the post during a most critical period of the school's history till 1911.

At the time of his death he was surgeon to the Hospital for Consumption at Brompton, consulting surgeon to Paddington Green Hospital for Children, and to the New Hospital for Women, and to other hospitals in the suburbs. In addition to his hospital and private work he had been attending and operating daily at the 4th London General Hospital in his capacity of Lieutenant Colonel R.A.M.C. (T.F.). Boyd had been a member of the council of the Royal College of Surgeons for two years, and had been examiner in surgery at the Royal College of Surgeons and at Cambridge University.

Stanley Boyd has not written any treatise on surgery bearing his name, being too retiring and too modest to do so of his own initiative, but no one had a better pathological, clinical, or practical knowledge of surgery than he.

For these reasons he was chosen by others to write for them. In this way he was chosen to edit the twelfth edition of Druitt's *Vade Mecum* in 1887, and also the seventh edition of Green's *Pathology and Morbid Anatomy*,

at the request of his old friend, Dr. T. H. Green, his medical colleague at Charing Cross Hospital.

He also wrote articles in *Heath's Dictionary of Surgery* (Hospital Mortality and Hospitalism), in *Quain's Dictionary of Medicine* (Diseases of Mouth, Tongue, and Veins), in Treves's *System of Surgery* (Fractures), in the *Encyclopaedia Medica*, vol. i (Aneurysm), and other informing and lucid articles in current medical journals and at medical societies, amongst which may be named a paper read at the Medico-Chirurgical Society in 1893 on Artificial Anus Treated by Resection and Enterorrhaphy by Maunsell's Method, and others on Oophorectomy in Cancer of the Breast in 1897, and on Cancer of the Tongue, Mouth, and Fauces, with W. H. Unwin, in the *Practitioner* in 1903.

Some of Boyd's doctrines were not at first accepted, but in the light of later events show that he was a far-seeing man. In the early days of the Women's School of Medicine he was a lecturer on anatomy, and much of the success of that school was due to Stanley Boyd, who had the courage of his convictions and never failed to advocate the claims of women to be admitted to the examinations of the colleges and universities. Like all pioneers in this movement, it made him unpopular in some quarters. In another direction he was also a pioneer in believing that the only way to reorganize the University of London was to concentrate in a few centres for the teaching of the preliminary sciences, and much of the success which has now come to Charing Cross Hospital Medical School by its amalgamation for that purpose with King's College could have been effected years ago had the counsels of Stanley Boyd been adopted.

As another instance of his foresight it may be recalled that over twenty years ago he advocated in the public press that Charing Cross Hospital should be removed to a suburb south of the Thames. This led to much opposition, but his project has quite recently been adopted by a neighbouring hospital.

His lectures both in anatomy and surgery were as good and thorough as could be given. He was, moreover, a brilliant operator, bold but always careful, and experienced in every branch of surgery. He was keenly interested in the operative treatment of malignant disease, especially where the breast or mouth or fauces were involved, and his success in radical operations for these conditions was in some measure due to his sound anatomical knowledge.

The best tribute to his skill may perhaps be estimated by the number of his colleagues who owe him a deep debt of gratitude for his professional services either to themselves or members of their family.

Beneath a rather reserved and, to some people, a matter-of-fact manner, there lay a very sincere warm-hearted nature, ever ready to rejoice with his friends in their success and to show active and generous sympathy in distress. Boyd hated all sham and hypocrisy, and disliked slackers or slackness in work. This soon came to be appreciated by the students, and when acting as dean he applied these principles in the interest of the school.

He was a man of high principles and integrity, and willing to make great sacrifices for ideals. As chairman of the Medical Committee of the hospital and of the School Committee he showed much zeal and devotion in forwarding the interests, welfare, and progress of both, always bearing in mind that the benefits were mutually reciprocal.

Though not an athlete himself he was a great believer and supporter of athletics as a means of improving the moral and character of a school of the university.

The Charing Cross Medical School and Hospital have lost in Stanley Boyd an able teacher and a skilled surgeon as well as a successful administrator and organizer.

In 1889 he married Florence Nightingale Toms, M.D., of Chard, Somerset, who became surgeon to the New Hospital for Women, and subsequently held the post of lecturer on gynaecology at the Royal Free Hospital. At the time of her death in 1910 she was senior surgeon at the New Hospital and was acknowledged to be a skilful surgeon and clinician. Stanley Boyd had a true helpmate in his wife, and her death made a great difference in his life. His mother and one sister survive him.

DR. AMAND ROUTH writes:

Having entered University College Hospital as a student in 1873, the year following the entry of Stanley Boyd, and

with similar sequence having joined the staff of Charing Cross Hospital in 1883, I have had almost daily opportunity of appreciating his personal integrity and professional uprightness and skill during over forty years. The late Dr. Montague Murray, F. W. Mott, and the late C. J. Arkle soon joined us at Charing Cross Hospital, and we all worked there in perfect harmony.

Boyd laboured with disinterested zeal for the good of the hospital and school, and for the welfare of the students both during their hospital career and afterwards, and there was keen competition to become his house-surgeon.

His advice was sought and usually accepted by both colleagues and students, and his surgical opinion and help were similarly coveted in personal emergencies.

His friendship was deep and true, demonstrated mainly by acts of unselfishness, and his sympathy was genuine, but not on the surface, and was sometimes only truly realized when his help was being utilized in domestic or surgical crises. Indeed, he never failed one in emergency, and his counsel was so sound, so generous, and so clearly expressed that it always helped to clarify the outlook and lighten the difficulties of the situation.

As an instance of his unselfish impartiality I well remember how he acted when the obstetric physicians sought permission to perform all gynaecological operations upon their own cases. Most of the major operations had hitherto been in the hands of the surgeons, Boyd especially doing the bulk of the abdominal work. As soon as he realized that gynaecology was becoming a surgical speciality he helped to have all such surgical restrictions removed, although he knew, and so stated, that the change would inevitably lead to the majority of major gynaecological operations going to the special rather than to the general wards.

The unexpected death of Stanley Boyd has startled and distressed his old friends more than any professional loss since the death of Montague Murray in 1907. Their characters and lives were very similar, and their outlook on this world and the next was governed by a deep but unostentatious piety which controlled all their actions.

Such men as these exert an enormous influence upon the heart of a medical school, and their places will be difficult to adequately fill.

Dr. HARRINGTON SAINSBURY writes:

As one of Stanley Boyd's oldest friends, may I be allowed a little space in which to attempt, in brief outline, a record of the man himself as I knew him? Our friendship began over forty years ago at University College, London (he had come up to London from Jersey in 1872); it continued without a break and in close association until his death.

In the second chapter of the *Thoughts of the Emperor Marcus Aurelius* we find the ejaculation, "Whatever this is that I am, it is a little flesh and breath, and the ruling part": there it lies exactly, and in the case of Stanley Boyd it was the "ruling part" which ruled. Actually he was very vital, but constitutionally, even in student days, there were symptoms which made one anxious, and in the course of his career bodily disabilities occurred from time to time which might have taken the heart and the go out of any one less courageous. As it was, these did not deflect his course, even by a little; under the breath of the spirit his ship of life drove full sail for the port of duty; that was his aim and end from student days onward right through life, and the outcome of it all to the general eye was an abounding vitality.

Marcus Aurelius devotes the first chapter of his *Thoughts* to the several personalities which came into his life, and he ends up, "to the gods I am indebted for having good grandfathers, good parents, a good sister, good teachers, good associates, good kinsmen and friends, nearly everything good." Boyd's debt to the heavenly powers was a like one. I can go back to the charm of his Jersey home at St. Helier's, and recall happy memories of a visit there, when the circle was still complete, Major and Mrs. Boyd, a younger sister and brother forming that circle; and I can see there, in the simplicities and integrities and unaffected enjoyment of life which prevailed, the natural source of the qualities which characterized and adorned him. It was a military home, where duty

figured largely and cheerfully, and it has always seemed to me that, in consequence, Boyd retained much of the soldier's outlook all through his life; this impression has been deepened since the war began.

When Boyd came to London he saw a great deal of his uncle, Henry Newton, who had by then retired from a judgeship in the Indian Courts after a distinguished and strenuous career in that country. Mr. Newton, who regarded him almost as a son, had a great influence over him, and to that influence on the spiritual side of things much may be traced, in particular his sympathies with the Society of Friends; he often attended the Westminster Meeting.

A great friend of his at University College was William S. Tuke, the prognostics of whose life were brilliant, but the "dark economy of heaven" did not see fit to fulfil them here. Through him Boyd came to know Dr. Hack Tuke and his family, of long-established Quaker origin and traditions; here he found kindred sympathetic influences and friendships which endured.

It is not possible to name all those among his contemporaries at University College with whom he was associated, whom he influenced and by whom in turn he was influenced, but I would name in particular Victor Horsley (to whom in the earlier days he was much bound in a keen pursuit of elusive knowledge), C. J. Bond of Leicester, Dawson Williams, Arthur Quarry Silcock, Amand Routh, F. W. Mott, Montague Murray; the last three became colleagues of his at Charing Cross Hospital.

Amongst his teachers at University College Hospital one name stands out pre-eminently, that of Marcus Beck, a man who figured much more in his influence upon others, and in the affectionate remembrance which he implanted, than in the "alarums and excursions" which attend the presence of not a few upon the stage of life. Judged as a man who moved others, Marcus Beck was a great force; it is surprising how he is still loved and remembered.

I am not able to take up the tale of Boyd's professional associations and friendships after he joined Charing Cross Hospital, but I would like to give the names of two friends, John Abercrombie and James Galloway.

From about 1880 onwards began his connexion with the London School of Medicine for Women, to which, in the chivalrous way which was his wont, he gave without stint time and labour and his most serious endeavours; here, as always, recognizing for himself and others one standard only—namely, the highest. Many friendships had their origin in this school, and here he found, as his great reward, Florence Nightingale Toms, M.D., from a family well known and much respected in Chard, Somerset. They were married in 1889, and with his marriage began the happiest and fullest period of his life, for the two were united not only by the bonds of affection but by an exceptional community of tastes, interests, and ideals; they were husband and wife and at the same time true comrades. Mrs. Boyd died in 1910, to the sorrow of all who knew her, to his grief before all. Henceforward he continued to work with the same thoroughness but not with the same incentive, for joys could no longer be doubled, sorrows halved. He left special directions that his funeral should follow as far as possible in all details the funeral service of his wife; and if this was departed from by the introduction of a military element, it was done so after full consideration and in the belief that Mrs. Stanley Boyd would have welcomed the departure, proud of the work which he had given to his country in its hour of need, proud of her lieutenant-colonel.

What remains to be said? Stanley Boyd was a true friend, never so happy as in the doing of a kindness, and grudging no pains in the rendering of a service; it is consoling to think that there are those, and they are many, who will always miss him, for this is but a just tribute to his worth. If there are some who have misunderstood him—and who shall escape misunderstanding?—let them be assured that nothing petty, nothing ungenerous, lay behind, and that his intention ever pursued the ideals which claimed him.

His mother and sister, who have lived with him since 1910, may well be proud of him, and herein find their truest consolation.

CHARLES STONHAM, C.M.G., F.R.C.S.,

SENIOR SURGEON, WESTMINSTER HOSPITAL; COLONEL A.M.S.

MR. STONHAM, whose death was announced in the *BRITISH MEDICAL JOURNAL* of February 5th, was the third son of Mr T. G. Stonham of Maidstone, where he was born on March 27th, 1858. He was educated at King's School, Canterbury, and afterwards at University College, London, where he had a distinguished career as a student. He was gold medallist in surgery, in medicine, and in gynaecology, and held all the resident posts in the hospital. He won the Atchison Scholarship in 1881. He took the diploma of M.R.C.S. in the same year, became a Fellow in 1884, and was for some years senior demonstrator of anatomy and curator of the pathological museum at University College. In 1887 he was appointed assistant surgeon to Westminster Hospital, becoming full surgeon in 1895 and senior surgeon in 1897. He was lecturer on surgery and teacher of operative surgery at Westminster, and examiner in surgery at the London Society of Apothecaries and the Royal University, Ireland; he had been examiner in anatomy of the Conjoint Board in England.

Mr. Stonham was the author of a *Manual of Surgery* in three volumes and of various other works, including descriptive catalogues of specimens of medical pathology, surgical pathology (part ii), and gynaecology and obstetrics in the Museum of University College, and of morbid anatomy in that of Westminster Hospital. He contributed articles on gonorrhoea and other subjects to *Quain's Dictionary of Medicine*, and on brain abscess to the *Medical Annual* of 1888.

Mr. Stonham served in the South African war with the rank of major in the R.A.M.C. He was chief surgeon and officer in command of the Imperial Yeomanry Field Hospital, and wrote a report of the work of the hospital and of the bearer company attached to it. He was mentioned in despatches, and received the Queen's medal with four clasps. In 1901 he was made C.M.G. He was lieutenant-colonel in the R.A.M.C. (T.F.), commanding the London Mounted Brigade Field Ambulance, which he raised some years ago. On the outbreak of the present war he was mobilized with the ambulance, and in June, 1915, was seconded and made consulting surgeon to the forces in Egypt with the rank of full colonel. In that capacity he did excellent work. He continued to hold the appointment till he was prostrated by dengue and had to return home on sick leave. His illness proved fatal on January 31st.

Mr. Stonham was a sound surgeon, a bold and successful operator, an inspiring teacher, and a good organizer. As an examiner students sometimes complained of a slight brusqueness of manner, but in his decision as to the fate of candidates he was, we understand, more accustomed to temper justice with mercy than many judges more suave of speech. He was keenly interested in ornithology, a member of the British Ornithologists' Union, and the author of a beautifully illustrated work on *The Birds of the British Islands*.

He was a man of large experience and observation, and his knowledge of life, sense of humour, and raciness of speech made him an amusing and stimulating companion. In him the profession has lost a distinguished member, and his colleagues and many patients a valued friend. He leaves a widow and one daughter.

MR. WALTER G. SPENCER writes:

Charles Stonham was a man of great natural ability, who profited to the full by the teaching he received from the distinguished men then on the staff of University College Hospital. Marcus Beck was the great exemplar upon whom he modelled himself, whilst Berkeley Hill gave him the inclination to his particular department of practice. In addition, as obstetric assistant under Sir John Williams, he obtained a good introduction to abdominal surgery. For a short time he was a member of the surgical staff of the North-West London Hospital, also of the Cancer Hospital, and some years later he was for a time surgeon to the Poplar Hospital for Accidents.

Stonham's commanding spare figure, striking face, and the energy he threw into speech and movement always impressed students and colleagues. He was perfectly ambidextrous; his long thin hands were used most skilfully. He was a very rapid operator, beginning and ending quickly, yet proceeding with all due caution at critical

stages of the operation. He will be remembered at the Westminster Hospital for many brilliant successes, and for many acts of kindness to patients, students, and nurses. Whilst actively engaged as a hospital surgeon and in private practice he distinguished himself in other ways. In early life he was an enthusiastic mountaineer, was a member of the Alpine Club, and made some noteworthy climbs. He displayed perhaps the most original talent as an observer of birds. He filled his house with a beautiful and rare collection of birds and their eggs, and he published a large book on British birds, as notable for the guidance he gave to the artists in making the drawings as for the bird lore included in the text.

Stonham commenced his military service as surgeon in the Middlesex Yeomanry. With the outbreak of the South African war he organized and took out as surgeon-in-chief the Imperial Yeomanry Field Hospital. A remarkable incident occurred soon after landing. He, with his field ambulance arrived shortly after De Wet had attacked and captured the Derbyshire Militia. It fell to him, as senior officer present, to arrange matters with the Boer general and also to be the first to inform the British authorities of the mishap.

On his return, he actively continued this work by forming a mounted ambulance, and, in spite of lack of sympathy and financial support, his unit took part in manoeuvres, and when the present war broke out he was fully prepared, and could have taken it out to France with the first Expeditionary Force. But he had to undergo a severe trial to his patience; his trained men and horses were required to make up deficiencies elsewhere, and he had to spend a winter in East Anglia recruiting to replace what had been taken away.

At last he and his ambulance brigade were ordered out to Egypt. He was there soon appointed to inspect hospitals, and there are many testimonies to the good work he accomplished in the short period he was able to hold his post.

In recent winters he had suffered from emphysematous attacks, but a short holiday in the south had restored him. In Egypt this trouble recurred whilst he was weakened by dengue and dysentery. So he was obliged to go on sick leave to Cannes. There he failed to recover as in previous years; he reached home very weak, and died on January 31st. He was buried at Golders Green with full military honours. At the same time a service was held in the Westminster Hospital Chapel.

DR. WILLIAM BARKER BALE died at his residence in Stockport, Cheshire, on January 12th. He was a son of the late Dr. William Bale, J.P., for many years a medical officer to the Stockport Union and a member of the town council. The deceased, born in Stockport in June, 1866, was educated at Lancaster and studied medicine at the Owens College, Manchester, taking the diplomas of M.R.C.S. and L.R.C.P. in 1890. He was appointed medical officer for the Stockport Workhouse, an appointment he held for nearly twenty-five years; he was also medical officer for the cottage homes attached to the union, and public vaccinator. When Stepping Hill Hospital was built and, later on, when a sanatorium and new nurses' homes were erected, he was given the sole management of the medical and surgical arrangements. He gave evidence before the Royal Commission on the 'Poor Law'. Two years ago he rested from his official labours for some months; on resuming them, once more he worked hard, and had charge, since May, 1915, of the military patients. His professional reputation had gained for him a large private practice. In December he was forced to take six months' leave of absence, but he was too ill to quit his home, and sank rapidly. His widow, a son, and two daughters survive him. Every section of the community attended the funeral at Stockport Borough Hospital Cemetery in order to show their sincere sympathy and to pay their last tribute of respect to the deceased doctor, who was held in universal esteem and affection in Stockport and neighbourhood.

In the course of a lecture at the London School of Economics last week, Sir George Paish stated that it was the intention this year to maintain in the field, in place of an average of two millions last year, a force of four millions at a total cost of eighteen hundred or two thousand millions sterling.

Universities and Colleges.

LATIN IN THE MEDICAL CURRICULUM.

THE Court of Governors of the University of Sheffield on February 7th amended the statutes so as to provide that "students shall be entitled as from June 1st, 1915, until the Court of Governors of the Sheffield University shall otherwise determine, to enter the Faculty of Medicine of such University without being compelled to take Latin at the matriculation examination."

The University of Birmingham has also decided that Latin shall be an optional subject, students in future being permitted to offer a modern language or a science instead of Latin. The step was taken by the University of London in 1902.

With reference to the University of Manchester we have received the following letter:

The University, Manchester,
February 8th, 1916.

Sir,—In the report of the Committee of Management to the Conjoint Examining Board of the Royal Colleges, as well as in the report of the comitia of the Royal College of Physicians, it has been stated that Latin is no longer a compulsory subject in the entrance examination to the Faculty of Medicine in the University of Manchester.

I should be glad if you would allow me to correct this misunderstanding. The University of Manchester has not modified the matriculation requirements.

I am, etc.,

G. ELLIOT SMITH,
Dean of the Faculty of Medicine.

UNIVERSITY OF SHEFFIELD.

DR. ARTHUR J. HALL, F.R.C.P., Senior Physician, Sheffield Royal Hospital, has been appointed to the Professorship of Medicine, in succession to Dr. Duncan Burgess.

THE FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW.

WAR SERVICE OF MEDICAL PRACTITIONERS.

THE Registrar informs us that the Royal Faculty of Physicians and Surgeons of Glasgow have been much gratified to observe the large number of those connected with the medical profession who are giving war service in various capacities. They desired to take some step which would at once mark their sense of the loyalty of these members of the medical profession and would encourage others to follow their example. With that twofold object, and after careful consideration as to the best method in which this could be attained, they have made an alteration in their Regulations for the Examination to the Fellowship of the Royal Faculty, which they consider will mark their sense of the value of war service, and will facilitate the entry of those who render adequate war service into the Fellowship without unduly lowering the standard of the qualification. The Fellowship of the Royal Faculty is an honour qualification, and is of deservedly high repute. It is open to registered medical practitioners of not less than two years' standing who pass an advanced examination in two of the principal subjects of medical science. The Royal Faculty, having in view the value of the loyal and patriotic services which those who are engaged in the war are giving to the State, and the value of the experience they are likely in this way to acquire, have resolved that in their case an examination in one of these subjects in place of two shall be accepted as sufficient, and that this privilege shall hold good in the case of candidates coming forward within five years after the termination of the war.

CONJOINT BOARD IN ENGLAND.

THE following candidates have been approved at the examination indicated:

FINAL EXAMINATION.—Part I. *Medicine*: F. M. Allchin, G. F. V. Anson, T. A. P. Benbow, A. W. C. Bennett, K. H. Bhat, J. T. Bleasdel, C. E. Bond, C. V. Brainbridge, J. F. Buckle, G. E. Chissell, H. M. Church, P. S. Clarke, D. Crellin, R. G. Dani, A. R. K. Dina, G. G. Drummond, W. C. C. Easton, W. F. Eberli, M. Elias, C. A. L. Evans, G. I. Evans, S. W. Fisk, A. R. Fuller, C. H. Gilmour, C. C. Goodall, E. A. Green, H. E. Griffiths, A. B. Gunasekara, T. H. Gunewardene, H. M. Halliday, J. C. N. Harris, W. L. A. Harrison, B. Haskins, E. H. V. Hensley, E. L. Hopkins, W. A. Hotsen, H. Ingleby, G. G. Jack, T. H. Jackson, F. B. Jago, L. W. Jones, V. Kanemeff, T. L. Kan, I. Keess, C. E. Kindersley, R. P. Langford-Jones, M. E. A. Latif, H. Lewis, L. M. Lister, D. Loughlin, H. M. C. Macaulay, P. G. McEvedy, G. A. S. Madgwick, R. H. Maingot, L. A. Malik, P. S. Marshall, G. L. Maule, P. W. Mamsell, A. D. Millington, T. D. Morgan, A. G. Morris, B. Mountain, S. Muttiah, K. V. Muttukumaru, S. R. Nalliah, J. D. Oliver, M. Oliveira, A. J. Orenstein, P. E. D. Pank, E. W. Paul, G. Perkins, P. R. O'R. Phillips, B. R. Powell, D. S. Pracy, M. K. Robertson, G. C. Robinson, B. T. Rose, P. G. Russell, K. Sahib, E. Sakoschansky, W. H. Sava, J. E. Scamian, G. B. Sellwood, E. A. Shaw, C. Shaw-Crisp, N. A. Spcott, E. Stansfeld, W. Steadman, H. G. Störner, A. Sunderland, H. W. Taylor, L. D. Taylor, W. H. Thomas, J. A. Tippet, H. M. von Mengershausen, H. J. Wallace, J. Walton, H. A. Whyte-Venables, R. W. Willenberg, G. C. Williams, H. G. E. Williams, A. Wilson, T. Wilson, L. Zeitline.

Part II. *Surgery*: A. W. Adams, M. N. Andrews, G. F. V. Anson, K. D. Atteridge, A. J. Bado, K. L. Bates, T. A. P. Benbow, G. A. Beyers, K. H. Bhat, J. T. Bleasdel, E. S. Bowes, A. O. Courtice, P. A. Dargan, L. M. Davies, I. A. I. Davies, H. M. Drake, A. N. Drury, C. Y. Eccles, C. A. F. Evans, D. J. Evans, L. W. Evans, M. D. Evans, W. J. Evans, W. Farquharson, G. Fehrsen, E. A. Fiddian, M. R. V. Ford, C. Gould, H. E. Griffiths, C. G. W. Hahr, A. E. Hamlin, G. C. Hartley, A. N. Haworth, G. E. Heath, V. R. Hirsch, E. L. Hopkins, G. P. B. Huddy, H. Ingleby, V. C. James, A. R. Jennings, S. H. M. Johns, W. G. Johnston, J. G. Jones, L. W. Jones, C. E. Kindersley, E. A. Levisseur, H. Lewis, K. T. Limbery, G. A. S. Madgwick, R. H. Maingot, G. M. Miall-Smith, R. D. Moyle, K. V. Muttukumaru, H. M. Oddy, P. R. O'R. Phillips, A. C. Pickett, D. S. Pracy, R. Rau-Damodar, D. Rees, E. D. Richardson, M. K. Robertson, B. T. Rose, E. E. Samaraweera, J. T. Samuel, E. H. Schwab, C. P. Sells, G. B. Sellwood, E. Stansfeld, G. T. Symons, H. J. H. Symons, A. H. Taymour, W. H. Thomas, J. A. Tippet, B. S. Topham, H. M. von Mengershausen, P. E. Webb, H. M. Wherry, H. A. Whyte-Venables, H. G. E. Williams, A. Wilson, R. S. Woods, G. N. Younger.

Part III. *Midwifery*: G. C. Agarwala, A. M. Ahmad, J. Andrew, G. F. V. Anson, H. Archer, A. Arias, T. B. Bailey, T. A. P. Benbow, F. E. Bendix, H. J. Bensted, C. E. Bond, E. G. P. Bousfield, I. B. R. Brogden, W. W. K. Brown, H. S. Bryan, L. J. F. Bull, H. R. Buttery, H. H. Castle, L. A. Célestin, A. H. Clarke, P. S. Clarke, A. A. Cockayne, W. H. Coldwell, J. D. Constantine, G. F. Cooke, M. C. Cooper, L. Cunningham, R. C. Davenport, A. V. S. Davies, F. G. L. Dawson, M. A. B. Demerdash, A. B. Dummere, W. H. Dye, J. D. Dyson, A. W. F. Edmonds, H. E. Ekanayake, M. Elias, H. S. Evans, T. S. Evans, F. O. Fehrsen, E. A. Fiddian, M. R. V. Ford, M. E. Franklin, A. R. Fuller, D. H. A. Galbraith, G. T. Garraway, L. S. Gathergood, E. L. Glasier, H. E. Griffiths, E. Haigh, N. H. Harrison, B. Haskins, A. N. Haworth, J. A. Hill, G. Hoffmeister, W. O. Holst, W. A. Hotsen, J. B. Hume, H. Ingleby, E. E. Jenkins, T. Joekes, P. T. Jones, W. H. Jones, H. Lewis, N. M. Lewis, E. E. Lightwood, A. Lloyd, D. Loughlin, L. G. Lunnion, H. M. C. Macaulay, L. A. Malik, W. Marriott, P. S. Marshall, J. A. Martin, F. C. Mason, A. M. Matland, B. H. Mellon, G. M. Miall-Smith, H. W. L. Molesworth, E. C. de M. Morgan, R. Moser, E. W. Mottau, G. Moulson, D. M. Muir, J. J. Murphy, F. P. Nicholas, D. C. Norris, M. A. Omar, A. O'Reilly, J. A. P. Pereira, E. M. Pfeil, V. Philippe, E. S. Phillips, R. L. Portway, J. S. Ranson, C. Y. Roberts, M. K. Robertson, J. D. Rutherford, R. J. Scarr, G. B. Sellwood, R. G. Simpson, D. M. Smith E. Stansfeld, G. P. Totton, W. H. Thomas, R. O. Townend, H. M. von Mengershausen, O. Williams, A. G. P. Wills, A. Wilson, J. H. Wiseman, C. Young.

The Services.

EXCHANGE DESIRED.

CAPTAIN, R.A.M.C.(T.), home on special leave, due to return as M.O. to a regiment in France on March 1st, desires, owing to family reasons, to exchange with medical officer in hospital or administrative work in England. Address, No. 650, BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C.

Medical News.

THE King has appointed Mr. Harold Low, M.A., M.B., to be anaesthetist to His Majesty's household.

DR. AXELMER MAY, who was P.M.O. to the forces operating in Northern Rhodesia, is coming home to act as assistant to Colonel Sir Ahmroth Wright in France.

A QUARTERLY meeting of the Medico-Psychological Association will be held at 11, Chandos Street, W., on Thursday next at 2.45 p.m., when Dr. George M. Robertson, physician-superintendent of the Royal Edinburgh Asylum, Morningside, will read a paper on the employment of female nurses in the male wards of mental hospitals.

THE foundation stone of the Hospital for Tropical Diseases of the Calcutta School of Tropical Medicine will be laid by the Governor of Bengal, Lord Carmichael, on February 24th. The preliminary work of the building has already been begun. The whole of the money for the building has now been collected by Sir Leonard Rogers, Professor of Pathology in the University of Calcutta. The Calcutta School of Tropical Medicine was described and illustrated in the BRITISH MEDICAL JOURNAL of March 7th, 1914, pp. 562-63.

THE Home Secretary has appointed a committee to consider and report whether, having regard to the normal conditions of traffic in London, licences to drive motor cars, motor omnibuses, or tramway cars should be granted to men who suffer from some partial disablement by loss of a limb or other similar cause, and, if so, within what limitation. The chairman of the committee is the Assistant Commissioner of Police, and among the other members are Sir Frederic Eve, the secretary of the Soldiers' and Sailors' Help Society, the secretary of the Royal Automobile Club, a representative of the Local Government Board, and the managing director of the London General Omnibus Company.

A MEMORIAL tablet in memory of the late Dr. B. C. Antill Pockley, who was killed while on active service with the first Australian Military Expedition at Kaba Kaul, New Britain, on September 11th, 1914, was unveiled at the Sydney Hospital on December 22nd, 1915. The inscription on the tablet recalled the circumstances of Captain Pockley's death, as recorded in the *BRITISH MEDICAL JOURNAL* of January 2nd, 1915, p. 46, in the following words: "He died through giving to a wounded comrade the badge protecting his own life." Dr. Ralph Worrall, the senior gynaecologist to the hospital, by whom the ceremony was performed, paid a high tribute to Captain Pockley's attainments and character, and, in concluding his remarks, associated with the tribute thus paid to a noble young man, the names of three other medical men—Dr. Muir Smith, Dr. Eric Giblin and Dr. Arthur Verge—who had also given their lives to their country.

In his presidential address to the Society of Public Analysts, on February 2nd, Mr. A. Chaston Chaplin said that during practically the whole of the first year of the war skilled chemists were recruited for active military service; that was to say, men who, by their training and experience, were absolutely necessary in their civil occupations for the welfare of the country, whether in war or in peace, were accepted for ordinary military work. Many hundreds of highly trained chemists were to a great extent wasted by being put to military duties which could easily have been performed by men with no special training. Eventually the Board of Trade appreciated the facts of the situation, and in issuing its list of reserved occupations of cardinal importance for the maintenance of some other branches of trade and industry, mentioned analytical and consulting research chemists, who, it was directed, should not be accepted for immediate enlistment or called up for service with the colours without the consent of the Royal Society. Mr. Chaplin added that the president of the Royal Society has now appointed a committee to assist the society in connexion with matters relating to recruiting.

THE General Secretary of the Medical Defence Union informs us that Sir Henry Craik, M.P., has received a communication from the Financial Secretary to the Treasury with reference to the assessability of gratuities and bonuses granted to temporary lieutenants of the Royal Army Medical Corps. In general these sums are said to be given under the officer's contract for satisfactory service, and as such are liable to income tax. The remainder of the answer quotes the various sections bearing on the allowances due in certain cases, but as we have dealt with these sections in previous issues (as, for instance, in that of October 30th, 1915), it will suffice to say that Mr. Montagu points out that an officer in the R.A.M.C. will come under the relief provisions of Sections 25 (1) of the Finance (No. 2) Act, 1915, if his total income does not exceed £300, and that, under Section 13 (1) of the Finance Act, 1914 (Session 2) and Section 20 of the Finance Act, 1915, he will only bear tax in respect of the practice he has given up on the basis of the actual profits (if any) of the year, instead of on the average of the past three years.

It is satisfactory to find that the Brentford guardians have appointed a committee to consider a scheme for the supply of medicines to their sick poor. This reform, urged over and over again upon guardians by the Local Government Board, has been adopted in many parts of the country. In the metropolitan area the supply of drugs by the guardians has been compulsory for many years, and the provisions of the Metropolitan Dispensaries Order ought to have been extended to other parts of the country. It is a pity that the guardian who made the proposal at Brentford could not have done so without in a most reckless manner bringing charges against certain medical practitioners, whose names were not mentioned, but who might be supposed by the context to be some of the board's own medical officers. According to a report in the *Acton Gazette*, he said that he had seen in doctors' surgeries large bottles labelled A.D.T., which he explained to mean "any d—d thing." Now, Mr. Greville-Smith has either seen this label in the surgery of a Poor Law medical officer at Brentwood or he has not. If he has, he ought to have brought his allegation before the board, so that an inquiry could have been held which would either have established its truth or have shown that Mr. Greville-Smith's eyes had deceived him. As a matter of fact, we suspect that the latter alternative would have been proved to be correct. The story about A.D.T. was a chestnut early in the last century. We have never seen the label, and have never heard of any one except Mr. Greville-Smith who has.

Letters, Notes, and Answers.

CORRESPONDENTS who wish notice to be taken of their communications should authenticate them with their names—of course not necessarily for publication.

AUTHORS desiring reprints of their articles published in the *BRITISH MEDICAL JOURNAL* are requested to communicate with the Office, 429, Strand, W.C., on receipt of proof.

THE telegraphic addresses of the *BRITISH MEDICAL ASSOCIATION* and *JOURNAL* are: (1) EDITOR of the *BRITISH MEDICAL JOURNAL*, *Attilology, Westrand, London*; telephone, 2631, Gerrard. (2) FINANCIAL SECRETARY AND BUSINESS MANAGER (advertisements, etc.), *Articulate, Westrand, London*; telephone, 2630, Gerrard. (3) MEDICAL SECRETARY, *Medisecra, Westrand, London*; telephone, 2634, Gerrard. The address of the Irish office of the *British Medical Association* is 16, South Frederick Street, Dublin.

Queries, answers, and communications relating to subjects to which special departments of the *BRITISH MEDICAL JOURNAL* are devoted will be found under their respective headings.

LETTERS, NOTES, ETC.

THE ANGULUS LUDOVICI.

J. C. (Edinburgh) writes: As a onetime demonstrator of anatomy I was interested in your reviewer's criticism of Professor Davis's *Applied Anatomy* (*BRITISH MEDICAL JOURNAL*, February 5th, 1916). While the angle is called after Louis, this last is the French form of the Frankish "Chlodewig," (Ludwig) and Ludovicus is the Latin for both forms. What is wanted in students' anatomy books is a line or two on the biography of the men whose names are embedded in anatomy, and it would be of great interest to the student to know that Sylvius was plain Jacques du Bois, and Vesalius, Wessels, and so on with others. Now that Latin is being done away with, as at Liverpool Medical School, we may expect considerably more confusion.

INCOMPATIBILITY.

DR. JOHN RITCHIE (Glasgow) writes, with reference to the note on this subject in the *JOURNAL* of February 5th (p. 224), as follows: If "M." will mix his ingredients as described below, and allow the mixture to stand aside for an hour or two, he will secure a fine clear solution. Dissolve the sod. salicyl. in part of the water. Dissolve the pot. bicarb. in part of the water. Dilute the tinct. ferri perchlor. with the remainder. Mix the sol. sod. salicyl. with the sol. pot. bicarb. Add the mixed solutions to the diluted tinct. ferri perchlor.

M.P.S. (Glasgow) states that he has dispensed the mixture in question many times, and has found it compatible if prepared in the following manner: To a solution of the sodium salicylate in half the aq. chlorof. placed in a large measure add gradually the tinct. ferri perchlor. mixed with the remainder of the chloroform water, stirring constantly till effervescence ceases. The result is a blood-red mixture, perfectly clear and stable.

MR. THOMAS STEPHENSON of Edinburgh calls attention to a note of a similar prescription given in his pamphlet *Incompatibility in Prescriptions*. He directs that the salicylate and the potash should each be dissolved in water; the former is put into the bottle and the ferric chloride added to it, then the potash solution, and the bottle is filled up with water. The result is, he says, a clear claret-coloured mixture without a trace of deposit or effervescence.

CHILBLAINS.

DR. J. FLYNN (Sydney, N.S.W.) writes with reference to recent inquiries as to the treatment of chilblains: I would recommend a trial of extract of suprarenal gland. It is true that one swallow does not make a summer, but the marked effect that followed the administration of gr. v thrice a day in a case under my personal observation that had for years tried calcium in various forms caused me to ask the question whether other factors than deficiency of lime in the blood do not enter into the causation of chilblains. It would be well to consider whether inadequacy on the part of the suprarenal system and its effect on the autonomous sympathetic does not play a part in this very troublesome malady.

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

	£	s.	d.
Seven lines and under	...	0	5 0
Each additional line	...	0	0 8
A whole column	...	3	10 0
A page	...	10	0 0

An average line contains six words.

All remittances by Post Office Orders must be made payable to the *British Medical Association* at the General Post Office, London. No responsibility will be accepted for any such remittance not so safeguarded.

Advertisements should be delivered, addressed to the Manager 429, Strand, London, not later than the first post on Wednesday morning preceding publication, and, if not paid for at the time, should be accompanied by a reference.

NOTE.—It is against the rules of the Post Office to receive *poste restante* letters addressed either in initials or numbers.

Observations ON GUNSHOT WOUNDS OF THE HEAD.

BY
COLONEL H. M. W. GRAY, C.B., A.M.S.(T.C.),
CONSULTING SURGEON, BRITISH EXPEDITIONARY FORCE.

In view of publications on this subject which have appeared in the medical press from time to time since the beginning of the war, it seems desirable to define the principles and practice followed, almost without exception, by the surgeons at work in the military hospitals in R—. These principles may be enunciated shortly as follows: We believe

That infected gunshot wounds of the skull and brain require more careful consideration and prompt attention than similar wounds of any other part;

That we can combat and prevent sepsis best by early and complete operations;

That we can prevent permanent disability in most cases by systematically removing foreign material or displaced bone from the surface or substance of the brain whenever these are accessible to legitimate surgery;

And further, that, by these precautions, the immediate results in the saving of life and more rapid restoration of function, when that is possible, are better than those obtained by more conservative procedures.

All experience has shown that the brain, sooner or later, resents the presence of any abnormality in its immediate coverings or in its substance. It is true that some small lesions of the skull or small foreign bodies in the brain have caused apparently no trouble to the patient, even after years have passed, but others, seemingly equally insignificant, have caused intolerable inconvenience, due to late effects on the brain, which removal of the exciting cause has not succeeded in relieving. This is more true, of course, in cases of actual lesion of the brain. It is rather sad to think of the number of men injured in the head during the South African war who afterwards became a burden to the State owing to derangements of the brain, and it must be remembered that the maiming effects of sepsis in that campaign were not apparent to anything like the same extent as in this one.

It has always been the aim of military surgeons to remove or ameliorate the physical defects produced by missiles. Removal of displaced bone, of foreign bodies, of blood clot, or of any substance which might interfere with rapid and smooth healing of the brain has been considered to be of the utmost importance no less than the combating of sepsis. We have discovered in this campaign no valid reason to depart from this line of thought. The immediate effects of sepsis, both in increasing the severity of the focal lesion and in causing diffuse inflammation of the brain and its coverings, have been impressed on our minds with dreadful force. The power of the brain to accommodate itself to extraordinary conditions, or, one might say, the power of one part of the brain to disregard even excessive injury of another part so that what is left "carries on" in a marvellous way, has also been very striking. But who can foretell that, later on, such cases are to be free, as never before, of sequelae which experience has shown to be so frequently inevitable?

Because of that experience and because no one can foresee how soon trouble will arise, it is surely right that we should do all in our power to prevent probable trouble. It is a matter of the greatest importance to establish the best method of preventing or eradicating sepsis, which is such a hindrance both to rapid healing and to successful attack on physical defects in the skull or in the brain. One is not justified in formulating rules which are based on results of operations performed at a period in the war when methods of dealing successfully and rapidly with infected wounds were not properly appreciated. It has been found that septic wounds of the scalp and skull are particularly easy to deal with when compared with others in that they can usually be completely excised, and the scalp sutured without danger. One might almost say that this procedure, in the hands of those who have mastered

the necessary technique, has robbed operation of its danger and has enabled surgeons to obtain results which compare favourably with those of equal magnitude in civil practice under ordinary aseptic conditions. These remarks do not apply, of course, to cases in which sepsis has already obtained a firm hold in the lacerated brain. The problems connected with such cases are much more difficult. Apparently success is then dependent chiefly on the provision of suitable drainage—a very easy thing to say!

Fragments of bone, when driven into the brain, are not usually septic at first, but tend to become infected fairly rapidly. Jagged pieces of shell almost invariably carry infection along with them. If large pieces lodge in the brain, results are very bad. Very small pieces, on the other hand, may not cause any trouble, but even they have been found sometimes surrounded by large abscesses.

While it is evident that the thorough removal of physical defects is desirable at as early a date as possible, there are objections to this, of which the most important is that patients do not travel well until at least a week or ten days after operation. During a period of active fighting they cannot be kept at the front, and therefore it would appear best that all except the most serious cases should be sent at once to the bases, so that they may arrive before sepsis has got a firm hold. At the front nothing should be done to the wound further than to remove any visible foreign material, to antisepticize the surrounding scalp, and to apply a suitable dressing. To judge from experience in Rouen, it would seem advisable that, if any operation has to be done at the front, it should be a complete one. Second operations appear to entail a greater risk, taken all over, in these cases than a complete primary one. The average case arrives at the clearing stations really in a less septic condition—although the wounds may be superficially badly soiled—than they do at a base, and results should on that account be more favourable.

The following remarks have, of course, no reference to very severe wounds caused by large pieces of shell, in which such an extensive part of skull and brain is blown away or where a rifle bullet causes such explosive intracranial effects that the patient does not survive more than a few hours.

We have seen many patients who on admission have been suffering from complete hemiplegia, and whose symptoms have cleared up in such a marvellous and rapid way after operation that only a negligible amount of paresis has persisted. On the other hand, we have seen cases who showed few or no symptoms, but who later developed serious complications and died rapidly, in spite of operation. It appears, therefore, that one ought not to pay too much attention to focal symptomatology as a guide to treatment, or even, in many cases, to prognosis.

We have seen many cases with extensive superficial injuries with little or no damage to the brain, and, on the other hand, many cases in which an insignificant looking wound of the scalp and skull was associated with most extensive injury to the brain. Whilst large, lacerated wounds are usually most septic and suppurative in the brain apt to be severe, yet we have seen cases of trivial and comparatively clean-cut wounds of the scalp to be associated with extensive fracture, and, after a few days, with such acute suppuration in the brain that only immediate operation saved the patient's life. The size or condition of the wound, therefore, is no indication of how the case will behave.

One is told that oedema of the brain, and shock or concussion accompanying a serious injury, are such that operation at an early stage is dangerous. Yet we hear of many patients who are brought into clearing stations in practically a moribund condition who, after immediate operation, in a few hours have so far recovered that they are able to speak intelligently and take food. Their injuries heal up perfectly well afterwards. It would thus appear that oedema and so-called shock are no bar to success. Indeed, it is likely that both oedema and shock will pass off more quickly when the physical defects are remedied—all the sooner the more thoroughly this is done. In wounds of other parts, oedema and tension due to interference with the circulation are relieved very rapidly by incision, removal of foreign material, and drainage. How much more must relief of the circulation be called for in a closed box like the skull! In serious cases delay does not, therefore, seem advisable.

In passing, one may be permitted to draw attention to the value of local anaesthesia for many of the cases. The solution need be injected only into the scalp tissues and pericranium. The skull, dura, and brain will thereafter be found to be insensitive. If adrenalin is mixed with the solution, bleeding from the scalp is reduced to a minimum.

After consideration of all these facts we are driven, in deciding upon a course of action, to pay more attention to the probable mechanical effects of the injury and the potentialities for infection rather than to worry much over the presence or absence of definite symptoms. The lesion is a traumatic one, the possibility of sepsis is great, and things should not be left to chance or until the development of some particular symptom. One must risk misinterpretation when one says such things. One does not wish in the slightest to depreciate the value of clinical investigation. Timely and effective operation does not interfere with that. There is no doubt that the lesions one has to deal with are chiefly mechanical and microbic, and must be treated by mechanical and antimicrobial remedies. If the mechanical disabilities are not relieved, the complicating infection has potentialities greater and more serious than in wounds of other parts.

Minor Operations.

Excision and suture of scalp wounds are said by some to be unnecessary. Such a judgement depends on the point of view. These excisions, while they do no harm when proper technique is employed, make the patient fit for duty again in a much shorter time; they establish a diagnosis of fracture in most cases with absolute certainty; there is no doubt that thereby they occasionally save life, they certainly prevent troublesome sequelae; they save time and trouble on the part of the attendants, and they save expense in dressings. (The original mastic and gauze dressing may be left until the wound is healed.) Captain J. E. H. Roberts, recording 207 cases of excision of scalp wounds, states that only in 8 did failure to obtain healing by first intention occur. One wound gave way completely. In the others, slight gaping, sloughing, or stitch suppuration occurred.

Reasons for Opening Apparently Unwounded Dura.

It has been shown repeatedly during this war that a pronounced depressed fracture of the inner table, although the dura may not be lacerated, is accompanied by a localized, usually more or less cone-shaped, bruising or pulping of the underlying brain. The base of the cone corresponds roughly to the area of comminution of the inner table. Owing to its elasticity the inner table must always be depressed considerably before it fractures, and the sudden localized blow on the brain causes the pulping. The amount of depression necessary to cause fracture varies in different parts of the skull. Such injury to the inner table and brain may exist without a trace of injury to the external table. In very rare cases intracerebral haemorrhage, sufficient to cause severe pressure symptoms, may occur.

The pulped area—a mixture of useless brain matter and blood—is an immediate source of irritation to the surrounding brain, because it is virtually a foreign body. In the process of healing a great part of it is replaced by "fibrous" tissue—a scar—which forms a remote source of irritation. The pulped mass is liable to become infected and to form a localized abscess or to lead to spreading encephalitis or meningitis, especially if the wound superficial to it is not rendered aseptic at an early date.

In cases where the force has been so great that the dura has also been ruptured, although pieces of bone have not penetrated, a definite pulped track, extending even for a couple of inches into the brain, may be found. This, when explored by the finger, resembles closely the track made in the brain by a foreign body. This shows the necessity for using x rays before operation to reveal whether or not a metallic foreign body is present. Operation should not, however, be unduly delayed in order to have this done. If the foreign body is beyond the reach of the finger, it is usually beyond the reach of legitimate surgery. By fitting together the fragments of the inner table one can often ascertain, with fair accuracy, whether any fragments of bone have been forced into the brain.

The mass of disintegrated brain matter and blood, whether on the surface or in the depth of the brain, interferes with the local circulation, and by this alone causes irritation similar to a solid foreign body. After its removal from either situation, pulsation usually returns at once.

Such lesions may be accompanied by persistent headache, focal epilepsy or paralysis, or even "optic neuritis." Their presence can usually be recognized, after the dura has been sufficiently exposed, in that the dura is somewhat discoloured, the brain does not pulsate freely, and the area feels doughy instead of elastic or springy.

When the dura is opened, the pulped material wells out like grease from a collapsible tube. Pulsation returns very quickly. If healthy brain matter is forced out, this indicates excessive intracranial pressure, and lumbar puncture or a decompression operation should be done at once. A small drainage tube, down to the hole in the dura, may be left in the wound for twenty-four hours. The dura is usually opened by a small crucial incision made by plunging the knife in for half an inch or so, at right angles to the surface of the brain. It is sometimes necessary to help out the pulped material by inserting a small forceps and carefully opening the blades.

Symptoms are usually relieved within a very short time. This relief is often most striking when the dura is opened at a second operation, the first (removal of depressed bone) having failed to relieve the symptoms.

In the hospitals the dura has been opened deliberately on more than fifty occasions, without fatality. The effect has been immediately and uniformly beneficial. In four cases in which the operators thought that the procedure was inadvisable, death occurred from abscess of the brain, spreading encephalitis or meningitis.

Operations where Wounds of the Blood Sinuses are Present.

These are done as a matter of course, because it is thought advisable to remove depressed fragments of bone—

(a) Which cause obstruction to the return of blood from any part of the brain, and

(b) Which may be, or may become, soiled, and cause septic thrombosis. It seems all the more desirable to remove such fragments if they actually penetrate the wounded sinus. The operation is, *per se*, not a dangerous one if proper technique is employed. For example, fourteen cases from the recent fighting were operated on. Only one died, and he had severe laceration of both cerebral hemispheres, besides the wound in the longitudinal sinus.

DRAINAGE OF THE BRAIN.

It is difficult to formulate any hard and fast rules about drainage of the brain. On the whole, it is probably best not to drain unless one is forced to do so. The presence in the brain of definite pus, of infected blood clot, of inaccessible, definitely infected foreign bodies, or of profuse oozing from a seriously lacerated area are the chief indications for it. If when operating some days after receipt of the wound it is found that pus is absent from a track which foreign bodies have made, it is usually unnecessary to drain. In some cases one may feel, however, that it is safer to insert a short drain for twenty-four hours or so. When aseptic foreign bodies, such as bone fragments, have been extracted, or when an area or track of pulped brain matter has been evacuated in which no penetration of foreign bodies has occurred, it is unnecessary to drain the cavity in the brain, but a $\frac{1}{4}$ in. rubber tube should always be inserted, from the angle of the wound, "down to but not into" the opening in the dura, for twenty-four hours. If pus, "smelly" blood-clot, clothing, hair, or a jagged large piece of metal is evacuated from the depth, a drain should always be inserted into the track, and it should be brought straight out through an unsutured part of the excised wound. Bacteriological examination of what is removed should always be made, even though actual pus is absent. If streptococci are found drainage should be maintained until the organisms disappear or become very few in number. If streptococci are absent it is fairly safe to be guided, as to time for removal of drains, by clinical signs alone.

It should be remembered that foreign bodies, especially flat pieces of bone, compress the brain in front of them; therefore, although they may be found at a depth of, say, $1\frac{1}{2}$ to 2 in., it is not necessary to push a drain in to that

depth. The distal end of the track will, after extraction of the foreign body, be found to have approached considerably nearer the surface of the brain. If one attempts in such a case to push a stiff drain in for a couple of inches, there is great likelihood that the lateral ventricle will be perforated by it. One should, immediately before inserting the drain, gently explore the track with the finger, and push the drain in only so far that it will not quite reach the extremity of the track.

As a rule, the drain should be shortened slightly every day or every second day unless pus continues to discharge from the depth in fair quantity. It should be borne in mind that a drain, especially a rigid one, acts like any other foreign body, and may stimulate pus formation, besides providing a channel for possible entrance of fresh infection. All drains should on this account be removed as early as possible.

Rigid drains are harmful to the brain, especially those with holes cut in them. The intracranial pressure may force normal brain through the holes or end of the tube. The constant friction of the pulsating brain against the hard foreign body must have a bad effect. The most satisfactory drain, on the whole, seems to be a piece of jaconet, batiste, or similar substance, folded concertina-wise, with small pieces of salt tablet embedded in its folds. As the salt dissolves it exerts a "hypertonic" effect on the surrounding inflamed brain. In certain cases, where the pus is particularly thick or profuse, or where streptococcal infection is present, it may be advisable to insert in addition one or two narrow tubes. Salt or "eusal" solution, of strength suitable to the infection, may be injected repeatedly, a few drops at a time, along the tube.

One must be careful, when inserting a drain, that damage is not done to the healthy brain lining the track. One must therefore note the direction of the track very carefully.

Points Constantly to be Kept in Mind.

1. There may be multiple injuries, therefore always have the whole scalp shaved.

2. The force causing the injury is usually very circumscribed, and its effects are therefore likely to be localized to the immediate neighbourhood of the part which has been struck. Injury by *contre-coup* has rarely to be considered.

3. Such localized forces, if they have been great enough to cause depressed fracture of the inner table, result, practically always, in definite injury to the brain, which asserts itself by immediate or remote cerebral disability. This may occur in pronounced form, although the dura is uninjured; in rare cases it has occurred even when no fracture of the external table has been seen. One need not refer to cases of immediate disability. Some interesting examples of remote disability have turned up already even in France. We have seen a good many cases now of men who were wounded early in the war, and whose wounds were considered so insignificant at the time that the patients were not even sent down the line. Later they were invalided on account of symptoms caused by the physical defect of the skull—to wit, depressed fracture of the inner table—which, of course, was treated without more delay.

4. Experience has shown that a properly conducted, complete operation, while it cannot undo the already existing damage to the skull or brain, facilitates repair, gives better immediate results, and tends to prevent troublesome sequelae more surely than an incomplete one.

5. Death is due, practically in all cases, to the effect of sepsis on the damaged brain. In any case sepsis will increase the amount of damage to the brain. The local injury, when thus complicated, is likely to "interfere with intellect or set up permanent paralysis." Apart from that, sepsis may cause necrosis of bone and thus prolong convalescence.

6. As our efforts will therefore be nullified in large measure unless sepsis is overcome, all operations must be preceded by removal of the sepsis from the area to be dealt with. Excision of the infected parts is the most rapid and certain way of doing this. It is only in very rare cases that this is not feasible. If it is not, the patient has probably very little chance of pulling through. The wound of the scalp and pericranium must be removed *en masse*. The fractured bone must be nibbled or trephined away. Proper technique is essential to success.

It must be pointed out that to excise the wound after turning down a flap is merely courting disaster. The brain cannot be dealt with so vigorously, but removal of pulped useless material and of foreign bodies will allow it to combat more successfully any infection. "Healthy brain substance possesses considerable power of limiting microbic invasion," but one cannot say that pulped brain or brain with foreign bodies embedded in it is healthy! As already indicated, in the majority of cases in which bone fragments alone are forced into the brain, the track leading down to them is not infected at first, but it rapidly becomes so.

7. Foreign bodies in the brain act deleteriously in four ways: (a) By their direct effect on the delicate pulsating brain tissue. (b) By favouring the development of sepsis. It is practically an everyday occurrence during a "rush" to find suppuration around pieces of bone lying at the end of a track in the brain. (c) By interfering, in rather an obscure way, with the circulation of the brain. A mass of pulped brain matter acts in the same way. It is very common to find that the brain, when exposed at operation, does not pulsate, or does so only to a slight extent, until the fragments of bone or disintegrated matter are removed from the depth, when it begins to pulsate freely. A normal circulation is essential to satisfactory recovery. (d) By causing, when they become encapsuled, a localized connective tissue mass which may act as deleteriously as a tumour. If recovery of function is possible, removal of foreign bodies will procure this more certainly, more rapidly, and probably more completely than is otherwise feasible—a great improvement is frequently noted within twenty-four hours. If carefully done, further damage to the brain is not appreciable. In only one case have I seen any immediate increase of paralysis follow—when an unusually large piece of bone had to be removed from a suppurating track. One will likely do less harm to the brain in removing a foreign body through an already existing track than by cutting a way through a mass of fibrous tissue, or, worse still, healthy brain, as has to be done when the operation is postponed till the scalp has again become intact.

8. It is highly desirable to try to prevent the formation of cicatricial tissue whether on or in the brain, even though in the latter case it may resemble neuroglia. Such scar tissue acts as an irritant chiefly by preventing normal movement of the brain, by interfering with the circulation, and, in many cases, by causing pain. The nature of the injury, the amount of sepsis, the presence or absence of foreign bodies, and the treatment employed have much to do with the amount formed. Unsuitable drains, especially when kept in for a long time, stimulate its formation. The trephine opening should be covered completely with healthy scalp. It is dangerous to replace any of the fragments of bone because they are likely to be infected. The scalp wound, after excision, can usually be accurately sutured over the opening—in some cases it may be necessary to perform a plastic operation, by sliding flaps. This is greatly preferable to merely covering the exposed brain by a flap of muscle, pericranium or aponeurosis. Such a flap, if exposed at the bottom of a wound, is apt to necrose. In any case, the amount of cicatricial tissue and of permanent adhesion is greater in a wound which heals by granulation than in one which heals by first intention. It is true that Nature has a marvellous capacity for remedying defects—even by making a new dura. The greater the amount of abnormality, however, with which she has to cope, the greater will be her difficulty in imitating the *status quo ante*. Therefore we should help her in every way possible. When this help is given efficiently, the wound responds by healing *per primam*. The surgeons who have kept statistics will support the statement that, in patients who recover, at least 90 per cent. of the wounds behave in this desirable way.

TREATMENT.

Objects.

The objects of our treatment can now be shortly summed up.

1. To prevent or remove infection, thereby preventing further destruction of tissue.
2. To establish diagnosis in some cases of doubt.
3. To remove all sources of irritation to the brain, if this can be done without causing further serious

damage to it. One cannot undo the initial surface wound or cerebral lesion, but one can try to procure a condition which will allow healing to occur more rapidly, more normally, and with less permanent impairment of function.

4. In any case to procure rapid healing of the superficial parts, provided that the brain is safe.

We may be charged with being too zealous in operating on head injuries. I cannot remember death occurring after any operation which was not one of urgency. We have regretted that we have not operated or operated sooner on some patients who have done badly. In all injuries we claim that operation furnishes an additional and usually accurate means of diagnosing the extent of the lesion. In minor injuries it has done no harm so far as can be ascertained, and it renders the patient fit to return to duty at a much earlier period than would otherwise be the case.

We believe that it is better to send a patient home with a healed scalp and healthy skull, inside which are the fewest possible potentialities for future brain trouble, than that he should go with the prospect of a later operation on an area which is obscured by many abnormalities. If it can be shown that this is done with as great safety as attends more conservative methods, our procedure is more than justified.

Sepsis and the exigencies of war will always make the proportion of failures a relatively high one. Unless these military exigencies will permit of "head" cases being retained near the front for operation and for a fairly long after-treatment, it is not likely that mortality and loss of function will be reduced to any great extent. It is difficult to see how better arrangements can be made, or, indeed, how any important improvement can be introduced in the methods for disposal of all classes of wounded which already exist.

The Routine of Treatment.

The following description of routine treatment carried out in hospitals varies only slightly from that given in a small set of leaflets issued in April, 1915.

On admission of the patient his scalp should be shaved, the wound thoroughly examined (the use of a probe is deprecated), two skiagrams taken in planes at right angles to each other, and an exhaustive neurological examination made. If the whole scalp is not shaved, other wounds, sometimes more important than the most noticeable one, may be overlooked. An aperient should be given and the administration of urotropine (15 to 20 grains every three or four hours) begun. If the brain is injured it is well, for future guidance, to make a bacteriological examination of the discharge. If brain matter is exposed or exuding from the wound, operation should be carried out as soon as possible. In most other cases, in absence of urgent symptoms, there need be no great haste, but in no case should operation be postponed for longer than a couple of days.

Excision of Wounds.

The majority of wounds of the scalp should be excised, and the bone beneath carefully examined. If no further interference is made, the wounds can be sutured, usually without drainage. It may be necessary sometimes to slide flaps in order to make up for defects in the scalp.

Depressed Fracture.

Every case in which depressed fracture of the skull is suspected should be explored without undue delay, whether sepsis is present or not. Delay—waiting for surface wounds to clean—too frequently leads to dangerous intracranial developments. If the edge of the wound is much inflamed and infiltrated, treatment with hypertonic saline applications usually makes it fit for excision in twenty-four to forty-eight hours. In most cases it is possible so to excise the wounds in both scalp and bone that an aseptic field of operation is left. If sepsis has already penetrated to the depth of the brain, the sooner operation is done the better. It is rarely necessary to turn down large flaps.

The injury comes under one of the following varieties:

1. Cases without Definite External Signs of Depressed Fracture.

Because fracture with displacement of the inner table or some other subcranial lesion may be present it is important that operation should be carried out.

(a) When the entrance and exit wounds are separated so far by a bridge of scalp that the line joining them traverses the bone, or if the patient has been stunned at the time of injury, the presumption is that the bone has been damaged. Such wounds and the track between them, as well as single gaping wounds of the scalp, should be excised *en masse*, including the pericranium. Injury, even mere bruising, of the periosteum usually means that the bone has suffered. If focal loss of function (even although evanescent), persistent headache or giddiness, or other more definite signs of cerebral compression are present, especially if optic neuritis coexists, trephining should be done, even in the absence of definite laceration of the periosteum.

(b) If fracture of the outer table without depression is found, or even if the bone is merely bruised, a small trephine opening should be made and the inner table examined. Depressed fracture of the inner table may exist without any cerebral symptoms, and only the very best skiagrams will show such a fracture.

Operation in such cases is practically without danger.

2. Fracture with Depression, but without Injury to the Dura Mater.

The fractured and depressed bone must be removed by means of properly devised bone gouge forceps if possible, otherwise a small bone disc must be trephined at one side of the fracture before using the forceps. It is better to work with a small forceps and nibble the bone away in tiny pieces than to use a large powerful forceps, which may cause extensive fissure fracture. It is not necessary in such cases to trim the edge of the opening in the bone. It seems likely that bone is thrown out more readily from an untrimmed margin, so that the opening may become greatly reduced in size. If the dura is apparently normal and the brain pulsates well, the operation can then be completed by suture of the scalp, with or without drainage. If, however, the dura is muddy-looking; if there is loss of pulsation and circumscribed loss of elasticity, especially if focal symptoms have been present after the wound was received, the dura should be opened. This is usually best done by a small crucial incision, made by stabbing a scalpel in at right angles to the dura. Disintegrated brain and blood clot are squeezed out by the *vis a tergo*. If the pulped material does not come out quite readily, it may be helped out by inserting a small artery forceps and opening the blades so as to dilate the hole in the dura. Only the useless matter will exude unless the intracranial pressure is high, in which case lumbar puncture, or possibly even a large decompression operation, is indicated.

3. Injury of Dura without Foreign Body or Sepsis.

Fracture with injury to dura mater, when no foreign body is present, and the wound in the brain probably aseptic. After excision, *en masse* as before, the scalp wound may be enlarged in any desired direction. It is very rarely necessary to turn down a flap. The bone around the fracture is cleared. A "trephine" opening is rarely required. The spicules are removed and the skull cut away carefully with forceps to an extent varying with the injury to the dura. A clear margin (one-third of an inch) of uninjured dura should be exposed. Ragged edges of dura should be excised. If a "track" exists in the brain, this should be carefully explored, by the finger if possible, and any collection of pulped brain tissue allowed to escape. A piece of aponeurosis may be drawn across the opening in the dura, and the operation completed by suturing the scalp wound. A drain of folded jaconet or small rubber tubing should reach from the opening in the dura through one end of the wound. It should be removed after twenty-four hours. If sepsis asserts itself, the wound should be freely opened up at once.

4. Injury to the Dura complicated by a Foreign Body in the Brain and by Sepsis.

The position of the foreign body is previously localized by x rays. At the operation (as in para. 3), the track through the brain matter can usually be explored by the index finger. It may be necessary to enlarge the wound in the dura slightly. The foreign body having been located, a suitable flat or slightly curved scoop is passed along the finger under the foreign body, which is then pressed against the point of the finger, and all three are carefully

and gently withdrawn. The greatest delicacy of touch is required during this procedure. The finger, in a flexible manner, must follow the previously formed track, and must not break through uninjured brain substance. Any stiffness of the finger must be avoided. The use of a forceps is apt to increase the damage to the brain.

If the operation is done within a day or two of the reception of the wound a drain should be inserted along the track. If it is performed at a later stage and no sepsis is apparent to the eye, one need not insert a drain deeply unless considerable oozing has been caused by the extraction of the foreign body.

If definite sepsis is present drains should be inserted leading straight out through the wound. In the worst cases the scalp wound should not be sutured till all danger has passed.

The exploration for foreign bodies by the finger at the primary operation is justified by the following considerations: (1) A track through brain substance is already present; (2) only very rarely is further injury to the brain caused by the procedure; (3) the frequency with which an abscess develops, should the foreign body be left in the brain; (4) if the wounds are large, sepsis has almost certainly penetrated along with, or following, the foreign bodies, and, as has been said, the sooner they are dealt with the better.

As already indicated, foreign bodies imbedded in the brain, by their direct influence and by their interference with the cerebral circulation, may produce symptoms of focal irritation and of compression or increased intracranial tension. If their removal does not immediately relieve these, and especially if hernia cerebri is threatened, lumbar puncture should be resorted to. If this fails to relieve the intracranial tension, subtemporal decompression may give relief, but has on the whole proved an unsatisfactory operation under these septic conditions.

5. Fracture with Injury to one of the Blood Sinuses.

Operation in such cases may be difficult on account of the alarming haemorrhage which may occur during exposure of the sinus. It should not, therefore, be undertaken by an inexperienced operator. The size of the superficial wound of the scalp or skull gives no indication of the extent to which the sinus may be injured. The results of such operations have been very favourable. Three of the procedures recommended for control of such haemorrhage have practically been given up—namely, lateral application of suture or forceps, plugging with gauze, and ligature. Plugging and ligature especially must be avoided behind the entrance of the parietal lacunae or cerebral veins. It has been found that practically all cases which survive the immediate effects of the injury are amenable to treatment by the application, under light pressure, of a piece of aponeurosis cut from the edge of the scalp wound or from the fascia lata of the thigh. The procedure is known as the "postage stamp" operation.

After free exposure of the hole in the sinus, haemorrhage therefrom being controlled by light gauze pressure, the "stamp" should be cut and spread on the palmar surface of the point of the operator's gloved index finger or on a small swab covered with batiste or rubber tissue. The perforation is then blocked by a finger of the other hand. All blood clot is carefully wiped away, the controlling finger is removed and the "stamp" applied rapidly over the perforation. Fairly firm equable pressure is kept up for a few minutes, when the graft will have adhered to the wall of the sinus. A hole, measuring $\frac{1}{2}$ in. by $\frac{1}{2}$ in., has been closed successfully in this way, and, judging by the ease with which this was done, it should be possible to close even larger ones. The graft should always be covered by scalp at the end of the operation. In these cases it is practically always possible to suture the scalp wound completely, a small soft drain being inserted close to but not on to the graft, and withdrawn in a day or so.

Lumbar Puncture.

Lumbar puncture has frequently been found to give relief in cases of local circulatory disturbance after operation—evidenced, for example, by persistent headache, recurring focal muscular spasms, or slight hernia cerebri. The amount of cerebro-spinal fluid withdrawn varies with the pressure of the fluid. It is rarely necessary to remove

more than 25 c.cm. or thereby. Usually the withdrawal of a much less quantity suffices. The process may be repeated several times if thought advisable.

Certain cases of large fungus cerebri have been cured by this procedure. If fungus is present, however, while it is to be regarded as a symptom of increased intracranial tension, it must be remembered that this is frequently due to the presence of foreign bodies or abscess in the brain or to more diffuse encephalitis or meningitis, and suitable remedies must be used for these conditions. If meningitis is present or if the fungus is fairly recent, rapid removal of cerebro-spinal fluid may allow infection to spread. The wound should always be exposed for inspection when lumbar puncture is done, because this may cause the herniated brain to sink back to a considerable depth, and protective adhesions may be torn. If lumbar puncture fails to alleviate the condition, a contralateral decompression operation may be tried.

Spirit dressing is usually employed for such cases. Picric acid ($\frac{1}{2}$ to 1 per cent.) or some astringent preparation may, with benefit, be added when discharge is free.

In most cases of hernia cerebri it will be found that posture has a marked effect, the protrusion being lessened when the patient is propped up in the "Fowler position."

It is not advisable to make lumbar puncture in the early stages after a wound of the brain has been caused, unless the dura is intact, or until the exact local conditions have been revealed by operation.

Operation.

The operation necessary in the majority of head injuries arriving at the base is a comparatively simple one. If preceded by infiltration of the scalp with local anaesthetic and adrenalin, haemorrhage and shock are obviated to a very great extent, and the operation made even more simple. The dangerous haemorrhage which may occur from large flap incisions is entirely prevented by this infiltration of the incision area with adrenalin solution, and, if some local anaesthetic has been added, the amount of general anaesthetic required is negligible.

All serious cases should be kept at the base hospitals for three weeks after operation, and even longer if one is not quite satisfied with their condition.

RESULTS.

The records of 135 cases admitted to R— from the fighting in the end of September, 1915, and those otherwise available at the moment from three of the hospitals (257 cases) show a total of 392 cases trephined with 58 deaths—a mortality-rate of 14.8 per cent. Cases are included in this list in which the patient's condition was so bad that mere cleaning of the wound alone was possible. Whenever bone, even superficial fragments, is removed, the operation is classified as "trephining." None of the cases died in which the lacerated brain was found free from visible pus. Recovery occurred in most of the cases in which the track was definitely septic and in many in which quite extensive abscess had formed, but it was very rare in cases in which large fungus cerebri had developed.

If 12 "hopeless" cases, which died within forty-eight hours of admission, are excluded from the September, 1915, series, the mortality-rate is only 9 per cent.

REFERENCE.

1 Treatment of Gunshot Wounds by Excision and Primary Suture. BRITISH MEDICAL JOURNAL, August 28th, 1915, p. 317.

The American National Association for the Study and Prevention of Tuberculosis reports (we learn from the *Journal of the American Medical Association*) that during 1915 more than £4,500,000 was spent in fighting tuberculosis. This is an increase of £3,500,000, as compared with the expenditure in the campaign against the disease ten years ago. From the care of tuberculous patients, which was at first its sole function, the work of the association has grown until last year more than £200,000 was spent on organization and education; an equal amount in examining, advising, and treating patients; more than £70,000 in teaching and treating tuberculous children, and nearly £150,000 in the care of tuberculous lunatics and criminals. The bulk of the money spent in the campaign was expended on sanatoriums and hospitals. These, numbering nearly 600, cost £3,850,000.

TREATMENT OF MAXILLARY FRACTURES.*

BY

V. H. KAZANJIAN, D.M.D.,

DEMONSTRATOR IN PROSTHETIC DENTISTRY, HARVARD UNIVERSITY
(HARVARD SURGICAL UNIT, FRANCE).

The subject of maxillary fractures is large, but that part of it which interests military surgeons is the immediate and effective treatment of cases that come to military hospitals as a result of gunshot wounds. The number of injuries of the head and face is by no means a negligible quantity, and their efficient treatment is somewhat out of



FIG. 1.

Ligation of Teeth with Brass Ligatures.—The wires are passed and twisted around the necks of different teeth, and then the upper and lower teeth fastened together. Bicuspids and molars are wired singly, but incisors and cuspids should be fastened together in pairs, as in the diagram, then attached to the corresponding teeth of the opposite jaw. This method is especially useful for simple fractures, or fractures with very little displacement, involving the mandible only. It is not applicable in cases with extensive wounds, which require more adequate drainage of the mouth than this treatment affords.

ported and controlled by muscles of mastication which have very great contractile power. It is exposed and very irregular in shape. Fracture of this bone, therefore, is very often associated with considerable displacement of the parts.

2. Fractures of the jaws are almost always compound, and, as the mouth is an ideal nidus for bacterial infection and subsequent complications, much is added to the difficulty of treatment.

3. Being the most mobile and exercised bone of the body, the parts of a broken mandible are very difficult to hold together.

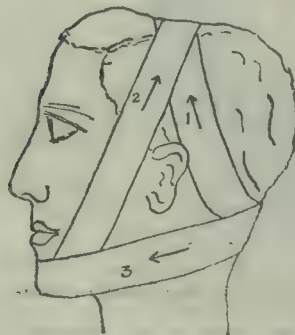


FIG. 2.

Barton Bandage.—This form of bandage affords a simple and effective method for reducing downward and forward displacement of the mandible, and holding the two jaws in close proximity. The turn passing under the chin is applied in the direction in which the force is required.

There can be no mistake in diagnosis, but it is necessary to ascertain the number of fragments, the directions of the fractures, the amount of lost tissue, and the location of

the sphere of the general surgeon. It is true that these cases are rarely fatal, yet any failure to treat them efficiently may be followed by serious deformities of the face and inefficient masticatory power, with its resultant lowering of the resistance of the patient. On the other hand, immediate treatment will give very satisfactory results and facilitate such future work as plastic operations intended to restore the functions and cosmetic appearance of the face and jaws.

Fractures of the maxillae, especially the mandible, follow the same general lines, and their treatment is guided by the same principles as fractures of other bones, but certain local conditions have to be taken into consideration:

1. The mandible is a very mobile bone, and is sup-

ported and controlled by muscles of mastication which have very great contractile power. It is exposed and very irregular in shape. Fracture of this bone, therefore, is very often associated with considerable displacement of the parts.

The cases of fracture of the jaw we are called upon to treat differ widely from those met with in civil practice. First, there is an external wound, varying in size from a small opening to a very extensive lacerated wound of the face or under the chin; and, secondly, the fractures are always comminuted and often multiple, involving the upper as well as the lower jaw. In more severe cases there is loss, varying in amount, of bony as well as soft tissue. Moreover, the injury is rarely confined solely to the jaws, generally involving, in addition, eyes, ears, nose or pharynx.

foreign bodies as well as fragments of the bones or misplaced teeth. The x rays will give very valuable assistance, and a radiograph of every extensive case should be taken.

Treatment.

I will not discuss the care and treatment of the external wound, as that is not essentially different from that of a wound in other parts of the body, but confine myself to the matter of adjustment and setting of the bony parts.

Our aim must be to create a comparative immobility of the parts, and to restore the functional activity of the jaws as far as possible. It has been an accepted practice in the past, and one somewhat in use at present, to connect the parts together with wire sutures or metal plates fastened to the bones. This method, while useful in exceptional cases, has some serious objections. It quite often interferes with the normal occlusion of the teeth, creating deformities, and, as the mouth cannot be kept sterile, infection spreads, causing additional complications.

The oral surgeon, however, follows a different method. All the fixation is accomplished by utilizing the remaining teeth or roots and the alveolar ridges, assisted by bandages and chin and head supports. Our knowledge of the normal occlusion of the teeth gives us an excellent guide. This should be emphasized and followed very faithfully, no matter how extensive the fracture, or how much bony tissue is lost. Otherwise we may create very serious deformities that will upset the symmetry of the facial contour and the performance by the jaws and tongue of their normal function—the efficient mastication of food and proper articulation in speech.

It has been customary in the past to ligate the upper and lower teeth together with brass wires and support the jaw with bandages, a method which, while very simple and useful in many fractures as seen in civil life, I find of very little use, as the cases are complicated by external wounds.

If the fractures are anterior to the last lower teeth a simple splint of vulcanite or metal is made and cemented on, fitting over the teeth, allowing always room for drainage of the wounds of the mouth. This gives the patient the chance to use the jaws moderately. The same result is accomplished by using metal bands around the teeth and connecting these with heavy wires. If the fracture is at the angle of the mandible or along the ascending ramus, the lower jaw is attached to the upper either by rubber bands, silk ligatures, or wires, splints being made accordingly.

In cases which come under treatment late the question is more complicated. The external wounds in healing form scar-tissue, the displaced parts of the bones begin to



FIG. 3.

Modified Vulcanite Band and Wire Splints.—Either of these is applicable to fractures of the mandible, and are especially useful where there is loss of teeth and contiguous tissues. The heavy wire bar of the vulcanite splint affords a bridge over the lost tissues, and removes the objection to the continuous vulcanite type by giving adequate drainage to the mouth.



FIG. 4.

Intermaxillary Elastics.—Elastic bands drawing between hooks soldered to metal bands (which are soldered in pairs or triples to prevent elongation of the teeth in their sockets) are useful for gradual reduction of displacements of the mandible. Elastics can be applied by this method so that force may be exerted in any desired direction.

* Read at a meeting of the Military Medical Society mentioned in the BRITISH MEDICAL JOURNAL of December 18th, 1915, p. 905, and December 25th, p. 938.

form union, the muscles of mastication lose their contractile power, partly owing to want of use and partly through injury, and ankylosis of temporo-maxillary joints is very marked. In addition we have gross deformity of the face. In these circumstances the correction must be gradual. We have to fight against the cicatricial tissues, and that is always difficult. Mechanical appliances must necessarily be more or less complicated, and the degree of success is partly proportional to the ingenuity of the oral surgeon, as new appliances have to be devised to meet the demands.

Cases with extensive loss of soft and bony tissues are comparatively difficult to treat, and it is impossible to outline a class of appliances to meet them, as each has its own peculiarity and should be handled accordingly. We have, however, certain rules to guide us:

1. We must try to control the infected area

by free drainage and frequent irrigations, etc.

2. No attempt should be made to suture the soft parts with the idea of closing the gap until such time as permanent splints are adjusted and union of the bony fragments is well under way. This rule is practically universal with all the oral surgeons doing extensive work of this kind.

3. The appliance should be made with the intention of holding the dissociated parts in their normal positions, taking as a guide the normal occlusion of the teeth.

Fractures of the superior maxilla are easier to control than those of the mandible, as they are more or less firmly connected with the other cranial bones. If there is no displacement, simple bandaging is usually sufficient. More complicated cases are treated with splints made of either rubber or metal, assisted by straps passing over the top of the head.

Care of the Mouth.—The care of the mouth is a very important part of the treatment. It is very foul, owing to the inability of the patient to clean it properly. The wound, always opening into the mouth, gives a constant source of new infection, so that precautions should be taken by frequent packing, etc., to prevent the flow of saliva into the wound.

The following methods I have found very satisfactory:

1. Tincture of iodine is applied to the gums and teeth with a small piece of cotton.
2. Plodgets of cotton are saturated with hydrogen peroxide and rubbed over the teeth and all the mucous surfaces of the mouth as thoroughly as possible; this helps to remove particles of food, mucus, clots of blood, etc.
3. The mouth is irrigated with an antiseptic fluid.

The nurse should be instructed to repeat this treatment three or four times a day, except the use of iodine, which is applied only two or three times a week.

Complications.—Fractures of the maxillary bones alone are rarely fatal, but gunshot wounds are seldom limited to the jaws. The bullet may pass through or lodge itself in the head or neck, causing serious damage to the organs and tissues of the immediate neighbourhood. We must not overlook this fact, and the patient should be watched

very carefully in the first few days. It is highly important to examine the path of the bullet, and determine the amount of injury done as far as is possible.

The complication most dreaded is sudden haemorrhage. This is most common, of course, when the injury is in the immediate vicinity of good-sized blood vessels, particularly those of the neck. A very slight flow of blood, either from the external wounds or the mouth, should be carefully followed up. It may be the beginning of a serious haemorrhage.



FIG. 5.

Metal Band and Wire Splint for Maxilla.—A useful retaining appliance for fractures of the upper jaw, which has been used successfully in fractures involving the process carrying all the teeth of the maxilla, except the two last molars on one side.

FIG. 6.

A form of band and wire splint, useful in the reduction of multiple fractures of the mandible, where a one-piece splint is not practicable. It affords a method for the gradual reduction of extensive displacement of the broken parts, not found in continuous wire splints. (From casts.)

FIG. 7.

Kingsley Barr.—This appliance consists of a vulcanite plate holding at the sides square metal tubes, for the reception of squared heavy wires, which extend externally from the corners of the mouth along the cheeks. The splint is supported by a head harness connected to the bars. This splint gives an excellent anchorage from which to work to the mandible, in cases in which fractures extend to both jaws.

An extensive fracture of the superior maxilla may involve the cranial bones and lead to disorders of the higher nerve centres, a possibility which should be carefully considered.

Among the minor complications we may expect is ankylosis. In very many cases this is only temporary, due to the injury of the soft tissues and the non-use of the jaws. Yet if the injury is at the temporo-maxillary joint we may have serious results if the treatment is not in the right direction. To prevent adhesions the mobility of the joints should be encouraged.

The control of the inflammation, abscesses, and necrosis of the tissues is part of our general treatment.

Importance of Early Treatment.—The importance of early treatment of maxillary fractures cannot be overestimated. The appliances should be adjusted as soon as possible, as this assures the quickest and best result. I have noticed that on account of the unsightly appearance of the external wound there is a strong temptation to give attention to the wound, to the neglect of the setting of the bones. The wound should undoubtedly receive proper care, but the fundamental treatment must begin with the bony structure. If the patient has a fractured arm we do not wait several weeks or months before applying our splints or bandages. This rule holds equally true with fractured jaws.

War-time injuries to the jaws, with their attendant injuries to other parts and resulting constitutional disturbances, are best handled by the hearty co-operation of the general surgeon and the oral specialist, working together for the welfare of the patient by restoring to him as far as possible his normal facial appearance and the use of his jaws and teeth in the processes of mastication.

I desire to express my great indebtedness to my friend and colleague, Dr. F. H. Brigham, of the Harvard Surgical Unit, for the skill and care with which he has prepared the diagrams that illustrate this paper.

Brigade-Surgeon Lieutenant-Colonel Andrew Barry, I.M.S., of St. Andrews, Fife, left personal estate valued at £23,066.

THE report of the Surgeon-General of the United States Navy for the fiscal year 1915 shows that the death-rate was only 4.18 per 1,000 per annum. Three years ago there were 222 cases of typhoid fever with 15 deaths; the present report shows 13 cases with no death. This improvement is said to be due almost entirely to prophylactic inoculation. The rate for venereal diseases was higher than that for 1913, but lower than those for 1909-12. The rates for tuberculosis showed improvement.

DENTAL CASES AMONGST SOLDIERS.*

BY

SAMUEL A. HOPKINS, M.D., D.D.S.,

BOSTON, MASSACHUSETTS, U.S.A. (— GENERAL HOSPITAL, FRANCE).

Of those men who have received dental treatment at this hospital 16 per cent. were suffering from gastritis or other digestive disturbances, and nearly every one of these had been sent back from the front for this cause alone. In every instance a rapid improvement was shown after the diseased roots were extracted and the mouth and teeth cleaned, although in many instances no artificial teeth were supplied. We have never had so many grateful patients. Man after man came back to us and told us how much better he felt after even the limited treatment we were able to give. Where the man was in other respects capable of going back to the front we have supplied artificial teeth when it was necessary and possible. Our rule has been that when a man had two upper and two lower molars which occluded fairly well, and also useful incisors and cuspids, not to make plates. We are forced to omit many cases that might be greatly improved; but we have treated the aching tooth, and treated and filled many that we felt sure would suffer if not treated. We have noted a condition in many mouths which we rarely see at home. In many teeth which have enormous cavities the dentine has hardened and the pulp receded far beyond its normal position. These we refrain from touching when there is no history of pain and no sign of abscess formation, because the time of the average patient in these hospitals is not sufficient properly to treat and remove the pulp and fill the root canals; the patients' chances are seemingly better if we soak the hardened dentine in a saturated solution of silver nitrate and omit further treatment. A few cases of pyorrhoea alveolaris have come to us in which the mouth was so sore that the patient could not chew. These patients were sent to the hospital for no other reason, and to our great surprise yielded quickly to treatment. In more refined circles this so-called Riggs's disease is a much more difficult disease to cure, and differs in many respects from the cases we have seen in the army. All of the cases among the soldiers are characterized by enormous deposits of tartar around the necks of the teeth, which deposits, however, do not seem to push their way down upon the periodontal membrane surrounding the roots, so that there are few deep incurable pus pockets, and the characteristic odour of advanced Riggs's disease is rarely present. There is usually pus at the gum margins; but with the removal of these great concretions, and very few treatments with iodine, the mouth clears up wonderfully.

I have come to the conclusion that the cleansing of the teeth of most hospital patients would be a most profitable undertaking, for invariably the patient comes back in a day or two and tells us how much better his appetite is, and how much better his food tastes. Nearly all of these patients have great tartar deposits, usually quite easy to remove, and nearly all are swallowing with each meal an appreciable amount of pus. The youngest graduate, or even well-trained three-year students, could do this work under a competent superior, and I am sure it would be a great economy. Many of the nurses could be trained to do much of this work. In some of the States at home we are beginning to employ dental nurses for just such treatment. Of course it would be better still if the men could be started with a reasonably sound and clean set of teeth; but I realize that we are dealing with a great emergency, which must be met in the most efficient and at the same time most economical way.

Some of the cases of rheumatism are undoubtedly due to mouth conditions, while the progress of other cases toward improvement must be retarded by the absorption of these mouth toxins. At the present time at home, if a physician has a rheumatic patient, that patient is immediately sent to a dentist for an examination of his mouth, and, if necessary, x rays are used to discover if there are any pus pockets at the ends of the roots of teeth. Perhaps the pendulum is just now swinging too far in the direction of

the teeth as causal factors in this and other diseases; but it has been proven beyond doubt that blind abscesses and other diseased mouth conditions are responsible for a very large number of cases, and the removal of these foci of infection marks the beginning of the cure.

The same is true of some of the heart and kidney irregularities; but because of the brief stay of the patients at these neighbouring hospitals it is not possible in many cases to see the bearing of the mouth conditions upon these diseases. Here, too, repair work and mouth cleansing could be practised with great profit.

Another point which is of great economic value is the lowering of a man's resistance to disease because of the absorption of mouth toxins, and the derangement of his digestion because of his inability to chew. The unclean mouth harbours the germs of many diseases. The pneumococcus is present, so far as I know, in all mouths where Riggs's disease is present, and in many apparently healthy mouths also. The staphylococcus, streptococcus, streptothrix, and several forms of amoeba are found there in great numbers. In fact, the uncared-for human mouth is the prize bacterial garden of the world, and mouth-to-mouth infections are more common than we dare believe. Therefore—I say it with all seriousness—a supply of toothbrushes, and perhaps fine pumice, and a toothbrush drill at every training station, would be a most profitable investment of time and money. A number of us in the United States have started a dental hygiene movement; and because we know how impossible it is to teach an old dog tricks, we are confining ourselves to work on the children.

It is interesting to know the cost to a country of poor teeth, and these figures may give a rough idea. In the State of New York it costs 36 dols. a year for each child in the public schools; 40 per cent. of absences from school are caused by toothache; 67,000 children fail each year to pass their examinations, and cost the State an additional 36 dols. for an extra year's work; 40 per cent. of these fail because of wretched mouth conditions. A little simple arithmetic will show that the diseased teeth of her school children cost the State of New York nearly a million dollars a year; and I ask, simply as an economic problem, Does the care of the teeth pay?

DEFORMITIES OF THE JAWS RESULTING
FROM OPERATION OR INJURY.

BY

PERCIVAL P. COLE, M.B., Ch.B., F.R.C.S., L.D.S.Eng.,

HONORARY SURGEON, KING GEORGE HOSPITAL; ASSISTANT SURGEON,
THE CANCER HOSPITAL, AND SEAMEN'S HOSPITAL, GREENWICH;

AND

CHARLES HENRY BUBB, L.D.S.R.C.S.Eng.,

HONORARY DENTAL SURGEON, KING GEORGE HOSPITAL, LONDON.

ANALOGOUS types of deformity are occasioned whether the injury be accidental or, as in operations, deliberately planned. As, however, in the case of operation, the question of expediency and other modifying factors must necessarily be raised, it will be convenient to consider separately the deformities produced thereby. The method of treatment, however, depends on the type of deformity irrespective of the cause producing it. A survey of these deformities will give opportunity for the enunciation of certain fundamental principles of treatment and for the demonstration of methods adapted to giving them effect.

Traumatic deformities of the jaws fall naturally into two groups, according as they are, or are not, associated with loss of substance. Loss of substance may be the sole deformity, or be complicated by displacement of the remaining part or parts. In cases in which it is necessary only to replace a mass removed or lost, the problem is one of purely mechanical prosthesis. It is not our purpose to discuss at any length the technicalities of dental prosthesis, but rather to deal with those cases in which preliminary treatment is essential for success, or in which other than prosthetic apparatus is necessary.

*Read at a meeting of the Military Medical Society mentioned in the BRITISH MEDICAL JOURNAL of December 18th, 1915, p. 995, and December 25th, p. 938.

DEFORMITIES RESULTING FROM OPERATIONS.

I. Operations on the Upper Jaw: Resection of the Maxilla.

The deformity thus produced is typical of that resulting from loss of substance without displacement of the parts remaining. A satisfactory functional result can be obtained by the adaptation of a suitably constructed obturator, the objects to be attained thereby being threefold:

1. To separate the nasal from the oral cavity.
2. To restore the masticating surface.
3. To restore the facial contour.

Particularly in cases where the operator has been unable to preserve the orbital plate it will be found that the apparatus must of necessity be bulky. The usual method of securing the lightness essential for retention and comfort is to render hollow that portion of



FIG. 1.

FIG. 2.

the obturator which fills the gap on the affected side, and the material commonly used is vulcanite. We suggest an aluminium box, which can be cast separately, or a plate and box cast in one piece, together with the tags which serve to retain the vulcanite with which the teeth are afterwards attached. The apertures necessarily left are tapped and securely closed by aluminium pins with a corresponding thread.

The construction of the appliance, whether made of vulcanite or aluminium, presents no particular difficulties, but certain practical details deserve mention. It is sometimes stated that no attempt should be made to distend the cheek. This is certainly not the case. The cheek can be considerably built out. The cosmetic result is more perfect, no harm is done, and after the first few days no discomfort is felt.

The date of insertion is an important point. As a rule, it should be from three weeks to a month after operation. Broadly speaking, the more removed at operation the sooner should the obturator be fitted. More particularly is this the case where removal encroaches on the pterygoid region. This was well exemplified in a case operated on by Mr. Joseph Cuning. The patient was a boy from whom Mr. Cuning removed the maxilla for a nasopharyngeal angio-fibroma which had filled the antrum and nasal fossa, had found its way into the orbit, and encroached on the temporal and zygomatic fossae. Within a month a firm cicatrix had formed which prevented efficient opening of the jaws. It was found necessary to divide the cicatrix under an anaesthetic to enable a reliable model to be taken. The appearances before and after operation are illustrated in Figs. 1 and 2. The cheek was considerably distended; mastication and speech were perfectly restored. Wherever possible, the soft palate should be retained intact. If, as in another case operated on recently by one of us (P. P. C.), it is necessary to remove one half of the soft palate, the remaining half should be drawn across and fixed to the raw pharyngeal wall.

II. Operations Involving the Lower Jaw.

The operations to be considered under this heading include those undertaken to give readier access to growths of the tongue, floor of the mouth or tonsillar region, and those undertaken for growths invading or involving the jaw itself. In the former case the mandible will be merely divided; in the latter case the operation will include the resection of a portion or one half of the mandible. The

objects to be attained are the thorough removal of the growth, and if possible a satisfactory functional result. Generally speaking, the functional results after resection are far from good. This is due, we think, in many cases to the fact that the surgeon does not fully appreciate how valuable is the assistance that can be rendered him by the prosthetic dentist, and in other instances to the lack of that personal collaboration between surgeon and dentist which is essential for success.

It is freely admitted that no considerations as to function should militate against the thoroughness of an operation once undertaken, but no operation on the jaws should be performed until the question of function has been fully considered and a definite plan formulated for its preservation. The surgeon tabulates freedom from recurrence as a surgical success. The patient's gauge of success is his ability to enjoy life. The surgeon preens himself on his achievement; the patient may wish himself dead. The functional problems associated with operations and injuries of the mandible are essentially different from those concerned in corresponding lesions of the upper jaw. The fundamental principle, if mastication is to be efficiently preserved, is the maintenance of the mandible whole, part or parts, in its, or their, normal relationship to the maxillae. In other words, the normal "bite" must be accurately maintained.

(a) Simple Division of the Jaw.

The intrabuccal route for removal of the tongue, in many cases of cancer of that organ, is open to criticism on the ground of insufficient exposure. In growths involving the floor of the mouth and the deep postero-lateral regions of the tongue it is admittedly inadequate. Splitting of the jaw in or about the middle line is a valuable aid to free access in such cases, and were it not that in the most favourable circumstances convalescence is considerably retarded, it would, we think, be more frequently employed.

The lower jaw has notoriously a poor blood supply, and the insertion of wire to coapt the fragments, in what is necessarily a compound fracture constantly exposed to septic infection, leads to delayed and often imperfect union, and in many cases to necrosis. Apposition can be firmly and accurately maintained by means of an interdental splint. The essential factor is the presence of two or three moderately firm teeth on each side of the division site. It may be urged that the necessary teeth may not be present; that, if they are, the better prognosis in edentulous cases should determine their removal; and that the apparently flimsy interdental splint must soon become loosened and so fail in its purpose.

Fortunately the lower front teeth are usually the last to be lost and will, in the majority of cases, be found standing in patients already otherwise edentulous. Fortunately, too, their configuration and position render them peculiarly amenable to conservative methods, scaling, etc., and their preservation, if suitably treated for a week or ten days cannot conceivably add to the risk of the operation. That the splint is adequate to maintain apposition till union has occurred has been amply proved in two cases operated on at the beginning of the year (1915) by one of us (P. P. C.). In one case the growth involved the fore part of the floor of the mouth. A laryngotomy was performed, and the contents of the submaxillary triangle, together with the growth and half the tongue, were removed in one piece, aided by median division of the

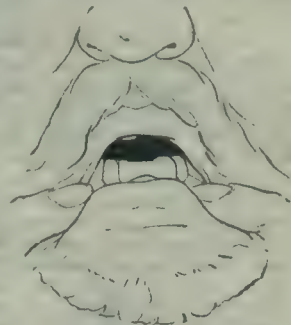


FIG. 3.

mandible. Some secondary haemorrhage occurred in the mouth on the tenth day and a lateral fistula persisted for three weeks, but rapidly healed after two applications of x rays. Fig. 3 shows the splint *in situ* in this case. In another case—that of a soldier invalided home from France—the epithelioma involved the lateral margin of the tongue far back. A complete dissection of the anterior triangle, with the removal of the sterno-mastoid and jugular vein, was carried out. Ten days later laryngotomy

was performed, the jaw divided, and half the tongue removed.

In both cases interdental splints were fixed on the operating table, and the progress of the patients was precisely such as occurs after an intrabuccal operation. Both patients were fitted with artificial dentures, and were able to eat as well as though the jaw had not been touched.

Even moderately firm union cannot be expected in less than six weeks, and union will occur more quickly if a very fine saw be used to effect the division. This is due to the fact that the splint is fitted to the jaw before division, and, when fixed after operation, the fragments will be found separated by an interval exactly corresponding to the thickness of the saw used. It is necessary to obtain an absolutely dead fit, and to this end the splints were cast in aluminium. They were fixed to the teeth with a rapidly setting copper phosphate cement. No cement can be relied on to retain in position for such a length of time a badly-fitting splint presenting such a small surface and, for this reason, we emphasize the importance of casting in the preparation of this and other interdental splints.

(b) Resection of a Portion of the Mandible.

Invasion of the jaw is of grave significance, occurring, as it usually does, when the disease is far advanced. Many of these cases will be regarded as inoperable, both from the point of view of immediate risk and of ultimate prognosis. Resection certainly renders an operation more formidable and attended by greater risk, but from the nature of these cases great risks may justifiably be taken. In addition to the risk may be added the fear of the bad functional results obtained in these cases, and this latter consideration may be the deciding factor in deterring the surgeon from attempting a radical operation. The functional problem is here complicated by the loss of substance necessarily entailed. Difficulty arises only where removal implicates the whole thickness of the jaw, and these cases alone will be discussed. It is obvious that bony union cannot take place if the normal "bite" is to be maintained. It is, in other words, a question of union *versus* occlusion. It may be definitely stated that, in all cases attended by loss of substance, union must be unhesitatingly abandoned in favour of the preservation of the normal, "bite." The attainment of this object is much more difficult if the patient be edentulous, and it is particularly in this class of case that treatment is rendered more easy by a discriminating conservatism as regards the teeth. If the requisite teeth be present, an interdental splint can be adjusted, or a modified and reinforced Angle's appliance can be adapted to both upper and lower jaws. The bite in the latter case is controlled by lateral guiding shoes in the manner described by Aehner. In edentulous cases the principle of the Gunning splint must be adopted.

(c) Resection of One-half the Mandible.

The remaining half of the jaw, if subject to no control, is pulled backwards, downwards, and inwards, and the condition of the patient is truly pitiable.

We have been enabled, by the courtesy of Mr. W. E. Miles, to adapt a modified Gunning's splint to two such



FIG. 4.



FIG. 5.

cases under his care (Figs. 4 and 5). It will be noted that no attempt has been made to deal immediately with the gap left on the affected side, the sole object of the apparatus being to retain the sound side of the mandible in its proper relation to the upper jaw. It may be objected that the presence of such a splint militates against proper

cleansing of the mouth; that it will not be tolerated by the patient; and that the lower jaw will fall away from the splint and be insufficiently controlled. These objections were not sustained in practice.

Readier access was obtained to the operation site, which, as a glance at the splints will show, was left entirely uncovered. The ward sister was emphatic that the mouth was more easily kept clean with the splint than without it; the patient pleaded to have it replaced when it was removed as a test; and the light pressure of the bandages keeping the dressings in place was found amply sufficient to secure a snug contact of the lower jaw with the splint.

In both these cases the patients were almost edentulous. Should the necessary teeth be present, the modified Angle's apparatus, mentioned previously, could be utilized, but would probably not be so comfortable, at any rate in the early stages.

DEFORMITIES RESULTING FROM INJURIES.

These injuries have assumed considerable importance owing to their relative frequency during the period of the war, and to the functional disability that is apt to follow. This applies more particularly to injuries of the lower jaw, for, owing to its passivity in mastication and its fixity, functional incapacity, in injuries of the upper jaw, ensues far more rarely and can be readily remedied. The slightest inaccuracy in fractures of the lower jaw leads to a diminution in the efficiency of the masticatory power, and greater degrees of deformity result in more or less complete loss thereof.

In the case of a limb, shortening and deformity are not incompatible with the preservation of good function. In the case of the mandible, absolute accuracy of alignment is essential, and unless it is obtained smaller or greater loss of function must inevitably result. Such accuracy can only be obtained in the limbs by direct inspection and mechanical fixation of the fragments by plate or wire. In the case of the mandible, such a procedure as wiring is most emphatically to be condemned. Fortunately, the required accuracy can be obtained by other means. If each fragment can be adjusted and retained in its normal relationship to a fixed point—the upper jaw—it necessarily follows that the fragments are accurately adjusted as regards each other. Every fracture of the mandible should be treated in terms of the upper jaw. Special apparatus is necessary for each case, and, in view of the issues at stake, these cases should be immediately transferred to an institution where such apparatus can be made and where its application is understood.

(a) Fractures of the Mandible without Loss of Substance.

The fact that these patients usually possess an adequate number of teeth renders the task of treatment relatively easy. The treatment of a fractured mandible is not begun and ended with the application of a four-tailed bandage, nor should the policy of "good enough" be tolerated. There is no margin here for error, and no treatment is adequate which permits of its occurrence. The Hammond wire splint is easily made, but its use cannot be recommended where a choice can be exercised. To be efficient several firm teeth must be present on each side of the fracture, and in these circumstances the cast interdental splint is infinitely preferable and has a wider range of application. The drawings (Figs. 6 and 7), made from x-ray photographs, illustrate a fracture before treatment and the interdental splint in position. The patient is a soldier at present under our care. On y



FIG. 6.

two shallow molars are present on the smaller fragment, and the displacement was considerable. Reduction could not be effected without an anaesthetic, and here again we feel certain

that the accurate fit of the splint is the factor responsible for the maintenance of firm retention. The patient suffers little or no inconvenience, and is able to eat minced meat.

It will be noted, perhaps, that the bite has been raised. This has no bearing on the ultimate result, and could have been obviated by the use of Snow's face bow. Sketches of the splint used in this case are shown in Figs. 8 and 9.

The Gunning splint, or the modification of it known as Payne's cradle splint, is certainly efficient, but as it is necessary to abolish all movement at the temporomandibular joint,

its retention is necessarily attended by some degree of discomfort. Its use should be reserved for those cases not suitable for an interdental splint. The scope of the interdental splint can, we think, be considerably enlarged, and we are at present experimenting with some modifications to that end.

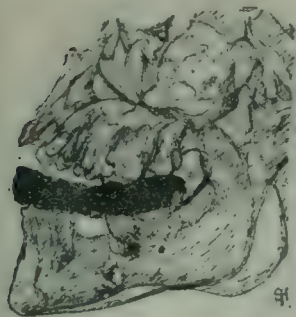


Fig. 7.

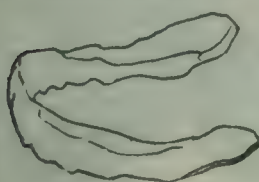


Fig. 8.



Fig. 9.

Rectification of slight degrees of mal-occlusion can be corrected by long and tedious orthodontic treatment, but such treatment is open to serious objections, and at best is a sorry means of dealing with what might easily have been prevented.

(b) Fractures with Loss of Substance.

Fractures with loss of substance are usually compound both outside and inside the mouth. The loss of bone may be immediate or result from consequent necrosis, which, in the case of the lower jaw, readily occurs. It is absolutely essential that these cases should be efficiently treated from the beginning. The main fragments must be retained in their correct position in relation to the upper jaw. Here, as in the case of partial resection, all considerations as to union must be abandoned in favour of the maintenance of this correct alignment. Teeth should be preserved wherever possible, for their presence renders more easy immediate and ultimate treatment. The most suitable apparatus will vary with, and be determined by, the needs of each case, and considerable scope for ingenuity is afforded. The methods finally to be adopted for the restoration of function will depend on the size and position of the gap, and on the number and disposition of the teeth remaining. These methods will be prosthetic alone or prosthetic and surgical combined. The purely surgical measures will consist of plastic operations for the reconstruction of the damaged soft parts and the introduction of bone grafts, to restore, where necessary, bony continuity in the basal portion of the jaw. It must be remembered, however, that owing to the configuration and articulation of the mandible, a lower denture can exercise, if teeth be present and favourably placed, the functions of an efficient splint and restore to the lower jaws that rigidity which has been necessarily lost or impaired. It will be found that in many of these cases a suitably adapted and strengthened lower denture will suffice to restore mastication completely.

Deformities that have been allowed to become established owing to tardy or inappropriate treatment have a cosmetic and functional aspect. The one is usually co-extensive with the other. Their prevention should be a

matter for earnest effort, as is their rectification a matter for urgent demand from the suffering patient. Ingenious and complicated apparatus has been devised for the rectification of these deformities. If, however, the deformity is not established, the necessity for such devices does not arise, and if deformity is established their ability to correct it must be considered as doubtful. Certain it is that in bad cases established deformity can only be rectified by surgical intervention. A case in point is now under our care. The patient had, since his wound six months ago, been under treatment both surgical and dental. Fragments of necrosed bone had been removed from time to time, and his jaw had gradually settled back on the affected side till his front teeth were biting far back into his hard palate. All but two teeth in the lower jaw had been extracted and a lower denture fitted in an endeavour to provide some kind of occlusion. His chin had receded almost to the level of the hyoid bone.

Skiagrams showed the lesion, situated in the right molar region, to be associated with considerable comminution. Consideration of his models and adjustment of them to the correct "bite" indicated that the jaw would have to be pulled forward to such an extent as to leave a gap of one to one and a half inches at the fracture site. Success seemed very doubtful, but his request was so urgent that we decided to make the attempt. Laryngotomy was performed, and by turning back a large flap extending well into the neck the site of the lesion was exposed. It was found that union, partly fibrous and partly bony, had occurred, necessitating the use of the chisel to break it down. Firm cicatricial bands were divided on the lingual aspect, and the main body of the jaw was eventually freed sufficiently to allow it to be brought forward to the desired extent. A previously prepared cast aluminium splint on the Gunning principle was immediately adjusted, a drainage tube inserted, and the wound sewn up. The patient's facial contour is completely restored, and a good functional result is confidently anticipated.

(c) Fractures followed by Trismus.

Fractures liable to this complication are those which occur in the region of the condyle. There may be no mal-occlusion, but the loss of function is more or less serious in proportion to the degree of trismus present. The knowledge that such complication may ensue will lead to the treatment of such fractures in the "open bite" position, thus obviating the crippling results of cicatricial contraction or callus formation.

ACCORDING to the *Journal of the American Medical Association*, a bill now before Congress proposes to appoint the surgeons-general of the army, navy, and public health service a board to select a site for a national leprosarium for the United States. The sum of £100,000 is provided for building and maintenance. The leprosarium is to be administered by the Surgeon-General of the Public Health Service, who will be authorized to admit any leper who presents himself or who may be apprehended or detained under the United States quarantine laws.

In a paper communicated by Sir Oliver Lodge, F.R.S., to the Royal Society on January 27th, Mr. F. Tinker related the results of a study of the microscopic structure of semi-permeable membranes and discussed the part played by surface forces in osmosis. Photomicrographs of the common precipitation membranes showed that they were composed of small precipitate particles packed closely together, and ranging from 0.1μ to 1.0μ in diameter. Each of these precipitate particles was itself an aggregate formed by the flocculation of smaller ultra-microscopic particles. Of the membranes examined copper ferrocyanide and Prussian blue had the smallest particles. The pores in a copper ferrocyanide membrane ranged from 8 to $60 \mu\mu$ in diameter. Their size was such that they block colloidal molecules mechanically, but not the ordinary crystalloidal molecules, even when highly hydrated. A very close connexion was found between the osmotic properties of a membrane and the extent to which the membrane capillaries were under the control of surface forces. It was thought probable that osmotic effects were the result of adsorption phenomena occurring at the surface of the membrane and in the capillaries, the membrane being relatively impermeable to solutes negatively adsorbed, but permeable to solutes positively adsorbed.

Hunterian Lecture

ON

ULCERS NEW AND OLD: JEJUNAL FOR DUODENAL ULCERS.

DELIVERED AT THE ROYAL COLLEGE OF SURGEONS,
FEBRUARY 4TH, 1916.

By SIR JOHN BLAND-SUTTON, F.R.C.S., LL.D.,
SURGEON TO THE MIDDLESEX HOSPITAL.

ABOUT fifty years ago the chronic duodenal ulcer was recognized as a clinical entity, and its treatment remained for many years in the province of the physician. Operations were performed for the relief of duodenal ulceration by Codivilla (1893), Dean (1894), and Dunn (1895). In the first decade of the present century W. J. Mayo, Mayo Robson, Moynihan, Paterson, and Sherren, and others

opened up a new field of surgical enterprise. We know that chronic ulcer of the duodenum is a common lesion; for some undiscovered reason, the ulcer, in the majority of instances, is situated within 2 cm. of the pylorus, and, as a rule, on the anterior wall of the duodenum, midway between its upper and lower borders. A chronic ulcer in this position is rarely



FIG. 1.—Dice-box shaped segment of the parts adjacent to the pylorus. The duodenal bulb contains a chronic ulcer. The parts were excised from a spinster, aged 55, who had been a dyspeptic for thirty years.

accompanied by physical signs, but it sets up symptoms so easily recognized that there is no reason for resorting to the ways of Zsigmondy in order to read them.

The duodenal ulcer often appears as a rounded depression in the mucous membrane with the muscular coat as its floor. In many, a layer of thickened peritoneum forms the base of the ulcer.

Occasionally it rests on the pancreas, the liver, or the gall bladder. An ulcer on the anterior wall of the duodenum may rest on the peritoneum covering the anterior abdominal wall (Fig. 1). A serpiginous ulcer may persist for years, creeping round the duodenum, scarring at one edge and deeply eroding at the other; the tissues forming its base are often diaphanous.

The peritoneal surface of the duodenal bulb in such a case is often white with scars (Fig. 2). The obstruction of the pylorus that frequently complicates ulcers is often due to oedema of the mucosa.

This condition also occurs with ulcers situated in the pyloric antrum (Figs. 3 and 4).

Some of the most troublesome ulcers in the pyloric region can neither be seen nor felt in the course of a gastro-jejunoscopy. A small duodenal ulcer can only be located

with certainty when it involves the peritoneum and produces a tell-tale scar. These small ulcers cause paroxysmal pain and digestive discomfort, the symptoms of "a vexatious duodenum and an agitated pylorus"; this neat epigram (unearthed by Moynihan) was framed nearly a hundred years ago by Sydney Smith, the brilliant writer and preacher, who studied medicine in Edinburgh, and later in life doctored his parishioners as a rural amusement.

The chronic ulcer of the duodenum is exceptional in another feature. In all regions of the body open to observation a chronic ulcer is liable to become cancerous, especially between the thirtieth and the fiftieth years of life; this is the age incidence of duodenal ulcer. We know that chronic ulcers

of the leg, lupus-scars, and gastric ulcers occasionally become cancerous, but this change in duodenal ulcers has never been proved, although they are some of the most chronic occurring in man. I have long sought among the living, the dead, and in museums for a

duodenal ulcer that has become cancerous; so far my search has been unavailing. Cancer arises in the duodenum, but not in the region that is the usual seat of ulceration. The frequency with which gastric ulcers become cancerous and the infrequency of cancerous change in duodenal ulcers are difficult of explanation. When cancer exists in the stomach, small fragments, detached by the churning movements, are transported with the chyme into the small intestine, but an implantation cancer in the intestine above the ileo-caecal valve is unknown. Shattock suggests that shed fragments of gastric cancer would not escape tryptic digestion. I agree with him.

JEJUNAL ULCER (PEPTIC ULCER).

The jejunal ulcer that follows gastro-jejunoscopy is often called a peptic ulcer, a term implying faith in the

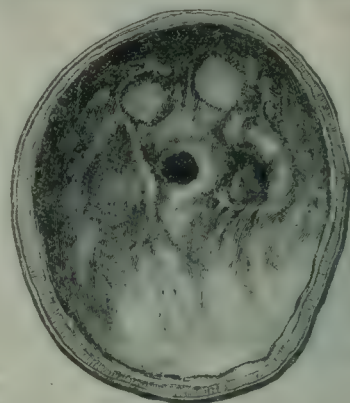


FIG. 2.—A gastro-duodenal cylinder. There is a white scar on the anterior surface of the duodenal bulb. The interior of the bulb is shown in the upper figure; it contains an active ulcer; the transparent patches indicate the scars of old ulceration. Excised from a woman, aged 45.

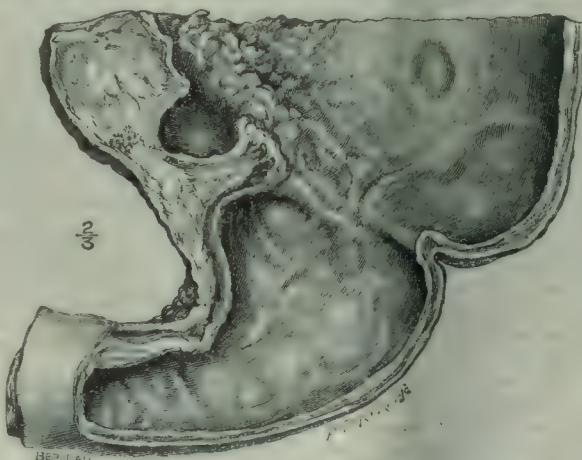


FIG. 3.—Pyloric segment of the stomach with a callous ulcer. Excised from a dyspeptic actor, aged 48.

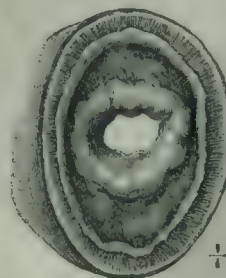


FIG. 4.—Pyloric orifice of the preceding specimen from the duodenal aspect; it shows oedema of the mucosa.

opinion that it is produced by the action of gastric juice. This ulcer, described by Braun in 1899, resembles the common ulcers of the stomach and duodenum and has sharp edges, often so sharp as to look as if it has been

through the new stoma. On opening the abdomen, the white scar of the original ulcer in the duodenum was visible; the area of the stomach involved in the gastro-jejunal junction adhered to the anterior abdominal wall,

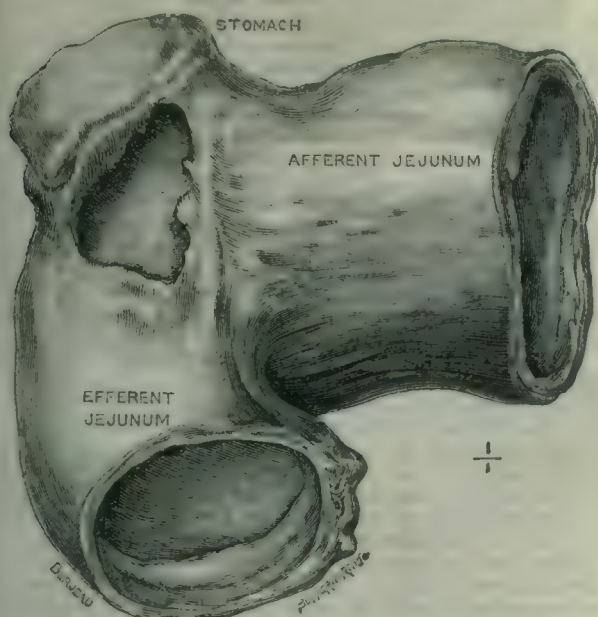


FIG. 5.—The limb of jejunum concerned in an anterior gastro-jejunosomy. A peptic ulcer is seen in the efferent limb.



FIG. 7.—The limb of jejunum in the preceding figure opened from behind to show the almost complete effacement of the valvulae conniventes.

punched out. It is a dangerous ulcer, and occasionally perforates before protective adhesions have formed, and causes septic peritonitis that often has a fatal ending. Some peptic ulcers have thickened edges and run a chronic course.

A peptic (jejunal) ulcer causes pain in the epigastrium, aggravated by the ingestion of food; the symptoms often resemble so closely those associated with a duodenal ulcer as to lead patients to complain that the pain and discomfort, for which gastro-jejunosomy was performed, have returned. When a jejunal ulcer follows anterior gastro-jejunosomy there is often an area of tenderness, and sometimes a definite swelling, under the upper part of the left rectus muscle. This indicates that the ulcer involves the peritoneum on the anterior abdominal wall. I have had two opportunities of studying the changes in the jejunum that precede the formation of a jejunal ulcer, and I am able to exhibit one of the specimens.

In March, 1906, I performed anterior gastro-jejunosomy on a man, aged 44, for symptoms indicating the existence of a chronic duodenal ulcer. The operation relieved the man of his pain, and he remained in good health for nearly seven years; then the pain returned with great severity, and on the urgent representation of his medical attendant the patient was readmitted, December, 1914, into the Middlesex Hospital. He complained of pain following the ingestion of food, and there was a tender area and slight swelling under the upper part of the left rectus muscle near the costal margin. I had no doubt that the man had an ulcer in the immediate vicinity of the new stoma. With the help of x rays and an opaque meal, the material could be seen escaping, partly through the pylorus and partly

and, on detaching it, an irregular opening appeared in the efferent limb near the gastro-jejunal junction (Fig. 5). The segment of stomach and the cylinder of jejunum involved in the junction were cut away. The opening in the stomach was closed with silk sutures and the cut ends of the jejunum were joined, end to end. The man recovered easily and quickly. The changes that have taken place in the tissues of the jejunum adjacent to the new stoma are remarkable. Normally, the mucous membrane of the jejunum is thick and thrown into folds, the familiar valvulae conniventes (Fig. 6); but in this specimen the jejunal mucous membrane in the vicinity of the new stoma is thin; the valvulae are effaced (Fig. 7) and the muscular coat is thin and transparent. The hole occupies the efferent limb of the jejunum, just beyond the cicatrix marking the union of the stomach and gut.

A consideration of the structural alterations of the jejunum in the neighbourhood of the new stoma resulting from gastro-jejunosomy leads to some conjectures of high interest. There are no valvulae conniventes in the first 4 or 5 cm. of the duodenum, and its wall is thinner than in the remaining portion; it is often dilated, and forms the *bulbus duodeni*.

A remarkable transformation occurs in the jejunum when the escape of chyme from the stomach is transferred, in consequence of gastro-jejunosomy, directly into

the jejunum. The wall of the jejunum receiving the impact of chyme ejected through the new stoma becomes attenuated, the valvulae disappear, and the jejunal walls assume the peculiarities of the supra-ampullary segment of the duodenum. This change entails a liability to ulceration, so common in the duodenum. Thus surgery,



FIG. 6.—Portion of the jejunum laid open to show the valvulae conniventes.

by changing the environment of a segment of the jejunum, has evolved during this generation a new variety of ulcer. The time required to induce a segment of the jejunum to assume the characters of the supra-ampullary portion of the duodenum will probably be determined by subsequent observations.

It is the common opinion that the duodenal ulcer is caused by the impinging of acid chyme ejected through the pylorus on to the wall of the duodenum. The features surrounding the origin of a jejunal ulcer following gastro-jejunostomy seem to support the percussion theory, but so far the discussions on the mode of origin of gastric and duodenal ulcers pay but little regard to the influence of bacterial action. Most of us believe the stomach to be amicrobial as long as it can expel its contents, but observations on the fluid found in the abdominal cavity of patients with perforated gastric and duodenal ulcers prove that it often swarms with pathogenic micro-organisms, especially streptococci. These are introduced with food, especially milk, wittily described as "our most polluted article of diet."

It is noteworthy that a jejunal ulcer is rarely seen as a sequel to gastro-jejunostomy performed for the relief of cancer of the stomach. This may be explained on the ground that such patients rarely survive the operation long enough to permit a jejunal ulcer to form. It is established that a "peptic jejunal ulcer" may make its appearance six months after gastro-jejunostomy, or be delayed ten years.

Some surgeons attribute these secondary ulcers to faults of technique, or a method of suture different from that employed by the surgeon who criticizes the report; or the suture fails to completely control the bleeding from the cut edges of the gastric or the jejunal mucous membrane, and a haematoma forms.

There is very little evidence available for the incrimination of silk or linen thread; persistent sutures have rarely been found associated with secondary ulcers of the jejunum.

INDIRECT OPERATIONS ON THE VISCERA.

Few things are more remarkable in the history of surgery during the last quarter of the nineteenth century than the origin and development of operations on the viscera. This advance was the outcome of two discoveries—anaesthesia and antiseptics. Surgical boldness and dexterity have always been available, but after the discovery of anaesthesia surgical rashness knew no bounds, but sepsis curbed it. Since the detection of the cause of sepsis, and the discovery of means for preventing it, surgical enterprise has been safeguarded.

In dealing with the viscera surgeons advanced tentatively. The effects of the removal of a particular viscus, or even a portion of it, on the physical efficiency of the individual were unknown. The internal reproductive organs of women were regarded with almost fetish reverence. Instead of removing the uterus when occupied by fibroids, surgeons removed the ovaries with the hope of establishing an artificial menopause and inducing the fibroids to shrink. Gradually men realized that the ovaries are the dominant organs of sexual life. So with the prostate. Ignorant that a big prostate could be enucleated, surgeons, actuated by false ideas as to the effects which followed removal of the ovaries, excised the testicles, or divided the vasa deferentia, with the hope of causing the prostate to atrophy.

In the case of the intestinal tract surgeons were content to make an artificial anus in order to relieve obstruction caused by cancer of the colon or of the anus. In 1881 Bryant, in the course of making an artificial anus, stumbled on a cancerous constriction, and the operation ended as an impromptu colectomy. Since that event resection of the bowel and short-circuiting have reduced colostomy to the position of an operation of despair.

The class of operations just considered may be called indirect operations—they may relieve the patient but do not remove the disease. To this class gastro-jejunostomy for the relief of duodenal ulcer may be added.

It is admitted that the most favourable conditions for gastro-jejunostomy are a pylorus blocked by an inflammatory mass, and a stomach with muscular tissue sufficiently vigorous to propel the chyme through the new

stoma. A dilated stomach with an unobstructed pylorus is so unfavourable for gastro-jejunostomy that surgeons are at their wits' end to devise means for closing the pylorus, not only to compel the chyme to take the new route, but also to hinder an efflux of bile through it into the stomach. With an unobstructed pylorus gastro-jejunostomy cannot be relied on to cure a chronic duodenal ulcer, and as it exposes patients to the discomforts and risks of regurgitant vomiting and jejunal ulcers, I have gradually abandoned it as a routine method and prefer to excise the pylorus and the segment of duodenum containing the ulcer.

THE PYLORUS.

It is difficult to describe with certainty the functions of the pylorus. That it delays the efflux of chyme cannot be denied, but the rapidity with which a foreign body is discharged from the stomach into the intestine indicates that its controlling influence is by no means great. Smooth foreign bodies under 1 in. in diameter when swallowed are soon propelled through the pylorus.

In the course of operations the normal pylorus, when first exposed, is usually firmly contracted. A few minutes later it dilates, and, except for the vein that marks the boundary between the stomach and the duodenum, the pyloric sphincter is not easily seen. When the pylorus is excised it usually admits the index finger easily, but after the parts have been immersed in preservative fluids such as a mixture of alcohol and water or formalin solution, they contract and the orifice is quite small.

The examination of museum preparations gives a false idea of the size of the pylorus and also of its functions. I believe the pylorus is extremely sensitive. Like the buccal and anal sphincters, it gives no indication of its existence unless chapped or ulcerated. A chapped lip makes feeding painful; an ulcer near the pylorus makes digestion an ordeal; and an ulcer at the anus makes defaecation a daily terror.

One day I had stretched the anal sphincter of a man to relieve pain caused by an ulcer. Crossing the garden with my house-surgeon shortly afterwards I asked him which he considered more painful, a chapped lip or a fissured anus. He replied: "I don't know, for at the present moment I've got both."

Duodenal ulcers may be mere dimples in the mucous membrane, others (miscalled fissures) deeply eroded pits, or narrow ulcers extending through the mucosa to the muscular tissue. It is conceivable that when irritated by the passage of acid chyme a spasm is set up producing painful sensations.

The common form of dilated stomach—nicknamed splashy stomach—which was mainly responsible for bringing routine gastro-jejunostomy into disrepute, is worth some attention. I believe it is caused in some cases by spasmodic closure of the pylorus. Just as the small painful ulcer, or fissure, of the anus leads to irritative action of the anal sphincter, often ending in dilatation of the rectum and the pelvic colon, so repeated spasmodic contraction of the pyloric sphincter will produce dilatation of the stomach. Convinced of this correlation of events, I have excised the pylorus in such cases, with good consequences, but on the whole the conditions which give the best results to this mode of treatment are those in which there is a gross lesion at the pylorus.

Excision of the pylorus cannot be regarded as a serious physiological loss. Removal of the pyloric half of the stomach or of the whole stomach does not interfere with the nutrition of the body. I removed the stomach from a woman, aged 35, for cancer. She survived the operation three and a half years. A year after the operation she reported herself, and at that time was in excellent health. She complained that she could not eat so big a meal as her husband, but she made up the difference by "eating two meals to his one."

It is surmised that the pyloric sphincter hinders the premature escape of undigested food into the duodenum. It has also been suggested that spasmodic closure of the pylorus, originating reflexly from the ileum, is protective against overloading the small intestine with insufficiently digested food. This is amusing, for the idea presupposes the existence of mentality in bowels, a function usually regarded as the exclusive property of the cerebrum. Keith's observations on the islets of ganglionic nerve

tissue in the walls of the intestine suggest that thoughts may arise in a man's bowels as well as impulses suggesting ideas; indeed, Menenius Agrippa's famous fable of the Belly and the Members may have more foundation in fact than the retort of Balaam's ass.

THE TECHNIQUE OF PYLORECTOMY.

When the conditions are favourable, excision of the pylorus, to surgeons accustomed to intestinal operations, is a simple matter. Favourable conditions mean a narrow and elongated pyloric segment of the stomach and the absence of adhesions between the pylorus and the liver, or the pancreas, or the transverse colon. The disparity in thickness of the gastric and duodenal walls is embarrassing to the operator, but with practice the difficulty disappears. Extensive adhesions to the pancreas or to the liver are a bar to pylorotomy. The supra-ampullary segment of the duodenum is occasionally much shorter than usual and makes the suture of the cut end of the stomach to the duodenum a difficult proceeding. In the method I employ, the abdomen is opened by a median supra-umbilical incision. The parts in the neighbourhood of the pylorus are examined in order to verify the diagnosis. The condition of the stomach is investigated as well as that of the gall bladder. When the conditions are favourable for pylorotomy, the vessels are clamped and stripped from the pyloric region of the stomach, and the loose tissue between the supra-ampullary portion of the duodenum and the pancreas carefully detached, and all bleeding vessels secured with forceps. When the pylorus is sufficiently freed from its attachments a clamp is applied to the stomach, about 5 cm. from the pylorus; the duodenum is clamped beyond the situation of the ulcer, and the pylorus excised. This is the best stage of the operation in which to ligature the vessels as they are well exposed and easily accessible.

The cut edges of the duodenum and stomach are sutured in the manner of an end-to-end anastomosis. I always use thin sterilized silk for this purpose and for ligatures. It is tedious and unnecessary to describe in detail the methods available for sewing the cut end of the duodenum to the hole in the stomach. It is like stitching a sleeve in a shirt; the clever sempstress varies her methods according to the material and the size of the garment. So with the surgeon. In a case of extensive resection (Fig. 3) the line of suture in the stomach was 6 in. across. Not wishing to imperil the safety of such a long line of suturing by joining the duodenum to it, I implanted the cut margins of the duodenum into a fresh opening in the posterior wall of the stomach.

In spite of the careful ligature of vessels, there is usually some post-operative oozing from the tissues in the wound area, and it is wise to drain for forty-eight hours. The abdominal wound is closed with through-and-through sutures, the fascia being brought into apposition with intermediate sutures of thin silk.

The first patient I submitted to pylorotomy for duodenal ulcer was a woman, aged 35, at the Middlesex Hospital, in 1909. Gastro-jejunostomy had been performed three months previously, but the pain remained unrelieved. I excised the pylorus and the segment of the duodenum containing the ulcer. She made a quick and uneventful recovery. I have since lost sight of this patient. A few days later, when operating on a man for a duodenal ulcer, I found the conditions so favourable for pylorotomy that I excised the pylorus and the bulbous duodeni with the ulcer. Six years later I re-examined him with the help of *x* rays and an opaque meal and found the gastric efflux satisfactory.

I have excised the pylorus for chronic duodenal ulcer, according to the method just described, in twenty patients. In three of them I had previously performed gastro-jejunostomy. In one the symptoms returned three months after the gastro-jejunostomy, in another six years, and in a third two years. One patient, the sixteenth in the series, died. He was a man aged 38, transferred from Dr. Wynter's ward, with typical symptoms of chronic duodenal ulcer. At the operation an ulcer was found close to the pylorus on the anterior wall of a well-marked bulbous duodeni. I departed from my usual method and sewed the cut edges of the mucous membrane with catgut. The man made good progress until the fifth day, when his temperature rose to 103°. He died on the nineteenth day after the operation. The suture line had sloughed, in

two spots. I attributed the unfavourable result to the use of catgut.

SUMMARY.

Since the treatment of duodenal ulceration passed into the province of surgery it has become the routine practice to perform gastro-jejunostomy for its relief, in the hope that, by diverting the chyme through the new stoma into the jejunum, the ulcer will heal. If the pylorus is obstructed by the ulcer the results are usually good, because the chyme must flow through the new stoma, but when the pylorus is patent the chyme flows through it, and in some instances ignores the new route. This is not imagination, for the efflux can be watched with the help of an opaque meal and *x* rays. I believe it is better, whenever practicable, to excise the pylorus with the ulcerated portion of the duodenum and rejoin the stomach and duodenum on the principle of an end-to-end anastomosis. If this method could be made safe, gastro-jejunostomy for the relief of chronic duodenal ulcer with an unobstructed pylorus would soon be abandoned.

Experience proves that posterior gastro-jejunostomy with an obstructed pylorus is a beneficent operation, in spite of the risk the patient runs of getting a new ulcer for an old one. The new ulcer has been evolved during this generation by alterations in the environment of the jejunum brought about by surgery.

ANTENATAL CLINICS AND PREMATERNITY PRACTICE AT THE EDINBURGH ROYAL MATERNITY HOSPITAL IN THE YEARS 1909-1915.

By J. W. BALLANTYNE, M.D., F.R.C.P.E.,

PHYSICIAN, EDINBURGH ROYAL MATERNITY HOSPITAL; LECTURER ON MIDWIFERY AND GYNAECOLOGY, SCHOOL OF MEDICINE OF THE ROYAL COLLEGES, EDINBURGH, ETC.

(Continued from p. 236.)

Autumn Quarter, 1914.

The autumn quarter of 1914 saw 40 patients pass through the prematernity ward. Of these women, 7 were admitted for "convenience," and in this year "convenience" meant generally that these expectant mothers were the wives of Reservists and Territorials who had been summoned to the colours on the outbreak of the war. Even in these cases, however, it was a comfort to be able to make certain by actual pelvimetry that the pelvis was normal and the chief bodily systems healthy. Seven other women were kept in the ward on account of pelvic contraction; in 5 of them induction of premature labour was carried out, 1 was sent home as the date of induction was not due for some time, and in 1 (on whom it had been necessary to perform pubiotomy before) there appeared to be a permanent enlargement which permitted the natural delivery of a living child. In one of the induction cases living twins were brought into the world, but both died when two days old; in 2 the child lived, and in the other 2 it perished (in one instance antenatally and in the other after birth). In all these induction cases it was a great advantage to be able, daily if necessary, to test whether the head could engage in the pelvic brim by means of the Müller manoeuvre; thus the best time for induction could be chosen. There was one other woman upon whom induction was performed, but in her case the operation was carried out because of the large size of her previous babies, causing their intranatal death; a living child weighing 7 lb. was successfully delivered and survived.

An interesting case was that of a woman whose previous four children had all been dead-born. She was sent in because she was becoming melancholic. For four weeks she was kept in hospital and her various functions regulated. At the delivery the cord was round the neck and arms, but a living and surviving child was born and the melancholia rapidly disappeared. Two other women were admitted on account of melancholia. One of them had albuminuria and suffered from condylomata of the vulva, but her blood gave a negative Wassermann reaction; the albuminuria was treated and she was safely delivered of a healthy infant. The other patient had signs of pyelitis

but was delivered normally, and the only sign of mental trouble after labour was shown by the fact that she had got out of bed one night and burst the sutures which had been put in to close a small perineal tear. Two other cases of albuminuria received dietetic treatment, etc., in the ward, and both were successfully delivered and had living and surviving infants. Another patient, in addition to the one named above who suffered from melancholia, was believed to be the subject of pyelitis, and she certainly exhibited some of the signs and symptoms thereof; but she was very discontented in the ward, and went home at her own wish before her delivery.

Hyperemesis Gravidarum complicated by Pyelitis.

This was the only case which terminated fatally to the mother. The woman was a 2-para, 21 years of age; her previous pregnancy and labour had been normal. On admission, when in the seventh month of gestation, she was pale, had marked carotid pulsation in the neck and in the external jugular vein, a small and rapid pulse, but regular and with no diastolic murmurs, and systolic bruits could be heard in all the cardiac areas. The heart was enlarged, especially to the right side. The only heart symptoms were faintness and giddiness if she suddenly assumed the erect position. There was an irritable cough, troublesome at night, and to it was ascribed the vomiting; the examination of the lungs revealed harsh breath sounds but no other anomalies. Before admission she had been seized with numerous rigors, by pain over the right kidney, and by sickness and vomiting. She was treated for pyelitis by her own medical man, but the vomiting and pain over the kidney continuing, he sent her into hospital. There was a trace of albumin in the urine, and a culture of the *Bacillus coli* was obtained from it. She had a temperature of 102.4°, and a pulse-rate of 120. She was put to bed, and an enema was given; milk diet was ordered, and she was given cystopurin and potassium citrate for the renal condition and two kinds of sedative cough mixture, but the latter remedies had to be stopped because of increased sickness.

All the symptoms, save the vomiting, disappeared, and even the sickness was improved. Three weeks after admission she passed into labour, and was delivered of a macerated fetus weighing 4 lb. 6 oz. The placenta was very friable and had numerous infarcts in it. Her recovery proceeded rapidly; she was able to eat and enjoy ordinary food, but on the fourth day of the puerperium she suddenly became blue in the face, sat up in bed for a few seconds, and fell back dead.

The post-mortem examination by Dr. Drennan revealed a dilated heart with a thin-walled right ventricle, emphysema of the upper lobes of the lungs, but no embolism, healing septic nephritis of the right kidney, septic endometritis, and toxic changes in the other organs.

There were two other cases of vomiting. In one of these the woman gave birth to a macerated fetus and recovered; in the other the hyperemesis (at the third month) was controlled by treatment, and after a fortnight's stay in hospital the woman returned home well and with her pregnancy continuing. There were two instances of diarrhoea, in both of which a few days' treatment in the hospital sufficed for cure, and the women went out, their pregnancies uninterrupted. There was also a severe case of

Gastric Ulcer.

The patient, a 1-para of 24 years, was in hospital for eleven weeks in all; at the end of the eighth week she gave birth to a living male child, weighing 8 lb. 2 oz., and notwithstanding many dangerous times (on one of which she had a temperature of 106° and a pulse-rate of 136), she recovered and was able to leave the hospital. Her child also thrived well. Her case will probably be published separately, as it was one of much interest. It was the most anxious one during the quarter.

The remaining cases may be summarized as follows: Two heart cases, one of which resulted well for both mother and child, whilst in the other abortion had to be induced with the loss of the fetal life; a case of epilepsy, in which, after a week's stay in the ward, the mother returned home to await her confinement; a marked case of chorea gravidarum in which treatment with large doses of calcium chloride for a fortnight was sufficient to enable the woman to return to her home (the pregnancy continuing); a case of phlebitis affecting both legs, in which after six weeks' stay in hospital labour came on with the birth of a living child weighing 9 lb. 10 oz., and in which there was a threatening of a return of the phlebitis in the puerperium; 2 cases of cystitis—one accompanied by a threatened abortion—in both of which the patient was able to leave the hospital relieved (pregnancy continuing); a case of post-partum haemorrhage in a previous labour, in which there was again haemorrhage, kept in check by an intrauterine hot douche and pituitrin and ergotin; a case of vulvo-vaginitis and urethritis, under treatment

for a month, in which the child was born prematurely and succumbed a few days later; a case of spurious pains, in which twins of the same weight, which survived, were born four days after admission; a case of injury to the abdomen in which the fetal heart for a time was 180 per minute and the movements very active; and a case of miscalculation of the date of delivery or possibly of post-mature labour. There was, finally, a very interesting case of a woman who possessed only one kidney, and upon whom the phenolsulphone-phthalein test was carried out and gave so satisfactory a result that it was decided to allow the pregnancy to proceed. This case also will probably be published separately.

As a result of prematernity work in the autumn of 1914, 40 mothers passed through the ward, of whom 39 recovered or left relieved, their pregnancies continuing, whilst one—the case of hyperemesis, dilated heart, and pyelitis—died from heart failure in the puerperium. Of the 29 mothers who remained in hospital for delivery there were 31 infants born (twins twice); 23 of these were living at birth and survived, whilst 4 were born dead and 4 more died a few days after birth. Eleven mothers left to be confined in their own homes.

Autumn Quarter, 1915.

The patients who received prematernity treatment in the autumn quarter of 1915 were more numerous but perhaps less interesting than in any previous year. In all they numbered 44; but one who was sent in as a pregnancy was found to be really a case of pseudocyesis, and thus the pregnant patients were reduced to 43. No less than 9 of them were admitted for causes which are difficult of definition, but which may best be denominated "convenience," including under that word poverty, homelessness, desertion by husband, and minor troubles. One of them, a girl of 16 years, was kept in the ward, as it was possible that medico-legal proceedings might be instituted after her delivery.

No case of eclampsia was dealt with in the prematernity ward (there were 8 cases of eclampsia during the quarter, but none of them entered the hospital until labour was in progress), but there were 9 women who were treated on account of marked albuminuria with pre-eclamptic symptoms. They were not the only albuminuric patients who received treatment, but they were the only ones who got it before delivery. Of the 9, 5 were confined in the hospital during the quarter, 3 of them having living and surviving babies (one with a harelip and cleft palate), and two expelling dead fetuses. Three went out of hospital with their condition much improved, and with pregnancy continuing. The other albuminuric was still in hospital at the close of the autumn quarter; she was confined prematurely about a month later, and died immediately after the third stage; there was no post-partum haemorrhage, but her symptoms resembled those of "shock." She had exhibited marked signs of hypothyroidism during her pregnancy. She and two others of the albuminuric patients had had eclampsia in a previous confinement. Her baby (premature) died soon after birth.

The patients admitted for "convenience" and for albuminuria constituted 18 out of the total of 43. The causes for which the remaining 25 were admitted differed very widely. There were 3 cases of hyperemesis; in all of them treatment was so satisfactory that the mothers were able to return to their homes, their pregnancies proceeding normally. There was also a case of vomiting late in pregnancy in a very anaemic woman; but under treatment (iron, etc.) she was safely delivered of a living and healthy child, which weighed 6 lb. 9 oz. There were 3 cases of threatened abortion in which the miscarriage was staved off, and one in which, although the abortion was prevented at the time, it occurred a month later. There were two instances of hydramnios, in one of which the membranes were artificially ruptured and a macerated fetus was expelled; whilst in the other the same treatment resulted in the premature birth of twins, who did not long survive birth. The two mothers did well. Three women were in the ward on account of pelvic contraction; in one of them pregnancy was allowed to go to the full term, and I performed Caesarean section with a happy result for both mother and child; in the other two premature labour was induced, and whilst one of the infants survived, the other died in a few days. One pregnant

woman was admitted because in previous gestations she had given way to drink in the last month; she was kept out of temptation's way in the hospital, and both she and her infant did well.¹ Another woman was admitted on account of a sharp attack of *Bacillus coli* infection of the urinary tract; she had had a retroversion of the gravid uterus which had been replaced accidentally before admission; both she and her child did well. In 2 cases the cause of admission was *ante-partum* haemorrhage; in the one ("accidental haemorrhage") a month's residence in the hospital was followed by the birth of a healthy child, which survived its birth, and in the other, after ten days' rest in the ward, the mother was able to go home, her pregnancy continuing normally. In 6 other cases the cause of admission to the prematernity ward was severe constipation (1), oedema of the labia (1), cystocele and prolapse (2), and vaginitis (2); in all a good result was obtained—4 of the women were delivered of living children and the other 2 were able to return home with their pregnancies continuing.

Two other cases remain to be referred to:

Heart Disease.

One was that of a delicate primipara, who spent several longer and shorter periods in the ward; she suffered from recurring attacks of faintness and of actual syncope, and auscultation revealed a systolic aortic murmur. She was more or less under treatment for the whole quarter, and she continued to attend the hospital until November 23rd, when she was safely delivered of a healthy child (6 lb. 12 oz.), and both mother and child did well.

Cerebellar Tumour.

The other case was that of a primipara, a married woman, who was suffering from the effects of a cerebellar tumour. She was in the ward when I came on duty on July 1st and her condition was deteriorating fast; indeed, before her delivery occurred she became quite blind and deaf; she gave birth to a living healthy child on July 5th, but died on the eighth day of the puerperium. Although so helpless when her infant was born, she was evidently able (by the look upon her face) to tell what had happened, and it was a touching sight to see her holding the baby in her arms.

The results of the prematernity work in the autumn of 1915 may be summarized as follows: Of the 43 pregnant women 12 left the hospital cured of the trouble for which they had been admitted and continuing their gestations, and 31 were delivered in the hospital, of whom 29 made good recoveries and 2 died, one being the patient with the cerebellar tumour and the other being the albuminuric patient who had in a previous labour suffered from eclampsia. The 31 mothers who were confined in the hospital gave birth to 32 children (twins once), of whom 24 left the hospital alive, 4 were macerated at birth, and 4 (all premature) died a few days after birth.

Table showing the Main Results of the Prematernity Work during the Autumn Quarter for the past Seven Years in the Edinburgh Royal Maternity Hospital.

Years.	No. of Cases.	MOTHERS.			INFANTS AND FETUSES.		
		Lived.		Died.	Alive.	Dead.	
		Undelivered.	Delivered.			Ante-natal.	Post-natal.
Autumn of 1909	32	7	24	1	16	1	2
1910	29	12	17	1	14	2	1
1911	26	5	20	1	16	7	0
1912	36	11	25	1	17	17	3
1913	32	4	26	2	21	5	4
1914	40	11	29	1	24	4	4
1915	43	12	29	1	24	4	4
Totals	238	53	177	8	131	47	18

With regard to the 8 maternal deaths, 2 only (those due to croupous pneumonia and acidosis) really occurred while the patient was in the prematernity ward; the remaining 6 all took place after delivery, and 2 of them after my quarter on duty in the hospital was over; at the same time they were all, save the cases of croupous pneumonia and cerebellar tumour, due directly or indirectly to the state of pregnancy (hyperemesis, acidosis, albuminuria with hypothyroidism, phlebitis, and gastric ulcer).

The number of fetal deaths is high—47 out of 196—but it must be remembered that I have included all the abortions (and one was a triplet miscarriage), for every abortion is really a fetal death; and I would also emphasize the serious nature of so many of the maternal states. The number of infants who perished after birth (including premature births) is not, I think, large when all the circumstances are taken into consideration; it was 18 out of 149 who came into the world alive. Fifty-three pregnant patients (out of 238) left the hospital with their pregnancies continuing, and there is reason to believe that most of them ended happily, although details were not always available; the conditions for which they had been admitted and treated were generally of the nature of threatened abortion, excessive vomiting, accidents (falls, etc.), varicose veins, diarrhoea, retroversion of the uterus, cystitis, and spurious pains. One of the most striking results of the prematernity work was the treatment which it was possible to give to 31 mothers suffering from well-marked albuminuria. In only one of these cases did eclampsia develop, and that was in one of the 1909 patients before I had learnt that more than dietetic management was necessary. None of these patients died whilst under my care; but one in which there was a strong element of hypothyroidism ended fatally in the third stage of labour in the succeeding quarter.

CONCLUSIONS.

The following conclusions may, I think, safely be drawn regarding prematernity work in a maternity hospital:

1. A prematernity department is an essential part of a properly-equipped maternity hospital, and it ought to consist of a pregnancy ward, antenatal clinics, and of prenatal nurses (in the extern work).

2. Among the good results coming from it may be reckoned the saving of lives (maternal and infantile), the relief of maternal suffering, the possibility of supervising antenatal hygiene, and the teaching of the normal and abnormal conditions of pregnancy both to students and to post-graduates.

3. The maternity hospital which has such a department will probably have a higher death-rate, for it will inevitably attract to itself cases of a very grave type; but these patients must be treated somewhere, and they will have a far better chance of recovery in the prematernity ward with adequate nursing and skilled medical treatment than in their own homes.

4. The diseases which will be specially benefited by prematernity treatment will probably be albuminuria, eclampsia before the supervision of labour, hyperemesis, chorea, acidosis, threatened abortion cardiac complications, anaemia, chlorosis, hydramnios, phlebitis, pyelitis, and the *ante-partum* haemorrhages before the onset of labour; but the ward will also offer advantages to patients waiting for the induction of premature labour on account of pelvic contraction or previous dead-births from any cause. Less common indications for admission will be found in melancholia, alcoholism, jaundice, gastric ulcer, myxoedema, mucous colitis, phthisis, recurrent abortion or fetal death, haematuria, injuries, etc.; and, indeed, many other uses for the ward will be found after its opening.

5. Further benefit will accrue from the establishment of a well-equipped laboratory, in which the finer methods of clinical investigation can be carried out, as well as by the securing of the services of a pathologist skilled in the special morbid anatomy of the fetus, embryo, placenta, membranes, and liquor amnii.

REFERENCE.

¹ Alcoholism and Antenatal Hygiene, *British Journal of Inebriety*, 1915, xlii, p. 87.

ACCORDING to the *Riforma Medica* the total number of legally qualified doctors in Italy is 22,705, a proportion of 6.3 to 10,000 of the population of the country. The number of foreign practitioners is about 130. Of these some 85 hold an Italian degree which gives them a general right to practise; 25 who have no Italian licence can practise only among patients of their own nationality, and 20 who hold diplomas from British licensing bodies are entitled to practise under the reciprocity agreement between the two countries.

Reports of Societies.

TRENCH NEPHRITIS.

At a meeting of the Sections of Medicine and of Pharmacology and Therapeutics of the Royal Society of Medicine, on February 15th, Dr. LANGDON BROWN opened a discussion on trench nephritis. He said that acute nephritis was not a common disease in civil practice; at St. Bartholomew's Hospital, with an average annual admission of 7,000 medical cases, there were in five years only 26 cases of acute nephritis in men of military age. Whereas dysentery and typhoid had dogged most campaigns in the past, acute nephritis usually had not. It was very rare in the South African war, but in the American civil war there was a very considerable outbreak, which assumed epidemic proportions between March, 1862, and March, 1863. Throughout that war there were 14,117 cases, and it was interesting to recall that the military conditions resembled those of the present war. There was the dash forward of the Confederates, which was checked and followed by prolonged trench warfare. The epidemic in the British Expeditionary Force had not reached such dimensions, but up to the end of June, 1915, there had been 1,062 cases, and they had not been diminishing since. Reports from Vienna showed that the enemy were also affected by the disease, which started about the same time as in our army, and as in the American civil war—that is, in March. Exposure as a cause was negated by the facts of the rarity of the disease in South Africa and in the Russo-Japanese war, and also because it was not until the weather began to get warmer that the disease assumed epidemic proportions. A climatic cause would not explain an epidemic such as that in the American civil war, which lasted twelve months and did not recur in subsequent years of the war. Various other causes, such as the water supply, chlorination of the water, intestinal toxæmia, and acidosis had been suggested, but could be excluded. Only a few cases could be explained as an exacerbation of chronic nephritis. The French army surgeons had suggested that the epidemic was due to a suppressed form of scarlet fever, and it was interesting to note the immunity of the Indian troops from nephritis, as the inhabitants of India enjoyed comparative immunity from scarlet fever. Although this theory would not stand examination, it was important to note that the urinary and pathological changes in trench nephritis and scarlatinal nephritis were closely similar. Chemical tests showed that, as in a nephritis of infective origin, trench nephritis was glomerulo-tubular in distribution, and this had been confirmed by *post-mortem* examination in some of the few fatal cases. As to the nature of the infection, cultures from the blood, fauces, and urine had yielded no positive bacteriological results, but Dr. Mackenzie Wallis had obtained suggestive, though not conclusive, evidence of an ultramicroscopic filter-passing virus by injecting the urine, which had been passed through a Berkefeld filter, into rabbits and monkeys. A severe illness was produced after a latent period of eight days, which would exclude a mere chemical cause, and corresponded to the incubation period which had been observed clinically. Wassermann's reaction was positive in about one in every three cases. This did not mean that such patients were necessarily syphilitic, as other animal infections would produce a positive reaction. A filter-passing infection was believed to be animal in nature. A number of the cases had had symptoms of fever and malaise before the nephritis, but usually oedema was the first symptom. Shortness of breath had been a striking and very common symptom, starting at the same time as the oedema, but ceasing after a few days. Bronchitis was common, and a fair proportion of patients had complained of sore throat. Great reduction in urinary secretion was not so common as in ordinary acute nephritis, while great variations in the daily quantity were not uncommon. Haematuria sometimes continued long after all signs of active inflammation had subsided. Leucocytes, epithelial, granular and fatty casts were usually found in the urine, though blood casts and fatty casts were rare. Uraemic convulsions occurred occasionally, but generally yielded to free venesection. A considerable proportion of the cases recovered speedily, but if this did not take place, the duration might be prolonged

for weeks or even months. The albuminuria often became intermittent before it ceased altogether. Relapse was not uncommon. Some, no doubt, were becoming chronic nephritides, but the immediate mortality was very low. He gave reasons for believing that the epidemic was due to a specific infection, probably resembling, but not identical with, the organism causing scarlet fever. He thought that animal inoculation experiments with material from recent cases were advisable, and suggested that much might be learnt as to the mode of infection by the preparation of maps showing the exact distribution of the cases.

Sir WILLIAM OSLER said that the disease had not been described before, with the exception of the records of the cases which occurred during the American civil war. Its main clinical characters were those of ordinary acute nephritis, and, like it, started quickly, and usually without any previous disorder. There were, however, certain peculiarities. The oedema was transient, and usually local; general anasarca was rare. Dyspnoea was unusually prominent. Slight fever was present in a few of the cases which had returned to England, but it was probable that it was more common in the earlier stages. The rapid improvement, which coincided with the disappearance of the dropsy, was remarkable, and an apparent restoration to good health with persistence of the urinary changes and a high blood pressure was common. Severe uraemic symptoms had occurred without dropsy and with only high blood pressure. Cases had been admitted showing albuminuria with casts and blood in the urine, but without a history of dropsy, the condition being detected only by urinary examination. Although it was the rule for the cases to end in recovery, yet death occurred in not a few. Of 113 cases at Taplow, 2 ended fatally; of 30 at Paignton, 2 more; and 1 was fatal at Oxford. It appeared that a larger proportion of deaths occurred than recent papers indicated. A *post-mortem* examination had been made in 3 of these cases. In one a typical large milky-white kidney had been found, identical, except for the absence of injected stellate veins, with the classical example described by Bright. There were no signs of fatty degeneration. In the second case acute nephritis had been superimposed on an old nephritis. In the third case the patient died from intercurrent pleuropneumonia. The kidneys were sclerotic, but there was also marked recent tubular and glomerular nephritis. The remaining 2 fatal cases were accompanied by uraemia and ended rapidly; no necropsy had been made. It was a good clinical rule that if in acute nephritis the urine did not become free from albumin by the end of the twelfth week the probability was that the condition would become chronic. There was evidence of persistence of the nephritis among those patients at Taplow who had been ill for more than ten weeks. Nine out of 14 had a high blood pressure. In 6 of the older patients high blood pressure was accompanied by commencing arterial changes. In 10 of the 14 the urine was of a low specific gravity. For these reasons he feared that many sufferers from this condition would never have a complete restoration of the functions of the kidney.

Dr. F. W. ANDREWS exhibited microscopical sections from six cases which he had examined histologically. He had only been able to obtain one example at an early stage. In that instance sudden death had followed cerebral haemorrhage, but the clinical evidence of a recent acute nephritis was fairly conclusive. Histologically he had found nothing indicative of acute nephritis, but only such changes as he would have expected to find in a man who had died from apoplexy. The remaining were specimens obtained from examples of typical acute nephritis, and were representative of severe trench nephritis. All showed changes in the glomeruli, tubules, and interstitial tissue. In the glomeruli was the usual proliferation of the epithelium of the capsule; in the tubules, degeneration and desquamation of the epithelium. Fatty changes were slight or absent. Some cellular infiltration occurred in the interstitial tissue, the infiltrating cells being chiefly leucocytes, whilst plasma cells were absent. This corresponded with the condition of the urine, in which a deposit of leucocytes was noticeable. In one case so many polymorphonuclear cells appeared in the urine that pyelitis was suspected. One case was an example of old-standing nephritis which had occurred three years previously, and upon which trench nephritis had been superimposed. There was nothing histological to

distinguish trench nephritis from other forms of acute and subacute nephritis. The acute glomerular nephritis of scarlet fever was comparable in all respects with trench nephritis. He had failed to find any micro-organism in the urine or kidneys.

Dr. MACKENZIE WALLIS, who had carried out pathological investigations to determine, if possible, the true nature of the condition and its origin, spoke first of the value of estimating the diastatic output as an index of the efficiency of the renal tubules. In no disease was this as low as in renal disease. In trench nephritis there was a definite relation between the severity of the case and the diastase content of the urine. Since the ferment was secreted by the tubules its diminution in the urine of these cases indicated that the tubules were affected, and the degree of its diminution indicated the extent of the damage. The test had also value in prognosis; diastase might still be diminished in the urine after the albumin had disappeared. There was no evidence of any protein being present in the urine other than serum albumin and serum globulin, as in ordinary nephritis, and they were present in the usual relative proportions. The amount of albumin varied from a trace to 0.3 per cent. as estimated by Esbach's method. Microscopically, casts were constantly present and were chiefly of the hyaline variety. There was a relative excess of white blood corpuscles, which was also characteristic of scarlatinal nephritis. In some cases there was retention of nitrogen even after the diastase excretion had returned to normal, and this had to be taken into consideration in determining the ability of the patient to return to duty. The nitrogen content of the cerebro-spinal fluid had been found to be raised when uraemia was present. In investigating the origin of the condition he had first considered the possibility of a co-existing intestinal toxæmia, but found that the ethereal sulphates in the urine were not in excess, but markedly diminished. With mineral poisoning the diastase content was also subnormal, but careful examination of the urine had failed to reveal the presence of any mineral poison. To discover a possible parasitic origin he had resorted to inoculation experiments on animals, using blood serum, cerebro-spinal fluid, and catheter specimens of urine. The urine was shown to be remarkably toxic, but the chemical characters of the toxic agent had not been determined. Apparently there was a powerful toxin circulating in the blood and excreted in the urine. He had repeated the experiments with scarlatinal nephritis, but obtained no results which were comparable. In the trench nephritis cases an illness was produced without exception on the eighth day. Two animals had died with albuminuria six days after injection, but *post mortem* there was no histological evidence of nephritis. Urine which had been heated to 55° C. produced no illness when injected, but an unheated filtrate did.

Dr. R. G. ABERCROMBIE, who had been working in France, had seen over 500 cases in the acute phase. In their early stages they presented the characteristics of acute nephritis of modern severity. The most constant symptoms were headache and dyspnoea. The blood pressure showed diurnal variations of from 30 to 60 mm. of Hg, the morning reading being low and the evening high. The bouts of dyspnoea were nearly always nocturnal, and it was therefore open to question whether they were due to the rapid rise of blood pressure. At the beginning of the disease fever was present, the temperature being about 101° F. In about half of the cases there were premonitory symptoms, these in order of frequency being bronchitis, pains in the back and limbs, and abdominal pains and vomiting. Tonsillitis was exceedingly rare, but laryngitis and tracheitis were more common. Convulsions had occurred in 14 cases, and for their treatment lumbar puncture and venesection, especially if accompanied by saline infusion, seemed valuable. Mania was met with in 4 cases, amaurosis in 3. Fundal changes were not seen in any during the first three weeks. Two occasional associations, herpes and bilateral parotitis, supported the contention that the condition was of infective origin. A well defined group could be separated in which the symptoms suggested pyelitis, cystitis, or prostatitis; in them oedema, fever, and rise of blood pressure did not occur, but casts might appear in the urine. Of some 500 cases 4 ended fatally, 1 before the end of the first week. The kidneys of this case showed but slight macroscopic changes. Microscopically the lesion

was essentially one of the tubules, with some interstitial change. The spleen was enlarged and the tracheal mucous membrane granular. As regards the causation, the cases were scattered, but occurred chiefly at the front and in definite small epidemics. The men were more liable to the disease in certain areas. His own impression, based on the clinical symptoms and the characters of the epidemic, was that the disease was infective.

Reviews.

THE PHYSICAL CHEMISTRY OF PHYSIOLOGY.

From time to time it has happily been the practice of eminent physiologists to write illuminating works in which their outlook upon the methods and philosophy of physiology is detailed and justified. Some twenty years ago, for example, this was done by Verworn, whose general account of physiology was written from the point of view of a protozoologist, and took the cell as the unit of physiology. Professor BAYLISS has now, in turn, published a most interesting and suggestive account of the *Principles of General Physiology*,¹ in which he regards the science from the point of view of a molecular physical chemist.

Such a mechanical point of view is, of course, not a novelty. Historically speaking, physiology has always been a highly derivative branch of science. In the main its progress has depended for inspiration upon other sciences, particularly physics and chemistry, or, less happily, upon abstract philosophy. As regards the great question as to the nature of life, during the last three centuries natural science has made such progress that all physiologists have been able to adopt a definite standpoint here and to build upon one of two foundations. Either they could assert that life was a mere succession of physical and chemical processes, or they could state that living organisms were ruled and animated by a new power, vital force. In this way two schools of physiology have grown up side by side, the mechanical and the vitalistic. Among the vitalists may be mentioned van Helmont, the school of Montpellier in the eighteenth century, and Johannes Müller and Bunge in the nineteenth century; among the mechanists, Descartes, the iatro-physical and iatrochemical schools of the eighteenth century, and to mention one out of the many more recent writers, Max Verworn. But there are still many vitalists among us who believe that the known laws of physics and chemistry are not adequate to explain the phenomena of living matter. Professor Bayliss is a confirmed mechanist, and, as has been said already, he sets out to explain vital phenomena in terms of mathematical physics and chemistry. The enormous progress that has been made in our knowledge of the laws of physical chemistry during the last thirty years, and in the study of the chemistry of colloids during the last decade, makes it possible for him to go a long way towards the mathematical exposition and solution of the problems of "vital force" with a thoroughness that was, of course, completely impossible for his iatrochemical and iatromechanical predecessors.

The book consists of twenty-four chapters, followed by a complete and up-to-date bibliography of eighty pages and by indexes. The first third of the text is devoted to an elaborate and most lucid exposition of the chemical and physical forces upon which all the processes of physiology depend. Surface action, the colloidal state, the permeability of membranes, osmotic pressure, electrolytes and their actions, the properties and functions of water, are all considered in turn. Wherever possible, Professor Bayliss discusses the energetics of the systems or modes of activity with which he deals; he is also at great pains to reduce all modes of chemical or physiological activity to mathematical formulas and equations, with the use of integration, log *e*, and the like. In the same way he makes free use of the Helmholtz theory of double electric envelopes, stepping boldly on ground where only the skilled mathematician and physicist will be able to follow him. Succeeding chapters of the book deal with such subjects as catalysis, nutrition, secretion, digestion, the phenomena of muscle and nerve in various aspects, receptor organs, the action of light, oxidation, respiration,

¹ *Principles of General Physiology*. By W. M. Bayliss, M.D., F.R.S., etc. London: Longmans, Green, and Co. 1915. (Roy. 8vo, pp. 870; 259 figures. 21s. net.)

and the circulation of the blood; the last chapter is given to the consideration of hormones, drugs, and toxins.

Throughout this part of the volume Professor Bayliss deals with the general physiology of living tissues rather than the particular case of man; his unit is the ion, the molecule, the disperse phase of a colloid solution, the surface of a membrane or supposed membrane, as the case may be, rather than the cell or the organ as a whole. His knowledge of the physiology of plants enables him to illuminate many of the complex processes of animal life by comparison with the simpler reactions or activities of the vegetable cell; he also makes numerous references to Gaskell's hypothesis as to the origin of the vertebrates. His object everywhere is to show how far the known laws of physical chemistry, using the term in its widest sense, can give an accurate explanation of vital processes in nature. He will have nothing to do with chemical theories or analyses that are incapable of mathematical expression, such as Ehrlich's side-chain theory and toxin spectrum, for example; on the subject of the coagulation of the blood he writes, characteristically:

In point of fact, it cannot be said that it is yet understood. Much of the research done has led to little more than the multiplication of names given to supposed substances held to take part in it, but these have not been isolated as chemical individuals, and the names really refer to aspects of phenomena. . . . As an illustration, I would refer to a paper . . . where we find the following names used as applying to definite substances: fibrinogen, prothrombin, prothrombokinase, anti-thrombokinase, thrombokinase, anti-thrombin, and anti-prothrombin. These are supposed to be present before clotting. After clotting we have: fibrin, thrombin, thrombokinase, anti-thrombin?, anti-prothrombin, anti-thrombokinase, and prothrombin.

Undoubtedly science would gain by the abolition of most of these names and the obscurities attaching to the processes for which they stand. From his own point of view, Professor Bayliss describes the clotting of blood as follows:

The coagulation of the blood is an interaction between certain colloidal systems under the influence of electrolytes, chiefly calcium salts. The intervention of surface action is shown by the accelerating effect of rough surfaces and by the action of lipoids.

In his last chapter, which is one of particular interest to medical men and experimental pathologists, the author gives good reasons for believing that Ehrlich's side-chain theory and chemo-receptors and chemo-therapy must now all go by the board, so far as they claim to give anything like a chemical picture of immunity, anaphylaxis, phagocytosis, the action of toxins and antitoxins, and the like. In their place he gives us physical factors and processes as adsorption, surface action, the permeability of cell membranes, the mutual precipitation or aggregation of inorganic colloids when mixed with protein solutions; and he entertains considerable doubt as to the alleged specificity of many of the reactions met with in the province of immunity. Oponins, for example, may act only by adsorption and consequent changes in surface tension. Refreshing doubts also are cast upon the alleged specificity of many enzymes; Professor Bayliss holds that Emil Fischer's "lock and key" simile is, as a matter of experience, inappropriate here, and substitutes for it the kinetic view of velocities of reaction as more in accordance with facts.

As regards "vital force," his method of destruction is to show that it becomes less and less necessary to physiology in proportion as our knowledge of physics increases. Even so useful a conception as Clerk Maxwell's "sorting demon" appears to find no place in his scheme of intracellular mechanics.

It is impossible to do justice in a brief review to the wealth of learning in physics, chemistry, and physiology displayed by Professor Bayliss in this volume. However abstruse the subject, he succeeds in giving a clear account of it—even the Helmholtz double electric envelope, a conception most valuable in molecular physics, is rendered intelligible to the intelligent reader! His style is simple and not uninteresting; it is plain that his desire is to establish the merits of his own point of view rather than to attack and destroy the theories of rival physiologists, which he always treats with scrupulous fairness. It is possible that the volume would gain by condensation, and that certain points in it are treated with unnecessary fullness. The illustrations are excellent; a special feature of the volume consists in the inclusion of portraits of

the most eminent physicists, physiologists and chemists who have contributed to the progress of the science, and the fact that no fewer than three portraits of the eminent Dutch physical chemist van't Hoff are reproduced may be taken as showing the bent or bias of Professor Bayliss's physiology. The printing is good and the text is singularly free from misprints; the author makes a point of adopting the French rather than the German method of spelling Russian names, very properly, but oddly enough does not apply the method in the case of Metchnikoff.

Professor Bayliss is to be congratulated on the success with which he has applied the methods and mathematics of physical chemistry to the whole range of general physiology. He has developed and extended a new method of attacking old problems that yields most illuminating and suggestive results, and his general plan of campaign may undoubtedly be said to carry us a stage further in the comprehension and analysis of the various processes which result in the phenomena of life. His book should be read by all advanced students of physiology who have occasion or time to think of more than passing examinations. It will also be of great interest to medical men and general readers, equipped with a knowledge of elementary chemistry and physics who are interested in the progress of pure science. It does not in any way take the place of such standard textbooks of physiology as those of Halliburton, Howell, Starling, or Stewart, but it provides the reader with a novel and most valuable philosophy on which to base his fundamental conceptions of the science.

MATERNITY AND CHILD WELFARE.

(Concluded from page 212.)

Commentary on the Official Scheme.

So far we have given a fair account of the official programme, and without commentary. There are certain points that immediately arise for consideration. First, the arrangement with the doctors for the work of the centres. Secondly, the hint of "notification of pregnancy."

So far as the medical staffing of the centres is concerned we may refer our readers to the report adopted by the Representative Meeting of last year. Sections 3, 4, 5, those most pertinent to this, are as follows:

3. That the present scheme of the Board is open to the objection that it is very likely to lead to the establishment of principles and methods which would in the long run vitally alter the present status of the profession, and the relation between doctor and patient to the detriment of both; but that these dangers are not a necessary outcome of the scheme if properly safeguarded.

4. That there would be a tendency under the scheme to the formation of a class of practitioners who will be wholly concerned with the treatment of disease in expectant mothers and in young children, and that almost the whole of actual practice among such patients may be withdrawn from the general practitioner; and that if the medical and surgical treatment of the public is to continue to be (as it should) in the hands of general medical practitioners, aided by suitable opportunities for consultative and pathological assistance, the effect of this must be seriously detrimental to public and professional alike.

5. That, correspondingly, if it be correct that the most satisfactory and valuable form of receiving advice and treatment is by means of the "family doctor," with considerable personal choice as to who that "family doctor" shall be, the scheme would have a tendency to lead away from this to the less desirable method of treatment by one or two officially appointed whole-time practitioners.

The report of the Association has been issued to the clerks and medical officers of some 1,300 sanitary authorities, and already some 600 additional copies have been asked for. But the latest central departmental memorandum does not bear the impress of a consideration of the report. The medical arrangements are left in the hands of the local committees truly, but the first official hint is that the duty should be undertaken by "an officer of the local authority"—that means a "tied" doctor, the servant of an authority, one lacking the healthy experience of free practice with its stimulating competition of ideas—and it probably means a whole-time official. Arrangements with local practitioners are only cited to hint at their difficulties.

"Notification of Pregnancy."

Twice in the latest report this new form of notification is referred to, and once in so many words.

The post-natal work of the Centre will depend for its success on the home visits made by health visitors under the Notification

of Births Act. There is no similar machinery for securing the clientele for an ante-natal centre; and its success will depend on the co-operation of medical practitioners, and midwives, and of any voluntary agencies likely to send expectant mothers for advice to the Centre.

Again,

Some system of notification of pregnancy has been suggested, under the impression that this is a necessary antecedent to the commencement of an ante-natal Centre. Such notifications should not be made unless the express consent of the expectant mother has been previously obtained.

There appears to be something like a sigh of regret in these phrases that there is no such thing as a "notification of pregnancy." And that there is sorrow in the official heart at the lack we may find evidence in the "progressive" measures adopted by two local authorities which have boldly instituted this notification in their areas.

The city of Nottingham appears to be the first authority to attempt the task. We have the official form before us. It is a handsome document the size of a sheet of foolscap. There is a counterfoil. The back of the form is printed with the address of the medical officer of health for the city, and it is the evident intention that the form should be folded over and posted or delivered to him; no provision is made for the sealing of the document.

The main part of the form reads as follows:

CITY OF NOTTINGHAM.

NOTIFICATION BY A MIDWIFE OF HER ENGAGEMENT TO ATTEND A CONFINEMENT.

To the MEDICAL OFFICER OF HEALTH, Guildhall, Nottingham,

I hereby give you notice that I have to-day been engaged to attend

Name of Mother

Address

Expected date of Confinement

Is the patient a primi ara? ...

If not:

Number of previous pregnancies

Number of miscarriages

Number of premature births

Number of still-births

Number of children born alive

Number of children still living

Has any child suffered from ophthalmia? ...

Has the patient had a previous difficult labour? ...

(Signed) Certified Midwife.

Date 191..... Address

Has the mother a complete set of baby's clothes?

Has she at least:

two nightdresses

two pairs of sheets

one waterproof sheet

one dozen diapers

Are the home circumstances satisfactory?

Is the husband in work?

Is the lying-in room suitable?

Is the mother well-nourished?

Are there any signs or symptoms of complications of pregnancy?

Huddersfield has gone one better than Nottingham, the euphemism "notification by a midwife of her engagement to attend a confinement" is dropped, and more than that—from "January 1st, 1916, the said Sanitary Authority will PAY THE SUM OF 26 (TWO SHILLINGS AND SIX PENCE) to each registered medical practitioner and to each registered midwife for each notification of pregnancy received from the said persons."

The official form for notification is nothing so handsome as the Nottingham. It is no more than a letter-card, the inside of which is type-written by a process machine, as follows:

COUNTY BOROUGH OF HUDDERSFIELD.

PUBLIC HEALTH DEPARTMENT.

Notification of Pregnancy.

(a) Notified by Date 19.....
(b) that
(c) of

is expected to be confined on or about 19.....

(a) Name of notifier.

(b) Name of expectant mother.

(c) Postal address of expectant mother.

This scheme of notification promulgated by Huddersfield bears so recent a date as December 30th, 1915, so that it is not unreasonable to suppose that it represents what is the most desirable form of procedure and a reflection of the latest views of the Government department concerned.

The immediate questions that arise on a knowledge of these schemes are: What good are they supposed to serve? and, how are they looked upon by the women immediately concerned? Dr. Newsholme's report states that pregnant women commonly engage their midwives to attend them about two months before the date of the expected confinement. From inquiries amongst those who have most to do with the midwives we learn that this is a fair estimate. Formerly the date was earlier, but now there is a tendency to a delay in the booking. The present tendency to delay has been brought about by the maternity benefit of the National Insurance Act; before that came into force poor women joined maternity clubs, and put by a shilling a

week or so whilst "carrying," so as to pay the midwife; they therefore joined their clubs and booked their midwives early. Now the midwife's fee is secured by the maternity benefit, so that there is no necessity for the help of a maternity club, and the booking is delayed.

The midwives fear that such schemes of notification as these will still further delay the booking of their patients, and they rightly point out that any good that can be brought to bear on antenatal development is proportionate to the earliness with which the expectant mother can be seen and advised.

There is another and very strong objection in the minds of the midwives to this scheme. They maintain that antenatal care is most likely to be fostered by improving the knowledge and capability of the midwife, and that this scheme, by the interposition of a visitor between them and their patients, will reduce the sense of the midwives' responsibility. The midwives point out with reason that they are as keenly interested in the health of their women as any one; that their duties are enforced by the stringent rules and control of the Central Midwives Board, and that any possibility for the betterment of the women entrusted to their care would be warmly welcomed by them. What they want, they say, is not more advice—and this is to be the main stock in trade of the maternity centres—but more facilities for the prompt medical treatment of the women they find or suspect to be unfit, and the facilities for treatment of the centres is meagre in the extreme. To refer a sickly pregnant woman for another examination at a strange centre, where again she may be told to go to a doctor for treatment, is not to forward the interests of that woman; indeed, the double trouble and pulling about is likely to sicken her of medical examination, and needed treatment will go by default. Give us, say the midwives, facilities for the proper treatment of our women at the hands of experienced doctors, and antenatal work will grow apace.*

There is another side, that of the pregnant woman. How will she look at this notification of her condition? Pregnancy is a matter both of pride and shamedness with the women, and this is especially so with primiparae, who are the most important from the point of view of any antenatal scheme. Their peculiar condition makes them exceedingly important, and very difficult, personalities, and they are not easily persuaded of the benefit of the advice of "authorized" strangers. The prospects of difficulty with such a scheme, and the very real prospect of frightening off shy mothers from going as early as they should to their doctors and midwives, makes one ask whether the scheme is worth the risk. The scheme does not so much as propose the advantages of the "mothers' kitchens," which prepared good meals for the women at cost price as a seasoning for the same free advice, and, further, showed the women how to cook these nice meals.

On the strict test of logic the scheme is wrongly dated. Antenatal care should begin *before the beginning*. When a woman is pregnant we can, save in a few cases, only tinker at the work of remedying defects in the basket of the coming infant. If we are in earnest for the improvement of the race, why not deal with the basket itself and the fertilizer thereof? We are illogically careful to assure ourselves of the *civil fitness* of the applicants for marriage, and inflict heavy penalties for the transgression of our laws of this fitness. But for the immeasurably more important *physical fitness* of these applicants for marriage we take not the least heed; there is not a hint to them that it should be a matter of thought. No proposal that applicants for marriage should present a medical certificate of their fitness would find favour, but it would not be unreasonable to ask these applicants for a declaration of their physical fitness even as of their civil fitness. It would probably create the demand for facilities for satisfactory medical care, and make antenatal schemes the want of the people instead of leaving them as schemes wanting people. There is nothing outrageous in the suggestion of this declaration of physical fitness; it is no more than a shifting of the strong words of the Anglican marriage service to an earlier and a better date.

* Since this was written we have received a copy of "The Memorial of the Incorporated Midwives' Institute and its Affiliated Associations, representing Practising Midwives in all parts of England and Wales." In this document all the points here referred to are elaborated and emphasized. The memorial has been sent to the Local Government Board.

British Medical Journal.

SATURDAY, FEBRUARY 19TH, 1915.

WOMEN MUNITION WORKERS.

THE Health of Munition Workers Committee has issued two more memorandums—the one on the employment of women¹ and the other on hours of work.² Of these, the former is the more interesting, partly because the subject is more novel. It is well conceived and well written. It is, indeed, a relief to come across an official publication which moves easily and directly, if not always quite succinctly, towards its purpose. There are no parentheses and no lists of things “that may be thought of in this connexion”; it is a piece of humane writing, which frankly tells the reader what the writer or writers wish him to understand. It deals with five matters concerning the health and industrial output of the women workers. Of these far the most important is that treating of periods of employment, for the section on arrangements for rest and meals is really only a subdivision of the first. That the output should stand in direct relation to the health of the workers may seem a truism to medical readers, but by health the Committee means something more than freedom from disease. It means that absence of weariness which makes labour pleasure. There ought and can be in the labour of munition workers all the three great sources of pleasure in work—physical exertion short of weariness, interest in doing well work which it is not quite easy to do well, and the inspiration of a great cause.

The employment of women in factories at night was prohibited for the textile trades by the factory legislation of 1844. It disappeared gradually in Great Britain and also in other countries, and was banished altogether by international agreement from the twelve European countries which signed the Convention of Berne in 1906. This international decision was reached after full examination of reports showing that night work caused deterioration in health due to the difficulty of securing sufficient rest by day, disturbance of home life with its injurious effect upon the children, and diminished value of the work. Though experience has shown that night work is inferior to day work, the necessities of the war have revived the night employment of women in factories, and it is the object of the memorandum to indicate how its evil effects may as far as possible be obviated. As long hours, particularly when worked during the night, appear to be the chief factors in fatigue, it is recommended that in the interests of output and health alike there should be suitable pauses for rest during the working period and adequate cessation from work at each week end, in addition to periodic holidays. The Committee does not go so far as to advise against night work for women in the present emergency, but it insists that the employment of women at night calls for great care and supervision, and that adequate pauses for rest and meals are indispensable. The greater fatigue produced at night is considered to be due partly to the fact that the hours between 3 and 7 a.m. coincide with the period

when, apart from industrial fatigue, vitality is low, and partly to the fact that night workers lack the stimulus of a satisfactory meal, for they appear to have little appetite for a meal which is to be taken between 1 and 3 a.m.

There are two main systems of arranging the hours of labour: under the one there are two shifts of twelve hours, and in the other three shifts of eight hours, but there is also a third, and from every point of view most pernicious system, that of overtime, where one shift is worked from thirteen to fourteen hours. It results in undue fatigue, illness, and bad time-keeping. From the report of the mission appointed by the Director-General of Recruiting for munitions work on the output of munitions in France, it may be gathered that in that country, where the results have been extraordinarily good, the two-shift system is general, but there is a long break, averaging one hour and a half, at noon, which, it is stated, enables the women to look after the meals and comfort of their children at home. Owing to difficulties of transit and housing the plan does not work well in this country; the only houses workers can obtain are often at a considerable distance, and the trains and tramcars are overcrowded. The Committee has no hesitation in recommending that the three-shift system without overtime should be adopted wherever a sufficient supply of labour is available, that for women and girls a portion of Saturday and the whole of Sunday should be reserved for rest, and that the periodic factory holidays should not be omitted. Apart from general considerations which would lead to the conclusion in favour of the week-end rest, it has been found as a matter of experiment to be of so much importance in maintaining health and vigour that it has been reinstated by employers who had taken it for work at the beginning of the war.

A difficulty not easily surmounted is the arrangement of the changes of shifts—the change, for example, from day to night, or vice versa. It does not seem to have been as yet satisfactorily overcome. In the memorandum on hours of work, which applies to both sexes, the Committee expresses the opinion that on physiological grounds much is to be said for infrequent changes of shifts. In any case it is recommended that the change should be effected by dropping one or more shifts, and not by working for one and a half, and that the worker should have a time for rest before and after the change of shift. With regard to breaks during the day, it appears that work, as a rule, commences at 6 a.m., with breaks of half an hour for breakfast and an hour for dinner. At some factories, however, work begins at 7 a.m. or 8 a.m., the workers being expected to have had their breakfast before arrival. The objection to starting at the later hour is stated to be that, if the worker breakfasts before leaving home, the distance to be travelled to work may necessitate a very long period between breakfast and dinner; this objection is partly overcome in some places by allowing a tea interval, and it would seem that it might be met also, as it is in France, by an earlier midday meal. The Committee concludes that there is no real objection to the system of starting later, but there is some reason to think that the matter might have been put rather higher than this, for the experience of some factories in peace has been that the work done before breakfast is not good.

In dealing with the effect on women of lifting and carrying heavy weights, and violent physical movements in the operating of machines, the memorandum states that a simple appliance or

¹ Cd. 8185. Price 1½d.

² Cd. 8186. Price 1½d.

the alteration of a movement has often been found to modify an objectionable feature, even when it does not altogether remove it. Instances of this will be found in the Notes on the Employment of Women on Munitions of War, also issued by the Ministry this month. The publication is in a very unusual form for an official document, and consists largely of reproductions of photographs of women at work making shell bodies, working in the general machine shops and on air craft, and making shell fuses. It is a most striking and convincing picture-book.¹

BLOOD STAINS.

In India the medico-legal expert is very frequently confronted with stains of blood upon garments, utensils, and objects of every kind produced as evidence against the accused in criminal cases. The Imperial Serologist at Calcutta² has recently recorded his results of the examination of 6,566 articles suspected to be blood-stained in 2,643 such medico-legal cases, made in a period of thirty-one months. The cases were almost entirely charges of murder, homicide, or assault in some form or other. Blood-stained articles of about 140 varieties were submitted for examination, half of them being classified under the single heading of wearing apparel; the others varied in nature from carts to nail-parings, umbrellas to toddy-tappers. Blood stains were found on over 5,000 of these articles; in many others it appeared as if blood stains originally present had been washed away so thoroughly as to leave insufficient blood for spectroscopical or microscopical recognition. In 36 cases the blood was non-mammalian; in 90 more it was mammalian but not human, but either ruminant, equine, canine, feline, or cameline, the diagnosis being made by the use of the appropriate precipitating antisera obtained from fowls after immunization with the red blood corpuscles of the various mammals concerned. For the microscopical examination of a blood stain the author uses Vibert's solution³ as the best of all those with which he is acquainted. For the microspectroscopical examination he employs a 10 per cent. solution of potassium cyanide and a yellow solution of ammonium sulphide, blood being recognized by the appearance of the two absorption bands characteristic of cyanhaemochromogen.

The possibility of mistaking ape's blood for human blood alleged by German writers is denied by Lieutenant-Colonel Sutherland, on the practical grounds that the simian antiserum does not give the human blood reaction within the specified time limit, and that the ape is not a domestic animal in India, and so is not immediately available when its blood is required to obscure or divert the path of avenging justice.

Numerous stories are related to show the skill which certain Indian intriguers devote to the manufacture of evidence against their personal foes and neighbours. For example, at Madura a religious feud existed between two castes, the Nadars and the Naickers. The former decided to start a riot in which one of their number should be killed, so that the murder might be attributed to the Naickers. "At the conclave held a Nadar proposed that his wife, whose conduct was not all that it should have been, should be the victim. Another suggested that his wife, who had deserted him, should be chosen. A third proposed that his mistress should be chosen, as she had no

children and no relatives to avenge her death. This woman was beaten to death after a telegram had been dispatched from the nearest telegraph office to the district authorities to the effect that while worshipping at the temple she had been murdered by the Naickers. At the temple a sheep was slaughtered to 'prove' this. One of the accused persons was found to have blood on his loin cloth, and the stains were found to be due to human and sheep's blood." The accused, however, were acquitted for want of corroborative evidence. In another case "a man swore before a magistrate that he had been beaten by certain persons, and showed a wound on his head and a cloth stained with blood which, he said, had flowed from the wound, which had been caused by a blow from a *lathi*. The assistant surgeon reported that this wound had been caused by a sharp instrument and not by a *lathi*, and the cloth was found by us to be stained with non-mammalian blood alone. The man was tried for fabricating false evidence and sentenced to two years' rigorous imprisonment."

The medico-legal examination of alleged and true blood stains has given rise to an enormous literature, as may be seen in a recent volume⁴ on the medico-legal importance of stains in general. Lieutenant-Colonel Sutherland's experience with blood stains of many varieties has clearly been very large. The office of Imperial Serologist at Calcutta must be anything but a sinecure, however much lightened by the interest of tracking out the hidden motives of passion or revenge animating the criminals concerned. It is apparent, too, that the medical expert in India is treated no better by the Bench than he is in this country.

PROFESSOR PAVLOV.

PROFESSOR PAVLOV, whose death in St. Petersburg, where he had so long taught, was announced on February 12th, was not only one of the greatest physiologists of his day, but is to be numbered amongst the most distinguished men of science that Russia has produced. The work by which he first became generally known related to gastric digestion, and especially to its nervous mechanism. He showed the immense importance of the nervous element by his experiments on what he called "appetite secretion." The sight of food at once caused gastric secretion more copious and active than the actual presence of food in the stomach. The effect is produced through the vagus. In meat there are some bodies already existing which provoke secretion, and similar bodies may be produced in the other foods by the act of digestion itself, so that when once started, as by the appetite secretion, the process is kept up. He showed, on the other hand, that pancreatic secretion is little, if at all, affected by appetite, its chief excitant being the acidity of the chyle. More recently he had turned his attention to the investigation of the higher nervous functions, a subject on which he delivered an address (a translation of which was published in our columns at the time) before the last International Congress of Physiologists (Groningen, September, 1913). For twelve years he had devoted himself to the experimental study of reflex action and the prime function of the nervous system that concerned the formation of new reflexes, which, in the process of adaptation of living creatures to their surroundings, must be formed. He gave good reasons for believing that a well-developed conditional reflex has a definite cerebral localization, and incidentally threw a curious light on the physiology of sleep and hypnosis. He concluded that the experimental evidence afforded proof that the cerebrum is

¹ London: Wyman and Sons, or through any bookseller. Price 1s.

² Lieutenant-Colonel W. D. Sutherland, *Indian Journ. Med. Research*, Calcutta, 1915, iii, 205.

³ Mercury perchloride 0.5, sodium chloride 2.0, distilled water to 100.0.

⁴ *Le diagnostic des taches en médecine légale*. By F. Dervieux and J. Leclercq. Paris: J. B. Baillière et fils, 1912.

the organ for the analysis of sensation and for the construction of new reflexes and new interpretations of sensations. As in the case of the stomach, his method of investigating the higher functions of the brain was new and in his hands had already yielded results of the first importance. Professor Pavlov was born in 1849.

THE ROYAL MICROSCOPICAL SOCIETY.

In taking the chair for the first time as president of the Royal Microscopical Society on January 19th last, Mr. Heron-Allen said that the prime duty of the society was to record the progress of microscopic research and to encourage the development of microscopic technique and appliances. In pursuance of this policy, he, with the assistance of Messrs. C. F. Rousselet, A. Earland, and T. H. Court, made a communication to the meeting of the society on February 16th on the progress and development of vision and definition under the microscope. The subject was illustrated by the exhibition of a series of thirty-one microscopes from the society's collection, ranging from the primitive instrument of Leeuwenhoek (c. 1673) to Messrs. Beck's prismatic binocular. The compound (uncorrected) microscopes ranged from that of Culpeper (c. 1710) to Jones's "most improved" (1798); the achromatic instruments commencing with that of Dellebarre (1777). Under twenty-two of the instruments (all those for which the society possesses contemporary objectives) the foraminifer *Poly-stomella striato-punctata* (Fichtel and Moll), the first protozoan ever figured (by Hooke in 1665 and by Leeuwenhoek in 1702), was exhibited, mounted in the manner adapted to, and contemporary with, the instruments. A series of early books illustrating magnified objects was also exhibited, ranging from Gesner (1565) and Hoefnagel (1592) to the middle of the eighteenth century. The definition of the early microscopes of Leeuwenhoek (1673), Wilson (1702), and Joblot (1716) is poor, but the object is easily identifiable. The double (or compound) microscopes (1710-98) maintain a more or less dead level of slightly improved definition, especially when a back lens is present, but there is always a good deal of colour in the image. The reflecting microscopes of Amici and Cuthbert (1827) did away with this defect to a notable extent; the instrument of Dellebarre (c. 1777) in the society's collection is not in working order, and was, therefore, not available for comparison. The great improvement, leading gradually to the perfection attained in the present day, became first apparent in the achromatic instruments of Charles Chevalier (1820-30). The main object of giving this demonstration was to promote the issue by the society of a comprehensive history of the microscope from the earliest times to the present, illustrated by the instruments in the possession of the society and in private collections. The development of the microscope, and especially of its accuracy and definition, has played a large part in the advance of scientific medicine during the last century, and an accurate microscope is an indispensable part of the outfit of a bacteriologist. Mr. Heron-Allen in his presidential address said, on the authority of Professor Herdman, that Edward Forbes, the father of oceanography, was indirectly instrumental in introducing the study of histology and microscopic structure into medicine, because Professor Hughes Bennett, to whom he assigned this honour, had been a fellow student of Forbes (1841). Without for a moment seeking to take one leaf from Hughes Bennett's laurels, we yet venture to hesitate a doubt whether he is entitled to all the credit in this respect. It is true that Bennett, during his studies in Paris, acquired skill in the application of the microscope to medicine, and that soon after his return to Edinburgh in 1841 he commenced lecturing on histology, and gave a series of microscopical demonstrations in physiology and pathology and the diagnosis of disease, and also

held classes for microscopical demonstration. But we believe that before 1841 William Sharpey had already begun to give microscopical demonstrations in London; he had been appointed professor of anatomy and physiology in the University of London in 1836, and had begun to lecture upon physiology and minute anatomy. He was the possessor of what was for that day a very good microscope, and he used to give evening demonstrations. The microscope was mounted on a round table attached to a long arm pivoted at the centre; it travelled on a broad brass band let into the table. This table existed a few years ago at University College, and may probably still be seen there. Sharpey arranged a specimen under the microscope and passed the instrument to his next neighbour, and so it went the round of the table until it came back to the demonstrator, who then adjusted another specimen. Sharpey published his paper on ciliary motion in 1830 while still a teacher in the extramural school in Edinburgh.

THE ITALIAN MEDICAL SERVICE.

In a recent debate in the Italian Senate Professor Pio Foa of Turin said that at first, in the hurry of mobilization, not a few officers of the medical service of the Italian army had been assigned to posts for which they were not specially fitted. Now, he said, this had been in large measure remedied. Very large demands had been made at the beginning of the war on the younger men, who were all sent to the front, where they had been ever since, and he asked that arrangements should be made for their relief from time to time. He said that already thirty-four medical officers and eight students had been killed and a large number wounded. This was due to their appreciation of the importance of giving first aid to the wounded with the least possible delay. The savagery of an enemy who fired on ambulances, stretcher bearers, and medical officers must also be taken into account. Yet in Italy the army doctor was not regarded as a combatant, and for him there was no hope of promotion for military merit. There was also the question of rank. Every doctor called up for active service had to begin with the rank of lieutenant, though the Minister for War had yielded to a demand that teachers should rank as captains; still it not infrequently happened that university professors had their own former assistants put over their heads with the rank of major. Again, a large number who had been declared unfit when exemption was comparatively easy to obtain and were not afterwards called up for further examination were given comfortable billets at home. Foa next dealt with the proposal to establish a university at San Giorgio di Nogaro where accelerated courses were to be given to students of the fifth and sixth years who should be specially examined at the end of the course by their teachers. These courses might serve if it was decided to create medical sub-lieutenants for military service, but he did not see how certain special subjects such as midwifery and gynaecology could be taught in the field. The Minister for War, Signor Zuppelli, said in reply that he had always held that the medical service was one of the most important factors in bringing the war to a successful end. He knew well that the medical officer insisted on being at the post of honour beside the soldier. The complaint as to want of promotion for war merit was, he asserted, unfounded. The project for a so-called field university was designed not to enable students of the fifth and sixth years to obtain a degree, but to pass certain special examinations. The ultimate fate of the proposal must depend on the judgement of the superior council of public instruction and the cabinet. The idea was to establish a course in some suitable place near the front where a moderate number of students could be assembled; the material available there would be much more abundant than was to be found in any university.

RAT-BITE FEVER.

RAT-BITE fever is a specific infectious disorder of rare occurrence following on the bite of a rat. It has been observed in Europe, Asia, and America, but it is commoner in Japan than elsewhere, being called "sokodu" in that country. It has been caused, also, by the bite of a ferret and of a South African squirrel. It was first brought into general notice by Miyako in 1899, when he reported eleven cases of his own; it appears that fifty-three cases were reported in 1915, with a single autopsy. In 1914 the bacterial cause of rat-bite fever was isolated for the first time, and named the *Streptothrix muris ratti* by its discoverer, Schottmüller. Quite recently Dr. F. G. Blake, of Boston, has described¹ a case, ending fatally, from which he isolated the organism described by Schottmüller. The disease is rarely fatal; not so, however, in Dr. Blake's case. The patient, a healthy woman of 67, was bitten on the tip of the right index finger while taking a rat out of a trap. The wound was not severe, and was washed in hydrogen peroxide solution. Two days later signs of lymphangitis appeared in the arm; the wound was opened and dressed, and in four days the inflammation and pain had entirely subsided. A fortnight later she had a severe rigor and was sent to hospital, where she sank and died in sixteen days. A blotchy macular and maculo-papular rash appeared on the limbs and thorax, as is common in this disease; a moderate leucocytosis was present, with irregular fever. The blood gave a pure culture of the streptothrix mentioned above, and Dr. Blake gives details of its cultural characteristics and several photomicrographs of its growth. The organism was only feebly pathogenic for rabbits and white rats, and not pathogenic for guinea-pigs. At the necropsy the streptothrix was again recovered from the blood; it had caused an acute ulcerative endocarditis of the mitral valve, with perforation; infarcts were found in the spleen and kidney, with local subacute inflammatory lesions in the myocardium and the abdominal viscera that appeared free from streptothrices, and were presumably toxic. The patient's serum developed a high power of agglutinating the streptothrix. As Dr. Blake points out, the mortality of the disease is about 10 per cent., though it often incapacitates the patient for a considerable time; death may occur early from profound toxæmia, or later from the development of severe nephritis. The organism is described as slender and filamentous, forming a mycelium, and, later, chains of cocci, bacilli, or rods, spindles, and clubs may appear. It stains readily, and is Gram-negative and a facultative anaërobe.

SLEEPING SICKNESS IN PRINCEIPE.

SLEEPING SICKNESS is known to have been on the increase among the native population of the West Coast of Africa for at least a hundred and sixty years. The islands of Principe and San Thomé—lying off the Bight of Biafra, colonized mainly from the Gaboon and the Congo, for many years used as an entrepôt for slaves destined for Brazil—both of them Portuguese colonies devoted to the growing of cocoa, have suffered very severely from sleeping sickness during the last forty years. Since 1890 the disease has been an insuperable obstacle to the progress of agriculture in Principe. In this island the average annual death-rate from sleeping sickness between 1902 and 1913 was 5.6 per cent., the total death-rate averaging 15.5 per cent., and being over 22 per cent. in the worst years. About a quarter of the total population was found to be infected with the trypanosomes of sleeping sickness in 1907–11. Medical science meanwhile was not inactive; from 1907 onwards about £1,000 a year was spent on atoxyl—annually some 75,000 injections of 10 grains

each were given—as a first endeavour to check the ravages of the disease. A full and interesting account of the physical and geological characters of the two islands, their flora, fauna, and climate, the great advances that have recently been made in their sanitation, and the further steps taken to stamp out sleeping sickness in them, has recently been published in a Portuguese medical periodical by da Costa, Sant' Anna, dos Santos, and Alvares (*Archivos de Hygiene e Pathologia Exoticas*, vol. v, March 30th, 1915). Lieutenant-Colonel J. A. Wyllie, F.R.G.S., has provided an English translation.¹ One of the first steps was to lessen the area of breeding ground for the tsetse fly, *Glossina palpalis*, the chief of the blood-sucking flies that infect man with the trypanosome of sleeping sickness. Another step was to exterminate the trypanosome carriers among the wild animals inhabiting the island. In 1911 the campaign was reinforced by various legislative enactments. An official sanitary brigade was organized, and was able during the next few years to carry out its duties with greater or less degrees of success; jungles were felled, extensive works for the drainage of swamps were undertaken; sentence of death was passed on all pigs, dogs, and civet cats in the island, and we read that while some 2,000 pigs perished unofficially, the official brigade accounted for 2,500 more, leaving no more than 20 survivors in August, 1914. Over 2,000 dogs were killed by gun or hatchet, and over 2,000 civet cats. It is noted that there is no reason, at present, for supposing either that *Glossina palpalis* ever feeds on the blood of the civet cat, or that the animal is ever a carrier of trypanosomes; none the less the order, "Off with its head," was carried out. Many monkeykeys have been killed, chiefly on account of the damage they do in the plantations; they do not seem to form part of the routine diet of *Glossina*. From 1907 onwards great efforts to destroy *Glossina* have been made, largely by the method of making the plantation workers wear on their backs dark-coloured cloths smeared with viscous preparations, to which the flies stick when they alight. In 1911 and 1912 over 400,000 *Glossinas* were killed in this way; in 1914 the fly was almost extinct in the island. As a further precautionary step, the blood of all the domestic animals in Principe was thrice examined for trypanosomes. Experiments showed that it was practically impossible to sterilize the infected horses, mules, donkeys, or oxen by repeated injections of 30 grams of atoxyl; hence all the infected animals were slaughtered. Great care was taken to detect all the trypanosome carriers among the inhabitants of the island, to isolate them, and to treat them with atoxyl in the form of double injections of 10 grains at forty-eight hour intervals every ten or fifteen days, for a period of at least four months, until repeated negative examinations of the blood for trypanosomes had been made. The cost of this campaign between 1911 and the middle of 1914 was over £30,000. Its results are described in detail, and appear to have been most satisfactory; naturally, as is pointed out, a number of stringent sanitary and other regulations will have to be maintained if the island is to be kept free of sleeping sickness. Descriptions are given of the forms of the trypanosomes found in Principe, the haematophagous insects found there, the intestinal flagellates of the *Glossina*, and the trypanosomes of the tabanid flies. The Portuguese Medical Mission that has been so successful in its efforts to suppress sleeping sickness and to improve the general hygiene of Principe is to be congratulated upon the thoroughness with which it has carried out its work. The colonial system of Portugal has not infrequently been made the object of severe strictures in England: one may doubt whether any country could show a better record of a campaign waged against a relentless disease than is to be found here.

¹ *Journ. Exper. Med.*, New York, 1916, xxiii, 39.¹ Baillière, Tindall, and Cox. 1916. (Roy. 8vo, pp. 273; 3 maps, 7 plates, 68 figures. 7s. 6d. net.)

WASSERMANN'S REACTION IN CHRONIC
DISEASES OF THE LIVER.

It has long been recognized that a positive Wassermann's reaction may be yielded by the serum of a patient who has not had syphilis, but is suffering from such diseases as scarlet fever, leprosy, pellagra, yaws, and a few others. Drs. C. Verdozzi and L. Urbani¹ extend this list by the inclusion of certain chronic disorders of the liver. After giving a full account of their technique, which is precisely that described by Wassermann himself, they give a tabular and also a detailed account of 26 patients with chronic hepatic affections in whom no history or signs of syphilitic infection could be obtained. An account is also given of 27 control cases, patients with either some acute disease of the liver or bile ducts, or with acute or chronic disease of some other organ, but free from any suspicion of syphilis. Not one of the 27 controls gave a positive Wassermann reaction. But a positive reaction was obtained in no fewer than 20 of the 26 patients with chronic hepatic disease. Nine of the 26 were suffering from primary or secondary new growths of the liver, and 8 of these gave a positive reaction; in 7 the reaction was complete. The remaining 17 had one or another form of cirrhosis of the liver, and Wassermann's reaction gave a positive result in 9 of these, while in 3 more there was fixation of the complement even in the absence of antigen. The authors remark that Boas failed to find a single positive reaction in 59 cachectic patients with malignant disease; possibly, they suppose, because the liver was little involved in these cases. The authors state that jaundice is not in itself a cause of a positive Wassermann reaction; jaundice was present in 13 of their 26 patients, and 6 of the 13 gave a negative reaction, as was also the case with all the 6 patients in the control series who were jaundiced. They note that the reaction was more often incomplete in hepatic cirrhosis than in the cases of hepatic neoplasm.

RESTRICTIONS ON THE SALE OF LAUDANUM.

THE recent action of the Council of the Pharmaceutical Society, in adding to Part I of the Poisons Schedule all preparations of opium containing 0.75 per cent. or more of morphine, puts an end to a somewhat anomalous state of things which has existed for the last thirteen months. Until the *British Pharmacopoeia* of 1914 came into force on January 1st, 1915, laudanum, or tincture of opium, contained 0.75 per cent. of morphine, and was therefore included in Part II of the Poisons Schedule, and could be sold by any qualified pharmacist without restriction, provided it was labelled with its name, the word "Poison," and the name and address of the seller; only preparations containing 1 per cent. or more of morphine were in Part I, so that they could not be sold unless the purchaser was personally known to the seller or was introduced by some one known to both, and after making an entry, in a book kept for the purpose, of the particulars of the sale, the purpose for which it was required, etc., which entry had to be signed by the purchaser. In the *British Pharmacopoeia* of 1914, however, the strength of the official tincture of opium was raised to 1 per cent. of morphine, while the synonym "laudanum" was retained, and the tincture therefore passed automatically into Part I of the schedule. This placed pharmacists in a somewhat difficult position; if called on *de novo* to dispense or supply tincture of opium or laudanum, the new tincture alone could be supplied and the regulations of Part I must be complied with, but in dispensing prescriptions written when the old *Pharmacopoeia* was in force, obviously the tincture of the old strength must be used, and in selling laudanum to persons who had previously been accustomed to buying it, it would have been dangerous to supply an article one-third stronger than formerly, even though the requirements of Part I as to signing the Poison Book were complied with.

In order to prevent divergence in the methods adopted by different pharmacists in dealing with this situation, the Council of the Pharmaceutical Society passed a resolution recommending that "when laudanum is asked for the 1914 preparation should be supplied, and the Poison Book signed; but when the 1898 preparation is demanded, care should be taken to label it accordingly, and the attention of the purchaser should be called to the fact that it is the 1898 preparation." The Privy Council submitted this resolution to the General Medical Council, and the latter body expressed the opinion that the limit of strength for preparations of opium which can be sold without the Poison Book being signed should be 0.75 and not 1 per cent. This recommendation was duly passed to the Council of the Pharmaceutical Society, as the body charged by law with the duty of amending the Poisons Schedules, and has now been acted upon by it. The present position, therefore, is that any one purchasing "laudanum" without indicating the preparation of the 1898 *Pharmacopoeia* will receive the 1 per cent. tincture, while those accustomed to the older and weaker preparation can obtain it by asking for the 1898 tincture, but in both cases the Poison Book must be signed and the full requirements of Part I complied with. It is certainly desirable that the sale of so dangerous a substance as laudanum should be hedged round with all the restrictions required by the law, and the inclusion of both tinctures in Part I will remove the possibility of obtaining it without complying with these restrictions by demanding the tincture formerly official.

INFECTIOUS DISEASES IN SCHOOLS.

THE common specific infectious fevers, particularly, perhaps, diphtheria, have been the bugbear of the masters and mistresses of schools and colleges for many decades. Small educational establishments have been ruined before now by the occurrence of a fatal case of diphtheria among their boarder pupils, although it may have been obvious that the authority responsible for the health of the pupils was in no way to blame for the catastrophe. Nowadays both parents and public opinion are apt to be so well informed, not to say censorious, in the matter of the spread of infectious fevers among school children, that it is of the utmost practical importance to the medical men, headmasters, and matrons who may be in charge of them that there should be some standard authority to lay down the rules and regulations whereby this spread may best be prevented. This authority is furnished in the excellent *Code of Rules*¹ issued by the Medical Officers of Schools Association. The first edition appeared in 1885; the latest and seventh edition was issued a few months ago. Beginning with a list of the periods of quarantine and of the isolation of the infected, the *Code* gives brief but thorough directions for the general hygiene of schools and their sanatoriums, the precautions that should be taken to avoid the entry or return of pupils who may be infectious, and the steps that must be taken to prevent the spread of such fevers as diphtheria, measles, scarlatina, and the like when they have broken out in schools. Enteric fever, cerebro-spinal meningitis, and poliomyelitis are not included in the *Code*; three appendices contain forms of certificates that may prove useful, the law as regards notification, and practical directions for disinfection. The *Code* is briefly and clearly written. It should be in the hands of all medical men and trained nurses who have to do with children with the specific exanthems, and it may be cordially recommended to the attention of the ever-widening circle of schoolmasters, school managers, and parents who are so directly interested in minimizing the incidence and harmful effects of the acute specific fevers.

¹ *A Code of Rules for the Prevention of Infectious Diseases in Schools*. Issued by the Medical Officers of Schools Association. Seventh edition. London: J. and A. Churchill. 1915. (Demy 8vo, pp. 66. 1s. net.)

¹ *Il Policlinico*, Rome, 1915, sez. med., xxii, 529.

GUNSHOT FRACTURES OF THE JAWS.

The treatment of gunshot fractures of the jaws is at the present time attracting a good deal of attention. It is both difficult and important. Part of the difficulty arises from the fact that the parts are almost always infected, and it is practically impossible to free them from infection. Another difficulty, in the case of the lower jaw, is that of safely bringing the fragments into proper position and maintaining them for a sufficient length of time. Unless this can be done union will almost certainly take place in a faulty position, and the use of the jaw in speech and mastication will be seriously interfered with. The distressing nature of the deformities that may be produced, particularly perhaps when the fracture involves the upper jaw, is another reason which makes these injuries worthy of study. We are glad, therefore, to be able to publish this week a set of papers on the subject, in which general and dental surgeons have acted together, with great advantage to their patients. A discussion on war injuries of the jaws is to take place at a meeting of the Section of Odontology of the Royal Society of Medicine on Monday, February 28th, and an exhibition of dental splints, models, radiograms, photographs, and apparatus illustrating the subject, will be open from Tuesday next, February 22nd, to Monday, February 28th (from 11 a.m. to 5.30 p.m. each day). Any member of the profession who can contribute is invited to communicate with the honorary secretary of the Section, 1, Wimpole Street, W.

THE news of the death of Sir William Turner, principal and vice-chancellor of the University of Edinburgh, will be received with a sense of personal loss by thousands of friends and old pupils in every part of the British empire. He was in his 85th year, but had been attending to his university work with his usual alertness and acuteness of mind until about a week ago; he then began to suffer from gastric trouble by which his strength was rapidly exhausted. We hope to publish a biographical notice in an early issue.

A MEMORIAL to Florence Nightingale in the crypt of St. Paul's Cathedral was unveiled by the Queen on February 14th. It is placed on the wall of the archway that leads from the tomb of Nelson to that of Wellington. The Archbishop of Canterbury, in addressing Her Majesty, said that the success of Florence Nightingale was due to the fact that to a buoyant faith, a courageous hope, and a large love were added penetrating judgement, potent personal influence, and almost unrivalled administrative skill. The memorial, which is of white marble, showing a half-length portrait, is the work of Mr. Walker, the sculptor of the statue unveiled last year in Waterloo Place.

THE annual meeting of the Royal Medical Benevolent Fund Guild will be held at the London Mansion House on Monday next, at 3.30 p.m., under the chairmanship of the Lord Mayor. The Guild supplements the assistance given by the grants of the Royal Medical Benevolent Fund by personal services, by gifts of clothing, and in other ways. The number of cases with which it is asked to deal is increasing, and the Guild appeals to the public as well as to the medical profession for support. Subscriptions may be sent to the treasurer, Mrs. Scharlieb, M.D., 149, Harley Street, W.

THE Gynaecological and Obstetrical Societies of Latin and German Switzerland have decided to hold a combined meeting once a year under the name of the Société Suisse de Gynécologie. It will be held alternately in Latin and in German Switzerland. The first meeting is fixed for September next, and will be held at Lausanne under the presidency of Dr. Henneberg, President of the Latin Society.

THE WAR.

WOUNDS OF THE HEAD AND BRAIN.

Dr. W. v. BRUNN¹ states that he enjoyed exceptional facilities for studying wounds of the head, as the field hospital which he commanded was barely 3 kilometres behind the front, and he was able to keep his patients there as long as he wished. Even after they were drafted elsewhere, he was able in practically every case to keep in touch with them, and to learn the late effects of his treatment. Altogether he deals with 297 cases of wounds by projectiles. The face was wounded in 104 cases; 4 of these patients died early owing to extensive shattering of the bones and laceration of the soft tissues. Among the 193 cases of wounds of the head in which the face escaped, there were 74 cases in which the bones of the skull were injured. Among these, again, the brain escaped direct injury in 6.

WOUNDS OF THE BRAIN.

Of the 68 patients whose wounds extended to the brain, 42 died and 24 recovered; the fate of the remaining 2 was unknown, as they had to be transferred elsewhere within the first week. Among the fatal cases were 17 patients whose condition was too hopeless for any operation, and who died in a few hours. Two other patients wounded early in the war died on the fifth and eighth days respectively, no operation having been performed. Twelve patients admitted to hospital in a desperate condition were operated on, and died within a day. Eleven patients were operated on, and died after six to fifteen days, death being due to encephalitis in 5 cases and meningitis in 6. Among the 24 patients who recovered were 8 who had been wounded by bullets passing through the skull (*Durchschüsse*), and who were not operated on. The remaining 16 patients, who recovered, were operated on (trephined). Altogether Dr. v. Brunn saw 17 cases of wounds of the skull in which the bullet had escaped (*Durchschüsse*), and among them 7 died and 10 recovered. Among the 11 wounds of the skull in which the bullet remained in the body (*Steckschüsse*), there were 8 deaths and 3 recoveries. There were also 40 cases of tangential wounds of the skull, with 27 deaths, 11 recoveries, and 2 cases whose fate was unknown. The high proportion of cases admitted moribund to hospital was explained by the brevity of the interval between the infliction of the wound and the admission of the patient to hospital. This class of case was not seen by surgeons only a few kilometres further from the front, and thus it was that these surgeons were apt to be misled as to the prognosis of bullet wounds of the brain.

TREATMENT OF WOUNDS OF THE SKULL.

Treatment of wounds of the skull was instituted as early as possible, but only in two cases was it necessary to operate when the bullet had passed in and out of the skull. Both these patients recovered in spite of shattering of the bone and prolapse of the brain. Operations were frequently undertaken when the bullet remained in the skull, but when it was not found at once no extensive search was made for it, for fear of injuring the brain and exciting encephalitis. Necropsies performed in such cases almost invariably showed that the projectile could not have been removed without serious injury to the brain. Dr. v. Brunn had learnt to defer extensive operative measures for this class of case till weeks had elapsed, when the external wound had healed and facilities were available for operating under aseptic conditions and x-ray control. On the other hand, tangential wounds of the skull were operated on in practically every case, and whenever there was the slightest suspicion of brain injury. At these operations the borders of the wound were cleaned and partially excised, the margins of the bones were trimmed, and loose fragments, some of considerable size, were extracted from the brain or from the space between the skull and the brain. In two cases in which recovery ultimately occurred pieces of the skull, almost as large as the palm of the hand, were removed. When the loose fragments of bone had been removed, loose sterile mull was lightly applied to the wound. The wound

¹ *Deut. med. Woch.*, November 11th, 1915.

was kept open, the greatest care being taken to avoid compression of the brain by sutures or primary plastic coverings. During the first weeks of convalescence every effort was concentrated on the avoidance of infection; and, apart from stringent asepsis, the most important measure was the avoidance of every mechanical irritation, notably pressure on the brain. Irritation thus produced almost invariably provoked more or less severe oedema.

PROLAPSE OF THE BRAIN A REASSURING SIGN.

Dr. v. Brunn repeatedly observed that those patients did well in whom prolapse of the brain developed early and continued some time. He also noticed that what he called the pedicle of the prolapse became united to the surrounding margin of the skull by a fine adhesive membrane, which formed a barrier between the interior of the skull and the surface of the prolapsed brain, often septic and necrotic. When the necrotic layer of the prolapse sloughed off, the brain sank again, but did not retract completely within the limits of the skull, as it had become secured to the margins of the skull and dura. The surface of the brain thus left exposed was first covered by a delicate, rose-coloured layer of granulation tissue, which ultimately gave place to epithelium growing from the margins of the wound. Even when the prolapsed portion of brain was larger than a fist it finally shrank to small proportions, retracting automatically as the wound healed. Dr. v. Brunn took care not to exert any pressure on the prolapse, as the assumption that it needed pressing back into the cavity of the skull was incorrect. It was, however, necessary to protect the brain by a plate or a plastic operation at a later stage when the wound had completely healed.

THE SYMPTOMS OF ENCEPHALITIS AND MENINGITIS.

When, after the first two or three days, the brain showed no further tendency to prolapse, and began instead to sink back into the interior of the skull and to become discoloured, encephalitis had supervened; and the patient, who had gradually been losing consciousness, snuffed out like a light. For this condition there was no remedy. If meningitis occurred, the temperature began to rise before other serious symptoms developed. This warning was an indication for lumbar puncture, which yielded cloudy fluid under high pressure. When this was the case, lumbar puncture should be repeated daily and sometimes even twice a day, if the patient's condition became alarming and the fever increased. Though Dr. v. Brunn had lost many patients in spite of this procedure, it had saved the lives of many others, even after they had developed all the classical signs of meningitis. In all his cases he gave urotropin, and he was prodigal in the use of hydrogen peroxide, which he applied to the whole of the wound. In a most desperate case, in which the lateral ventricle had been perforated, he instilled hydrogen peroxide daily. In spite of a bed sore as large as two hands, the patient, though soporose for days, ultimately recovered, but left hemiplegia remained. Though opposed on principle in other fields of surgery to frequent changes of dressings, Dr. v. Brunn had soon learnt that wounds of the brain required daily changes of dressings—at any rate, for the first weeks. In many cases more or less extensive areas of hyperaesthesia were found associated with injuries to the head. The most varied paralyses were also observed; but Dr. v. Brunn threw no new light on the relations between these conditions and the particular brain lesion by which they had been provoked.

CASUALTIES IN THE MEDICAL SERVICES.

ARMY.

Died on Service.

LIEUTENANT-COLONEL HEW RAMSAY DUFF, of the Canadian Army Medical Corps, was reported to have died in France in the casualty list published on February 11th. He was born at Kingston, Ontario, in September, 1857, the son of the late Lieutenant-Colonel John Duff, police magistrate of that city, and was educated at Kingston grammar school and at Queen's University, Toronto, where he took the degree of M.D. in 1884. He had been connected with the Canadian Army Medical Service throughout his career, was President of the Army Medical Corps Board of Survey

for Ottawa and district, acted as medical officer of the Quebec tercentenary celebrations in 1908, served in the South African war with the Canadian contingent from 1899 to 1901, gaining the Queen's medal with four clasps, and held the Canadian long service decoration. He attained the rank of lieutenant-colonel on July 27th, 1904.

Miss W. S. Coates, V.A.D., serving with the British Red Cross, is reported in the casualty list published on February 12th as having died on service in the Mediterranean.

Killed in Action.

Captain George Seymour Stritch, 6th Service Battalion, Connaught Rangers, was killed in France on February 7th. He was born in Dublin in 1878, the son of the late George Seymour Stritch, K.C., educated at Trinity College, Dublin, and in the schools of the Royal Colleges of Surgeons of Dublin and Edinburgh, and took the Scottish triple qualification in 1895, also the L.A.H. Dublin in 1902, and the L.M., with a special certificate in gynaecology, at the Rotunda Hospital in 1904. After qualifying, he filled the posts of assistant medical officer of the Argyll and Bute Asylum, and resident medical officer of the Lock Hospital, Dublin. He subsequently settled in practice in Dublin, where he was anaesthetist to the Incorporated Dental Hospital, Ireland, and honorary surgeon to the Actors' Association, Actors' Union, and Music Hall Artists' Association. He had also been examiner in midwifery, gynaecology, medical jurisprudence, and materia medica to the Apothecaries' Hall, Ireland, had written several papers on venereal disease, and was the inventor of a prolapse pessary. He had served as a Captain in the Volunteers, and when the war began received a commission in the 15th Battalion Durham Light Infantry, from September 23rd, 1914, being subsequently transferred to the Connaught Rangers. He was a prominent Freemason, and a cousin of Sir Edward Carson. In 1910 he married Lilian, daughter of Canon Ford, and leaves two children.

Wounded.

Captain A. R. S. Alexander, I.M.S., Mesopotamia.
Captain N. R. Rawson, R.A.M.C. (temporary), France.
Captain H. Dunkerley, R.A.M.C. (temporary), France.
Lieutenant E. Doherty, R.A.M.C. (temporary), France.
Lieutenant N. A. Scott, R.A.M.C. (temporary), France.

DEATHS AMONG SONS OF MEDICAL MEN.

Holmes, Philip Lawton, of the King's Royal Rifles, killed on the Western front on November 25th, 1915, was the second son of Dr. James Holmes of Whitefield, Manchester.

Richardson, Thomas Charles, Captain Special Reserve, Royal Engineers, elder son of Dr. T. A. Richardson, of Clifton Park Road, Clifton, late of Combe Martin, North Devon, and formerly of Croydon, killed in France on February 5th. He got a commission as Lieutenant in the Reserve, R.E., in June, 1914, and was promoted to Captain in July, 1915. He was serving with the 185th Company, R.E., when he, with another officer, was killed by the enemy exploding a mine.

Singh, B. P. and B. M., lost in the *Persia*, on December 30th, were the sons of Lieutenant-Colonel B. J. Singh, I.M.S., Inspector-General of Prisons, Bihar and Orissa. They had been at St. Paul's School, and were returning to India.

Turton, Cecil William, Lieutenant 6th Battalion, Royal Sussex Regiment, younger son of James Turton, F.R.C.S., of Brighton, accidentally killed at Brighton on February 4th, aged 21.

MEDICAL STUDENTS.

Marshall, John Morrice Maitland, Lieutenant 4th Essex Regiment, who died of wounds on October 23rd, 1915, was a student at St. Bartholomew's Hospital.

NOTES.

SCOTTISH WOMEN'S HOSPITAL.

THE staff of the first and second Scottish Women's Hospital Units arrived in London on February 12th, after two months' detention as prisoners of war in Austria and Serbia. The members are:—*First Unit*: Drs. Davidson and McDougall; Miss Bowhill (matron); Sisters Fletcher, Brown, Scorgie, Skae, Mortimer, Hissey, Gibson, Pettigrew, Smith, Jones, and Lamb; Miss Madden (chauffeur), Miss Duke (x-ray operator), and Misses Gregory, Hare, and Lees (V.A.D.). *Second Unit*: Drs. Alice Hutchison, Laura Hope, Sybil Lewis, Agnes Proctor, and Charles Hope; Miss Jack (administrator); Miss Philp (matron); Miss Gordon (sanitary inspector); Nurses Bayne, Carter, Caton, Donovan, Dow, Duguid, Ellis, Evans, Gordon, Hall, Hamer, Hart, Kilty, Oldfield, Pinder, Richards, Saunders, Walmsley, Williams, and Wilson; Misses Nicholls, Kerr, M. Fraser, A. Fraser, and Tebbutt (orderlies).

Ireland.

IRISH WAR HOSPITAL SUPPLY DÉPÔT.

THERE are a number of War Hospital supply dépôts in Ireland, where some thousands of ladies make hospital requisites for the wounded. The provincial dépôts work in conjunction with the central dépôt in Dublin, which is affiliated with the Joint Committee of the Red Cross and St. John Ambulance Brigade. The several Irish dépôts are supported entirely by voluntary contributions and all the workers are voluntary. There is a register of over 1,000 voluntary workers at the central dépôt, and the average daily attendance for the past three weeks has exceeded 180. These ladies, working under trained instructresses, who are the most expert of the voluntary workers, make all classes of many-tailed and roller bandages and swabs, special boots for soldiers suffering from "trench feet," and pneumonia jackets. The Dublin dépôt has undertaken the making of surgical dressings for the Committee of the Dublin Salesmasters' Association, which has charge of the administration of the proceeds of the All-Ireland Farmers' sale, which was specially earmarked for dressings, etc., for men in the trenches in the fighting centres. Several bales of dressings on this account have already been sent to Salonika and Flanders. The first grant to the dépôt from this committee was £250, and a further sum of £750 has recently been handed over. By purchasing the materials in large quantities, and having the dressings made by voluntary workers, a saving of at least 25 per cent. is effected. Considerably over 12,000 articles were made at the Dublin dépôt during January. Sphagnum moss is largely used in the manufacture of swabs, and its suitability for this purpose, when properly cleaned, is now widely recognized. Last week Her Excellency Lady Wimborne, accompanied by Major-General Friend, Commander of the Forces in Ireland, visited the central dépôt in Dublin, and after an inspection of the various workrooms, expressed their keen appreciation.

Scotland.

AT the annual meeting of the Glasgow Maternity and Women's Hospital on February 10th it was stated that altogether 3,645 cases, including 1,650 indoor cases, had been treated during the year. Among them were 563 wives of soldiers and sailors. Sir George Beatson, in moving approval of the reports, said that the nation was awakened to the fact that there must be an economy in infant life. Though there were differences of opinion, he thought all were agreed that the organization for dealing with the matter must be built upon the basis of the Notification of Births Act. The Countess of Eglinton, in seconding, said that the expected result from the Insurance Act of a diminution in the mortality among mothers had not come about. This was not due to destitution, because wages were higher and separation allowances adequate. The causes appeared to be carelessness, love of pleasure, dirt, neglect, and maternal ignorance.

At the meeting of the Glasgow School Board on February 10th Dr. Grant Andrew gave a summary of the report on the medical inspection of school children for the year ending July 31st, 1915. Though there was no improvement in the number of underfed and ill-clad children as compared with the previous year, the totals were small and compared favourably with those for 1909-10. Medical treatment was given for ear, eye, teeth, and skin diseases. The proportion of children with decayed teeth was still very high; 5,487 out of 24,611 medically examined had five or more decayed teeth. There were 1,971 cases of rickets, but the percentage of children with rickets and rickety deformity admitted to schools for the physically defective showed a gradual diminution.

In his annual report Dr. G. Douglas McRae, medical superintendent of the Ayr District Asylum, stated that the admissions of men (70) were 14 under the average of the past twenty years, while those for women (71) remained practically the same. Alcoholic excess was present in

41 per cent. of the men and 22 per cent. of the women, as compared with 47 per cent. and 14 per cent. respectively last year. Little influence ascribable to conditions arising out of the war was to be observed among those admitted.

The report presented to the annual meeting of the Glasgow Royal Infirmary on February 14th stated that the capital fund had, for the second year in succession, been seriously encroached upon. The charges amounted to over £5,000 a month, and even after applying the net amount received by way of legacies, donations, etc. (£13,000), it had been necessary to withdraw over £15,000 from capital account. The managers appealed for increased financial support to the extent of at least an additional £30,000 a year. The number of patients admitted showed a slight increase—from 10,291 to 10,705; the daily average number resident was 741, against 678. The average residence of those treated to a conclusion was 25.5 days, against 23.9. During the year 150 beds had been maintained at the disposal of the naval and military authorities, and had been more or less continuously occupied, without interfering with the ordinary work of the institution. Of the members of the medical and surgical staff, 38, or practically all, hold commissions, R.A.M.C., and 12 are engaged in Red Cross hospitals.

TOLAMINE (CHLORAMINE-T).

THE importance of the contribution entitled "Studies in Antiseptics" (Dakin, Cohen and Kenyon, *BRITISH MEDICAL JOURNAL*, January 29th, 1916), describing the advantages of para-toluene-sodium-sulphochloramide as an antiseptic for irrigating infected wounds, etc., has been recognized by the medical profession, and Messrs. Burroughs, Wellcome and Co. have prepared compressed "soloids" of the substance in two strengths—8.75 and 87.5 grains. The title chloramine-T was suggested by the authors of the paper, but for many years a combination of other medicinal agents has been issued bearing the name chloramine. To avoid confusion, therefore, Messrs. Burroughs, Wellcome and Co. have decided to use the name "Tolamine." The statements contained in the paper by Dr. Dakin and his colleagues as to the strength in which the antiseptic has been found suitable in the conditions mentioned may be summarized as follows:

For irrigating infected wounds: 4 per cent.; gr. 8.75 two in 1 oz., or gr. 87.5 one in 5 oz. of water.

For use as a mouth wash: 1 per cent.; gr. 8.75 one in 2 oz., or gr. 87.5 one in 20 oz. of water.

For irrigating bladder and uterus in septic cases and for chronic urethral infection: 0.5 per cent.; gr. 8.75 one in 4 oz., or gr. 87.5 one in 20 oz. of water.

It will be seen by reference to p. 161 of the *JOURNAL* of January 29th that Dakin and his colleagues found that the germicidal action of chloramine, when tested against the ordinary organisms found in infected wounds, is about as powerful as an equal weight of sodium hypochlorite; as the molecular weight of chloramine is about four times that of sodium hypochlorite, the germicidal action of one molecule is about four times as great; as it is less irritating, it may be used safely at a concentration five to ten times as great; it is readily soluble in water and neither precipitates nor coagulates proteins such as blood serum. Its mode of action is thus summed up by its discoverers:

Chloramine represents an active antiseptic containing a store of chemically combined chlorine in a form which is quite stable and non-irritating under ordinary circumstances. But when brought in contact with proteins and similar cell constituents containing basic (NH_2) groups, it acts like a chlorinating agent, losing its chlorine to the basic substances, and thereby exerting its antiseptic action as needed. Chloramine, being a highly reactive substance, should not be mixed with other antiseptics; Both alcohol and hydrogen peroxide are decomposed by it.

The prices for the soloid preparations are unfortunately very high—72s. a dozen for the bottles containing 100 of 8.75 grains, and 54s. a dozen for tubes containing 10 of 87.5 grains. The manufacturers state that these prices are abnormal; owing to the use of chloramine bodies in the making of explosives, materials ordinarily obtained as by-products have now to be made.

MR. SAMUEL MATHER of Cleveland, Ohio, has founded a school for the graduate study of tuberculosis as a memorial to the late Dr. Edward L. Trudeau. The school will probably have its local habitation at Saranac Lake, New York, but co-operating agencies for special study will be created in New York City.

Correspondence.

THE PHYSICS OF A SURGICAL DRESSING.

SIR,—I was delighted to read Lieutenant-Colonel A. Primrose's paper on the above subject in your issue of February 12th, p. 238. For the last three weeks I have been making some simple experiments with water in a glass bottle and a wick leading out of it into a tray. Some methyl blue was placed on the wick at the neck of the bottle to show the direction of the flow. When a bell-jar was placed over the whole apparatus I found that the wick leading into the bottle became stained with the blue dye for nearly an inch, suggesting that under these conditions there was a tendency for the drainage to flow backwards.

My experiments are not yet nearly completed, but I fancy that there are three main conditions that affect the direction and the rate of flow:

1. The difference of level of the fluid in the bottle and the tray.
2. The relative dryness of the air in the bottle and over the tray.
3. The presence of salts in either the bottle or the tray—that is, the effects of osmosis.—I am, etc.,

Newcastle-upon-Tyne, Feb. 13th.

A. S. PERCIVAL.

SIR,—It was with very great pleasure that I read Lieutenant-Colonel Primrose's article under the above heading. Therein he calls attention to a very widespread fallacy in the after-treatment of infected wounds, and the experiments he quotes in support of his argument place on a scientific basis what has been obvious to me clinically for many years.

Whatever bacteriologists may say on the treatment of localized suppurative infections, our most successful treatment still consists in establishing free drainage, and maintaining it until the wound has healed. If this is done, I believe it matters little whether mild antiseptic solutions, salines, or plain sterilized dressings are subsequently applied, for once the tension is relieved the part is automatically flushed with serum and its contained antibacterial substances, whatever they may be.

Fomentations as usually applied consist of a piece of lint wrung out of hot boracic solution, and covered by a piece of gutta-percha tissue or oiled silk larger than the wet dressing, so that when applied it overlaps the latter all round. By this means evaporation is reduced to a minimum, bacteria and discharges are pent up beneath this impervious material, the wound and surrounding skin are left to "stew in their own infected juices," and free drainage no longer exists. In this way the chief object of an incision into an infected area is often neutralized. It has been my endeavour for several years past to impress this fact on the students and nurses of the Birmingham Medical School, but the use of "fomentations" is so firmly established by tradition and usage that it is difficult to eradicate a custom condoned by generations of surgeons.

My attention was first drawn to this matter by the frequently disastrous results which followed the treatment of whitlows in hospital practice. In such cases, despite early incision and free drainage (the routine after-treatment of which is the application of fomentations), in a few days the skin is macerated and undermined with pus, the edges of the wound everted, oedematous and unhealthy, and in a large percentage of cases this treatment fails to prevent the spread of infection up the finger to the palm. It seemed obvious to me that, although surgically free drainage had been established, there was something interfering with the free discharge of the infected fluids, and it did not require any great amount of discernment to fix the blame on the gutta-percha tissue.

For several years I have discarded impervious materials in the after-treatment of infected wounds, using as a rule only dry sterilized dressings, but if pain is severe and requires heat for its relief, or if the discharge is so thick that it will not soak into dry dressings, I use gauze wrung out of hot saline or some mildly antiseptic solution, and covered with several layers of hot dry wool. These do not retain the heat so long as the old-fashioned fomentations, but this is an advantage, in that it is an incentive to change

the dressings more frequently; once an hour is not too often for a freely discharging wound.

By these means the maceration and infection of the surrounding skin is prevented, the infection is rapidly localized, the wound takes on a healthy appearance, and free drainage, once established, is maintained.—I am, etc.,

Birmingham, Feb. 14th.

BERNARD J. WARD.

SIR,—The article by Lieutenant-Colonel Primrose, in your issue of February 12th, is really too absurd, and will, I am sure, raise a storm of protest. The experiments he quotes are of no value whatsoever in support of his statements. Does he not realize that the dressing must be kept moist by an impermeable material, so that drainage is established and maintained by capillary attraction? We are not dealing with flasks of water in surgical practice, but with tissues of more or less solidity. How often have we seen the evil effects—sometimes leading to general blood poisoning and death—which result from the application of dry dressings to septic wounds. Impermeable materials are only of use in keeping the dressing moist, so that capillary attraction is not interfered with; a piece of oiled silk applied directly to a septic wound is every bit as injurious as a dry dressing. I sincerely trust that this article will not cause any practitioner to depart from the old principle of using dry dressings for aseptic surgical wounds, and moist dressings covered with some form of impermeable material for all septic injuries. Otherwise it will be bad for him, and a good deal worse for the patient.—I am, etc.,

Wigan, Feb. 13th.

J. THOMSON SHIRLAW, M.D. Edin.

SIR,—Lieutenant-Colonel Primrose, in the article he contributes to the BRITISH MEDICAL JOURNAL of February 12th, comes to the following conclusion: "I am convinced it would be greatly to the advantage of the wounded if impermeable protective and oil-silk were entirely removed from the surgical armamentarium of the army." Colonel Primrose points out how impermeable tissue is commonly badly employed, just as others have found fault with the use of the probe, but it is absurd to suppress either if it be useful when properly handled.

Many men use a probe as a soldier should a bayonet! With such it is the method, not the means, which is at fault. Impermeable tissue should cover a wet dressing as a tarpaulin does a hayrick, not as it covers goods on a railway truck.

Colonel Primrose says: "In my opinion, the best dressing for septic wounds is a moist dressing, and we found the hypochlorous acid solution wonderfully effective. The moist dressing is applied directly to the wound, and over this dry gauze." Thus treated it would not remain a moist dressing for many hours, and either the wound would have to be dressed with exhausting frequency, or the dressing would be found dry and adherent when removed.

If a wound be discharging freely I cover it with a patty-pan, bent to shape, and having a large hole through its centre. All discharge can then easily escape. If a moist dressing be employed, a pad of wet wool should be put over the wet gauze to help keep it wet, and then a cap of impermeable tissue on top. If the impermeable material be scarcely larger than the dressing it covers, none of Colonel Primrose's troubles will arise, as all discharges can escape laterally. Moreover, a small piece of impermeable is economical, since less wool is required to cover it and extend the needful distance beyond.

Colonel Primrose gives evidence to show that an impermeable material over a dressing tends to urge any chemical constituent in the dressing inwards towards the skin or wound. Such an argument should encourage him to recommend it, since if the solution he prefers—that is, hypochlorous acid—be urged inwards so much the better for the wound.

In my experience a good treatment for discharging wounds is free drainage; a better is continuous irrigation; the best is baths. Dressings are chiefly put on for convenience, since a painful wound wants protecting, and so do the clothes or bed. Little can be done for a deep discharging wound beyond removing dead bone or foreign

bodies operatively, and keeping the parts clean, open, and quiet.

Most surface wounds heal excellently in practice with wet hypochlorous dressings capped, rather than covered, with waterproof tissue. There is, however, no absolute rule in medicine or surgery. I often dress the same wound in two or three different ways in a week. The more experience I have the more I disbelieve in "A" being always good and "B" being always bad, provided "C," the *chirurgien*, uses his wits.—I am, etc.,

Exeter, Feb. 12th.

D. W. SAMWAYS.

TRENCH FEVER.

SIR,—Captain J. W. McNée and his colleague, Lieutenant Arnold Renshaw,¹ are greatly to be congratulated on their demonstration that the causal organism of this disease is transmissible from man to man by blood injections. Their demonstration of this fact is indeed the fundamental basis for all future work on trench fever, especially for immunizing experiments, affording as it does an invaluable control, which is, unhappily, still wanting in many systemic infections of obscure etiology. The majority of the other conclusions drawn from their published experiments—such as that trench fever is a disease *sui generis*, that it is not transmissible by injections of moderate volumes of serum, and that the virus is mainly intracorporeal—appear to be well founded, and to be capable of ready confirmation.

The conclusion, however, that failure to prove infectivity of filtrates of saline extracts of crushed blood corpuscles is good evidence that the virus of trench fever is not filterable, and is therefore presumably of considerable size (though this is only inferred), is on a somewhat different footing, and for this reason. If it is desired to test the filterability of a virus, and hence to get some idea of size relatively to the vanishing point of vision, one condition must in some diseases be observed, even when working with the unsatisfactory Berkefeld filters, before it is possible to come to a final conclusion; and this condition is that the organism it is desired to test must be as far as possible isolated from the albuminous medium in which it occurs before filtration is attempted. And this applies equally to plasma, serum, haemoglobin-stained fluid, and to saline extracts of crushed blood corpuscles. If this isolation be not carried out it is often impossible to prevent blocking of the filter with colloidal albumen, which may be, and often is, fatal to the passage of certain types of small organisms. And this blocking is not necessarily prevented by mere dilution, even up to the limits of practical experiment. In my own work, for example, it has often happened to me—particularly in typhus fever, cerebro-spinal fever, and scarlet fever—to find that attempts to prove the infectivity of filtrates of the blood, serum, plasma, or other albuminous fluid may fail by using the classical technique recommended in the textbooks. And this even when working with high dilutions. If, however, the fluid suspected of harbouring a minute virus be well centrifuged, and if the whole of the albuminous medium—as far as is practicable—be replaced by saline the filtrate will now often prove to be infective, when before it proved to be non-infective. In the case of corpuscles suspected of harbouring a virus, freshly distilled sterile water will often give a far better extract for purposes of filtration than will crushing followed by treatment with saline, the tinted supernatant fluid, after centrifuging, being in the first case finally replaced by saline.

If therefore experiment fails to reveal the presence of a virus in a filtrate when the ordinary methods are adopted, some such method of isolation as that referred to should be given a trial before concluding that the virus is not filterable. The fact that no organisms could be seen in blood films rather suggests the presence in trench fever of a minute virus which may require special treatment before it can be proved to be filterable or the reverse. And it is well to remember that minute organisms are often more difficult to see in an albuminous than in a non-albuminous matrix.

If Captain McNée and Lieutenant Renshaw will accept the suggestion, they may perhaps find it worth while to repeat their filtration experiments on these lines. And if in addition they care to incubate the filtrate, after enrichment with sterile ascitic fluid or with serum-broth,

interesting cultural results may be obtained which are often unattainable when the ordinary methods of filtration of albuminous fluid containing an infective virus are employed, involving moreover the possible retention in the filtrate of antibodies.—I am, etc.,

London, W., Feb. 14th.

EDWARD C. HORT.

THE ETIOLOGY OF CEREBRO-SPINAL FEVER.

SIR,—I have not the necessary qualifications either to support or to question the very interesting speculation launched by Dr. Edward C. Hort¹ in your issue of January 29th, that the true infective agent of epidemic cerebro-spinal meningitis is a filter-passing organism, and that the meningococcus of Weichselbaum, incapable itself of reproducing the disease, is but a phase in the life-history of a more virulent ancestor.

In that article numerous specimens of the unfiltered body fluids are described as containing the following organisms when submitted to complete examination:

- (a) The meningococcus of Weichselbaum.
- (b) The meningobacillus.
- (c) Clusters of very minute organisms, sometimes diplococcal or diplobacillary in form, at other times of quite indeterminate morphology.
- (d) Jaeger's diplococcus.
- (e) Involution forms, diphtheroidal forms, and large bacillary forms.

Now, in so far as certain observations of mine² are cited, amongst others; as confirming these findings in their morphological details, may I say that the experiments in question, so far as I am able to judge, do not appear to have the significance attributed to them here?

From what appeared to me to be pure cultures of meningococci isolated from the cerebro-spinal fluid and from the blood of patients in the acute stage of the disease, there developed in subcultures Gram-negative and Gram-positive diphtheroids, bacilli, and diplococci. With a very definite and full reservation as to the possibility of contamination; I suggested that these results, if confirmed, indicated that the meningococcus was a pleomorphic organism. Again, if contamination could be excluded, these findings would indirectly support the thesis, based on other evidence, of some relationship between the meningococcus and an ultramicroscopic filter-passing organism. On the other hand, if it be a fact that the unfiltered body fluids in this disease contain at least five other varieties of micro-organisms, then my own results must be explained by the presence of these secondary organisms as contaminations in the earlier colonies of meningococci.

That seems to be a very possible and probable contingency, which I readily accept, but as a corollary it deprives my observations of any bearing whatever either on the question of pleomorphism or on the more speculative issue regarding the existence of an unknown virus.

More recent observations on changes in a culture of parameningococcus, isolated at the Royal Naval College, Greenwich, from the naso-pharynx of a contact, have increased my scepticism of pleomorphism, the existence of which must either be established or refuted by the final test of animal inoculation.

In conclusion, may I enter a plea, amidst the purely biological research now surrounding the disease, that "the truer and better means of prevention" should not be neglected? This last, when all is said, written, and done, shall be first. For one thing, the necessary measures have the simplicity of being eminently practical.³ Thus only last week a Brigadier-General wrote: "We had a lot of it (spotted fever) last winter. Yesterday I got my crowd together and talked to them for half an hour about this open air business . . ."

Whatever be the virus it can only exist, develop, and spread under those unhygienic conditions of warm, saturated, impure air too long tolerated by an ignorant civilization, in which unphysiological overcrowding is permitted and legal overcrowding is condemned.

It is clear that under all circumstances and conditions the intelligent recognition of a few simple measures based on physiological laws must inevitably imply that epidemic

¹ BRITISH MEDICAL JOURNAL 1915, i, p. 156.

² Practitioner, January, 1916, p. 17.

³ Lancet, 1915, ii, p. 862.

cerebro-spinal meningitis will cease to be. It is a sad commentary on so great a possibility that fresh cases of this disease are now appearing.—I am, etc.,

HALLIDAY SUTHERLAND,
Temporary Surgeon R.N.

February 1st.

SEGREGATION OF CONSUMPTIVE SOLDIERS AND OTHERS.

SIR,—At present the tuberculosis dispensaries register increasing numbers of broken soldiers and one hears on all hands of hospitals at home and abroad steadily accumulating cases of pulmonary tuberculosis.

Segregation camps—and the necessary legislation for placing the patients in them—will be urgently necessary, and the sooner the matter is taken in hand the better. With the completion of training of the new army it is reasonable to think that many camps suitable for the purpose will be available, and the necessity of putting up the proposed permanent buildings should not arise.

The problem of segregating the infective consumptives will have to be faced, and will tax all the administrative genius of our empire. Public opinion and the so-called freedom of the subject will have to be reckoned with, and will doubtless make the effectual control of this fell disease more difficult than that of stamping out leprosy in the middle ages. Some old churches exhibit to this day leper squint holes, and bear witness to the part the Church took in the crusade; if need be the religious organizations must be called in to our assistance once more if science and its ancillary legislation fail in the task.—I am, etc.,

J. LEWIS THOMAS,

Tuberculosis Officer for West Monmouth.

Newport (Mon.), Feb. 14th.

THE SOLDIER'S HEART.

SIR,—The letters which have appeared in your columns on the subject of "The Soldier's Heart" and the "Irritable Heart of Soldiers," have brought into prominence two points of practical importance, namely, that the condition under consideration is not peculiar to soldiers who have undergone the strain of modern warfare, and that it may be recognized before they proceed to active service. In respect of prompt recognition it would be difficult to improve on the suggestions of Dr. Stewart Allan Orr.¹

The syndrome in question has engaged my attention for many years, and was described by me in a communication to your issue of March 8th, 1913, as being one of cardiovascular atony characterized by mental depression, undue fatigue on exertion or mental concentration, cold and bluish extremities, dicrotic pulse with deficiency or absence of the predicrotic wave, respiratory variations of pulse frequency, postural tachycardia, functional murmurs, and frequently dilatation of the pupils, as well as precordial pain due to fibrositis of certain parts of the chest wall. At the same time I pointed out that the condition is one frequently met with in civil life, especially in children and adolescents, that it is dependent on toxæmia, and is especially liable to assume an acute form in soldiers under the strain of route marching and manœuvres, especially if combined with depressing climatic conditions.

As the suggestions as to treatment have, I think, been somewhat halting and inconclusive, and some have expressed themselves in a tone bordering on hopelessness, I wish to state, as the result of long experience, that a means of cure lies ready to hand. While digitalis and strychnine are of doubtful value, and calcium chloride and adrenalin hydrochloride (orally administered) are often useful as adjuvants, there is no remedy to be compared with the so-called Nauheim methods when administered in this country with judgement and due attention to technical details. As a rule the patient is restored to health, hopefulness, and activity in about two months, and able to resume an active and even arduous life with the keenness and confidence of full vigour. If the toxæmic condition have been successfully dealt with the result may be looked on as permanent.—I am, etc.,

London, W., Feb. 12th.

W. BEZLY THORNE.

THE NOTIFICATION OF MEASLES.

SIR,—You raise some interesting points in your last week's review of the position of practitioners under the new Notification of Measles Order. It will, I believe,

become evident as experience is gathered that the effort to limit the expense by barring practitioners from notifying—whether first cases, or cases in the same house wherein one case has been notified within two months—will defeat its own object. Every case notified by a parent or non-medical person must be a doubtful case not yet diagnosed until some medical person has come in to diagnose it. It cannot be necessary to point out the importance of a correct diagnosis being made in this connexion and the occasional difficulty which presents itself in diagnosis even for a much experienced medical practitioner.

The Local Government Board appear to expect the medical officer of health, or some person qualified to make a diagnosis who acts under the instructions of the medical officer of health, to visit the house to make the diagnosis when the notification is by a non-medical person. This will necessitate the case being examined, and then what about its treatment? Is the medical officer of health or his assistant (medically qualified or unqualified) going to take the onus of advising as to treatment? I do not see how he can do that, but I do see from the experience I already have that a good excuse has come into being for parents who desire to save the doctor's fee writing notes to the medical officer of health soliciting visits, and when they learn that the mention of measles enforces a visit their own diagnosis will probably run in this direction. Such visitation from the health department cannot be done without cost; in fact, it seems to me the cost will be greater than if a doctor's certificate were insisted on.

The one and only object, so far as I know, of the notification of measles is to prevent the death of children from the disease, and the one effective advice that I, and as I suppose all other medical officers of health, have been able to give to parents with children so suffering is to call a doctor in, as the disease is dangerous. But now if we are to save as many notification fees as possible we must keep the doctor out, and when we pay our somewhat costly visit (taxi-cabs are rather expensive), we must be sure to impress the parent to tell the doctor as soon as he comes that the medical officer of health has been in and diagnosed the case, and so prevent the payment of the additional half-crown. It has been seriously suggested to me that I should endeavour to forestall the doctor by sending out circular letters to parents living in poor streets where measles cases are known to exist, calling their attention in particular to their obligation to themselves notify any case arising.

But, after all, the medical officer of health will be the worst sufferer in this officially ordered notification of measles. Too little consideration has been given to his position, and the great responsibility thrown upon him, which I anticipate will become manifest from time to time in the coroner's court.—I am, etc.,

J. H. GARRETT, M.D., D.P.H.,

Medical Officer of Health, Cheltenham.

Cheltenham, Feb. 5th.

THE EDUCATION OF NURSES.

SIR,—No one will deny that nursing is a skilled profession or occupation. Does any other exist in which the worker is expected to start work without any preliminary training? The usual routine for the nurse entering as a probationer is to go straight into the wards and start nursing (?) at once. She picks up as much or as little knowledge as the staff nurse or sister has time or inclination to give. She attends a course of lectures, at the end of which she has certain information which she probably needed on the first day in the wards.

The training is given gratuitously, consequently the nurse has no right to complain. If she meets with the disapproval of the sister, there is the possibility that her conduct may be reported to the matron; she may be told she is unsuited for a nurse and her chance of training is at an end, for there is no court of appeal from the matron's word.

Now I hold that no one should be deprived of the right of taking up a course of training and carrying it through. How can any one say after a few months' training (if it is training a probationer gets) whether she is capable or not? Many medical students are slow in learning, and yet become capable at the end, and no one dismisses a student at the beginning of his course of instruction for incapability; why then a nurse? Again, persons qualifying for

¹ BRITISH MEDICAL JOURNAL, February 5th, p. 218.

a profession are usually taught by those chosen on account of special aptitude for imparting instruction. At hospital any staff nurse or sister is called upon to train the probationer regardless of her qualifications as a teacher. There is no systematized instruction in practical work. The lectures are often left to the house-surgeon, house-physician, or resident medical officer, who is chosen for the post with a view to his qualification as a doctor, and not as an instructor of nurses.

The remedy is to start nursing schools in connexion with the hospitals on the same lines as medical schools. In the first place, the training must be paid for, and secondly, the nurse must have an education in nursing. For the first six to twelve months the training should be theoretical, with demonstrations only; the nurse should not go into the wards at all, except for demonstrations. Then the next year or two ward work should be undertaken, still under supervision. The nursing school should also provide special opportunities for public health work, and make arrangements for its students to work at infant consultation centres and with health visitors and school nurses; also for the special branches of nursing—for example, midwifery, massage, electrical, and x-ray work.

The curriculum should be laid down and the examinations held by an outside body, who would be entitled to grant certificates (or even a diploma) for general nursing and special certificates for individual branches, particularly midwifery and public health.

A scheme as above outlined would safeguard the profession from a danger which is inevitable in the near future—namely, the flooding of the market with women calling themselves "nurses," whose only training has been a short residence in military hospitals. I have said nothing of the advantages accruing to the patients in hospital from such a scheme.—I am, etc.,

Brixton, Feb. 12th.

MILDRED M. BURGESS, M.D.Lond.

SCIENCE, EDUCATION, AND GOVERNMENT.

SIR,—My attention has been drawn to an article on "Science, Education, and Government" in your paper of February 5th. It is impossible to be otherwise than in sympathy with the writer in the purpose of his article, but I hope you will let me point out that the study of natural science is not neglected at the public schools. I have an intimate knowledge of the curricula of two well-known schools. At each of these science—both physics and chemistry—is taught to practically every boy on the modern side, at least four periods in the week being devoted to the subject in the lower sets, and six or seven periods in the higher sets. And at each of these schools not less than 60 per cent. of all boys are on the modern side.

Of the other branches of science mentioned in your article, biology is not generally taught in schools, and geology, which was formerly taught to many army candidates, has—so far as I know—unfortunately dropped out altogether; but the ascertained facts and principles of mechanics and geography are taught, and I think well taught, to modern side boys at all good schools known to me.—I am, etc.,

S. E. LONGLAND,

Glenalmond, Feb. 11th.

Warden of Glenalmond.

THE INTRODUCTION OF CINCHONA TREES INTO INDIA.

SIR,—Dr. F. T. Anderson of Horsmonden, Kent, has written to me, and I understand to you also, asking me to correct my attribution of "the whole credit" of the introduction of the quinine trees into India to Sir Clements Markham. Well, I was asked to write on Sir Clements's services in the matter for an obituary notice of him in your last issue [the 12th inst.], and having regard to the limits of space, and the even more pressing dictates of comparative relation, after a brief reference to previous efforts to naturalize these trees in India, I went on to describe in some detail the immediate and unique success of his importation of them from South America into Southern India, being careful to name all those, with one regretful and quite unintentional exception, who assisted him in this specific and crowning undertaking, the exception being Cross the gardener, who, after Sir Joseph Hooker and Sir George Clerk, Markham would have wished me to name; and I concluded with a brief reference to those who, after MacIvor

had so wonderfully propagated Markham's trees in the Nilgiris, helped to propagate them elsewhere, in Northern India. I regret that among them I did not mention Dr. Thomas Anderson, particularly as he was a contemporary with me and of mine own age at Edinburgh, where he graduated a year before me. But I was thinking, and deliberately, of Markham's own work in the connexion and under the emotion of his death. He was a thorough English gentleman, of the inborn historical type, developed to its highest mettle under the discipline of service in the Royal Navy; and to this, in simple truth, was entirely due his success in a great benevolent and beneficent adventure wherein there is really no second to stand beside him as first. Had I been writing for an encyclopaedia I certainly should have mentioned Dr. Thomas Anderson; and not only him, but Broughton and Falconer, and Fortune, and John Eliot Howard, and Kasten, and Nassau Lees, and De Vrij; and I hold that after Markham we owe most for the blessing of an exhaustless supply of quinine in India to Howard, the author of *The Quinology of the Indian Plantations*.—I am, etc.,

Baling, W., Feb. 15th.

GEORGE BIRDWOOD.

* * A printer's devil, of a hue blacker than usual, transposed the figures giving the age of Sir Clements Markham; he was born on July 20th, 1830; his age was thus 86, and not 68, as printed on p. 247.

LEGAL AND MORAL OBLIGATION.

SIR,—In this discussion I am under the disadvantage, from which you evidently do not suffer, of having at hand neither legal advice nor legal authorities; nevertheless, I stick to my point. I deny that I have confused moral with legal duties, and I contend again that the duty of a citizen to inform the authorities, when he has knowledge of the commission of a criminal offence, is a legal duty and not a moral duty. You say a legal duty is one to which the law will enforce obedience. I agree, provided the law is appealed to. And you say the duty which lies upon ordinary citizens to inform the authorities of a criminal offence is one to which no legal consequences attach. I speak under correction, but I submit that in this you are wrong. The same mistake—that no legal consequences attach to the neglect of duty—was recently made on the same ground, that the law is seldom put into operation, by a man who refused to assist in the arrest of a malefactor when called upon in the King's name by competent authority to do so. That man was indicted for his refusal, and was punished by legal process. Is it to be supposed that a man who could be proved privy to the recent crime of destroying the Government buildings at Ottawa could not be punished for concealing his knowledge? I am much mistaken if he would not be indictable under the common law, and if he would not find the crime of misprision of felony revived for his benefit; and even if this were not so, he could certainly be committed to prison for contempt of court if he refused, in the witness-box, to make the revelation.

You admit that barristers and solicitors are exempt from the duty if the knowledge comes to them from their professional relations with their clients; but you do not say, what is nevertheless the fact, that they are exempted by law. How can they be exempt by law if there is no law which would catch them if they were not exempt? Who brings in a bill of indemnity to absolve him from punishment that he has not incurred, and to which he is not liable? You declare that the duty of the priest to divulge the secrets of the confessional is a moral duty; but you do not venture to declare that the duty of the lawyer, from which he is exempted by law, would, but for this exemption, be a moral duty. Manifestly it would be a legal duty, and if it is a legal duty in his case it is equally a legal duty in the case of the priest and of the ordinary citizen who is neither.—I am, etc.,

Parkstone, Dorset, Feb. 12th.

CHAS. A. MERCIER.

* * A person who refuses to assist a police officer in arresting another who is about to commit a breach of the peace is guilty of a breach of a legal duty for which, as is well recognized, he is liable to be indicted. The question whether the law is habitually invoked in order to enforce any given duty has no bearing upon whether such duty is a legal or merely a moral one. The point is, Does the duty rest upon law or merely upon public opinion? If the

former, then it is a legal duty; if the latter, a moral duty and no more.

As was stated in the article on "The Duties of Medical Practitioners in Cases of Criminal Abortion," in the JOURNAL of February 5th and the note to our correspondent's previous letter which was published in last week's issue, there is no legal machinery by which the duty which rests upon ordinary citizens to give information to the authorities in cases where a criminal offence has been committed can be enforced. We therefore called such duty a moral one, and in this we have no doubt.

The position of barristers and solicitors to which our correspondent refers is this: Unlike any other class, barristers and solicitors are "privileged" in that they are not legally compellable—and, indeed, are not by law entitled—to divulge in the witness-box information which they have obtained from their clients. It therefore follows that the ordinary moral duty of the ordinary citizen to inform the authorities does not apply. But for the legal "privilege" which the barrister and solicitor enjoys in the witness-box, his position would be precisely similar to that of any one else. He might or might not be under a moral duty to inform the authorities.

The central fact, however, which emerges from this discussion, and which we wish once again to emphasize, is that it is now established that medical practitioners who obtain information in their professional capacity as to the commission of a criminal abortion are under no duty of any sort or kind to divulge that information to the authorities, and that their duty to their patients enjoins them to preserve professional confidence and secrecy.

Universities and Colleges.

UNIVERSITY OF LONDON.

MEETING OF THE SENATE.

A MEETING of the Senate was held on January 20th.

Clinical Clerks and Surgical Dressers during the War.—It was resolved to admit students who have performed service as clinical clerks or as surgical dressers for not less than six months during the continuance of the war, to the M.B., B.S. Examination after an interval of not less than two and a half years from the date of their passing the second examination for medical degrees in anatomy and physiology, provided that they be not admitted within five and a half years from the date of their matriculation.

Anatomical Nomenclature.—The examiners in anatomy were instructed that no change should be made in the existing nomenclature as used in examination papers without the sanction of the Senate.

The University Medal in Branch IV (Midwifery and Diseases of Women) of the M.D. Examination, December, 1915, has been awarded to Lillias M. Blackett, B.S. (London Royal Free Hospital School of Medicine for Women).

The Lindley Studentship of £100, offered every third year, and a University studentship in physiology, valued £50 for one year, are offered. Full particulars can be obtained from the Academic Registrar.

The Rogers Prize of £100, open to all persons whose names appear on the *Medical Register* of the United Kingdom, will be awarded for an essay or dissertation on "The Nature of Pyrexia and its Relation to Micro-organisms." Essays and dissertations addressed to the Vice-Chancellor must reach the university by 4 p.m. on April 29th.

UNIVERSITY OF ABERDEEN.

At the meeting of the University Court on February 8th the Senate was requested to draw up conditions of appointment and regulations relative to the lectureship in pathology with special reference to malignant diseases, recently instituted by Sir Alexander M'Robert. Colonel Scott Riddell, senior surgeon to the Royal Infirmary, was appointed general council assessor, in room of the late Dr. Westland.

UNIVERSITY OF GLASGOW.

At the meeting of the Glasgow University Court on February 10th the Principal, Sir Donald MacAlister, said that 110 women students and graduates at Queen Margaret College had been training to take certificates under the St. Andrew Ambulance Association, in order to act as part-time nurses at hospitals so as to relieve fully trained nurses on military service. A register of women students and graduates, formed to discover reserves of educated women prepared to take on the work of educated men training for military service, showed that 407 out of 438 students had registered themselves. The students and graduates of the university working on munitions numbered 423, and of that number 300 were engaged for the period of the war, many being either unfit for military service or exempted by reason of special circumstances.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

An ordinary council was held on February 10th, when Sir William Watson Cheyne, president, was in the chair.

A vote of condolence was passed to the relatives of the late Mr. Stanley Boyd, a member of the council.

Diplomas were granted, jointly with the College of Physicians, to four candidates found qualified for the diploma in public health at the recent examinations.

Mr. C. H. Golding-Bird was re-elected to represent the college on the Central Midwives Board.

CONJOINT BOARD IN ENGLAND.

The diplomas of L.R.C.P. and M.R.C.S. have been conferred upon the following candidates:

J. Andrew, *Mary N. Andrews, G. F. V. Anson, K. J. Bates, T. A. P. Benbow, A. W. C. Bennett, K. H. Bhat, J. T. Bleasdel, E. S. Bowes, *Isabel F. Buckle, A. O. Courtis, D. Crellin, R. G. Dani, P. A. Dargan, L. M. Davies, L. ap I. Davies, H. M. Drake, A. N. Drury, C. Y. Eccles, M. Elias, H. H. Elliot, C. A. L. Evans, D. J. Evans, M. D. Evans, W. J. Evans, C. Gould, H. E. Griffiths, A. B. Gunasekara, C. G. W. Hahr, A. E. Hamlin, W. L. A. Harrison, G. E. Heath, V. R. Hirsch, E. L. Hopkins, *Helen Ingleby, V. C. James, J. G. Jones, L. W. Jones, *Ivy Keess, C. E. Kindersley, M. E. A. Latif, H. Lewis, K. T. Limbery, G. A. S. Madgwick, R. H. Mainot, L. A. Malik, F. W. Maunsell, *Gladys M. Miall Smith, R. D. Moyle, N. R. Nalliah, H. M. Oddy, *May Olivera, *Edith W. Paul, P. R. O'R. Phillips, A. C. Pickett, D. S. Pracy, D. Rees, E. D. Richardson, M. K. Robertson, G. C. Robinson, J. T. Samuel, F. J. P. Saunders, R. J. Scarr, C. P. Sells, G. B. Sellwood, *Edith A. Shaw, *Elsie Stansfeld, A. Sunderland, G. T. Symons, H. J. H. Symons, A. H. Taymour, W. H. Thomas, J. A. Tippet, R. S. Topham, H. M. von Mengershausen, H. J. Wallace, H. A. Whyte-Venables, H. G. E. Williams, A. Wilson, G. C. N. Younger.

* Under the Medical Act, 1876.

The Services.

EXCHANGE DESIRED.

MEDICAL OFFICER attached to Squadron of Royal Engineers wishes to exchange with medical officer holding hospital appointment in England or France—Address No. 750, BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C.

Obituary.

DR. GEORGE KIRKWOOD died at his residence in Peterborough on January 30th, after a long illness. He was the son of Mr. James Kirkwood, of Dunbar, where he was born in 1852. He was educated in that town and afterwards at the university and the College of Surgeons, Edinburgh. As resident medical officer at the Royal Infirmary he enjoyed the advantage of witnessing the establishment of antiseptic surgery under Lister. He afterwards held the appointment of house-surgeon to the Cumberland Infirmary, Carlisle, and before settling in practice was clinical assistant in the eye wards in the Edinburgh Infirmary. In 1876 Dr. Kirkwood joined Dr. Walker, sen., and Dr. T. J. Walker in Peterborough, and in the following year entered into a partnership with Dr. T. J. Walker which lasted for forty years. He became surgeon to the Peterborough Infirmary, and throughout his long professional career threw his whole heart into his work, more especially attending to the ophthalmic department. Dr. Kirkwood's services to the institution were recognized by a resolution passed, within a few hours of his death, at the hundredth annual meeting of the governors. He was a member of the British Medical Association, and had held the office of President of the Cambridgeshire and Huntingdonshire Branch. Dr. Kirkwood was dextrous as an engineer, a good photographer, and an accomplished pianist, and played on the French horn. He was most liberal in assisting all enterprises, especially musical societies, in which he took part. The funeral, which took place on February 4th, was very largely attended.

We are indebted to Dr. John Craig for the following notes of the life of Dr. MIDDLETON, who passed away at his residence, 152, Bruntsfield Place, Edinburgh, on February 7th. Robert William Middleton was born at Symington, Lanarkshire, on May 13th, 1853. For a short time he attended school at the neighbouring town of Biggar, and on his parents' removal to Thornhill, Dumfriesshire, continued his school career at Closeburn and at Dumfries Academy. He thereafter studied medicine at Glasgow University, where he received the degrees of M.B., C.M. in 1878. After acting as assistant to the late Dr. John Kello, of Biggar, he spent nine months in Paris

in post-graduate work. In 1888 he settled in London, where he gained a large practice. In 1892 his health gave way, and he was reluctantly compelled to give up work. After spending some time in endeavouring to recover his health at Southsea and at Reigate, he went to reside in Edinburgh about fifteen years ago, and had since been confined to the house and almost entirely to his bed. He was unmarried. Dr. Middleton was beloved by all who knew him. In his retirement he drew around him a small circle of friends who delighted to visit him. His keen appreciation of a good story and his hearty laugh will long be remembered by those who knew him. He was patient during his long illness, and although at frequent intervals he suffered great pain he never complained. On February 10th he was laid to rest beside his parents and grandparents in the quiet churchyard of his native village of Symington under the shadow of the hills he loved so well.

SURGEON-MAJOR-GENERAL JOHN PINKERTON, I.M.S.(ret.), M.D., who died on February 11th, at the age of 83, took the qualifications of M.D.Glas. and L.R.C.S.Edin. in 1855, and became F.R.C.S.Edin. in 1907. He entered the Indian Medical Service in 1855, and served in the Persian war, 1856-7. During thirty-eight years' service in India he held many important posts. From 1868 to 1876 he was superintendent-general of the vaccination department of the Bombay Presidency, and drafted the first Vaccination Bill in India, which became law in 1877. He was in charge of the European General Hospital, Bombay, from 1876 till 1882. He was the first president of the Bombay Branch of the British Medical Association, and had twice held the post of Dean of the Medical Faculty of the University of Bombay, of which university he had been a Fellow since 1868. He was honorary physician to Queen Victoria, and continued as such to King Edward VII and King George V. For five years preceding his retirement he was at the head of the I.M.S. in the Bombay Presidency. At the time of his retirement, in 1893, he was a member of the Legislative Council of the Bombay Presidency. He was the recipient of the good service pension of £100 for meritorious services. In 1894 he was elected F.R.F.P.S.Glas. for distinction in medical science. General Pinkerton lost his only son, Dr. John Pinkerton, in the Russo-Turkish war of 1878. He is survived by an only daughter, the wife of Dr. Ebenezer Duncan, president of the Royal Faculty of Physicians and Surgeons, Glasgow. The funeral took place at Cathcart Cemetery on February 15th.

COLONEL CHARLES FREDERICK POLLOCK, R.A.M.C.(ret.), died at Cowhenth, Dumfries, on December 19th, 1915, aged 71. He was born on December 24th, 1844, educated at Trinity College, Dublin, where he took the M.B. and M.Ch. in 1867, and entered the army as assistant surgeon on October 1st, 1867. He became surgeon on March 1st, 1873, surgeon-major on October 1st, 1879, attained the rank of colonel on August 3rd, 1898, and retired on September 7th, 1898. He served in the Egyptian war of 1882, was present at the battle of Tel-el-Kebir, and received the medal with the Khedive's bronze star.

BRIGADE SURGEON JOHN NORMAN DAVIS, R.A.M.C.(ret.), died at Clondarragh, Foxrock, co. Dublin, on December 30th, 1915, aged 77. He was born on October 15th, 1838, the son of the late James Davis, of Millbrook House, Galway, educated at Queen's College, Galway, and took the M.R.C.S. on July 30th, 1862, the M.D. of Queen's University, Ireland, on October 16th, 1862. Entering the army as staff assistant surgeon on April 14th, 1863, he became surgeon on March 1st, 1873, surgeon-major on March 18th, 1877, and retired with a step of honorary rank on April 18th, 1885. The *Army List* assigns him no war service. A great part of his service was spent in India. Since his retirement he had lived for twenty-six years at Clondarragh. He had been a member of the British Medical Association since 1880.

THE LATE MR. STANLEY BOYD.—Lieutenant S. G. Vinter, R.A.M.C., calls attention to Mr. Stanley Boyd's work as a member of the council of Epsom College. He took a keen interest in the success of the school, and did much to raise it to the high position it now holds.

Medical News.

M. GODART, Under Secretary (Health) in the French War Ministry, has addressed a letter to the Wounded Allies Relief Committee, thanking it for the valuable work it has done for wounded French soldiers, especially in maintaining hospitals at Limoges and Dieppe.

A COMMITTEE, with Viscount Hambleden as chairman and Captain H. S. Tunnard as secretary, has been formed to erect a memorial in the chapel of King's College Hospital to Miss Katharine Monk, who was for twenty-one years sister-matron of the hospital.

La Nipologia (we presume from *νήπιος*, an infant) is the title of a new Italian quarterly review devoted to the scientific study of childhood, with special reference to the hygiene and medicine of early infancy. The editor is Professor Ernesto Cacace of the University of Naples.

STATISTICS published in German journals show that, as might be expected, there has been a great falling off in the number of foreign students in the universities of Germany owing to the war. Whereas the number in the second semester of 1914 was 4,750, that for the corresponding period of 1915 was 1,305.

THE next course of lectures and discussions arranged by the Child Study Society, London, will begin at 90, Buckingham Palace Road, S.W., on Thursday next at 6 p.m., when Mr. Cyril Burt, psychologist to the London County Council, will speak on psychological problems arising out of the war.

AT the meeting of the Harveian Society of London on Thursday next, at the Stafford Rooms, Titchborne Street, Edgware Road, at 8.30 p.m., a discussion on the treatment of gunshot wounds will be opened by Sir Berkeley Moynihan, and continued by Mr. d'Arcy Power, Mr. Burghard, Mr. Percy Sargent, Mr. Clayton-Green, Dr. Fleming, and others. All members of the profession who may be desirous of hearing the discussion are invited to be present.

THE propaganda of the Pure Food Society is in abeyance during the war, but the National Milk Hostels Committee is doing excellent work, we are informed, in providing poor war mothers with pure milk under the certificate of the society. Medical men and their wives who desire to join the society should apply to the honorary secretary at 67, Jermyn Street, London, S.W.

THE nature and scope of the *Athenaeum Subject Index to Periodicals* were described in a note which appeared in the BRITISH MEDICAL JOURNAL of November 27th, 1915 (p. 799). The first two of the series of class lists, which are later to be incorporated into the annual index for 1915, have appeared. One of these, containing forty-eight pages, relates to the economic, political, and military history of the war, and was issued in January. The other, containing eighty pages, deals with science and technology with special reference to the war. The index, which is issued at the request of the Council of the Library Association, is published by the *Athenaeum*, Bream's Buildings, Chancery Lane, W.C.

A STIRRING appeal for funds on behalf of the French Red Cross has been written by Mr. Dion Calthrop in France. It is entitled *The Wounded French Soldier*, and contains a number of little pictures of French life as it has been transformed, tortured, and ennobled by the war. It is illustrated by a number of photographs showing the ruin of war in all its phases. Mr. Calthrop is a sentimentalist, quick to feel for the sufferer, quick to recognize the virtue of the armour of laughter and firm fortitude with which the French nation has armed itself in the desperate stress of modern warfare. The book, which costs 1s. 6d., should be widely read; the French Red Cross can and does make good use of every penny it receives, and its address is 9, Knightsbridge, London, S.W.

VOL. XV of the clinical series of the *Archives of the Middlesex Hospital* (London, Macmillan and Co.) contains the statistics of the patients treated in the various in-patient departments for the year 1913. In addition, it has an account of a case of systemic haemolysis with haemoglobinuria in a rheumatic woman of 56, by Drs. Pasteur and Whittingham; no note is made as to the presence or absence of Wassermann's reaction. Dr. Ward contributes a paper on the use of the electrocardiograph in the study of the heart muscle, with illustrative electrocardiograms. Brief notes on a few unusual or particularly interesting cases are appended to the report by the pathologist. The volume would, perhaps, gain by the inclusion of a table of its contents.

Letters, Notes, and Answers.

AUTHORS desiring reprints of their articles published in the **BRITISH MEDICAL JOURNAL** are requested to communicate with the Office, 429, Strand, W.C., on receipt of proof.

THE telegraphic addresses of the **BRITISH MEDICAL ASSOCIATION** and **JOURNAL** are: (1) **EDITOR** of the **BRITISH MEDICAL JOURNAL**, *Aitiology, Westrand, London*; telephone, 2631, Gerrard. (2) **FINANCIAL SECRETARY** AND **BUSINESS MANAGER** (advertisements, etc.), *Articulate, Westrand, London*; telephone, 2630, Gerrard. (3) **MEDICAL SECRETARY**, *Mediscera, Westrand, London*; telephone, 2634, Gerrard. The address of the Irish office of the **British Medical Association** is 16, South Frederick Street, Dublin.

Queries answers, and communications relating to subjects to which special departments of the **BRITISH MEDICAL JOURNAL** are devoted will be found under their respective headings.

QUERIES.

INCOME TAX.

F. has in the past paid income tax on a return arrived at after deducting wear and tear of his car, but for 1915-16 the surveyor of taxes has objected. He inquires whether he is entitled to deduct depreciation, and if not whether he can claim an adjustment of his assessment for 1914-15 in view of the fact that in the year 1913—the last of the average for 1914-15 the cost of renewal of the car exceeded the sum deducted as depreciation.

The surveyor appears to be right, that is, the depreciation allowance does not apply to assessments on professions, and therefore the cost of replacement of a practitioner's car can only be dealt with as an expense as and when it is incurred. Presuming that our correspondent had proper notice of the assessment for 1914-15, he is not now entitled to any adjustment. At the same time, we may perhaps point out that he is still entitled to bring the cost into the average for 1915-16 and 1916-17, so that he has lost only one-third of the net cost of replacement, and against that he had the deduction which he made for depreciation for 1914-15.

C. W. S. left South Africa for this country on October 28th last. He inquires as to when he became liable to income tax.

It is necessary to distinguish between income arising in this country and income arising abroad. As regards the former, "C. W. S." becomes liable at once—that is, immediately such income is receivable; but as regards the latter, the liability is subject to the conditions laid down in Sec. 39 of the **Income Tax Act of 1842**—namely, that if he has come to this country for some temporary purpose only, he does not become liable if his stay here does not exceed six months.

THE CHANNEL ISLANDS.

B., who has practised in South Africa, and thinks of settling in the Channel Islands, asks for particulars as to general conditions and those specially affecting medical men.

* * We are indebted to **Dr. H. D. Bishop**, Secretary of the Channel Islands Division of the **British Medical Association**, for the following information: Any doctor whose name appears in the current number of the *Medical Register*, and who produces his certificate of registration (not diplomas, etc.) can be admitted to practise by the Royal Court upon paying a fee of £2 10s. A knowledge of French is not necessary, but it is useful in the country districts where the local patois is still spoken, although nearly every one understands English except a few of the old people. Local dialects are very different from ordinary French, and indeed they vary in different islands, and even parishes. The cost of living is much about the same as it is in England. The system of taxation is now being changed, and I cannot say what it will be in the future. Hitherto it has been a tax upon capital and real property, not upon incomes. At present any one could live here for two years without paying any local taxation, but that is going to be altered at once, which is not to be wondered at. People living here have to pay English income tax on investments other than those in the islands. Laws and customs differ in many ways in Jersey and Guernsey, and both have separate governments. No stranger should purchase any property in either island without first consulting a good lawyer, or he may find an apparently straightforward title a valueless one. A wife has certain extraordinary rights upon her husband's property, known locally as her "dower."

DEFORMITY OF THE EXTERNAL EAR.

D. J. G. W. inquires whether any good is likely to follow surgical interference in the case of an infant born with a deformed pinna of the ear, which is folded up and closed over

the meatus; no meatus can be felt. In such a case, is there a drum and meatus present?

* * From the literature on the subject it appears that in no case out of sixteen autopsies, on presumably similar cases, was the middle ear normal or a tympanic membrane found. It further appears that embryological, pathological, and clinical observations prove surgical interference to be useless.

LETTERS, NOTES, ETC.

THE COUNTESS OF CHINCHON.

It will be noticed that in his note last week **Sir George Birdwood** used the spelling "chinchona." He did so because the name of the countess after whom the genus was named was spelt Chinchon. The official spelling in the *British Pharmacopoeia* is "cinchona," and **Sir George** admits that in all English books the name of the plant is still spelt cinchona. "The right spelling," he characteristically adds, "is every where the wrong spelling of the majority, and wrong the right of the minority."

SEVERE TETANUS SUCCESSFULLY TREATED BY ANTITOXIN.
DR. JAMES ADAM (Hamilton) writes: Captain T. P. Kilner's report (January 8th, p. 46) of a case of recovery from tetanus developing five days after infection and his quotation from the **BRITISH MEDICAL JOURNAL** report that "if the disease has an incubation period of less than twelve days it is fatal in spite of treatment, whether by antitoxin or other means," recall a note I published in the **JOURNAL** of November 10th, 1906, of two cases of tetanus. In one the incubation period was ten days, in the other three days; both recovered.

The summary of the first case was: "Numerous dirty wounds; first symptoms on tenth day; first injection of serum on eleventh, last on twenty-second, two abdominal; total, 157 c.cm." The summary of the second case was: "Slight bruise of great toe; first symptom of tetanus by third day; muscles of jaw and spine chiefly involved. First injection of serum on seventh day (subdural), the last on the fourteenth; total, 100 c.cm. Wound swabbed with pure carbolic acid on seventh; required no more dressing."

These and Captain Kilner's case prove that the contention of the **BRITISH MEDICAL JOURNAL** report is incorrect and support his plea for perseverance in treatment.

* * The quotation in Captain Kilner's communication was taken from a report on the 2nd Eastern General Hospital, Brighton, published in the **BRITISH MEDICAL JOURNAL** of December 5th, 1914, p. 992.

THE DAILY FOOD RATION OF GREAT BRITAIN.

DR. J. C. MCWALTER (Dublin) writes: Adverting to Professor Thompson's very interesting food figures, published in your issue of February 12th, 1916, p. 239, it surely is a shocking thing to see the Government limiting the supply and raising the price of such invaluable articles of child feeding as sugar and fruit. Unnecessary luxuries are conveyed across the sea to minister to indolence and vice, whilst the scantily-fed child is robbed of the fruit which kept away scurvy, and of the sugar so vital to its growth. And, again, are all our university chemical laboratories incapable of turning out a few hundred pounds of phenacetin or phenazone, or even of sodium salicylate? It is painful to see sick men and women deprived of analgesic drugs, which have almost become a necessity, owing to their high price.

ANDREAS VESALIUS.

BIOGRAPHER writes: We must all agree with your correspondent, "J. E. (Edinburgh)," in his observation at the end of his paragraph on "The Angulus Ludovici" (**JOURNAL**, February 12th, 1916), that the student should know something of the men whose names are embedded in anatomy. Let it be remembered, however, that there is considerable difficulty in authenticating their names. Roth of Bâle, in his important biographical work, *Andreas Vesalius Bruxellensis*, published in 1892, shows that Vesalius's family name was not Wessels. "The family of Vesalius was originally called Witing, and was once domiciled in Wesel, in the circle of Cleves; later on it settled in Nymwegen and, in reference to its former home, changed its name into Wesalius. The three weasels (Dlemish *wesel*) on Vesalius's coat of arms are a play of words on its origin" (p. 38).

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

	£	s.	d.
Seven lines and under	...	0	5 0
Each additional line	...	0	0 8
A whole column	...	3	10 0
A page	...	10	0 0

An average line contains six words.

All remittances by Post Office Orders must be made payable to the **British Medical Association** at the General Post Office, London. No responsibility will be accepted for any such remittance not so safeguarded.

Advertisements should be delivered, addressed to the Manager, 429, Strand, London, not later than the first post on Wednesday morning preceding publication, and, if not paid for at the time, should be accompanied by a reference.

NOTE.—It is against the rules of the Post Office to receive *postes restantes* letters addressed either in initials or numbers.

THE EPIDEMIC JAUNDICE OF CAMPAIGNS.

BY WILLIAM HENRY WILLCOX, M.D.,
F.R.C.P. LOND.,

LIEUTENANT-COLONEL, R.A.M.C.; CONSULTING PHYSICIAN TO THE
MEDITERRANEAN EXPEDITIONARY FORCE; PHYSICIAN TO
OUT-PATIENTS, ST. MARY'S HOSPITAL, LONDON.

THE following paper is based upon the study of a considerable number of cases of jaundice in the Mediterranean area during the past six months, and also on the study of a number of cases of jaundice from the Expeditionary Force in France during the earlier part of the war.

Jaundice is of common occurrence amongst troops on campaign. In the South African war a considerable number of cases were reported. In the present war jaundice has occurred amongst our troops in almost all parts of the sphere of operations.

The cases of jaundice of the epidemic type have fortunately been of a mild nature generally, and very few deaths have been reported. A considerable amount of incapacity for duty has, however, resulted, so that epidemic jaundice is a disease of importance from the military point of view.

The epidemic jaundice of campaigns is of great pathological interest, since it throws considerable light on the pathology of jaundice generally.

It will be convenient to consider, first, the symptoms of the common type of epidemic jaundice as seen in the Mediterranean area during the later half of the past year. Other varieties of jaundice which were also observed will then be considered, and the relation between them will be discussed.

SYMPTOMS OF EPIDEMIC JAUNDICE (THE COMMON TYPE).

The patient had usually some abdominal discomfort for a few days, associated with anorexia, nausea, and either diarrhoea or constipation.

Pyrexia, generally of a mild type, would then set in, and this was associated with some chilliness, and in some cases by an actual rigor. Vomiting occurred sometimes at this stage, and also headache. Sometimes there were "pains all over." Abdominal discomfort in the hepatic and epigastric regions usually occurred. The pyrexial period in some cases lasted only one or two days. Generally it was from two to four days, but cases have been observed in which it lasted as long as eight days.

Liver: Gall Bladder.

Jaundice now occurred, at first slight, but it gradually increased in intensity and became of the ordinary type of obstructive jaundice. The stools were pale and the urine bile-coloured when the jaundice became marked. With the onset of jaundice the temperature usually fell to normal and remained so.

At this stage definite enlargement of the liver could be made out. It was felt usually extending to one or two inches, or even more, below the subcostal border in the right nipple line.

The surface was smooth and the enlargement uniform. There was slight tenderness on palpation over the liver. It moved freely with respiration. In some cases there was definite enlargement over the gall bladder region, and on palpation the gall bladder could be felt. This enlargement of the gall bladder occurred in about 10 per cent. of the cases, and it no doubt indicated an obstruction due to the catarrhal inflammation of the duodenum, involving the common bile duct and its ampullary orifice into the duodenum.

The stools were pale when the jaundice was marked, and unless aperients were given they were constipated.

Spleen.

At this stage the spleen could usually be felt, extending for half an inch, or considerably more, below the left subcostal border on inspiration. In some cases there was definite tenderness on palpation over the spleen. Percussion over the splenic area showed an increase of dullness upwards. The tongue was often moist and clean, but in some cases it was moist and somewhat furred.

Circulation.

The pulse was quickened during the pyrexial period to, for example, 80 to 90 per minute, but with the onset of jaundice it became slow, in some cases being only about 50 per minute.

The heart condition was very interesting. A definite increase of the deep cardiac dullness occurred. This was most marked on the right side. On percussion in the fourth space to the right of the sternum the cardiac dullness extended often to two inches beyond the right sternal margin. The cardiac dullness showed only slight increase to the left, reaching to the left nipple line or half an inch or so beyond.

The dilatation of the right side of the heart in epidemic jaundice is very characteristic, and, apart from pulmonary conditions, the only other acute disease showing commonly a specific dilatation of the right side of the heart is acute rheumatism. Usually no cardiac murmurs were present on auscultation, though occasionally a systolic murmur would be heard with the first sound. The dilatation of the right side of the heart subsided with rest, but it usually persisted for several days.

Urine.

The urine showed the usual signs of a specimen from a case of obstructive jaundice. It was acid and contained bile pigments. Acetone and diacetic acid were not present in the cases examined. Albumin was absent, except in the exceptional severe cases. Casts were usually absent, except in very severe cases.

General Symptoms.

No anaemia was noticed in the cases observed, showing that this type of epidemic jaundice was not associated with haemolysis.

Pruritus was not a marked symptom in the cases of epidemic jaundice, though the jaundice was often quite deep for two or three weeks or more. Purpura occurred in a few of the cases. The cutaneous manifestations, such as lichen, urticaria, boils, xanthoma, telangiectasis, etc., which are common in cases of protracted obstructive jaundice due to other causes, were not observed here.

It is remarkable in cases of jaundice due to mechanical obstruction of the duct, without liver involvement, for what a long time the deep jaundice will persist without toxic symptoms due to bile absorption (cholaemia) developing.

In the cases of epidemic jaundice the toxic symptoms which occurred must be regarded as due either to the toxæmia of the infection, or to autointoxication from resulting degenerative changes in the liver, and not to the toxic effect *per se* of the bile in the blood.

Nervous System.

Asthenia was a marked symptom in all but the very mild cases of epidemic jaundice, and depression was a characteristic symptom in most of the cases while the jaundice persisted. It must be mentioned, however, that several officers remained on active duty throughout the whole period of their attack, and it was remarkable to see them doing responsible and important work while deeply jaundiced.

The reflexes (knee-jerks, plantar, and abdominal) showed usually no change, and signs of organic disease of the nervous system were usually absent.

In another paper I have called attention¹ to the frequency of the occurrence of epidemic jaundice amongst the few beri-beri cases occurring amongst the troops in the Dardanelles area. The beri-beri cases all showed marked signs of multiple neuritis, and it is possible that in some of the cases the toxæmia associated with a previous attack of jaundice may have been a factor in the development of beri-beri.

Epidemic jaundice was, however, not the sole etiological factor in these cases; there was a more important dietetic factor, to which was added a toxic factor associated with jaundice.

The marked general weakness which usually occurred in the cases of epidemic jaundice rendered convalescence slow. This was especially evident in the cases showing cardiac dilatation and marked hepatic and splenic enlargement. In these cases weakness and dyspnoea on exertion

occurred for some weeks, and the diminution in the size of the liver and spleen was slow.

Usually in the moderately severe cases of epidemic jaundice two months, or even more, would elapse before the patient was fit to return to active duty. In the milder cases the period of inability for duty might be less, but it was usually about two months.

Secondary Pyrexia.

Some of the moderately severe cases of epidemic jaundice showed a second period of pyrexia occurring after the temperature had become normal. This was exceptional unless the patient had contracted some other infection—for example, paratyphoid fever—in addition to the epidemic jaundice.

Toxaemia.

In very rare instances cases of epidemic jaundice showed symptoms of marked toxaemia after the development of the jaundice. Stupor and a low delirium and vomiting, sometimes associated with hiccup, occurred. The pulse became feeble and usually quickened in rate. Some collapse occurred, the temperature being usually subnormal. Coma supervened and death occurred.

The above symptoms of the gravest cases were similar to those associated with acute yellow atrophy of the liver. They resulted, no doubt, from the degenerative changes in the liver cells, caused by the toxins of the infective agent, and the final symptoms were mainly due to an auto-intoxication from defective liver function. Fortunately only two out of a large number of cases examined were of this grave type, terminating fatally.

OTHER TYPES OF JAUNDICE.

Other types of jaundice commonly met with were:

1. *Catarrhal Jaundice.*

In this type of case the patient had for a few days symptoms of anorexia, nausea, sometimes vomiting, epigastric discomfort, and general malaise. Pyrexia was generally absent. Jaundice occurred of the obstructive type, associated with pale stools, and bile in the urine. The liver was slightly enlarged, but the spleen could not usually be felt.

In these cases the general symptoms were slight, except that depression and general weakness were marked, and it was usually several weeks before the patient was fit for duty.

2. *Jaundice associated with Specific Infections.*

Patients suffering from such diseases as typhoid fever, paratyphoid fever, relapsing fever, dysentery, malaria, etc., sometimes developed jaundice in the course of them.

With typhoid and paratyphoid fever the occurrence of jaundice of a catarrhal type was not uncommon. The jaundice generally occurred about the second or third week of the disease, and it was not a grave complication, unless associated with acute cholecystitis, when in a few cases operative treatment was necessitated.

Dysentery, both amoebic and bacillary, was sometimes associated with jaundice of a catarrhal type in the course of the attack. This was no doubt due to secondary infection of the bile duct and bile capillaries. The dysentery cases showed a great susceptibility to secondary infections of various kinds. Thus in amoebic dysentery secondary paratyphoid infections were not at all uncommon.

In *relapsing fever* jaundice was observed in a number of cases. The jaundice was not of the type of the epidemic jaundice described above, but was usually of a slight intensity, occurring after the second or third day of pyrexia, and it was of the haemolytic and not of the obstructive type. Pale stools did not occur, and bile in the urine was not constant. This jaundice rapidly cleared up when the fever subsided, and it was often so slight as to escape notice, unless specially looked for.

In *malaria* slight jaundice of the haemolytic type and accompanied by definite anaemia was seen in chronic cases. Occasionally jaundice of the catarrhal type occurred in association with a malarial attack.

Mediterranean Yellow Fever.

Fortunately no cases of this type have occurred in the Mediterranean Expeditionary Forces, as far as I am aware.

Mediterranean yellow fever sometimes occurs in the Mediterranean area; it has been carefully studied by Dr. Ruffer, who has seen many cases and to whom I am indebted for a description of the disease.

It is a disease of high mortality. It begins with an acute onset, chilliness or rigor, headache, severe pains in the back and limbs, and high temperature being marked. Vomiting is common. The face is flushed and the eyelids are injected. Slight jaundice may occur during the first two or three days. Albuminuria is common and sometimes casts are present. In severe cases suppression of urine and fatal uraemia may supervene.

The temperature in a case of moderate severity will remain up for three or four days and then subside for a day or so, after which it rises again. In this secondary pyrexial period the jaundice becomes marked, haemorrhages such as haematemesis or melaena may occur, and frequently a profound toxaemia, like that of acute yellow atrophy, results, and death occurs. Mediterranean yellow fever resembles closely ordinary yellow fever, and it is probable that the infection is conveyed by the mosquito *Stegomyia fasciata*.

PATHOLOGY AND DIAGNOSIS.

Every case of jaundice seen on campaign should be examined with an open mind, and one should aim at making a true pathological diagnosis of the type of jaundice present. It is only by this means that prophylaxis and treatment can be carried out on correct lines.

It will be convenient briefly to review the causes of jaundice, and to consider the relationship of the "epidemic jaundice of campaigns" to other types of jaundice.

CLASSIFICATION OF JAUNDICE CASES.

These can be conveniently divided into two main groups:

1. *Obstructive jaundice*, where there is a mechanical obstruction in the common bile duct, preventing the flow of bile into the intestine. Types of this are:

1. Congenital absence of the bile duct.
2. Stricture of duct.
3. Obstruction in the duct itself:
 - (a) From foreign bodies—for example, gall stones, bile sand, or parasites;
 - (b) From growth in the wall of the duct;
 - (c) From swelling of the mucous membrane of the duct or its ampullary opening—for example, catarrhal jaundice.
4. Pressure on the duct from without—for example, tumours of pancreas, liver, stomach, etc., enlarged glands in portal fissure, aneurysm, etc., or kinking of the duct from dragging on it, as may occur in movable kidney.

2. *Non-obstructive Jaundice*.—This type has been called haematogenous jaundice, owing to the idea that the symptoms were the result of excessive bile formation consequent on increased blood destruction.

Modern research has shown that the distinction between the two types of jaundice is to some extent an artificial one. In most cases of non-obstructive jaundice, although no gross obstruction exists in the common bile duct or main hepatic ducts, yet there is an obstruction in the smaller bile ducts due to catarrh (cholangitis). Also in these cases the bile is altered in character, and often the viscosity is much increased. In many varieties of this type of jaundice there is increased destruction of red blood corpuscles and increased bile formation.

Hepatogenous Jaundice.

The terms "hepatogenous," "haemohepatogenous," and "intrahepatic" have been suggested for this type of jaundice—that is, for the non-obstructive type.

The following are its chief varieties:

1. *Toxic*, caused by chemical poisons. These may act by causing a cholangitis, and degenerative changes in the liver cells—for example, tetrachlorethane, chloroform, etc.—or by causing in addition marked haemolysis—for example, phosphorus, arseniuretted hydrogen, toluylene-diamine, snake venom, etc.

2. *Toxaemic*, caused by the toxins set free by specific pathogenic organisms—for example, typhoid fever, paratyphoid fever, malaria, yellow fever, relapsing fever, typhus fever, septicaemia, pyaemia, etc. In the first two of these diseases the jaundice is due to an infective cholangitis—

that is, it is hepatogenous in type, while in the remaining diseases there is in addition increased haemolysis, so that the term "haemohepatogenous" applies to the type of jaundice.

3. *The Epidemic or Infective Jaundice of Campaigns and Weil's Disease.*—Both of these diseases are types of toxæmic jaundice and should really be classed with the preceding group. Weil's disease is a special type of infectious jaundice, due to infection with the *Bacillus proteus*. Its symptoms are very similar to those of the epidemic jaundice of campaigns, but are of a more acute and severe type.

4. *Icterus Gravis, or Acute Yellow Atrophy of the Liver.*—This condition is really a "symptom complex," the result of cessation of liver function consequent on extreme degenerative changes in the liver cells. The symptoms of acute yellow atrophy of the liver are identical with those of the grave cases of either the toxic or toxæmic types of non-obstructive jaundice—for example, tetrachlorethane jaundice.

5. Other Special Types of Jaundice:

I. Hereditary icterus.

II. Icterus neonatorum due to:

- (1) The physiological haemolysis occurring with the circulatory changes at birth;
- (2) Congenital absence of the bile or hepatic ducts;
- (3) Congenital syphilis;
- (4) Septic pylephlebitis due to septic inflammation spreading from the umbilical cord.

PATHOLOGY OF "EPIDEMIC JAUNDICE OF CAMPAIGNS."

Post-mortem examinations were made on two fatal cases in this series of cases.

Post mortem Appearances.

There was the usual bile staining of the skin and tissues associated with a case of deep jaundice.

Small Intestines.—The duodenum showed a marked red velvety appearance of the mucous membrane, which was swollen. There was congestion of the ileum in one case; this was most marked in the lower half. It was much less intense than that of the duodenum.

The common bile duct showed redness and swelling of the mucous membrane. This catarrhal condition had spread up the cystic duct and into the hepatic ducts.

The gall bladder was distended in one case with a thin semi-purulent greenish fluid, from which paratyphoid B organisms were obtained.

The liver showed a pale yellowish appearance and some bile staining. The fatty degeneration was more marked in patches.

The heart showed dilatation, which was especially marked in the right auricle and ventricle.

The heart muscle was somewhat pale and showed some degenerative changes. In one case an ante-mortem thrombus was present in the right auricle and ventricle. A portion of this had become dislodged and caused an infarct in the lower lobe of the right lung.

The kidneys showed some degenerative changes of the epithelium.

In neither of the above cases was there any complete mechanical obstruction of the larger bile ducts.

Duodenitis.

In the above cases a marked duodenitis had occurred. In one case this was primary, in the other it had probably spread from a paratyphoid infection of the lower intestine.

The common bile duct and larger bile ducts showed marked catarrh spreading along their course and causing a definite cholangitis.

There were fatty changes present in the liver, and also in the kidneys and heart muscle.

The duodenitis had given rise to a cholangitis, which caused obstruction not in the large bile ducts but in the smaller ducts in the liver itself.

As a consequence of the toxæmia associated with the disease, fatty degeneration had occurred in the liver cells, and to a less extent in the kidney, epithelium and heart muscle. These degenerative changes caused impairment of function of the liver, and auto-intoxication, so that the terminal symptoms of both the fatal cases of jaundice were those of a toxæmia such as is observed in acute yellow atrophy.

The pathological condition found in the two fatal cases of epidemic jaundice described, was almost identical with that observed in cases of tetrachlorethane poisoning which I have described elsewhere.³ In each condition the jaundice is deep and due to a cholangitis, causing block-

ing of the finer bile ducts in the liver itself. In each duodenitis is marked.

In tetrachlorethane poisoning the poison is of a deadly nature, producing marked fatty degeneration of the liver cells, and so much consequent auto-intoxication that a fatal result is common, and the prognosis always grave when the jaundice is deep. The terminal symptoms are exactly similar to those of acute yellow atrophy.

In epidemic jaundice, fortunately, the toxin from the bacterial infection is less deadly in nature, so that fatty degeneration of the liver cells or those of the kidney or heart is very rare, consequently symptoms of auto-intoxication such as occur in the late stages of tetrachlorethane poisoning or in acute yellow atrophy are very rare.

THE BACTERIOLOGY OF EPIDEMIC JAUNDICE.

In a few of the cases examined a paratyphoid organism, usually of the "B" type, was found, but in the great majority of the cases of epidemic jaundice special tests for paratyphoid "A" and "B" were negative.

Captain Archibald, R.A.M.C., made blood cultures from several cases while in the pyrexial stage, before the development of jaundice, but the results were negative. Blood culture tests, after the development of jaundice, likewise proved negative.

The specific organism which is the cause of epidemic jaundice of campaigns has yet to be isolated.

It is interesting to note that in a small outbreak of infectious jaundice investigated at Bruyères, France, by Dr. Carnot and Dr. Weill-Halle,⁴ an organism of the paratyphoid group was isolated from the stools. The organism did not correspond to either the "A" or "B" varieties of paratyphoid. The cases occurred in the civil population.

SUMMARY.

The epidemic jaundice of campaigns thus appears to start as a gastro-intestinal infection, the inflammatory catarrh being most marked in the duodenum.

At this stage pyrexia and a certain amount of toxæmia occurs, but there does not appear to be a general blood infection usually, since blood cultures have generally been negative. A catarrhal cholangitis follows from spread from the duodenum, and marked jaundice now sets in, due to obstruction in the finer bile ducts.

The jaundice is hepatogenous in type and does not appear to be associated with increased haemolysis of red blood corpuscles, anaemia being absent.

Fortunately, most cases do not progress beyond this stage, and the catarrhal condition subsides with clearing up of the jaundice. In very exceptional cases the infective condition may give rise to degenerative changes in the liver, and symptoms of icterus gravis will then supervene.

It is interesting to note that sometimes mild gastro-enteritis occurs in cases exposed to similar conditions, and that in many of them jaundice will develop, while in a few it will not. It has been thought that as regards the infection and toxæmia associated with it the two groups of cases were similar.

Catarrhal Jaundice of Campaigns.

This is very common, and it must be classed etiologically with epidemic jaundice. When on campaign numerous cases of epidemic jaundice of the type described above are occurring there will also occur with them many cases in which there is no pyrexia or splenic enlargement.

These cases are undoubtedly due to an infection of a mild type, similar to that of the epidemic cases, and the asthenia and nervous weakness of the two conditions are very similar.

The French school have long regarded catarrhal jaundice as a benign form of infective jaundice, and this view appears to be correct as regards the catarrhal jaundice of campaigns.

Toxæmic Jaundice.

In cases of jaundice symptoms of any specific infection which may be the primary cause of the jaundice should always be looked for.

The clinical symptoms will usually indicate this type of jaundice—for example, the prolonged pyrexia of typhoid and paratyphoid is unlike that of epidemic jaundice, the rigor and very high temperature of malaria; the early delirium and profound toxæmia of relapsing fever

are quite distinctive. In every case of jaundice any accompanying specific infection should be elucidated without delay by means of appropriate pathological investigations.

ETIOLOGY.

Since the causal agent of "epidemic jaundice of campaigns" is not known with certainty, the etiological factors cannot be stated with precision. It is certain that the insanitary conditions inevitably associated with military campaigns play a most important part.

Food.—The infection is almost certainly conveyed by the alimentary tract, and contamination of food with infected dust probably plays a most important part in the causation. Flies, also, as in paratyphoid and typhoid fever, may convey infection to food; but they are probably not the main cause of the spread of the disease, since, in the Dardanelles area epidemic, jaundice occurred after the flies had largely disappeared.

Water.—The infection may be conveyed by water, but cases occurred where this channel of infection could be excluded.

Carriers of the disease very probably, as in paratyphoid and typhoid fevers, are responsible for the spread of infection.

Air.—In civil practice outbreaks of epidemic jaundice have been described⁴ in which the evidence pointed to the disease being air-borne and conveyed by the respiratory tract. Thus infection was spread in day schools amongst children sitting at the same desk.

Probably in the "epidemic jaundice of campaigns" the infection is almost entirely gastro-intestinal in its mode of spread, since air-borne infection was not observed—for example, epidemic jaundice was not observed to be conveyed in hospitals from one patient to another, when isolation of the jaundice cases was not carried out.

PROPHYLAXIS.

As regards prophylaxis, careful attention to latrines, to prevent spread of infection by dust and flies, is most important. Fly and dust proof latrines are very valuable as regards prevention. Refuse destruction by means of incinerators is most important.

The greatest care possible should be paid to prevent contamination of food and water.

Patients suffering from epidemic jaundice should receive hospital treatment in order that spread of infection may be guarded against.

Notification of jaundice cases is a most important prophylactic measure in order that immediate preventive measures may be instituted.

TREATMENT.

Rest in bed in the early part of the disease should be insisted upon. Careful dieting, which will be mainly liquid, is important.

It must be remembered that on campaign the milk will, owing to its sterilization, be devoid of anti-scorbutic and anti-beri-beri vitamins, so that some articles of diet should be given to counteract that deficiency. Thus fresh lemon juice in lemon drink is important. Porridge, pea-flour in soups, mashed potato, yeast in some form—for example, dried yeast added to hot milk, or yeast cakes made into a paste with milk—are important additions to the dietary. Soups to which fresh vegetables are added are valuable.

Owing to the anorexia present, the diet must necessarily be quite light. Excess of protein should be avoided, and meat is best not given until the jaundice is clearing up.

As regards medicines the following mixture may be given with advantage:

Sod. bicarb.	...	...	...	gr. xx
Potass. citrate	...	...	...	gr. xxx
Sod. sulph.	...	...	...	gr. xxx
Syrup. aurantii	...	...	...	3j
Aqua	...	...	ad	3j
t.d.s.				

Urotropin gr. x t.d.s. in water, as a gastro-intestinal antiseptic seemed to do good in many cases. Calomel should not be given in repeated doses, since it appeared that patients suffering from epidemic jaundice were very susceptible to the effect of calomel thus given. In some

cases mercurial stomatitis occurred. There is, however, no objection to giving a single dose of calomel in the early stages.

The cases almost without exception progressed favourably under treatment, though, as described above, convalescence was often somewhat slow.

For valuable help in the above work my thanks are due to Captain Archibald, R.A.M.C., for placing his bacteriological results at my disposal; also to Lieutenant-Colonel Crawford and Lieutenant Collins, R.A.M.C., of No. 18 Stationary Hospital; to Major MacMunn, R.A.M.C., of No. 15 Stationary Hospital; to Major Lewis, R.A.M.C., and to Lieutenant Corbett, R.A.M.C., of No. 16 Stationary Hospital, for valuable help and co-operation.

REFERENCES.

¹ Beri-beri, *Lancet*. ² An Outbreak of Toxic Jaundice of a New Type amongst Aeroplane Workers, *Lancet*, March 13th, 1915. ³ *Lancet*, July 24th, 1915. ⁴ Dr. Cockayne, *Lancet*, July 22nd, 1914.

THE TREATMENT OF TOXIC JAUNDICE DUE TO TETRACHLORETHANE POISONING.

BY

WILLIAM HENRY WILLCOX, M.D., F.R.C.P.LOND.,

LIEUTENANT-COLONEL R.A.M.C.,

PHYSICIAN TO OUT-PATIENTS, ST. MARY'S HOSPITAL, LONDON, W.

The subject of toxic jaundice from tetrachlorethane poisoning was fully dealt with in a paper read before the Medical Society of London, March 1st, 1915.¹

It was pointed out that this type of toxic jaundice was of frequent occurrence amongst the workers in aeroplane factories, who were exposed to the vapour of the "dope" or cellulose varnish used for the wings of aeroplanes. One of the constituents of the dope or cellulose solution is tetrachlorethane. It was shown that the vapour of the tetrachlorethane in the dope, if inhaled for long periods, as occurred in the case of aeroplane workers, was likely to give rise to malaise and jaundice, and that this jaundice was of a serious type, and in severe cases often terminated fatally. The pathology of the condition showed that the jaundice was due to a cholangitis set up in the smaller bile ducts, causing an obstruction to the flow of bile from the liver, and also there was present marked fatty degeneration of the liver cells.

In severe cases this fatty degeneration was followed by necrosis of the liver cells and symptoms of autointoxication identical with those of acute yellow atrophy of the liver.

Did the patient survive the effect of necrosis of some portion of the liver, then the affected area became replaced by fibrous tissue; that is, a replacement fibrosis occurred and symptoms of portal obstruction—for example, ascites, etc.—resulted.

The jaundice of tetrachlorethane poisoning was found to be "hepatogenous" in type. It was not associated with haemolysis or anaemia, and no changes in the red blood corpuscles were observed.

The kidneys in severe cases showed degenerative changes—for example, fatty degeneration.

Pathology.

It is important that the pathology of this type of jaundice be thoroughly understood in order that the treatment of cases can be carried out on right lines.

Early Symptoms.

Obviously the first indication of the treatment of an early case is the removal of the patient from all influence of the poison. The presence of anorexia, drowsiness, general malaise, constipation, headache, and occasional vomiting, are quite sufficient indications for this step to be at once taken in the case of aeroplane workers.

The above early symptoms are the first indications of the poisoning, and treatment should be at once commenced. Unless at this stage the patient is removed entirely from the toxic action of tetrachlorethane, jaundice is almost certain to supervene and render the prognosis much more serious.

It is thus seen how important is the periodical medical inspection of factories where tetrachlorethane is used.

Classification of Cases.

From the point of view of treatment cases may be divided up into—

- I. Early cases with little or no jaundice (pre-jaundice stage).
- II. Cases with jaundice but not marked toxæmia.
- III. Cases with jaundice and marked toxæmia (acute yellow atrophy or icterus gravis type).
- IV. Cases with signs of hepatic fibrosis (replacement fibrosis) and portal obstruction.

In all cases of toxic jaundice of the type described, since the liver is profoundly affected and as the kidney may likewise be affected, it is important to relieve these organs as much as possible by giving a diet which is easily digestible and in which the protein and extractives are reduced as much as possible. Also all toxic drugs should be avoided.

I. Early (Pre-jaundice) Cases.

These patients should have light diet—for example, milk, fruit, vegetables, milk puddings, toast or bread. Meat, meat extracts, soups, and alcohol should be avoided. Tea or coffee may be given owing to their diuretic action, and the effect of the theine or caffeine present is to relieve the headache.

The bowels should be kept open by an initial suitable aperient—for example, aloes and cascara, to which podophyllin or colocynth may be added. A single dose of calomel, say 2 or 3 grains, may be given, but it must be remembered that in toxic jaundice cases of all kinds repeated small doses of calomel are to be avoided. These patients are very susceptible to their influence, and there is serious risk of mercurial stomatitis resulting.

Lemon drink, or the imperial drink used in hospitals, may be freely taken:

Potassii tartratis aciduli	...	...	...	3j
Syrup. limonis	...	...	...	3jss
Aquam	...	...	...	ad Oj

For medicine—

Sod. sulphate	...	...	...	3ss to 3j
Potass. citrate	...	...	...	gr. xl
Sod. bicarb.	...	...	...	gr. xx
Syrup. aurantii	...	...	...	3j
Aq.	...	...	...	ad 3j

t.d.s.

should be given so that the bowels may be kept open. Rest and fresh air are advisable, and the patient should be kept free from toxic influences of all kinds. Rest in bed is not essential. The room occupied by the patient should be well ventilated and the air kept fresh and pure.

II. Cases with Jaundice but not Marked Toxæmia.

The treatment should be on the general lines, as described under I. Rest in bed is essential.

Diet should be liquid if there is any tendency to vomiting—for example, whey, citrated milk (2 grains of sodium citrate to the ounce), raisin tea (made by boiling up $\frac{1}{2}$ lb. of broken raisins with 1 pint of water and straining), Benger's food; tea and coffee may be taken. The bowels should be kept loose by means of aperients and the sodium sulphate mixture given above. All toxic drugs should be avoided—for example, all forms of opium or its preparations and alkaloids are particularly harmful, since these patients are extremely susceptible to their influence. Chloroform—for example, chloroform water or spirits of chloroform—should not be given.

As a rule these cases improve and the jaundice gradually clears up. It is remarkable how long in even mild cases the jaundice persists. The cases do well unless toxic symptoms develop, and then further special treatment is necessary.

Cases of this type should not be allowed to return to work until at least a month has elapsed after the complete clearing up of the jaundice, and the work should not necessitate any further exposure whatever to the vapour of tetrachlorethane.

III. Jaundice with Marked Toxic Symptoms.

The symptoms which indicate toxæmia are vomiting, wandering or delirium, stupor, drowsiness, twitchings, or coma. The urine may become diminished in quantity, and the presence of albumin or casts are grave signs. Leucin or tyrosin in severe cases may be found in the deposit, and there may be acetoneuria.

In cases of jaundice with toxic symptoms of any kind the bowels should be kept well open. The following mixture should be given every three hours:

S.d. citrate	...	...	...	3j
Sod. bicarb.	...	...	...	gr. xxx
Potass. citrate	...	...	...	3ss
Caffeine citrate	...	...	...	gr. iij
Syr. aurant.	...	...	...	3j
Aq.	...	...	...	ad 3j

Infusion of normal saline Oij into a vein should be given once or twice a day until the toxic symptoms improve.

Subcutaneous injections of normal saline Oj to Oij may be given instead of the intravenous injections.

Rectal injection of sodium bicarbonate 3ij, normal saline Oj, should be given every eight hours.

The diet should be on the lines of that for cases Type II.

In cases in which there is suppression of urine, cupping over the lumbar region and electric light baths given in bed, or hot-air baths, may be employed with advantage.

The prognosis in cases of this type is always grave. The elimination of toxins should be aimed at as far as possible, and saline infusion into a vein subcutaneously and rectal salines should be given early with this object.

Alkali producing drugs such as citrates and bicarbonates are given to counteract the tendency to acid intoxication.

In cases of toxic jaundice I, II, or III the symptoms due to the jaundice *per se*—that is, pruritus, skin symptoms, etc.—are not sufficiently marked to call for any special treatment.

IV. Cases showing Signs of Portal Obstruction.

These cases are rare. Rest in bed and light diet, as indicated under Type II, are important. Aperients should be given and the sodium sulphate mixture given above should be taken. Potassium iodide gr. x may be added with advantage to the mixture.

Where ascites is marked and is causing dyspnoea or distress paracentesis should be performed. A convenient indication for resort to this measure is afforded by observing the level of the ascitic fluid with the patient propped up in bed. If the dullness due to the fluid reaches above the umbilical level then artificial removal of the ascitic fluid should be carried out.

One case of this type after paracentesis had been performed twice, over 20 pints being removed on each occasion, made a complete recovery.

REFERENCE.

¹ An Outbreak of Toxic Jaundice due to Tetrachlorethane Poisoning: a New Type amongst Acroplane Workers. *Transactions of the Medical Society of London*, vol. xxxviii, 1915; *Lancet*, March 13th, 1915.

THE TREATMENT OF KALA-AZAR (INDIAN FORM) BY TARTAR EMETIC INTRAVENOUSLY AND BY INUNCTIONS OF METALLIC ANTIMONY.

BY

SIR LEONARD ROGERS, M.D., F.R.C.P., I.M.S.,

PROFESSOR OF PATHOLOGY,

AND

CAPTAIN N. H. HUME, M.B., I.M.S.,

FIRST RESIDENT SURGEON, PRESIDENCY GENERAL HOSPITAL, CALCUTTA.

ONE of us (L. R.) early in 1915¹ commenced the use of tartar emetic intravenously in the treatment of kala-azar on the strength of its previous use in sleeping sickness, and independently of any other worker, although, as he subsequently learnt, Drs. Cristana and Caronia had previously given it successfully in the African form of kala-azar in Sicily, and he has already reported favourable results from its use in the Medical College Hospital.² Owing to difficulties in following up Indian patients, the European General Hospital presents better opportunities for determining the ultimate results of the new treatment, so during the last seven months we have been treating a consecutive series of cases of kala-azar among Europeans with tartar emetic, and are now able to form definite ideas of its value. All the intravenous injections have been given by one of us (N. H. H.), while the microscopical examinations of the specimens obtained by spleen puncture and the blood counts have been made by the other. The following

brief accounts of the cases will suffice to allow the results to be judged.

CASE I.

A European male, aged 18, admitted February 23rd, 1915, for fever of six weeks' duration, with his spleen down to the navel. Red corpuscles 3,660,000, white 2,000, ratio of white to red 1 to 1,830, as in kala-azar. He was treated with alkalis internally, and later was given a subcutaneous injection of oil of turpentine, but the fever, of an intermittent and low remittent type, continued, and by the beginning of July he had lost 5 lb. in weight, being now only 89 lb. 10 oz.

Spleen puncture was now performed, and numerous Leishman-Donovan bodies were found. Intravenous injections of a 2 per cent. solution of tartar emetic were therefore commenced, beginning with $\frac{1}{2}$ to 1 c.cm., soon raised to 3 c.cm., and gradually increased up to 9 c.cm., containing 18 cg. of tartar emetic. He very soon began to gain weight steadily, while the temperature declined to a slight intermittent rise to between 99° and 100° F. Two months after the commencement of the injections, when he had received a total of 140 cg. of tartar emetic, the fever finally ceased. Spleen puncture was again performed three weeks after the temperature had been quite normal, and no parasites could be found. By five weeks after the cessation of the fever he had gained 16 lb. 4 oz. since the commencement of the treatment, and was discharged "cured." He has been seen again recently, three months after leaving hospital, during which he has been at work. The spleen can no longer be felt, while the blood shows 5,750,000 red and 8,500 white corpuscles, so he may be considered to be completely cured.

CASE II.

A European male, aged 28, who had been in hospital during June, was readmitted on August 2nd, 1915, for fever of seven months' duration with enlargement of the spleen to 1 in. below the navel, and of the liver 1 in. below the costal margin. Red corpuscles 2,990,000, leucocytes 1,375, ratio of white to red 1 to 2,174, being thus characteristic of kala-azar. Spleen puncture was performed, and Leishman-Donovan parasites found; intravenous injections of tartar emetic were commenced, and the doses increased up to 8 c.cm. of the 2 per cent. solution. After a total of 96 cg. had been given in the course of six weeks, the temperature became normal. When he left hospital at his own request on October 4th, 1915, he had gained 8 lb. in weight, while his spleen only extended 2 in. below the costal margin. As he left Bengal we have not been able to obtain his further history, but, judging from the other cases, there is good hope of his having completely recovered.

CASE III.

A European male, aged 23, was admitted on December 21st, 1914, for fever of six months' duration; the spleen was enlarged to 3½ in. below the ribs, and he had cough with râles in the lungs, and diarrhoea. He was greatly emaciated, weighing only 6 st. The fever continued during the next six months, and no appreciable improvement occurred.

Spleen puncture was performed on June 28th, 1915, and numerous Leishman-Donovan parasites found. The blood now showed red corpuscles 2,960,000, leucocytes 1,125; ratio of white to red 1 to 2,631. Although it was recognized that the kala-azar infection was complicated by tuberculous disease of the lungs and bowels, and his case was a most unfavourable one, intravenous injections of tartar emetic were commenced on July 27th, but had to be omitted during September on account of the diarrhoea being worse; only a few doses up to a maximum of 6 c.cm. of the 2 per cent. solution could be given during the following two months, when the treatment was discontinued, after a total of 56 cg. of tartar emetic had been given, owing to the pulmonary phthisis having progressed to a serious degree. On December 10th, 1915, a second spleen puncture was performed, and no parasites could now be found, but as the specimen showed but little spleen pulp this negative result is open to possible doubt. The patient succumbed to tuberculous disease on December 27th, 1915, and no autopsy could be obtained. The spleen had become greatly reduced before his death. In this case the tartar emetic injections appear to have been successful in dealing with the kala-azar infection, but were powerless against the pulmonary tuberculosis.

CASE IV.

A European male, aged 36, was admitted on May 13th, 1915, for fever of a year's duration, contracted in Assam, with a double rise of temperature at times. The spleen was enlarged to a little below the navel and hard. The liver was not felt. Red corpuscles 3,850,000, white 1,125; ratio of white to red 1 to 3,422. Weight 99 lb. 4 oz. The temperature was of a low remittent type, from 99° to 101° F. There was no material change during the first two and a half months in hospital.

Spleen puncture was performed on June 26th, but only blood with no spleen pulp was obtained, and parasites were not found. On repeating the puncture on August 5th Leishman-Donovan parasites were found and injections of tartar emetic were commenced. After five weeks' treatment, during which 78 cg. of the drug had been given, the temperature became normal, but the injections were continued for eleven weeks more and pushed up to 10 c.cm., or 20 cg. at a time, a grand total of 326 cg. in all having been given. On December 7th spleen puncture was again performed, with a negative result as regards parasites. On December 12th the blood showed red corpuscles 5,160,000, white 10,250; ratio of white to red 1 to 503—a most remarkable improvement up to fully the normal point.

He had gained 20 lb. in weight, while the spleen only extended one inch below the ribs, and when he left hospital he was well on the road to complete recovery. He has been seen since, and remains in good health.

CASE V.

A European male, aged 36, who had been in hospital during the previous year for kala-azar, and improved greatly on the alkaline treatment described by one of us (L. R.) in a previous paper.³ He was readmitted in an emaciated and anaemic condition, and stated that he had suffered from fever for the past two months, with a double rise of temperature on some days. The spleen was greatly enlarged, extending some 2 in. below the navel, and fever of an intermittent and low remittent type was present.

On July 17th spleen puncture was performed and Leishman-Donovan parasites found in small numbers, so tartar emetic injections were commenced. He soon began to gain in weight, and his temperature fell to normal, but after three weeks he developed bronchitis, and for twenty days was in a most critical condition, during which the injections were suspended. On improvement in his general condition taking place the tartar emetic injections were resumed and the dose gradually pushed up to 10 c.cm. of the 2 per cent. solution, and by late in December 307 cg. had been given. The temperature had now been normal for over two months, during which he had increased 14 lb. in weight and was gaining daily in strength. Spleen puncture was now repeated, with a negative result, while his blood showed 5,120,000 red corpuscles and 6,750 white, the ratio of white to red being 1 to 578, and he has recently been discharged as "cured."

The improvement in this patient has been most remarkable, and we have every reason to expect a complete recovery from a very advanced stage of kala-azar.

CASE VI.

A European male, aged 28, was admitted on October 4th, 1915, for fever of four months' duration and enlargement of the spleen to 3 in. below the costal margin and 1½ in. to the right of the navel. The blood showed 4,250,000 red corpuscles and 2,375 white, the ratio of white to red being 1 to 1,970.

Spleen puncture showed numerous kala-azar parasites. Intravenous injections of tartar emetic were at once commenced and 124 cg. had been given by the end of six weeks, when the treatment had to be suspended for three weeks owing to the inflamed state of the elbows due to the escape of a little of the highly irritating solution around the veins. Spleen puncture now revealed two degenerate-looking, badly-staining parasites only after a long search, and on January 7th, 1916, a further spleen puncture showed no parasites. The blood now showed 3,750,000 red and 3,250 white corpuscles, being 1 white to 1,098 red. He had now been free from fever for two weeks and had gained 16 lb. in weight.

This patient has only been long enough under treatment to show very marked improvement, but, judging from the other cases recorded above, we have very good hope of his eventual recovery. His case is included to complete the series we have so far treated with tartar emetic intravenously.

INUNCTIONS OF FINELY DIVIDED METALLIC ANTIMONY IN KALA-AZAR.

One of us (L. R.) has already suggested and reported promising results from the inunction of finely divided metallic antimony in lanoline.² This simple method has great advantages in the case of children with small veins, who are also liable to be much frightened by such a procedure as spleen puncture. In the following case it appears to have been successful.

CASE VII.

A European girl, aged 15, was admitted for kala-azar of a year's duration, with intermittent fever and enlargement of the spleen to 6 in. below the ribs. She was fairly well nourished, and was a comparatively favourable case for treatment.

Spleen puncture showed Leishman-Donovan parasites. One drachm of a 5 per cent. antimony ointment was rubbed in over the abdominal wall every third day. Her weight at the commencement of the treatment was 5 st. 8 oz. At the end of five weeks the temperature remained normal, and on her discharge from hospital she had gained 12 lb. and greatly improved in her general condition, while the spleen had also decreased considerably. She has continued the treatment since she left hospital, and was heard from recently, when she was keeping free from fever and continued to improve in health, so there is good promise of her complete recovery.

CASE VIII.

Another European male child, aged 5, was admitted more recently with a history of fever for six months; there was marked emaciation, and the spleen extended 4½ in. below the ribs. He has now been treated for seven weeks with antimony inunctions. His temperature has fallen to normal, he is gaining weight and walking about, and appears to be much better. It is, however, far too early to say what will be the ultimate result, his case being included to complete the series which have been treated up to the time of writing this paper.

TECHNIQUE OF THE INJECTIONS AND DOSAGE.

The technique of the injections is very simple. A 10 c.cm. serum syringe is used, and the vein selected—usually either the median basilic or cephalic, or a prominent vein in the forearm—is made to stand out by tying a bandage round the upper arm, and by the patient clenching his fist. Tr. iodine is used to sterilize the skin. As soon as it is thought that the needle is in the vein the piston is withdrawn slightly, and a little blood is drawn up into a syringe; or, if a syringeful of the solution is to be given, the barrel is removed from the needle and a few drops of blood are allowed to flow before the solution is injected. Great care should be taken that the injection is made into the vein, and not into the tissues around the vein. The tartar emetic solution is very irritating, and a few minims injected under the skin cause great pain at the time of the injection, and later on a hard, tender, brawny swelling, or even sloughing of the tissues.

The symptoms which follow the injections have varied in different cases. Three patients had no untoward symptoms—one experienced a metallic taste in his mouth for several hours, a disinclination for food and vague abdominal discomfort. Another had a severe paroxysm of coughing and vomiting, which came on immediately after the injection, and lasted about ten minutes.

DOSAGE.

We began with only half to 1 c.cm. of the 2 per cent. solution, but rapidly increased it to 3 or 4 c.cm., and repeated the injection every two or three days, adding 1 c.cm. at each injection up to a maximum of 10 c.cm. if the patient had no marked gastric disturbance, in which case the dose may be reduced slightly for a time. In no case have any serious symptoms developed, although we have repeatedly given the large dose of 20 cg.

CONCLUSIONS.

The cases we have briefly recorded are a consecutive series and so are quite unselected. The uniform and rapid improvement in all except the unfortunate patient with tuberculous affection of the lung and bowels—who, indeed, also appears to have been much benefited as regards his infection with kala-azar—is quite unique in our experience of the disease, which, in the case of one of us, extends over almost twenty years, and includes a knowledge of nearly every case treated in the Calcutta European Hospital for the last fifteen years. Numerous recoveries of patients with kala-azar under other lines of treatment have been recorded by one of us,³ but only in occasional cases, while in the majority of them most disheartening failures were met with. We now have no hesitation in advising the use of intravenous injections of tartar emetic as a routine method of treating kala-azar, beginning with 4 to 6 cg. on alternate days, and increasing by one or two centigrams every other day up to a maximum of 20 cg., if the patient will tolerate as much. The treatment should be continued until the temperature has remained normal for several weeks with steady gain in weight, and the parasites are found to have completely disappeared from the spleen, and the leucocytes have been raised to about the normal level. It is not necessary to continue until the spleen has been reduced to its normal size, as it will continue to shrink after the injections are omitted.

In children and nervous female patients inunctions of antimony ointment, preferably in a strength of 10 per cent., is worthy of trial, although there is not yet sufficient evidence to decide how far this much simpler measure can be relied on. If further experience shows it to be able to cure the disease it will present manifest advantages, especially in out-patient and village practice.

We believe that in tartar emetic, and probably in other preparations of antimony, a specific treatment for the terrible lingering and very fatal kala-azar has at length been found, and yet another serious tropical disease been brought within the pale of curable affections.

REFERENCES.

¹ BRITISH MEDICAL JOURNAL, July 31st, 1915, p. 197, and *Indian Medical Gazette*, July, 1915, p. 273. ² *Indian Medical Gazette*, October, 1915, p. 364. ³ *Ibid.*, May, 1915.

THE Police Commissioner of New York has established a psychopathic laboratory, under the direction of Dr. Louis Bischof of New York, for the examination of prisoners in respect of mental deficiency.

ATTEMPTS TO PRODUCE A SAFE AND EFFECTIVE BACILLUS DYSENTERIAE (SHIGA) VACCINE FOR PROPHYLACTIC PURPOSES.

By J. D. THOMSON, A.M., M.B., C.M.

(From the Lister Institute.)

THE question of the prophylactic treatment of dysentery is of considerable importance, and the desirability of placing the subject on a satisfactory experimental basis is self-evident. As a preliminary contribution to this aspect of the question as it relates to the bacillary type of dysentery I venture to give the following general account of some experiments* carried out with *B. dysenteriae* (Shiga) at the Lister Institute of Preventive Medicine during the past year, and a summary of results so far obtained, with the conclusions drawn therefrom.

The vaccines that have been experimented with up to the present are:

I. Heated Vaccines (at 56° C. for one hour).

- A. Ordinary vaccines (non-sensitized).
- B. Vaccines treated with normal horse serum according to the method described and advocated by Broughton-Alcock in the BRITISH MEDICAL JOURNAL, August 18th, 1914.
- C. Vaccines treated with diluted specific Shiga-agglutinating serum.

II. Unheated Carbolyzed Vaccines.

- A. Ordinary carbolyzed vaccines ("non-sensitized").
- C. Carbolyzed vaccines treated with diluted serum, obtained from known immune rabbits.

Experimental Animal.

The rabbit was chosen as the experimental animal because of its susceptibility to the Shiga bacillus and because it reacts in a characteristic manner both to the bacillus and to its toxin.

Test for Immunity.

For this I relied on the intravenous injection of living bacilli. The intravenous injection of 200 million of living bacilli (twenty-four hours culture) in 1 c.cm. of normal saline, of the strain of Shiga which was used, was known to be almost invariably fatal to the normal healthy full-grown rabbit. Of ten strong healthy control rabbits that got 250 million intravenously, only one survived. To test if the vaccinated rabbits had acquired a reasonable degree of immunity, the dose usually given was 1,000 million of living bacilli (twenty-four hours culture) in 1 c.cm. of normal saline, given intravenously.

Summary of Animal Experiments.

Four series of experiments were carried out. All vaccines were given subcutaneously. Heated vaccines were used in the first three series. These series differed from each other simply in respect of dose. Each series is further divided into three groups. In the "A" groups, ordinary (non-sensitized) vaccines were used; in the "B" groups, vaccines treated with normal horse serum; in the "C" groups, vaccines treated with diluted specific Shiga-agglutinating serum. In each case the serum was thoroughly removed by centrifugalizing and by washing. The deposit of "sensitized" bacilli was finally made into an emulsion of known strength in fresh normal saline. In Group C₁ the vaccine was sensitized and washed before it was heated, in Groups C₂ and C₃ the vaccines were first heated and then "sensitized."

SERIES I.

Group A₁—Vaccines used, ordinary (non-sensitized), heated at 56° C. for one hour.

Doses given: First, on January 14th, 200 million; second, on January 25th, 400 million; third, on February 4th, 800 million.

Of 20 rabbits that formed this group, 5 did not survive the first dose; 1 survived the first but not the second dose; 1 survived the first and second but not the third dose; 13 survived all three doses.

Each of the 13 that survived all three doses was given as a test dose 1,000 million of living bacilli (twenty-four hours Shiga culture) in

* Complete protocols of these experiments will appear, it is hoped, in a future number of the *Journal of the Royal Army Medical Corps*.

† Further experiments with unheated vaccines are now being carried out. These will include vaccines sensitized with undiluted specific Shiga serum from highly immune rabbits, prepared according to the method found successful in the case of vaccines used for therapeutic purposes by Gordon (*Proceedings of the Royal Society of Medicine, Therapeutical and Pharmacological Section*, 1913, vol. vi, pp. 153-176).

1 c.c.m. of normal saline intravenously—6 on February 19th and 7 on February 23rd. Of these, 12 survived and 1 died about a month later, probably as a result of the test dose.

Group B₁.—Vaccine used, "sensitized" with normal horse serum after it had been heated at 56° C. for one hour.

Doses given: First, on January 18th, 200 million; second, on January 29th, 400 million; third, on February 8th, 800 million.

Of 23 rabbits that formed this group, 12 did not survive the first dose. In 4 of these the fatal issue was complicated by pregnancy; 1 survived the first but not the second dose; 7 survived all three doses.

Each of the 7 that survived all three doses was given as a test dose 1,000 million of living bacilli (twenty-four hours Shiga culture) in 1 c.c.m. of normal saline intravenously on February 23rd. Of these, 6 survived and 1 died as a result of the test dose.

Group C₁.—Vaccine treated with dilute specific Shiga-agglutinating serum before it was heated.

Doses given: First, on January 26th, 200 million; second, on February 6th, 400 million; third, on February 16th, 800 million.

Of 20 rabbits that formed this group, 12 did not survive the first dose. In one pregnancy and in another pseudo-tuberculosis complicated the fatal issue; 8 survived all three doses.

Each of the 8 that survived all three doses was given, as a test dose, 1,000 million of living bacilli (twenty-four hours Shiga culture) in 1 c.c.m. of normal saline intravenously on March 3rd. Of these, 7 survived, and 1 died of marasmus as a result of the dosage.

SERIES II.

In this series all the rabbits were inoculated on the same days, the doses being the same for each group—namely: First, on February 11th, 100 million; second, on February 22nd, 300 million; third, on March 4th, 900 million.

Group A₂.—Vaccine used, ordinary (non-sensitized) heated at 56° C. for one hour.

Of 6 rabbits that formed this group, 2 did not survive the first dose. In 1 of these the fatal issue was complicated by the presence of pseudo-tuberculosis; 4 survived all three doses.

Each of the 4 that survived all three doses was given as a test dose 1,000 million of living bacilli (twenty-four hours Shiga culture) in 1 c.c.m. of normal saline intravenously on March 20th. All 4 survived.

Group B₂.—Vaccine heated at 56° C. for one hour, and afterwards sensitized with normal horse serum.

Of 6 rabbits that formed this group, 3 did not survive the first dose, 1 survived the first and second but not the third dose, 2 survived all three doses.

Each of the 2 rabbits that survived all three doses was given as a test dose 1,000 million of living bacilli (twenty-four hours Shiga culture) in 1 c.c.m. of normal saline intravenously on March 20th. One died on the following day, and *post-mortem* examination revealed an advanced stage of pseudo-tuberculosis. The other survived.

Group C₂.—Vaccine heated at 56° C. for one hour and afterwards treated with diluted Shiga-agglutinating serum.

Of 6 rabbits that formed this group, 2 did not survive the first dose (1 of these was pregnant); 1 survived the first and second but not the third dose; 3 survived all three doses.

Each of the 3 rabbits that survived all three doses was given as a test dose 1,000 million of living bacilli (twenty-four hours Shiga culture) in 1 c.c.m. of normal saline intravenously on March 20th. One became completely paralysed in its hind quarters and died on the sixteenth day after receiving the test dose. The remaining 2 survived the test dose.

SERIES III.

In this series also all the rabbits of each group were inoculated on the same days, the doses being the same for each group—namely: First, on April 28th, 25 million; second, on May 8th, 100 million; third, on May 18th, 500 million.

Group A₃.—Vaccine, ordinary (non-sensitized), heated at 56° C. for one hour.

Of 10 rabbits that formed this group, 1 did not survive the first dose. The *post-mortem* examination revealed old lesions in mesenteric glands and in liver; 1 survived the first but not the second dose—it had young after the second dose; *post-mortem* examination revealed old-standing disease of the lung; 8 survived all three doses.

Of the 8 that survived all three doses, 1 died before the test dose was due, and the cause of death in this case was complete prolapse of the womb during parturition.

Of the remaining 7, 2 got as a test dose 500 million of living bacilli in 1 c.c.m. of normal saline intravenously on July 13th—1 survived and 1 died; 3 got as a test dose 1,000 million of living bacilli intravenously, 2 on June 4th, and 1 on July 13th—2 survived and 1 died as the result of this test dose; 2 got as a test dose 1,500 million of living bacilli in 1 c.c.m. of normal saline intravenously—1 survived, and 1 died on the third day after this dose. The immediate cause of death was pneumonia.

Group B₃.—Vaccine heated at 56° C. for one hour, and afterwards sensitized with normal horse serum.

Of 10 rabbits that formed this group, 2 did not survive the second dose, or surviving the ten days, were too ill to get a third dose. In both "abortion" occurred; 8 survived all three doses.

Of the 8 that survived all three doses, each of 2 got 500 million of living bacilli in 1 c.c.m. of normal saline intravenously on July 13th; both survived this test dose. Each of 4 got 1,000 million of living bacilli in 1 c.c.m. of normal saline intravenously as test dose, 2 on June 4th, and 2 on July 13th; all 4 survived. Each of 2 got 1,500 million of living bacilli in 1 c.c.m. of normal saline intravenously on July 13th; 1 survived and 1 died as a result of this dose.

Group C₃.—Vaccine heated at 56° C. for one hour, and afterwards treated with diluted Shiga-agglutinating serum.

Of 10 rabbits that formed this group, 1 did not survive the third dose; 9 survived all three doses.

Of the 9 that survived all three doses, each of 2 got 500 million of living bacilli in 1 c.c.m. normal saline intravenously on July 13th—both survived this test dose; 1 got 750 million of living bacilli in 1 c.c.m. normal saline intravenously on July 13th—survived. Each of 4 got 1,000 million of living bacilli in 1 c.c.m. normal saline intravenously, 2 on June 4th, 2 on July 13th; 3 survived, and 1 died as a result of this dose. Each of 2 got 1,500 million living bacilli in 1 c.c.m. normal saline intravenously as a test dose on July 13th; both survived.

In all the above three series the vaccine used had been heated at 56° C. for one hour. During the course of some complement fixation experiments, undertaken with the idea of finding some guide to the dilutions of bacilli and of specific serum which, when mixed together, would give the optimum sensitization of the bacilli, it was found that very little fixation of complement took place in any dilution if the bacillary emulsion had been first heated to 56° C. for one hour, and that none at all took place if the bacillary emulsion had been heated to 62° C. for one hour or more. For a time it was supposed that this result was in some way connected with the death of the bacilli, and acting on this hypothesis the vaccine used for Group C₁ was prepared. Later on, other experiments showed that it is the heat that destroys the property of the emulsion to act as antigen, and that emulsions of Shiga made with freshly prepared carbolized saline (0.5 per cent. carbolic in normal saline) and left until sterile, still retain that property. For the next series of experiments, therefore, the vaccines were not heated.

SERIES IV.

This series was divided into two groups of A₄ and C₄.

For Group A₄, ordinary (non-sensitized) unheated carbolized vaccine was used. For Group C₄, unheated carbolized vaccine treated, when sterile, with diluted serum from known highly immune rabbits, was used. The dosage was the same for both groups. Each group was divided into two lots. Each rabbit in lots 1 got two doses only, 50 million for the first dose, and, ten days later, 100 million for the second dose. Each rabbit in lots 2 got, in addition, a third dose, 400 million, ten days after the second dose.

Of 14 rabbits that formed group A₄, 2 did not survive the first dose. In 1 *post-mortem* examination showed that the fatal issue was complicated by pseudo-tuberculosis. The remaining 12 were divided into two lots, as above. Six rabbits (lot 1) all survived their second dose. Six rabbits (lot 2) all survived their second and third doses.

Three weeks after their last dose of vaccine, lots 1 and 2 got test doses as follows: Of lot 1, 3 got 500 million living, intravenously, and 3 got 1,000 million; all survived. Of lot 2, 3 got 1,000 million living, intravenously—all survived; 3 got 2,000 million—2 survived and 1 died as a result of this test dose.

Of 14 rabbits that formed group C₄, 3 did not survive the first dose. The remaining 11 were divided into two lots. Six rabbits (lot 1) all survived their second dose. Five rabbits (lot 2) all survived their second and third doses.

Three weeks after their last dose of vaccine the 6 rabbits of lot 1 got test doses as follows: 3 got 500 million living intravenously, and 3 got 1,000 million; all survived.

The rabbits of lot 2 did not get test doses of living bacilli, but, as above mentioned, all survived their third dose of vaccine, while of two controls that got the same dose both died.

ANALYSIS OF RESULTS.

1. Toxicity of Vaccines.

This may be measured by the percentage of rabbits that died during immunization. Eliminating those rabbits in which the fatal issue was complicated by pregnancy, abortion, or by well marked chronic disease, we find that in our attempts to immunize rabbits with heated vaccines—Series I to III inclusive—

24.2 per cent. succumbed to ordinary non-sensitized vaccines.

43.3 per cent. succumbed to vaccines sensitized with normal horse serum.

39.4 per cent. succumbed to vaccines sensitized with diluted specific Shiga-agglutinating serum.

The numbers on which these percentages are based, namely, 33, 30, and 33 respectively, are small, but are approximately the same for each of the vaccines. Again, most of the deaths occurred after the first dose in Series I and II, and when the dosage was modified, as in Series III, the results were:

No death in 8 during immunization with ordinary non-sensitized serum.

No death in 8 during immunization with vaccine sensitized with normal horse serum.

1 death in 10 during immunization with vaccine sensitized with diluted specific Shiga-agglutinating serum.

With unheated vaccines only one series—Series IV—is available, and applying the same process of elimination as before, we find that

1 death in 13 occurred during immunization with non-sensitized vaccine.

3 deaths in 14 occurred during immunization with sensitized vaccine.

Toxicity may also be measured by the severity of general symptoms and by the effect on the weight of those animals that survived. Data on those points do not appear in the above summary of experiments, but it may here be stated in general terms that the bowel symptoms were most severe in Group C₁, where the vaccine used was sensitized before it was heated; that where comparatively large doses of heated vaccines were used the severer

symptoms referable to the central nervous system were most marked after "sensitized" vaccines, and that loss of weight was most marked after ordinary "non-sensitized" vaccines, but that this was less noticeable in Series IV, where the vaccines were unheated and where the dosage was less.

2. Immunity Conferred.

The fact that the numbers available for this analysis are still smaller and more unequal for each group than for the first analysis must be borne in mind when expressed in percentages. Although the conditions varied in each series, they were the same for each group of each series, so that, with the proviso made above with regard to percentages, we may quite fairly compare the "sensitized" and "non-sensitized" vaccines in respect of the immunity conferred.

First, then, considering Series I to III (heated vaccines) together, the numbers protected against the test doses given were:

- In "A" group (ordinary non-sensitized" vaccine), 20 out of 23; or approximately 87 per cent.
- In "B" group (vaccine sensitized with normal horse serum), 14 out of 16; or approximately 87 per cent.
- In "C" group (vaccine sensitized with diluted specific Shiga-agglutinating serum), 17 out of 20; or 85 per cent.

But if we take Series III by itself the figures are:

- In "A" group, 4 protected out of 6.
- In "B" group, 7 protected out of 8.
- In "C" group, 8 protected out of 9.

With unheated carbolized vaccines, only Series IV, consisting of two groups (Group A_u, in which ordinary non-sensitized vaccine was used, and Group C_u, in which the vaccine was treated with diluted serum from rabbits known to be highly immune), is available. The number of rabbits treated is small, but the results, so far as they go, indicate that, quite apart from sensitization, unheated carbolized vaccines give better immunity than vaccines that have been heated at 56° C. for one hour.

Local Reaction.

In the rabbit, in doses that can safely be given, the local reactions following Shiga vaccines are quite negligible. The rabbit, therefore, is not a suitable animal in which to study and compare the local reactions of Shiga vaccines. With *living* Shiga bacilli the case is different, and the following experiment may be cited as showing the difference in local reaction caused by the subcutaneous inoculation of large doses of *living* Shiga bacilli in immune as compared with that in unprotected rabbits.

1. Two healthy unprotected rabbits (Reference Nos. 14 and 15) got subcutaneously 2,000 million and 4,000 million of living Shiga bacilli respectively. On the following day there was in No. 14 a soft, prominent swelling of the subcutaneous tissues at the site of inoculation, and the skin over the centre of the swelling was purplish-red in colour. In No. 15, the swelling at the site of inoculation was somewhat more prominent, and the skin over it was mottled purple and red in colour. No. 15 died on the fourth day, and No. 14 on the fifth day after the inoculation. In both cases the skin over the centre of the swelling had necrosed, and on cutting into the swelling a central slough about $\frac{1}{2}$ in. thick at its centre, and thinning off towards the periphery, was exposed. The area of the necrosed skin and the slough were somewhat more extensive in No. 15 than in No. 14.

2. Two rabbits (Reference Nos. 3 and 6) that had each survived a dose of 200 million prepared vaccine on December 14th, 1914, were afterwards treated as follows. Each got on January 13th, 1915, 200 million, on January 20th 400 million, on January 27th 800 million, and on February 3rd 1,600 million of ordinary killed Shiga vaccine that had been heated at 56° C. for one hour. On May 27th No. 3 got 2,000 million and No. 6 got 4,000 million of *living* Shiga bacilli subcutaneously. In each case there was on the following day a soft puffy swelling of the subcutaneous tissue and some redness of the skin at the site of inoculation. Two days later the swelling was less puffy and the skin was less red. Ten days later there was still some puffy swelling in the case of No. 3 and a firm elongated swelling in the case of No. 6. The skin over the swellings was normal in appearance; the swellings themselves were much reduced in size and

later on gradually disappeared. Both rabbits remained well.

The above results suggest that the local reaction following the injection of vaccines used for therapeutic purposes in patients suffering from the disease—at all events, in chronic cases or in cases that have lasted for some considerable time—may be mild compared with that in normal persons, and workers using exclusively any particular vaccine for therapeutic purposes only may be misled as to its probable local reaction if used prophylactically in normal persons.

At the King George Hospital I understand that ordinary Shiga vaccine has been given to patients suffering from chronic dysentery of the Shiga bacillary type without its producing any local reaction, in doses that in normal persons have produced severe local reactions.

SUMMARY AND CONCLUSIONS.

1. *Toxicity.*—The toxicity of the vaccines studied has been determined by the liability of the initial dose to kill the experimental animals; and in those that survived by the severity of general symptoms, but more especially by the effect on the weight of the animals during the period of immunization.

In the series of animals in which moderate and large initial doses of vaccines were given, it was found that serum-treated vaccines were more fatal than untreated vaccines, and in the case of animals in which comparatively small initial doses were given the numbers are not sufficiently large to warrant us drawing a conclusion on this point.

With heated vaccines, bowel symptoms were most severe after the vaccine that had been treated with diluted specific Shiga-agglutinating serum *before* being heated. Symptoms referable to the central nervous system were, on the whole, most severe after serum-treated vaccines.

Serum-treated vaccines produced less loss of weight than untreated vaccines, but this was less noticeable in Series IV, where the vaccines were unheated and the dosage was less.

2. It has been found necessary to diminish the initial dose of vaccine in each succeeding series of rabbits, and the results obtained encourage the view that an initial dose at once relatively non-toxic and still able to immunize may be hoped for, though such a dose has not yet been established.

3. The first dose is the critical dose with all the vaccines used. Even with 50 million as a first dose, no less than four healthy animals died out of twenty-seven, while none died after 100 million given as a second dose.

4. The second dose should not be greater than twice the size of the first dose, though this ratio (1 : 2) may be exceeded in subsequent doses.

5. Heating should be avoided in the preparation of Shiga vaccines. It does not reduce their toxicity, and it destroys the antigen that calls forth the complement fixing body. Moreover, unheated vaccines may be sterilized by weak carbolic, freshly prepared, without losing the above-mentioned antigen; and these unheated carbolized vaccines gave in our experiments a better immunity.

6. Immunity, as tested by the power to withstand lethal doses of living bacilli given intravenously, was obtained with serum-treated and with untreated vaccines in apparently about equal degree. Whether the immunity obtained by the one is more lasting than that obtained by the other was not determined.

7. *Local Reactions.*—The rabbit is not a suitable animal on which to study and compare the local reactions caused by dead Shiga vaccines.

THE Accademia dei Lincei of Rome has awarded the King's prize of £400 for human physiology to Dr. Filippo Bottazzi, professor of physiology in the University of Naples. He is the author of a treatise on physiological chemistry and of memoirs on the metabolism of the red corpuscles, and other subjects.

It has been arranged to hold the Oxford Ophthalmological Congress as usual this year. It will assemble at Keble College on the evening of July 12th. The whole of the following day will be devoted to a discussion on the relation of ophthalmology to general medicine, to be opened in the morning by Sir William Osler and in the afternoon by Sir Anderson Critchett. Further particulars can be obtained from the honorary secretary, Mr. Bernard Cridland, Salisbury House, Wolverhampton.

NOTES ON DYSENTERY VACCINATION.

BY

ALDO CASTELLANI, M.D., M.R.C.P.

DYSENTERY vaccination is of such great practical importance that one wonders that so little attention, comparatively speaking, has been paid to it since the pioneer work of Kruse and Shiga. Such vaccination has never been used to any large extent, owing, I believe, to the following reasons:

1. Vaccines containing the Shiga-Kruse bacillus, prepared according to the usual technique (broth cultures killed by heat), give an extremely severe local and general reaction. I have seen persons incapacitated for work for more than two weeks after such inoculation. In the lower animals, too (rabbits), such vaccines produce very severe symptoms and sometimes death.

2. A vaccine prepared with Shiga-Kruse bacillus does not give immunity for forms of dysentery due to Flexner, Flexner-like, and other dysentery germs.

Peptone-Water Mixed Vaccine.

The only way to obviate these two drawbacks is to prepare the Shiga-Kruse vaccine by a method which will decrease its irritating properties, and to use a mixed vaccine instead of a mono-vaccine. I have carried out experiments on the subject since 1903 and 1904. In the *Ceylon Medical Reports* for 1904 I published the results I arrived at in that year. I stated that as the anti-dysentery vaccine prepared with broth cultures gives rise to very severe symptoms, great tenderness and redness of the skin, very often enlargement of the neighbouring glands, and fever, which may be very high, it had occurred to me to use peptone water cultures instead of broth cultures. This simple modification of the technique was most satisfactory; the irritating properties of the vaccine practically disappeared without apparently any distinct decrease in its immunizing power. I did not think this result was merely due to the fact that peptone-water cultures contained a smaller number of bacteria than broth cultures.

Preparation.

The Shiga-Kruse bacillus and three species of dysentery-like germs (paradysentery), common in Ceylon, were grown in peptone-water tubes for three days at blood temperature. They were then kept for one hour at the temperature of 60° C. Using all aseptic precautions, the different cultures were mixed in this proportion:

Dysentery	...	...	...	3 parts
Paradysentery No. 1	...	...	...	1 part
Paradysentery No. 2	...	...	...	1 "
Paradysentery No. 3	...	...	...	1 "

The resulting mixture was the vaccine, of which I inoculated 1 c.cm. (sometimes $\frac{1}{2}$ c.cm.), the injection being repeated one or two weeks later.

The inoculation was followed in most cases by practically no local symptoms. In other cases it was followed after five or six hours by mild signs of reaction—some little tenderness and redness of the skin at the place of inoculation. In some instances the temperature rose to 100° or 101° F.

The conclusions I came to were that the inoculation of the mixed peptone-water cultures vaccine was harmless and that the blood of the inoculated persons agglutinated the *Bacillus dysenteriae* (Shiga-Kruse) and the various strains of paradysentery with which the vaccine had been prepared, though the agglutinins were in small amount and disappeared after a short time.

Carbolized Mixed Dysentery Vaccine.

Since 1912 I have prepared and used in Ceylon a carbolized mixed dysentery vaccine, consisting of an emulsion of Shiga-Kruse, Hiss Y bacillus, original Flexner bacillus, a Flexner-like bacillus No. 1, isolated in Ceylon, a Flexner-like bacillus No. 2, also isolated in Ceylon.

Preparation.

The individual vaccines are prepared by making emulsion from twenty-four hours agar cultures, in normal salt solution (0.75 per cent.), to which 0.5 per cent. of carbolic acid had been added. All particulars of the technique are given in my

previous papers on the subject of mixed dysentery vaccines. The individual vaccines are standardized as follows per c.cm.:

Shiga-Kruse bacillus	...	...	...	1,000 million.
Flexner bacillus	...	...	...	1,000 "
Hiss Y bacillus	...	...	...	1,000 "
Flexner-like No. 1	...	...	...	1,000 "
Flexner-like No. 2	...	...	...	1,000 "

These vaccines are mixed in equal parts, so that 1 c.cm. of the mixed vaccine will contain 125 million of each of the organisms used.

Of this vaccine, 0.5 to 0.6 c.cm. is given hypodermically the first time, and the same amount after a week. The reaction is not very severe, though more marked as a rule than after the typhoid-paratyphoid vaccine. Agglutinins generally develop for all the germs of the dysentery group which have been injected, but their amount is not high, the agglutination limit seldom being higher than 1 in 40, and is somewhat inconstant and irregular; but the same may be said of individuals inoculated with simple mono-vaccines, Shiga-Kruse, Flexner, etc.

Combined Typhoid+Paratyphoid A+Paratyphoid B +Dysentery.

This combined vaccine, on which I have published several previous papers, consists of an emulsion of Shiga-Kruse, Hiss Y bacillus, original Flexner bacillus, a Flexner-like bacillus No. 1, isolated in Ceylon, a Flexner-like bacillus No. 2, also isolated in Ceylon, typhoid bacillus, paratyphoid A bacillus, and paratyphoid B bacillus.

Preparation.

The individual vaccines are prepared by making emulsions from twenty-four hours agar cultures in normal salt solution (0.75 per cent.), to which 0.5 per cent. of carbolic acid has been added.

The individual vaccines are standardized as follows per cubic centimetre:

Typhoid bacillus	...	...	...	4,000 million.
Paratyphoid A bacillus	...	...	...	1,000 "
Paratyphoid B bacillus	...	...	...	1,000 "
Shiga-Kruse bacillus	...	...	...	1,000 "
Flexner bacillus	...	...	...	1,000 "
Hiss Y bacillus	...	...	...	1,000 "
Flexner-like bacillus No. 1	...	...	...	1,000 "
Flexner-like bacillus No. 2	...	...	...	1,000 "

These vaccines are mixed in equal parts, so that 1 c.cm. of the mixed vaccine will contain 200 million of the typhoid bacillus and 125 million of each of the other organisms used.

Of this vaccine, 0.5 to 0.6 c.cm. is given hypodermically the first time, and the same or double the amount after a week. The reaction is severer as a rule than after the typhoid-paratyphoid vaccine. As regards agglutinins, the agglutination for the germs of the dysentery group is not high, the agglutination limit seldom being higher than 1 in 40; it is also somewhat irregular and inconstant, but to a certain extent the same may be said of individuals inoculated with simple Shiga-Kruse, Flexner, etc., mono-vaccines. Typhoid, paratyphoid A and paratyphoid B agglutinins, on the other hand, are produced in fair amount, though as a rule distinctly less than in control individuals inoculated with simple typhoid, paratyphoid A and paratyphoid B vaccines.

CONCLUSIONS.

1. A dysentery vaccine should contain several species of dysentery bacteria, and not one only.

2. As I have stated in all my publications since 1904, the vaccine should never be prepared with broth cultures, as such vaccine often gives a most serious reaction with very severe infiltration and occasionally an abscess.

3. The vaccine should be prepared with a carbolic salt emulsion from agar cultures without heating, or peptone-water cultures may be used. Of sensitized dysentery vaccines I have little experience.

4. It is essential to prepare the vaccine with strains which, though rich in antigen, are not virulent, or very little so. It is very rare to come across such a strain of the Shiga-Kruse germ. A large series of strains of this organism should be inoculated in rabbits, and the least virulent, provided it be rich in antigen, should be kept permanently as a stock culture to prepare the vaccine.

REFERENCES.

Castellani: *Ceylon Medical Reports*, 1904; *Centr. f. Bakt.*, 1909; *Journal*, Ceylon Branch British Medical Association, November, 1914; *Reports to the Advisory Committee, Tropical Research Fund*, 1914; *Sperimontale*, April, 1915. Johnson and Milne: *BRITISH MEDICAL JOURNAL*, January 15th, 1916.

THE DIAGNOSIS OF ABORTIVE CEREBRO-SPINAL MENINGITIS.

BY

M. CULPIN, M.B., F.R.C.S., CAPTAIN (TEMP.) R.A.M.C.,
SURGICAL SPECIALIST, ALEXANDRA HOSPITAL, COSHAM.

ABORTIVE cases of cerebro-spinal meningitis are mentioned in the textbooks, but it is probable that many are overlooked by those whose mental picture of the disease is formed by their experience of the severe type.

In this district last winter the writer was able to

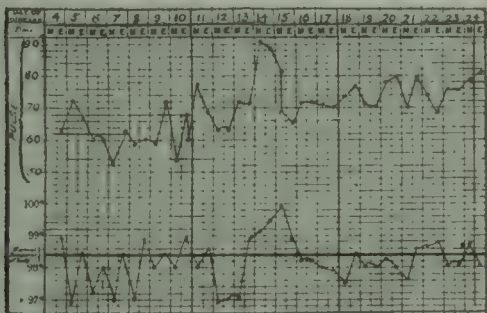


CHART A.—Patient reported sick with headache on the two days previous to admission. Puncture fluid contained diplococci and a few lymphocytes.

observe a series of cases ranging from the fulminant (proving fatal within twenty-four hours) to the mildest type where recovery is apparently complete by the end of a similar period. Though the mild cases form a series continuous with the severe, yet, as the disease assumes a benign form, a certain sign appears which seems of diagnostic value.

This mild or abortive type starts with a headache and evanescent meningeal irritation, as shown by a stiff neck

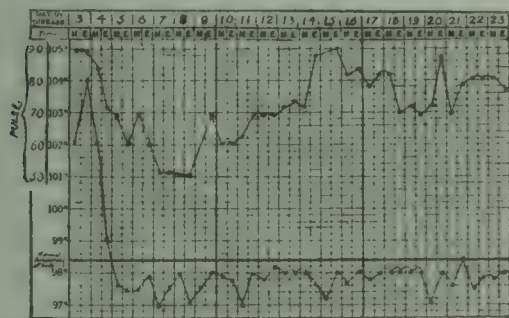


CHART B.—Igor two days before admission. Pains in head and neck. Face flushed and Kernig's sign present. Puncture fluid apparently normal. Herpes on lips twelve days after onset.

and Kernig's sign. Lumbar puncture at this stage may reveal a few pus cells (chiefly lymphocytes as opposed to the polymorphonuclear cells in the severe cases) and an occasional diplococcus, or may be negative. There is a rise of temperature, to which the pulse-rate is often unrelated, but within two or three days or even less the temperature and pulse become normal and the patient seems well.

If, however, a careful watch is kept the pulse-rate will be found to drop at some time between the second and seventh day after the onset. This drop may be to as low as 60 a minute and often as low as 50, and lasts a variable time, from a few readings only up to a week, with occasional increases. If the patient is allowed up whilst the pulse is slow, he complains of feeling poorly or "fuzzy in the head," and the pulse-rate does not increase.

This sign was almost invariably present in the cases in which there were clinical grounds for the diagnosis, even when lumbar puncture gave a clear fluid.

Slowing of the pulse is said to occur during convalescence from febrile illnesses, but such a slowing as is shown on the accompanying charts seems characteristic of recovery from a mild cerebro-spinal meningitis, and should be useful confirmation of a doubtful diagnosis.

An interesting case occurred in a ward orderly. He reported sick; his pulse-rate was 56; he had no headache, but volunteered a history of a bad headache three days before. His pulse remained slow for a week, and made occasional excursions to or below 60 in the week following, finally reaching his normal rate of about 80. It is probable that other signs would have been found if he had reported sick with his headache. Another man (Chart A) had reported sick on two successive mornings with headache. His medical officer then met the writer, heard his views, and mentioned the case. The man was sent to hospital, and lymphocytes and diplococci were found in his spinal fluid.

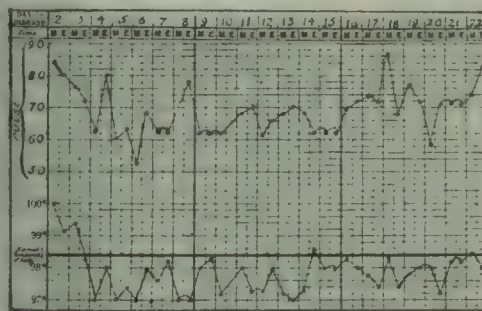


CHART C.—Onset day before admission; vomiting and headache. Face flushed; one purpuric spot on his back. Kernig's sign marked. Spinal fluid under pressure; watery, but contained diplococci. Labial herpes three days after onset.

The number of mild cases seen cannot be given, for some were certainly missed early in the epidemic, and there is no definite demarcation from the severe, but one may say that about twelve were recognized which the ordinary observer would not have believed to be a form of meningitis. They seemed commoner at the end of the epidemic, but that may have been because they were more often detected.

It is the opinion of the writer that many escape diagnosis, and it is necessary for the study of the disease

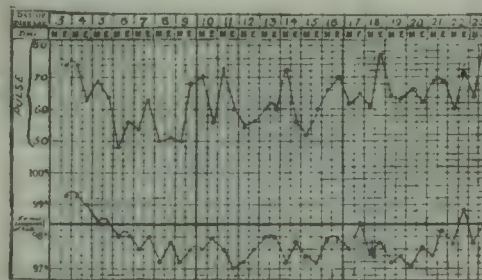


CHART D.—Onset three days before admission. Headache, stiff neck, and Kernig's sign. Puncture fluid apparently normal.

that they should be detected; it is for this reason that these observations are placed on record to be confirmed or confuted.

I have to thank Captain Leon, R.A.M.C.(T), for the bacteriological work in connexion with the whole series of cases.

THE seventh Pan-American Medical Congress, recently held at San Francisco, passed resolutions calling for the appointment by the various American Governments of a Commission for the systematic investigation of the medicinal flora of America. The view was expressed that this investigation should be conducted in connexion with recognized universities, hospitals and laboratories in the various countries, and in the instance of each article investigated should embrace: (1) A description of the plant; (2) its botanical classification; (3) its habitat, including the possibility of acclimatization and cultivating; (4) methods of gathering and transportation; (5) alkaloidal and other chemical properties; (6) present uses, domestic and professional; (7) pharmacological investigation, with experimental and subsequent clinical data; (8) the probable value of the plant as an article of commerce; (9) additional facts of value as may be demanded by the Commission or determined by individual investigators.

Reports of Societies.

FEMALE NURSES IN MALE WARDS OF MENTAL HOSPITALS.

At a meeting of the Medico-Psychological Association in London on February 17th Dr. GEORGE M. ROBERTSON, physician-superintendent of the Royal Edinburgh Asylum, Morningside, and lecturer on mental diseases in the University of Edinburgh, read a paper on the employment of female nurses in the male wards of mental hospitals in Scotland. After recalling that he had opened a discussion on the subject at the annual meeting of the association ten years ago, and observing that the shortage of male attendants in asylums had again made the consideration of the plan urgent, he gave a historical sketch of the growth of opinion on the subject. Auxiliary female care had been introduced into the Gloucester Asylum in 1841 by Dr. Samuel Hitch, who employed the wives of his married charge attendants to help their husbands. In 1883 Dr. R. M. Bucke, of the London Asylum in Canada, had employed widows in the male wards with complete success. Sir Thomas Clouston, who had placed a married couple in charge of the Male Hospital at Morningside, when the husband died in 1890 appointed the widow in full charge, and placed the male attendants under her authority. The defect of the system of auxiliary female care was that the nurses were few in number, and only assisted the male attendants, the bulk of the nursing even in those wards in which they were employed being still done by the male attendants.

The first step towards the system by which a group of male patients was entirely nursed by women was taken by Dr. Turnbull in the Fife and Kinross Asylum in 1896; he placed a ward containing thirty male hospital patients entirely under the charge of female nurses by day. Supervision was exercised by the matron and the charge nurse of the female hospital. The Scottish Commissioners realized the value of Dr. Turnbull's innovation, and on the advice of Sir John Sibbald a similar arrangement was introduced into the Glasgow (Gartloch), Lanark, and Perth District Asylums. In 1900, Dr. Robertson said, he had placed a group of male patients at the Stirling District Asylum under the charge of female nurses by night as well as by day. The Scottish system of entire female nursing was totally different in practice from that of auxiliary female care, and all who had large experience of women nurses in male wards agreed that they were infinitely more useful if placed in sole charge of a group, and they much preferred it themselves. The desire to make use in asylums of the high standard of skill in nursing possessed by those trained in general hospitals had led to the appointment of large numbers of trained hospital nurses during the last twelve years to important positions in the Scottish asylums; for, unfortunately, men did not receive training in nursing in the general hospitals. Dr. Campbell Clark was the first to appoint, at the Kirklands Asylum, Bothwell, in 1880, a trained hospital nurse to be matron. In the following year he began the systematic teaching and training of his asylum nurses and attendants. In 1885 the Scottish division of the Medico-Psychological Association published a handbook for attendants on the insane, which was subsequently adopted by the association, and had led to the granting of the certificate for proficiency in mental nursing and to the registration of certificated mental nurses.

The first hospital nurse to work within the wards among insane patients and asylum nurses was appointed by the speaker at the Perth District Asylum in 1896. This step not only had its direct influence on ward work, but created a supply of hospital nurses specially trained for the duties of asylum matronship. So great did the demand become that three dozen of his own nurses had received such appointments in other institutions. Nurses accustomed to attend to male patients in the general hospitals thought it the most natural thing to continue to take charge of male patients in asylums, and their presence had led to the introduction of innumerable reforms which had approximated the methods employed in the asylums to those in the hospitals, and the greater employment of women in the male wards was only one among these. The employ-

ment of female nurses in the male wards in Scotland was, in fact, only a part of a much greater ideal—that of the hospitalization of the asylum. Nursing by women was now as distinctive and firmly established a feature of the Scottish system of care for the insane as the boarding-out system. It was employed in some measure in all but two of the important asylums of the country, and in these exceptions failure to introduce it was not due to opposition to the principle but to structural difficulties. In a fourth of the asylums in Scotland, and among them some of the large ones, the matron was head of the staff on the male side as well as on the female side.

In introducing female nurses into the male wards for the first time the most reliable women on the staff should be selected. They should be experienced and should not be young. The working unit should not be less than four, and it was a great advantage to place a hospital nurse with asylum experience in charge of them. They were best adapted to manage wards containing patients confined to bed. When the patients were dressed and going about it was advisable to employ one or two trustworthy male married attendants to bathe the patients and to assist in other ways. It was not true that female nurses were only of use in the care of the sick and helpless in an asylum. They usually exercised more control over cases of mania than male attendants, and their success was due to the fact that their method was based on persuasion and not on force or compulsion. A woman had much the same influence over an insane man not actually delirious as she had over one supposed to be in his sound mind, and it was absurd to assume that all feelings of chivalry and honour died in a man because he suffered from some derangement of the mind.

The capacity of the insane for education in good habits, while not illimitable, was very extensive, and in practice was never exhausted in large institutions. If it could be alleged of any asylum that its male wards were not a suitable place for women, then the sooner a reformation was effected the better, for it was not a condition that need continue indefinitely. Male patients were always less troublesome and excitable than female, and women found that they received more courtesy and readier obedience from men than from women. It was not necessary to pay an extra salary, for once the system was started the women were engaged as in general hospitals, simply to nurse, and it was all in the day's work whether their patients were male or female. It was doubtful whether the employment of women instead of men would mean any saving in expense, because, owing to the higher standard of hospital care sought, usually a larger number of nurses was required. In Scotland any saving had been more than counterbalanced by the increased night staff, which was proportionally much larger than that employed in English asylums and on hospital nurses for purposes of supervision, a practice now largely adopted. Lastly, it has been said that many male patients, owing to their sexual proclivities, could not be cared for by women. This was undoubtedly true, but the remedy was simple—do not place them under women; let them be cared for by men. No experienced administrator would allow a simple difficulty of this kind, with an obvious remedy, to deter him from the introduction of women nurses. Every day of the year, in every asylum in the country, a much more difficult and responsible task of an analogous nature was faithfully performed—that of distinguishing the patients who were suicidal from those who were not, and of making special arrangements for their care. To pick out patients whom it was undesirable to place under the care of women was, compared with this, an exceedingly simple matter.

Nursing the sick, the infirm, and the helpless, sane or insane, was pre-eminently woman's avocation, and Sir Thomas Clouston had summed up the situation tersely when he said that all his nurses longed to work in the hospital, whereas all his male attendants preferred outdoor work. Moreover, women were better than men at the superintendence and discharge of domestic duties. The proportion of women it was desirable to employ on the male side of an asylum was, according to the Scottish Board of Control, at least 25 per cent. of the total day staff on the male side and 15 per cent. of the night staff. These figures were considerably exceeded in several asylums, among which might be mentioned the Stirling District Asylum. It might be taken as a typical county

asylum in the accommodation it provided, in its complete organization, and in the modern methods it employed. It admitted over 250 patients annually, and had a resident population of over 800. Dr. R. B. Campbell, its medical superintendent, had employed for the last seven and a half years, as the speaker did for an equal period, a staff on the male side by day of which 40 per cent. consisted of women, there being three hospital nurses, including the matron. By night 27 per cent. of the staff consisted of women, including the night superintendent, who is a trained hospital nurse.

Dr. Robertson said that he did not accept the contention that female nurses were more suitable for asylums admitting parochial than for those receiving private patients. Craig House, the department of the Royal Edinburgh Asylum for private patients, was a separate mental hospital, and of the staff of 32 employed by day to attend to 100 gentlemen exactly one-half consisted of nurses, including in this number the lady superintendent and 3 matrons, and of these 3 were hospital nurses. At night 6 out of a staff of 13 consisted of women, including the night superintendent, who was a trained hospital nurse. The proportion of women varied, and had perhaps been swelled by the war, but there was no difficulty in employing 40 per cent. of women by day and 25 per cent. by night in a private asylum.

In the discussion which followed some criticism was heard, but on the whole a striking amount of agreement with Dr. Robertson's contention. Dr. STODDART said that the employment of male nurses in male wards was an anachronism, but he would prefer women nurses who possessed the association's special certificate as mental nurses, for they would be superior to ordinary hospital-trained nurses for the work. Dr. WOLSELEY LEWIS agreed; he was not in favour of hospital-trained nurses, as the conditions were very different in asylums. Dr. SOUTAR, while thinking that male attendants should not be employed in hospital duties, had not found them so deficient in the capacity to nurse as to feel justified in ousting them. Sufficient importance did not seem to have been attached to the fact that in asylums physically fit patients rendered various kinds of assistance. Dr. SARGENT, after trying a wholly male staff, and finding it a failure, had, after a short period of partial employment of females, appointed a wholly female staff. Dr. LEGGE, from a careful study of the Scottish system at the time when his committee decided to build a new asylum, had become convinced that the system advocated by Dr. Robertson was much ahead of the general system used in England. In the Derby asylum 90 per cent. of the patients were put straight into the wards and nursed by women both by day and night. Dr. BRANDER said that he had found male patients objected to being nursed by women, and in any case disapproved of the employment of mixed staffs. Dr. HAYES NEWINGTON thought it would be dangerous to accept the principle that women were essential as nurses on the male side, although he recognized that female influence was very useful on that side. Ambulatory male patients should not be placed solely in the charge of women. Dr. O'NEILL considered that it was essential at first to have hospital-trained nurses to instruct beginners in the proper conduct of a ward. In seven years' experience of female nurses for male patients he had not met with difficulties, nor had he seen any evidence of depreciation of the moral tone of the nurses. The President Lieutenant-Colonel DAVID G. THOMSON, M.D., considered that the plea for female nursing of male patients was sound within very definite limitations. It was not possible to make the case of the asylum precisely parallel to that of a hospital.

BOTHRIOCEPHALUS LATUS.

At the meeting of the Section of Pathology of the Royal Academy of Medicine in Ireland on January 21st Dr. T. T. O'FARRELL showed a specimen of *Bothriocephalus latus*, believed to be the first detected in Ireland. It had been supplied to him by the Right Hon. M. F. Cox, M.D. The patient, a man who resided on the banks of the River Shannon, in co. Longford, had suffered for some time from vague symptoms of indigestion, but had no pronounced anaemia. He passed the first segments of tapeworm in December, 1915. The usual antichelmintics were given.

The head had not been found, but the smallest segments had been recovered. The man had always resided in Ireland, except for three trips to England and two to Scotland, each of about five or six days' duration. On these occasions he did not partake of fish. He had frequently eaten fish from the Shannon—perch, pike, bream, roach, and eels—but no trout so far as he remembered. The fish had not been undercooked, and others had eaten of it without becoming infected. [It may be added that the ordinary host is the pike, and that Leuckart does not mention the trout.]

Reviews.

VAGOTONY.

THE vagus nerve, like the nerves of the somatic system or sensorimotor nerves, is constantly transmitting tonic impulses to the viscera it serves—namely, the heart, bronchi, oesophagus, stomach, intestine, and pancreas. In a general way, it may be said that the drugs pilocarpin, physostigmin, and muscarin increase the force of these tonic impulses, while atropin depresses them and tends to produce vagal paralysis. Drs. EPPINGER and HESS¹ have endeavoured to isolate from the mass of nervous disorders known as the neuroses a group of patients in whom the neurosis is due to abnormally great tonus of some of the involuntary muscles or secreting tissues supplied by the vagus nerve, and have published their results in a pamphlet of which Drs. Kraus and Jelliffe have recently issued an English translation. Such a vagotonic patient, it is stated, is abnormally sensitive to the subcutaneous injection of pilocarpin; the dose of 1 cg. ($\frac{1}{2}$ grain), producing sweating and salivation, and such other signs as hyperacidity, eosinophilia, asthma, slow pulse and respiratory or cardiac arrhythmia, and spastic constipation. If the case is one of vagotony, these signs and symptoms will be relieved by the exhibition of atropin.

Vagotonic patients are said to exhibit a rapid and forcible ("nervous") action of the heart when the precordia are inspected. Gastric hypersecretion and hyperacidity, and their extreme form gastrouscorrhoea or Reichmann's disease, with pylorospasm and increased peristalsis and antiperistalsis, and cardiospasm and oesophagospasm, are all common in vagotony and may habitually be relieved by giving atropin. Vagotony may produce either constipation or diarrhoea, by increased intestinal peristalsis or by intestinal spasm; the authors believe that some cases of spasm of the gall bladder and bile ducts are due to vagotony without local organic disease. Finally, they mention eosinophilia as developed on a vagotonic basis; it may be evoked by pilocarpin and dissipated by atropin, and is entirely lacking in patients with the opposite condition of sympathicotony or abnormal tonus of the muscles and glands mainly innervated by the sympathetic nervous system. The skin of vagotonic patients flushes easily and perspires freely; the patients are thin (this is a great fault in Vienna) but have large, often beautiful eyes which glisten; the heart is excitable, the reflexes are very brisk, the urine is often hyperacid, gastric and intestinal derangements are common. Persistence of the thymus and the lymphatic constitution are not rare; indeed, vagotony is summed up as a form of constitutional inferiority. It will be seen from this brief and incomplete review that the authors make the conception of vagotony cover a very wide clinical field; with what success is a question that the future will decide. Many of the authors' far-reaching conclusions seem to be based on deductions drawn from only a case or two, and to be quite unwarrantable as generalizations. They do not appear to state the doses of atropin required to relieve the main symptoms of vagotony.

The translators have done their work fairly well; a note should be added on p. 4 to the effect that in English-speaking countries the autonomic nervous system—a term introduced by Langley in 1898—means the nervous system of the glands and of the involuntary muscles, and includes

¹ *Vagotonia: A Clinical Study in Vegetable Neurology*. By Dr. H. Eppinger and Dr. L. Hess of Vienna. Authorized translation by Drs. W. Max Kraus, A.M., M.D., and Smith Ely Jelliffe, M.D., Ph.D. Nervous and Mental Diseases. Monograph Series, No. 20. New York: The Nervous and Mental Disease Publishing Co. 1915. (Roy. 8vo, pp. 93. 1 dol.)

the sympathetic nervous system. Drs. Eppinger and Hess describe Langley's "autonomic" as the "vegetative" nervous system, and divide the vegetative into the "sympathetic" and the "autonomic" nervous systems, thus perpetuating a very confusing and unnecessary difference in terminology.

PROGNOSIS.

We have formed a high opinion of the value of the *Index of Prognosis and End-results of Treatment*, edited by Dr. A. RENDLE SHORT,² which is issued as a companion to the *Index of Treatment* and the *Index of Differential Diagnosis*. As the title indicates, it aims particularly at setting forth the end-results of various methods of treatment, their advantages and their risks, while it also furnishes data for arriving at accurate forecasts of what will happen to an individual patient. Although we admit that there is justification for the claim that this volume stands by itself and that no modern work in the English language can compare with it, yet we do not agree with the complaint that little help in prognosis is given by current textbooks, which generally include prognosis in their descriptions of diseases, and although they do not always support their conclusions by "trustworthy figures," they do so in many instances—as, for example, in the treatment of typhoid fever, diphtheria, gastric ulcer, and of cerebro-spinal fever, to give only a few instances. It may be true that the published results of individual surgeons are often "touched with *couleur de rose*," but the compilers of textbooks are not open to this reproach, and such published figures have been subjected over and over again to analysis by hospital registrars and others, so that it is only the reports of a quite new method which may mislead by being unduly favourable; this must continue to be the case so long as enthusiasm for what is believed to be progress persists, and should it be lost we fear that with it would also disappear the ardour of mind that has brought about the real advances of the last fifty or sixty years.

We have carefully read many of the sections, and where all are good it may seem invidious to select any for special praise; yet we may mention those on angina pectoris, appendicitis, exophthalmic goitre, heart disease, tuberculosis of the genital and urinary organs, and diseases of the stomach. We repeat the favourable opinion with which we opened this notice, and desire to commend the work to our readers as one which they would do well to place upon their bookshelves.

HINDU THOUGHT.

In his work, *Indian Thought, Past and Present*,³ Mr. FRAZER has compiled an exhaustive treatise on a very abstruse and difficult subject. After an introductory chapter he first discusses the Vedas, "the dawn of thought," dating back to the first Aryan invasion of India, 2,000 to 1,500 B.C.; then he deals with the philosophic studies of the Brahmanas, and explains their view of the Pythagorean doctrine of transmigration. After next giving an account of the Upanishads, or books of secret knowledge, he describes in successive chapters various schools of thought—of Vedanta, the world as illusion, *maya*; Sankhya, the world as matter; Vaiseshika and Nyaya, the world as atoms; lastly, Yoga, or asceticism. The longest chapter—nearly half of the whole work—relates the rise, sway, and decline of Buddhism. In the next chapter, on (modern) Hinduism, the author discusses the proposal, now passed into an Act, for the institution of a Hindu University at Benares, with a faculty of Hindu theology; points out the similarity between the Biblical story of Christ and Herod and the Hindu legend of Krishna and Kans, and considers the possible Christian origin of the latter; he next compares the tenets and practice of the two chief Hindu cults—the worship of Vishnu the Preserver, and of Siva the Destroyer. The third member of the Hindu Trinity, Brahma, the Creator, has no extensive following; only

two temples in his honour exist in India. The next chapter deals with the past and present position of woman in India, while the last describes the Hindu thought of the present day, with the foundation of the Brahmo Samaj by Raja Ram Mohan Roy in 1828; and of the Arya Samaj by Dayananda Swami in 1875.

Perhaps "Hindu Thought" would have been a more accurate title than *Indian Thought*. Islam is barely mentioned. It may be said that all Indian thought is Hindu. The Musalman is usually a practical person, whose religious doctrines are crystallized in the *Quran*, and is little given to deep speculation, either philosophic or religious, yet between one-fourth and one-third of the population of India is Musalman, and many of the more virile races follow the creed of Muhammad. Very little also is said of Sikhism. Belief imported from abroad, the author considers, is foredoomed to failure. Buddhism, Islam, and Christianity have left Hinduism almost unaffected.

The author speaks of the "sting" of a snake (p. 232, last line). Snakes do not sting, they bite. Another slip occurs on p. 301, where it is said that the latest Marriage Act, the "Age of Consent" Act, was passed in 1891 by the Government of Lord Lawrence. This should be Lord Lansdowne. Lord Lawrence's viceroyalty was a quarter of a century earlier. The illustrations are well executed, and most of them are beautiful.

NOTES ON BOOKS.

IN his little book on *The Dietetic Treatment of Diabetes*⁴ Major BASU gives an account of the etiology and treatment of a disease that is, for one reason or another, very common in India. There is nothing very abstruse in the text, which draws its strength largely from quotations from the works of Pavy, von Noorden, and other standard authorities on diabetes mellitus. The book is designed for the use of the inhabitants of India, and it may be warmly recommended to their attention as a short and practical manual.

A brief and breezy account of the life spent by an Englishwoman nursing in a French military hospital is furnished by DOROTHY CATOR,⁵ who points her moral and adorns her tale by many incidents showing the vices and the virtues of both the French and the English. It seems that if the French have much to learn from us about the management of hospitals, we in turn may learn much from them as to the graces of life and daily dealings with one another. The authoress was shocked by the dirt and lack of religious principle she found in France; she is still more shocked by the national conceit and inability to learn that now, she fears, threaten to drive England definitively to the dogs. The book is good reading, and appeals to the layman rather than the medical practitioner.

*The Log of H.M.S. Bristol*⁶ seems to be exactly what it professes to be—namely, a diary kept by a leading signalman during the commission from May, 1914, to December, 1915. She was part of Admiral Sturdee's squadron at the Falkland Islands, but when the action began was detached with the *Macedonia* to sink two colliers, which they did, taking off 109 prisoners. Afterwards the *Bristol* took part in the four months' search for the *Dresden* in the Magellan Straits. This meant a great change of climate, for in the earlier part of her commission the *Bristol* was sent to keep an eye on the Mexican revolution, in which, at that time, the world was much interested. Unfortunately, the ship went aground in one of the narrow channels in the Straits, damaging her rudder so badly that another had to be extemporized under great difficulties. The account of the incident gives a good idea of the emergencies the engineering branch may have to face at any moment, and the skill and perseverance with which they are met. The book is well worth reading not only for the historical events in which the ship and the writer took part, but also because it gives a plain picture of life at sea during war, its long weeks of monotony and short hours of excitement.

² *An Index of Prognosis and End-results of Treatment*. By Various Authors. Edited by A. Rendle Short, M.D., B.Sc. Lond., F.R.C.S. Eng., Captain R.A.M.C. Bristol: J. Wright and Sons, Ltd. London: Simpkin, Marshall, Hamilton, Kent, and Co., Ltd. 1915. (Demy 8vo, pp. 578. 2s. net.)

³ *Indian Thought, Past and Present*. By R. W. Frazer, LL.B., F.C.S. (ret.). London: T. Fisher Unwin, Ltd. 1915. (Demy 8vo, pp. 339; illustrated. 10s. 6d. net.)

⁴ *The Dietetic Treatment of Diabetes*. By B. D. Basu, Major I.M.S. (retired). Sixth edition, revised and enlarged. Bahadurganj, Allahabad: The Panini Office. 1915. (Cr. 8vo, pp. 108. Rs. 1.8.)

⁵ *In a French Military Hospital*. By Dorothy Cator. London: Longmans, Green, and Co. 1915. (Cr. 8vo, pp. 99. 2s. 6d. net.)

⁶ *The Log of H.M.S. Bristol*. By Wm. Huchan, Leading Signalman. London: The Westminster Press. 1916. (Cr. 8vo, pp. 163; illustrated. 4s. net.)

The *British Journal Photographic Almanac* for 1916, edited by Mr. G. E. BROWN, gives a summary of the recent progress of photography, and is an up-to-date guide in all photographic matters. It contains a compendium of practical hints gathered from British and foreign journals, and an excellent account of the various printing processes explained in such a way as to be intelligible to beginners. British firms are now thrown very much on their own resources in the manufacture and supply of photographic material of all sorts; indeed, some of these firms appear to have transferred their energies to the manufacture of munitions. There appears to be nothing of interest to skiagraphers in the *Almanac*, which came out first as long ago as 1860. It should be in the hands of every photographer, professional or amateur.

⁷ The *British Journal Photographic Almanac* and *Photographer's Daily Companion*, 1916. Edited by G. E. BROWN. I.C. London: H. Greenwood and Co., Ltd. (Cr 8vo, pp 382, illustrated. 1s. net.)

MEDICINAL AND DIETETIC PREPARATIONS.

A New Intestinal Antiseptic.

In a paper recently read to the members of a Connecticut medical society Dr. J. T. Ainslie Walker brought forward a new intestinal antiseptic which, he claims, is really effective. Countless excellent antiseptics have been employed in the past for the purpose of lessening the putrefactive processes that occur normally in the intestine, and when unduly free produce symptoms of disease. To mention only a few out of many, calomel, mercuric sulphide, salol, resorcin, various bismuth salts, beta-naphthol, and naphthalene tetrachloride have all had their vogue as intestinal antiseptics, and all have proved failures in the hands of the great majority of medical practitioners. As a result of this we have seen other methods of lessening intestinal sepsis recommended and practised, notably the use of the lactic acid bacillus advocated by Metchnikoff and the more drastic surgical procedures of Sir Arbuthnot Lane. The new drug so strongly recommended as an intestinal disinfectant by Dr. Walker is a benzene derivative, 1-2-4-5-6-trimethylmethoxyphenol, with the formula $C_6H_3(CH_3)_3(OCH_3)OH$. He does not mention how it is formed or where it may be obtained. It is administered by the mouth in the form of 2½ minim gelatine capsules containing a 50 per cent. admixture of the drug with a vegetable base, and alternatively as a syrup, for infants and children unable to take the capsules. A 50 per cent. gelatine emulsion of the drug is known for short as "trimethol." It is stated to have a Rideal-Walker coefficient of 20, or in other words to be twenty times more efficient than pure phenol as a germicide, and is not, it is said, decomposed in its passage through the alimentary tract, and is excreted unchanged in the faeces. It appears from the cases quoted by Dr. Walker that up to twenty of the capsules of trimethol described above may be given to an adult daily; offensive diarrhoea, enteritis, ulcerative enteritis, mucous colitis, and ulcerative non-amoebic dysentery are mentioned among the intestinal disorders in which the new drug proved strikingly effective. As every medical man knows, intestinal sepsis is nowadays credited with being the *fons et origo* of many diseases that may at first sight appear to have little connexion with it—rheumatoid arthritis, for example, and pernicious anaemia. Dr. Walker certainly makes out a good case for the further trial of trimethol in both acute and chronic septic disorders of the intestine.

ROYAL MEDICAL BENEVOLENT FUND GUILD.

ANNUAL GENERAL MEETING.

The annual general meeting of the Royal Medical Benevolent Fund Guild was held at the Mansion House, London, on February 21st, the Lord Mayor (Sir Charles Wakefield) presiding. Lady TWEEDY read the report of the council, in which reference was made to the success of the sale of work at Crewe House last November, by which more than £1,000 was added to the funds of the Guild. During the year written reports had been made upon 400 cases—a "case" often meaning a family—which had been referred by the Fund to the Guild. Mrs. LIVING, in an account of the work of the Visiting Committee, mentioned that as a result of the war the Guild was called upon to deal with many widows and children who, in happier times, would never have dreamed of asking for such assistance. Mrs. SCHARLIEB made the

treasurer's statement, from which it appeared that the income of the Guild during the year, including the proceeds of the Crewe sale, was £3,726; £1,500 of New Zealand stock had been purchased, and the special education fund now stood at £300.

Sir ARTHUR MAY, K.C.B., Medical Director-General, said that when the war was over it was possible that the outlook for benevolent organizations would not be so black as some were inclined to depict it. Many a wall of prejudice would have been broken down, and charity would have a wider gate. The Guild stood especially to benefit from the new social impulse, for the public support would be given to those societies which had under their care cases of distress arising directly out of the sacrifice of the individual in the war. Speaking for his own branch of the service, he said that the navy was at concert pitch, and to this state of affairs, which was a matter less of material than of personnel, the medical department had very largely contributed. Notwithstanding the hardships of the long vigil, the health of the fleet to-day was better than it had ever been since statistics were taken. At least half the medical men now serving in the navy had left civilian practice during the last eighteen months. No profession stood to lose so much by service with the forces as did the medical profession, simply because it was a profession which depended to so great an extent upon personality. Patients were notoriously fickle, and it was possible that by the time the doctor returned to civil life he would have to rebuild his practice almost from the beginning. Time after time since the war began he had been approached by medical men, who had said, "I would join to-morrow if it were not for my wife and children." In such cases he used no pressure, but many men had left family and practice to come and do their share. Before the war the insufficiency of medical men in the navy had been a great shadow upon his mind, but it had been lifted by the splendid manner in which civilian doctors had come forward. They were serving to-day in every theatre of war, and it was for those who remained at home to do their utmost to relieve from possibility of want the dependants of these men should the breadwinner be called upon to make the final sacrifice.

Dr. JAMES CAMPBELL McCURE said that medical men were not much given to looking to the morrow, partly because the temperament which led a man to the medical profession was the reverse of that which tempted a man to business, and partly because the training of the medical student encouraged on the one hand a scientific abstraction and on the other an altruistic spirit. This temperament and training, combined with many social demands made upon the young doctor, furnished the necessity for the Fund and Guild. The world was often surprised to find how little a doctor had bequeathed, forgetting that the few years of prosperity which had preceded his death had been spent only too often in the liquidation of debts incurred during his years of struggle. Dr. McCURE suggested that appeals for this benevolence should have a place in every hospital and college; and Dr. LOUISA GARRETT ANDERSON, in a later speech, made the further suggestion that grateful patients should be asked to help by a donation, instead of offering the silver tankard or cigarette case which sometimes figured as a personal gift to the family doctor.

On the motion of Sir WILLIAM CHURCH a vote of thanks was accorded to the Press, more especially the medical Press, for space granted to the work of the Guild, and the meeting closed with compliments to the Lord Mayor and Lady Mayoress voiced by ADELIN, DUCHESS OF BEDFORD, and Sir JOHN TWEEDY.

THE Secretary of the London (Royal Free Hospital) School of Medicine for Women has forwarded to us a prospectus explaining the arrangements for dental students. The Royal Dental Hospital of London School of Dental Surgery, Leicester Square, and the University College Hospital dental department and school (National Dental Hospital) are both open to women students. That part of the course only which is not obtainable at the dental school and hospital is taken at the Royal Free Hospital school. The prospectus explains the course of study, which occupies a minimum period of four years subsequent to registration, and includes three examinations.

British Medical Journal.

SATURDAY, FEBRUARY 26TH, 1916.

SIR WILLIAM TURNER.

SIR WILLIAM TURNER throughout an active life which exceeded the common span exerted a great but often silent and unseen influence on the development of medicine in this country. His influence was due in part to a strong intellect, in part to his own example of diligence and continuity in scientific research, and in still larger part perhaps to a staunchness of character which made it impossible to imagine that he could ever be blown about by any wind of doctrine.

For more than sixty years he was actively concerned with medical education. For almost half a century he taught anatomy in the University of Edinburgh, and how great he was as a teacher is shown by the list of his pupils who are now teaching anatomy all over Greater Britain. All that time he had been impressing his ideals and his character not only on his pupils, but on the whole of that great university, until, when he was 71, he was called to be its chief executive officer. As was characteristic of him, he had long before this made himself thoroughly acquainted with the business of the university in all its aspects, and by so doing had incidentally broadened his own outlook on medical education. It was in the fitness of things that the university should have sent him quite early to represent it on the General Medical Council, and that that body after experience of his qualities should have chosen him to be its President. As Sir Donald MacAlister says in the tribute he pays to his predecessor elsewhere in this issue, Sir William Turner had to face a somewhat difficult position. Things were going askew with the Council in more than one respect, and there was not wanting much depreciatory and destructive criticism. Turner met it not by retorting, but by quietly and steadily setting to work to right what was wrong. He succeeded by being just and constant, keeping an open mind, and not letting prejudice imported on either side bias his judgement; he had, as his successor says, the judicial mind, and that perhaps sums up his outstanding quality as no other phrase could.

To his scientific work he brought this same quality of mind and with the like success. No doubt his appointment in the prime of early middle life to the chair of human anatomy in Edinburgh gave him a very great opportunity—there was no like opportunity in Great Britain at that day—but his was the merit of taking full advantage of it and realizing fully how it was to be used. It was a moment when the science of human anatomy needed a leader of the comprehensive and accurate mind and breadth of outlook which Turner pre-eminently possessed. The enthusiasm that had impelled and sustained the older students of human anatomy was dying away: their method had been worked dry to the dregs. Two new currents of thought were beginning to flow. Harvey, first of the great British anatomists, and, after a long interval, Bell, had shown the course along which one stream was to run—the application of experiment to anatomy, hitherto a science of pure

observation. Its course had then already brought it close to physiology, and now no clear line can be drawn between the two. The other current was towards comparative anatomy and anthropology—to the study of man's relation to the rest of the animal world, to his ancestors, and of races to each other. Both currents combined to carry human anatomy into the broad stream of biology. It was to the second stream that Turner committed himself and most of his original work; without detracting from his contributions to comparative anatomy it may be said that it was in anthropology that his work and his influence was most fruitful. To the influence of his teaching is largely due the eminent position of British anthropology—its richness in detail, grasp of principles and boldness in speculation, qualities in which its only rival is the French school. We are fortunate to be able to publish this week a tribute by Professor Arthur Keith which deserves that much abused epithet "eloquent." The facts are eloquent in themselves, and the truth of his summing up will, we believe, be more and more appreciated: that "the most marvellous aspect of the whole" of Sir William Turner's "career was his ability to combine a life of extraordinary scientific industry with one laden with administrative duties."

PENSIONS AND ALLOWANCES ON DISABLEMENT BY DISEASE.

MANY instances have been brought to public notice of soldiers and sailors who have been discharged from the army or navy on account of constitutional weakness, without prospect of pension or other national recognition of the services that they may have rendered. The whole question of the responsibility of the State for the future care of its defenders of all ranks was brought prominently forward by an amendment to the Address moved by Mr. W. Thorne in the House of Commons on February 16th to the effect that the Government should accept responsibility for the payment of pensions and allowances to all soldiers and sailors discharged on account of diseases contracted or developed during service with the colours. In his brief speech the mover asserted that it had been stated that it was not possible to pay pensions to soldiers or sailors discharged for medical defects. He questioned the right of the Government to refuse such pensions, and maintained that a recruit, once passed as medically fit and accepted for service, should, even if serving only for home defence, be entitled to the same treatment as the wounded man from the front, if he should be incapacitated by disease.

The debate served to emphasize the strong feeling which animates both public and official circles that the spectacle shall not again be permitted of the disabled defenders of their country reduced to poverty and want. The action of the War Office and the Admiralty has hitherto been guided by the terms of a Royal Warrant and of an Order in Council, and these terms admit of varied interpretation. The parliamentary representatives of both services expressed the earnest desire to interpret them sympathetically, but at the same time indicated that discretion must also be regarded.

Breakdown in health from constitutional causes, such as a tendency to rheumatism or tuberculosis, may occur in military as well as in civil practice, and it is equally difficult, if not impossible in many cases, for medical authority to forecast the liability to such breakdown.

More especially is this the case with regard to tuberculosis. Many members of Parliament would still seem to have overlooked the fact that a large proportion of the population become infected, at some period of childhood or adolescence, with tuberculosis. The most careful and prolonged medical examination may fail to detect evidence of the latent disease, although it may at any time become active. It does so far more frequently in the person of the sedentary clerk in his office than in that of the similar individual transferred to the active open-air life of the camp. The hardships and dangers of life under fire have undoubtedly been followed in some instances by a recrudescence of tubercle, countless examples have been forthcoming of the invigorating effect of the strenuous open-air life upon young men of slender physique who have been thereby converted into hardy soldiers. A large proportion of such men must be potentially tuberculous, but it is wholly beyond the powers of medical boards, however carefully constituted, to say whether such potentiality will ever become active.

The establishment of a statutory committee to make provision for the care of disabled officers and men after they have left the service will doubtless provide a court of appeal in difficult cases, but it is not to commence operations until next July. In the meantime the National Relief Fund and the Soldiers' and Sailors' Families Association are available to deal with urgent cases.

It was made quite clear in the course of the debate that, while the terms under which pensions and allowances are granted must be adhered to, they will be liberally interpreted, but such liberality will not extend to the cases, of which there must of necessity be a certain proportion, in which the breakdown occurs within a short time after enlistment. Medical boards, often working at high pressure to examine recruits, are not infallible, and the principle that the Government must make itself responsible for the future care of every one who passes the doctor is too sweeping for acceptance. Many of the speakers were inclined to adopt the interpretation of the Workmen's Compensation Act as defining the liabilities of the Government with respect to pensions and allowances, but the general outcome of the discussion upon the amendment, which was withdrawn, did not indicate more than a general desire on the part of the speakers for sympathetic treatment of hard cases, and a willingness on the part of the Government to accord it.

ARMLETS AND ATTESTATION.

The attention of all medical men who are single and under the age of 41 next birthday, and who are enrolled with the Central Medical War Committee, is called to the fact that they can only obtain armlets under the Derby scheme if they are attested. The period for attesting terminates automatically when the provisions of the Military Service Act come into force on Thursday next, March 2nd. It is important, therefore, that every medical man to whom the above description applies, and who wishes to be in a position to wear an armlet, should make arrangements to attest within the next few days. Attestation, with the consequent right to wear the armlet, will make it clear that the wearer has, while the voluntary system is still in force, shown his readiness to serve his country when called upon to do so.

MEDICAL STUDENTS AND THE MILITARY SERVICE ACT.

In consequence of the passing of the Military Service Act, 1916, the Army Council has issued an instruction modifying the procedure to be followed in the case of medical students

as provided under the Derby scheme.¹ The instruction will be distributed in recruiting subareas, and directs that all medical students in their fourth or fifth year of study, and those in their third year of study whose examination takes place during the winter session, must either attest under the group system or become liable to the Military Service Act. A student who attests under the group system should produce a certificate signed by the dean of the faculty of his college, to the effect that he is enrolled in an officers' training corps, and is either a fourth or fifth year student, or a third year student to be examined during the winter session. A fourth or fifth year student will not be called upon, while a third year student will be postponed to April 15th, 1916. In their case, recruiting officers on that date are instructed to ask the dean of the college concerning the result of the examination. If the student has passed he will not be called up; if he has failed he will be called up, provided the group to which he belongs has been called up. A student who does not attest under this, the voluntary, system becomes liable to the provisions of the Military Service Act, and must appeal to the local tribunal if he desires exemption. A certificate from the dean of the faculty of his college stating that he is enrolled in an officers' training corps, whether he is a third, fourth, or fifth year student, and if a third year student that he is to be examined during the winter session, must be attached to the claim, and military representatives are instructed to assent to such claims subject to the provision, in the case of the third year's student, as to the examination being passed during the winter session. On April 15th the military representatives will apply for the withdrawal of the exemption certificates of third year students who have failed in their examination. The order is dated February 20th, 1916 (No. 389, Military Service Act).

MEDICAL EXAMINATION OF ENROLLED MEDICAL MEN.

The following is the text of an instruction which is being addressed to the Deputy Directors of Medical Services in Commands: "In connexion with the question of the enrolment of medical men for service with the army, it has been decided that local arrangements shall be made for the physical examination of all medical men who are so enrolled. The Central Medical War Committee have accordingly been instructed that they, or the local committees, may arrange direct with you for the examinations to be carried out at the nearest recruiting board. Each candidate should be required to complete Army Form W. 3075, and in case of unfitness the reasons should be stated on the certificates. When the cause of unfitness is defective vision, the degree of vision with and without glasses should be stated. The certificate and Army Form W. 3075 should be returned to the local committee, and will be forwarded by them to the Central Medical War Committee or Scottish Medical War Emergency Committee, who in turn will send these documents to the office."

CEREBRO-SPINAL FEVER IN 1915.

ACTING in collaboration with the War Office, the Medical Research Committee has recently issued a full and interesting report² upon the bacteriological studies of cerebro-spinal fever made by a number of specially competent observers at twenty-four separate stations in England during the first eight months of the year 1915. The report is divided into five parts. The first of these is concerned with the biological properties of the meningo-

¹ SUPPLEMENT TO BRITISH MEDICAL JOURNAL, January 15th, 1916, page 9.

² Report of the Special Advisory Committee upon Bacteriological Studies of Cerebro-spinal Fever during the Epidemic of 1915. Medical Research Committee, London, 1916. (6d.)

coccus, the organism still accepted by practically all bacteriologists, as the report states, as the infecting agent in cerebro-spinal meningitis. Discussing the evidence adduced by Dr. Hort and his collaborators¹ to show that Weichselbaum's meningococcus is a highly pleomorphic organism—perhaps a "late non-infective phase" of a microbe which may be a filter passer—the authors of the report do not agree with any such views; they characterize the "pleomorphism" rather as "involution." They make many interesting observations on the difficulties of identifying the meningococcus, due in part to the fact that it exists in many different immunological strains or races, or even in forms so different from one another as to deserve the name "subspecies." No finality has been reached as yet in this matter; in the same way no finality has yet been reached in the formula of the culture medium best suited for the rapid isolation or identification of the meningococcus. At the present time a pea-flour-agar medium, known as "tryptagar," is probably the best for this purpose, though it leaves much to be desired. It is noted that nasal mucus, saliva, and other organisms such as pneumococci and streptococci, all tend to inhibit the growth of meningococci on culture media, an obvious further embarrassment in the search for the microbe on swabs from the nose or throat. Regarding the bacteriological diagnosis of cerebro-spinal fever, the report speaks of the invariable presence of polymorphonuclear leucocytes in the cerebro-spinal fluid during the active stages of the disease, and emphasizes the fact that they make their appearance here very early in the disease. This is of interest as not being in accord with the early cerebro-spinal lymphocytosis described by Netter, Sophian, and others, as of frequent occurrence. It is noted that the meningococcus can be grown from the circulating blood in only a small proportion of the cases, and those the most acute; yet the authors of the report believe that the route of infection in cerebro-spinal meningitis is habitually from the pharynx to the meninges by way of the blood stream. They hold that it is but rarely excreted by the kidneys. Part III of the report is given to an analysis of the very extensive investigations of the problems raised by meningococcus carriers that have been made. Roughly speaking, 6 or 7 per cent. of carriers were found in a total of over 10,600 contacts examined, the percentages found by different observers varying from 1 to 20. As regards treatment, the general conclusion reached is that the meningococcus carrier will recover spontaneously almost as fast as with the most careful local or general treatment; vigorous local treatment is certainly undesirable. In Part IV the epidemiology of the disease is discussed from the bacteriological point of view; overcrowding and deficient ventilation are described as the chief factors in the spread of cerebro-spinal fever among soldiers. The incubation period is indefinite, varying from three days to three weeks and probably longer. The authors regard the meningococcus as essentially a saprophyte with a low virulence for the average human being, excluding infants; in times of epidemic cerebro-spinal fever individual races of meningococci must be assumed to attain a greater virulence that enables them to produce meningitis in young adults who in ordinary circumstances are immune. There is evidence to show that at least one of the three principal meningococcal strains concerned in last year's epidemic was introduced by the Canadian troops. Part V of the report deals with the specific treatment of the disease, the results of which have certainly been disappointing. The reason for this no doubt lies in the multiplicity of the meningococcal strains that are abroad among us. The use of hexamine and soamin has been no more successful. This report is one that should be read by all who wish to keep abreast of our knowledge of cerebro-spinal fever.

EUGENICS AND THE WAR.

EUGENISTS who had been anticipating some speculations on the effect of the war on the race were a trifle disappointed with Professor E. B. Poulton's Galton lecture delivered last week. His subject was "Eugenic Problems after the War," but he seemed to feel, with the Walrus, that the time had come to talk of many things, and after touching on the revolting eugenic effect of a German victory, he proceeded to rejoice in the shattering of the party system in this country, and also to denounce the neglect of science and scientific education by the governing bureaucracy. The voluntary basis of recruiting was another matter which came under his ban. He described it as being contrary to all the principles of eugenics, particularly in the absence of proper selection and classification, and the absence also of authority to decide that the energies of a man of certain scientific attainments would be better employed in the laboratory or classroom than in the trench. The present struggle had been compared in its social upheaval to the Civil War, but Professor Poulton thought that the Civil War, engaging as it did only thirty thousand or so combatants on each side, while the rest of a populous England looked on, had nothing like the impact which this war would have upon our generation. He conceived it the most pressing business of the Eugenics Education Society to unite with the scientists of every department in doing their utmost to see that, in the new form of government that was coming, science should have its proper recognition. Sir E. Ray Lankester, in moving a vote of thanks to the lecturer, agreed that the British Government was ignorant of, and therefore hostile to, science in all its branches. The ignorance extended from the highest Minister to the humblest official in the civil service. The real trouble, as he conceived it, was the servitude to snobbery. We were willing to see every post of importance go to no matter whom, provided he belonged to the right set, wore the right kind of collar, and had been to the right school. Professor E. W. Macbride, while almost equally severe in his criticism, thought that the lack was not so much the fault of the officials as of the way in which they had been brought up. Major Darwin, who presided, said that while it would be pleasant to believe that all suffering could be swept away by social reform, it was necessary to make the best of the world as it was. Just as brothers differed, so each generation might show an advance or a decline in comparison with that which preceded it, and social conditions would not prevent degradation if the inborn qualities of a nation were deteriorating. He quoted the saying of Lincoln: It is "for us to be here dedicated to the great task remaining before us"; that is, in the first place to winning the war, and then to seeing "that this nation, under God, shall have a new birth of freedom"; and added that Galton would have said that increasing freedom and racial degeneracy never marched hand in hand. If London was a little disappointed, the Liverpool branch of the society could not have felt that the address of its president last week in any way lacked in vigour. That stormy petrel, Sir James Barr, spared neither the working man nor the capitalist, but demanded that the Government should apply conscription all round in the interests of the nation. During the last eighteen months, he said, it had not merely been business as usual, but a large portion of the population, especially the middlemen and distributors, had striven to see how much they could make out of the war, a liberal donation to a charitable war object, and a good investment of profits in the war loan being sufficient to salve their consciences. The tax on war profits should not be confined to capitalists, but should extend to those unpatriotic wasters who had been on strike for an extra penny an hour, while the brave men in the trenches were not getting a penny an hour. Officers barely got a living wage, and yet a cool and calculating Government deducted

¹ See BRITISH MEDICAL JOURNAL, 1916, 1, 159.

a war income tax from their salaries. Could base ingratitude go much further? In conclusion, he said that the nation must prepare for the great trade war which was certain to follow as day followed night. All must be imbued with the spirit of work and the dignity of labour, for success would largely depend on the British working man.

WAR ORTHOPAEDICS.

THERE will be found at another page (318), in the course of a letter describing some of the medical work being done in Paris, an account of a demonstration given by Major Robert Jones of Liverpool at the Franco-American ambulance, Neuilly, which is still busily employed by the French military authorities. The staff of the ambulance got together a set of cases of gunshot wound of the upper arm, and Major Jones gave a sort of clinical lecture on the means which should be taken to place the limb in the position most favourable to its recovery with as large a degree of useful function as possible. After dealing with injuries of the shoulder-joint likely to end in a greater or less degree of ankylosis, and with fractures of the forearm, he went on to consider wounds involving the wrist. He advised that the joint should be kept in hyperextension (dorsal flexion), for should a stiff wrist result from the injury, the grasp of the fingers would be much stronger than if the hand were bent towards the flexor surface of the forearm. This position also affords a much better chance of securing a return of power in cases of wrist-drop. In them not merely the carpus and metacarpus but the whole palmar surfaces of the fingers should at first be supported; later on the length of the digital portion of the splint should be lessened as the patient regains power of extending the terminal phalanges by voluntary effort. The condition of wrist-drop, one of the causes of which is tight bandaging, is generally accompanied by malposition and excessive callus, it is amenable to the same line of treatment; the understanding of the condition has, perhaps, been confused by the term "ischaemic paralysis," which Volkmann applied to it, or to one form of it. When the condition is fully developed the fingers are contracted into the palm; the first thing to do, then, is to flex the wrist to the utmost and to straighten the fingers to the splint. When the fingers have been straightened to the palmar splint by degrees wrist and hand are extended and gradually hyperextended, a process which may take some months. In this way the contracted flexors are lengthened, and the stretched extensors relaxed. In the later stage massage and heat may be applied. Such cases are among those which go for treatment to the great hospital for men with crippled limbs which the French Government has established in the Grand Palais in Paris, described by Drs. Fortescue Fox and Campbell McClure at page 319. We have already on more than one occasion ventured to call attention to the extreme importance of orthopaedic treatment for men suffering from the crippling effects of wounds of bones and joints; especially is this the case when regarded from the economic point of view. A man, for instance, with a dropped wrist and stiff flexed fingers is quite incapable of following most trades, whereas if he retains control over the fingers he can, even though his wrist is stiff, execute many fine movements almost as well as a sound man, and can therefore become a useful member of the community. We believe that the army medical authorities are fully alive to the importance of early and efficient treatment of such cases, and we are quite certain that such treatment will not only render happier the lives of the men who undergo it, but will be an immense economic advantage to the country, to say nothing of the saving to the Exchequer in the matter of pensions.

BRONCHOSPIROCHAETOSIS.

A VALUABLE contribution to our knowledge of bronchospirochaetosis has been made by Dr. G. A. Lurie of Chicago, who gives a full account of the malady, illustrated by a report of a case he observed in Serbia.¹ The affection was first described by Castellani in 1905, who gave a description of its etiological agent, which he called *S. bronchialis*. Branch in 1907 confirmed Castellani's observations in the West Indies, and Jackson in 1908 in the Philippine Islands. In 1909 Waters recorded several cases in India, and Phalen and Kilborne a case in the Philippine Islands, where in 1911 Chamberlain described two cases. Recently numerous cases have been recorded in various parts of Africa by Chalmers, O'Farrel, Taylor, Harper, Macfie, and others; Fantham has made a very complete protozoological investigation of the spirochaete causing the disease, and has observed a coccoid stage. The spirochaete usually has tapering ends; it is very variable in length, thickness, and number of waves. Flagella are apparently absent. Dr. Lurie, following Castellani's classification, distinguishes three types of the disease—the acute, the chronic, the subacute. In the acute type the patient feels chilly and then develops fever, which lasts for a few days and is seldom very high. The expectoration is scanty and muco-purulent. Chronic bronchospirochaetosis may follow an acute attack, but more often the onset is slow and insidious. The expectoration is muco-purulent and may contain blood. Occasionally true haemoptysis is observed. The temperature may be normal, or there may be fever of hectic type. The physical examination is often negative, but, in certain cases, signs of slight consolidation may be detected. The general condition of the patient may remain fairly good for a long time, but occasionally wasting is rapid. The course is a long one, extending over several years, with periods of great improvement. The case observed in Serbia by Dr. Lurie belonged to the subacute type, the disease lasting for some months. The diagnosis of the malady is based on the microscopical examination of the sputum, which should be collected as free from saliva as possible and after the patient has gargled with sterile water. The spirochaete is generally present in very large numbers. The condition is distinguished from tuberculosis by the absence of Koch's bacillus; from bronchomycosis by the absence of hyphomycetes; and from endemic haemoptysis by the absence of ova of *Paragonimus westermanii*. Cases of mixed infection may occur. The prognosis is generally good, *quoad vitam*, but the disease may run an extremely long course. As regards treatment, Dr. Lurie emphasizes the great value of arsenic, as recommended by Castellani; Fowler's solution in his case gave very gratifying results.

ACETONURIA AND ACIDOSIS.

THE name "acidosis" was applied by Naunyn to the excretion of acetone, aceto-acetic acid, and beta-hydroxybutyric acid. Acidosis is of interest to the clinician because its occurrence, associated with diminished alkalinity of the blood, has been held to explain obscure occurrences such as diabetic coma and delayed chloroform poisoning. To the physiologist acidosis is of interest because the output of acetone and its congeners affords him the only clue he possesses to the faulty metabolism of fat. These substances are excreted mainly in the urine, and the influence of various diets and of periods of starvation on their excretion has recently been submitted once more to examination, by Dr. R. M. Lang,² with a view to casting fresh light upon the vexed question of their origin. In describing the experimental methods he employs the author notes that the solution of basic lead acetate habitually added to the urine in the course of such analyses

¹ Notes on Castellani's Bronchospirochaetosis, with report of a case, *Journal of Tropical Medicine*, December 1st, 1915.
² *Biochemical Journal*, Cambridge, 1915, ix, 455.

as these may of itself be a source of small amounts of acetone, when Shaffer's method of determining the acetone bodies is employed. Indeed, the error thus introduced may amount to over 100 per cent. in the case of normal urines; Dr. Lang has worked out figures showing the corrections that should be applied to eliminate this source of error in Shaffer's method. He finds that the quantity of acetone bodies excreted by the normal individual on a diet containing a sufficiency of carbohydrate is influenced chiefly by the protein in the food, and averages from 10 to 30 mg. a day. The output is much increased by starvation; the amount excreted during the first few days of starvation depends on the initial storage of carbohydrate and increases as soon as the ratio of the fat to the carbohydrate oxidized in the body becomes greater than about two to one. The administration of quite small amounts of carbohydrate to the starving organism brings about a great reduction in the acidosis, though relatively large amounts are required to stop it; protein acts less well and less rapidly than carbohydrate, as does glycerol, while alcohol is without effect here, and the exhibition of fat actually increases the acidosis. Dr. Lang concludes that when acetone bodies are excreted in excessive amounts they are for the most part derived from fat; he found that on the third day of a diet consisting of 320 grams of olive oil the urinary excretion of acetone and aceto-acetic acid reached over 0.8 gram, while the beta-oxybutyric acid was nearly 1.3 gram in the twenty-four hours. The diet, it may be remarked, proved both nauseating and depressing, and on the evening of the third day the breath was found to contain acetone in the proportion of something like 9 mg. an hour. The greater amount of the acetone, so called, in acetonuria is excreted in the form of aceto-acetic or diacetic acid; hence the term "acetonuria" might properly be replaced by the name "diaceturia," as Piper proposed in 1913. Dr. Lang also brings forward some evidence in favour of the possibility of the conversion of fat into carbohydrate in the human body, comparable to that which takes place in the hibernating mammal.

SIMPLES AND TISANES.

No English practitioner who has followed his profession on the Continent can fail to have been struck by the extensive use made of popular medicinal herbs as adjuvants to medical treatment properly so called. In England the preparation of infusions, decoctions, extracts, and liniments of herbs is now handed over to the manufacturing chemist, but there is a wide difference between the diuretic action of acetate or citrate of potash with infusion of buchu in the ordinary 6 oz. mixture and that of the same salt administered by the French method in a cupful of hot, freshly-prepared infusion, or the expectorant qualities of oxymel of squills and ipecacuanha given in a hot infusion of linseed and liquorice. From the time of Hippocrates the value of the ingestion of hot water in the treatment of febrile affections has been recognized and the prescription of herbal infusions and decoctions is, in the main, only a device for the purpose of inducing the patient to swallow the hot liquid, just as antisepsis is in great measure a device for securing cleanliness. Not one French patient in a dozen could be persuaded to drink a quart of hot water in the twenty-four hours, but if it be provided in the form of a herbal infusion, duly flavoured and sweetened, no difficulty is experienced. In the whole realm of medicinal nature there is no more active salutary diuretic and diaphoretic than hot water, and the physiological action of the latter is free from any drawback, whereas that of powerful drugs such as nitre, pilocarpine, sparteine, and the like, is often attended by injurious collateral effects. The absorption of the hot liquid and its free evacuation by the emunctories is a form of lavage of the tissues, stimulating metabolism,

and ridding the organism of microbial toxins and organic waste products. The French pharmacopoeia contains upwards of 200 *tisanes*, and no scheme of treatment is thought complete unless it provides for the ingestion of an adequate quantity of tisane. Instead of ordering "mist. alb.," the French doctor administers some Epsom salts or sodium sulphate in a hot infusion of senna, camomile, vervain, peppermint, or limeflower, with, on the whole, much more satisfactory results. In many parts of England a decoction of poppy heads and camomile is commonly employed as a fomentation for injured limbs, and its first aid use is cordially recommended by the doctors, since if it does nothing more it secures cleanliness of skin. Let us then, administer the bromides in a fresh infusion of valerian; nitre or ammonium acetate in a hot infusion of marsh mallow, couch grass, or pellitory; expectorants in a decoction of tussilage, pine buds, or serpentary; and a diuretic of potassium acetate in an infusion of elder flowers, saponaria, or borage. A cupful of hot vervain or camomile after dinner is an excellent carminative and facilitates digestion, and there are still people who like these draughts. Our professional forefathers were adepts in this matter, and in mediæval art the physician was usually represented scanning a sample of urine or culling herbs:

Excellent herbs had our fathers of old,
Excellent herbs to ease their pain—
Alexanders and marigold,
Eyebright, orris and elecampane,
Basil, rocket, valerian, rue
(Almost singing themselves they run),
Vervain, dittany, "call-me-to-you"
Cowslip, melilot, rose-of-the-sun;
Anything green that grew out of the mould
Was an excellent herb to our fathers of old.

COBRA VENOM.

THE action of cobra venom is generally supposed to be exerted in part on the central nervous system and in part on the terminations of the motor nerves. In a paper presented to the Royal Society on February 17th Professor A. R. Cushny, F.R.S., and S. Yagi stated that experiments they had made showed no symptoms of central nervous action in either cold or warm-blooded animals, but that death occurred from paralysis of the motor nerve terminations in striated muscle. In the frog this was accompanied by slowness and finally arrest of the circulation from a direct action on the heart. In mammals the failure of the respiration was due to the paralysis of the respiratory nerve terminations, but this was often accompanied by the inhalation of saliva, which accelerated asphyxia. The heart was also weakened by quantities of venom greater than the minimum lethal dose. A number of antidotes were examined without any great success, because no antidote appeared capable of ejecting the venom from its combinations in the tissues. The action on the peripheral organs was found to consist in a preliminary phase of stimulation followed by paralysis of muscle, whether striated or unstriated. This was common to all forms of muscle whatever the nature of the innervation, so that it could not be attributed to action on the nerve ends. The sympathetic ganglia and the secretory epithelium did not appear to be affected by the venom.

KEDANI FEVER IN SUMATRA.

A CURIOUS complaint, known as pseudo-typhoid fever, occurs in Deli, Sumatra. It is believed to be a variety of Japanese kedani fever, but Schüffner,¹ who has recently reported some cases, states that the transmitting agent of the disease in the two countries, Japan and Sumatra, is different. In Japan a small red mite, the larval form of an unknown *Trombidium*, is known to be the infecting agent; the true host of this mite is the field-mouse, which harbours the parasite often in large numbers, about the ears. Up to the present Schüffner has been unable to determine

¹ The Philippine Journal of Science, vol. x, Sec. B, No. 5.

the transmitting agent of the disease in Sumatra, but he thinks it must be a tick or mite. In 39 per cent. of the cases the original point of infection can be found. In the early stages a papule appears, which soon bursts, leaving a small dark area of blackish necrosed skin some 4 mm. in diameter; five to eight days later the slough is cast off, leaving a small round or oval ulcer with steep edges and the floor covered with muco-pus. Lymphangitis has not been observed, but the lymphatic glands in the neighbourhood of the ulcer are enlarged and tender, sometimes markedly so. The site of the initial lesion varies, but is commonest in the regions of the groins, the armpits, and the neck. The second characteristic symptom of the disease is an eruption which appears on the second or third day, and attains its full development between the sixth and eighth day; it then presents itself as a roseola, the raised spots varying in size from that of a hemp-seed to a threepenny-bit. This eruption closely resembles secondary syphilis; it covers most of the body, being thickly placed on the flanks and less marked on the face and extremities; it persists from eight to ten days longer, then becomes of a brownish colour, and slowly disappears. The temperature is raised, and the course of the fever can best be described by saying that it corresponds in all respects to that seen in enteric fever; it attains its maximum in four or five days, remains high for some time, and then gradually falls by lysis. Of other symptoms diarrhoea is uncommon; albuminuria may be present, and extensive bronchopneumonia has been seen in fatal cases; rheumatic pains are complained of in the smaller joints. The disease in Sumatra is considered to be much less fatal than the kedani fever of Japan. There are many points of resemblance between the two diseases, however; so much so, that the author believes the Sumatra disease to be only a variety of the Japanese.

Medical Notes in Parliament.

War.

Attested Men Found Physically Unfit.—At question time on February 21st the position of unmarried men who had attested and been rejected on medical grounds after August 14th, 1915, was raised, and Sir John Simon, not being satisfied with the answers, brought up the matter again in the debate on the vote of credit. Mr. Tennant, in his reply, said that it was quite clear that persons who had been rejected as medically unfit since August 14th, 1915, were outside the Military Service Act, but it did not follow that they were entitled to an armlet. When application for an armlet was made the War Office was entitled to ask why the man had been medically rejected. If rejected for some minor defect, he might still be of service to the country in other capacities. There was no desire on the part of the War Office to treat patriotic and innocent citizens unfairly. In reply to Mr. Thomas, Mr. Tennant had, on February 17th, stated as follows:

The conditions under which men can obtain armlets if they have been rejected at a recruiting office were published on December 27th, and are as follow: (a) Men who have been rejected on account of organic disease are given an armlet and their names are registered. (b) Men who have been rejected on account of eyesight or some slight physical defect are also given an armlet on condition that they will attest and be passed to the Army Reserve. In both cases, if the men can produce Army Form B 2505A and or Army Form B 2512A showing date and cause of rejection no further examination is necessary, but if the cause of rejection is not stated on the certificate it is necessary to re-examine the man to decide whether he belongs to category A or category B. There is no obligation on any man to submit to a second medical examination unless he is desirous of obtaining an armlet, but to obtain the armlet he must be medically examined unless his rejection certificate shows the cause of his rejection.

Enlistment of Consumptives.—In reply to Mr. Booth, Mr. Tennant said on February 21st that he feared that

there was some foundation for the statement that many consumptives had enlisted and thus for a period had relieved the approved insurance societies of sickness pay.

Medical Officers over 45.—On February 22nd Mr. Ellis Davies asked the Under Secretary of State for War whether it was the intention of the War Office that medical men now holding commissions in the Royal Army Medical Corps, being under 45 years of age and unfit for foreign service, should resign the same on the expiration of their present agreement. Mr. Tennant replied: Temporarily commissioned officers of the Royal Army Medical Corps under 45 years of age and unfit for foreign service are not permitted to retain their commissions after the period of service for which they engaged has expired. No further commissions are being given to men under 45 years of age unless they are physically fit for active service. It is hoped by these methods to set free men who are physically capable of undertaking general military duties and who have hitherto been employed in war hospitals in this country or have been engaged in private practice.

Fees for Medical Examination of Recruits.—Mr. Rendall asked whether the scales for payment to medical men for examining recruits (Southern Command Order 507, March 13th, 1915), set forth that for a whole day, defined as six working hours, and the examination of from thirty to forty recruits, the payment of £2 is ordered to be made; that in certain towns the doctors declined to examine more than thirty-one recruits a day, and for this work had been paid the full fee of £2; that in other places doctors worked from nine to twelve hours, and in one case (Dr. Weaver of Yeovil) 226 recruits were examined in fifteen consecutive hours, yet for these long hours and far greater number of examinations only the same fee of £2 was being paid as for the examination of thirty-one patients; whether there was dissatisfaction; and would he order the payment of £2 for each six hours' work and get his medical advisers to put these matters on a business-like footing. The Financial Secretary to the War Office (Mr. Forster) replied that if a few recruits were examined in a day, the fee was 2s. 6d. a recruit. £2 was the payment for a full day's work. In view of the evil results of hurried examination, it was not considered desirable to hold out to doctors pecuniary inducements to examine more than thirty to forty recruits in one day. He was not aware that the profession was dissatisfied with these arrangements. In reply to a written question by Mr. Rendall, having reference to an agreement to pay 2s. 6d. a head made by head quarters, No. 8 District, Exeter, with doctors undertaking to examine recruits in November and December last, Mr. Forster said that he was making inquiries.

3rd Western General Hospital.—In reply to Mr. Haydn Jones, on February 22nd, the Financial Secretary to the War Office said that the army accounts were not kept in such a form as to admit of arriving at the weekly cost of a hospital per bed. The 3rd Western General Hospital (Cardiff) was an administrative unit composed of many different buildings, and contained 2,000 beds. It had a staff of some 32 medical officers, who drew the army pay of their ranks, and of these 19 were local members of the profession, to whom it was open to pursue private practice.

PROFESSOR SYMINGTON, F.R.S., has published in the *Journal of Anatomy and Physiology* for January, 1916, a monograph on endocranial casts and brain-form. He throws much doubt on the conclusions drawn by eminent living anthropologists on "reconstructed" skulls of primitive men by inspecting the endocranial casts of the vault of ten skulls, each prepared with a cast of the related parts of the brain. He has come to the conclusion that the simplicity or complexity of the cerebral fissures and convolutions cannot be determined with any degree of accuracy from endocranial casts even on complete skulls. In no single instance did the fissures correspond to definite depressions indicating their position, and very frequently they were found to lie in various parts of their course over eminences on the cast. If, as these observations seem to show, reliance cannot be placed on endocranial casts from reconstructions of imperfect skulls, then it is not possible to estimate even approximately the relative degree of development of the various sensory and association centres in the cortex from the endocranial casts of the La Chapelle or Piltown skulls.

THE WAR.

MEDICAL WORK IN PARIS.

CRIPPLED SOLDIERS.

At the beginning of the war Paris was a great centre of activity for the British army, but after the Marne and the Yser it became of secondary importance in this respect, and not much has recently been published about the work being done there. The following extract from a private letter, dated February 17th, will therefore be read with interest:

... Such endless months seem to have passed since Paris first assumed its wartime garb that it is not easy to distinguish between its habits and appearance at the present time and those of the recent past. There are fluctuations, of course, but streets that empty early by night and are free from much bustle by day; the existence of numbers of hospitals in hotels and public buildings; the wearing of dark clothes by womenfolk; and the devotion of their spare time to unostentatious war work, have all grown to seem normal features of existence. Also normal, alas! seems the paucity of the calls made on our time by the wealthy floating population which formerly played so important a part in the professional and business life of permanent residents.

Still in this matter there is rather more variation; at times the larger and more fashionable hotels are quite busy. They were so recently, but were emptied again for the time being by the air raids.

As for the local branch of the British Red Cross Society, it still pursues the even tenor of its useful way. The greatly lessened use of Paris by the British has ended many of the calls previously made upon its energies, so it has reduced the number of its employees and the size of its controlling committee; but for the remainder it finds plenty of work. It has closed, it is true, all its extemporized hospitals, and the working arrangement between itself and the Hertford Hospital is at an end, but it maintains a dental clinic for the benefit of certain commissariat and like troops, as also a kind of an "infirmary first aid post" and buffet at the Gare du Nord. It also keeps going some working parties for the fabrication of garments for prisoners and for men still in the field, and does a good deal of agency and transport work in connexion with sick officers and nurses on their way to and from the convalescent homes on the Riviera, and with nurses, orderlies, and ambulance drivers who are passing through Paris on duty.

The Franco-American ambulance outside the Neuilly Gate continues to occupy a leading place among institutions of its kind. The French military authorities make ample use of its resources, and after some sixteen months of work there is no sign of slackening in the matter of energy and enterprise. The arrangements have been perfected in various ways, but the general system on which it is conducted remains much the same as it was before. It is under the general control of an American surgeon habitually resident in France, and is staffed by successive teams of surgeons supplied by different medical centres in the United States. There is thus never any lack of new ideas, but splints contrived out of plaster-of-Paris are not now in favour. Considering that the United States are almost the home of gypsum, and that men trained in American schools are particularly skilled in its use, its displacement at this hospital is rather striking testimony to the new ideas in the treatment of the wounds, usually septic, seen in this war.

Of the general keenness of the staff there was evidence last week. It was learnt that Mr. Robert Jones of Liverpool was in Paris for a few hours, so the staff promptly got together some 20 or 30 cases of gunshot wound of the upper limb, and induced him to use them as the basis of an impromptu clinical lecture or demonstration.

Among the points on which the visitor laid stress was the importance, in cases in which ankylosis of the shoulder-joint is to be anticipated, of keeping the upper arm during treatment in such a position that the face and top of the head can easily be reached by the hand. The advantage was that if ankylosis occurred with the humerus in this position, full utility of the upper limb was nevertheless

practically conserved, since tilting of the shoulder blade would enable the patient to effect most of the other movements of the hand required in daily life.

A second point was the desirability of treating all fractures of the forearm with the radius in a position of complete supination instead of halfway between that position and full pronation. Experience, he said, showed that adoption of the latter or classical position often resulted in serious loss of function, for though the hand could easily be pronated it could not be fully supinated. If, contrariwise, a case were treated with the radius completely supinated from the beginning, the worst that could happen was loss of natural pronation power, and this as compared with loss of supination power was a relatively small evil, since sufficient pronation could be secured by movement at the shoulder.

A third point on which Mr. Robert Jones dwelt related to gunshot wound involving the wrist. In these, he said, the joint should be kept not in a position midway between flexion and extension (that is, with the hand in the same line as the forearm), but in one of hyperextension, or, so to speak, dorsal flexion, for should a stiff wrist result from the injury, the grasp of the fingers would be much stronger if the carpus were pushed backwards than if the wrist were straight or the hand bent towards the flexor surface of the forearm. The same position, it was remarked, also afforded a much better chance of securing a return of power in cases of wrist-drop due to lesions of the musculo-spiral nerve. But in such cases not merely the carpus but the whole palmar surfaces of the fingers should be supported, the length of the digital portion of the splint being lessened as soon as the patient regained any power of extending his terminal phalanges by voluntary effort.

Additional interest was lent to this demonstration by the fact that it was delivered by Mr. Robert Jones on his way home from a prolonged expedition in the war zone. It appeared that he had received from the War Office an invitation to visit France for the purpose of examining for himself the difficulties encountered in dealing with the treatment and evacuation of cases of gunshot wound of the upper and lower limbs, and that he and his companion, Mr. Lynn Thomas of Cardiff, had been allowed to visit any hospital they wished not only at the bases but also in the fighting areas.

Incidentally, too, they had examined the working of a large number of medical annexes such as ambulance trains, hospital ships, convalescent camps, and bathing establishments. They seemed to have been very favourably impressed by the general character of the work done and the completeness of the arrangements made, and had discovered nothing to support a belief that there was lack of economy and judgement in respect of the number and distribution of medical men employed in the work.

Another institution rather in the foreground just now is a clinic whose work occupies a large number of rooms on the upper floor of the Grand Palais in the Champs Elysée. The patients are all soldiers suffering from loss or impairment of function in the upper or lower extremities resulting from wounds or other injuries received in the present war. The peculiarity of this institution is that all the means of treatment employed are of a mechanical and electro-therapeutic order. Probably none of them are unfamiliar to those cognisant with the more or less recent developments in these particular branches of medicine, but never before have their therapeutic powers, whatever these may be, been aggregated on quite the same lines.

There are some four or five different departments, each in charge of an expert, and all as a rule take part in the treatment of a given individual. Treatment, for instance, commonly commences by a patient having a stiffened joint exposed to blue light treatment till sufficient degree of analgesia is produced to allow of its being handled freely. He may be next sent to a room where an electrically-driven machine moves the joint in certain given directions, though more commonly the machine is one moved by the patient himself.

This part of the treatment finished for the day the patient is probably passed on to the officer in charge of one or other of three other departments, in all of which the aim is to improve the tone of the tissues around the affected joints and of the connected muscles. In one, treatment by radiant heat is employed, in another the stimulating effect of local baths of vibrating water and

faradic and other currents; in a third ordinary massage. There is also a department in which cases of particular interest are recorded by means of photographs, casts, and water-colour work; and yet another in which a very precise card index record is kept of the condition of each patient on coming under treatment, and on its completion. These records include an estimate of the functional inefficiency persisting, and will be used, it is understood, in determining the pension or allowance to be allotted to the individual.

There is a logical completeness about the arrangements of this institution which is certainly attractive, as well as characteristically French, but whether the results by the machinery mentioned could not be secured quite as well and more rapidly by simpler means is another question. The apparatus is for the most part of Swedish origin and remarkably ingenious in many cases. The movement to which the joints are submitted can be precisely regulated, and, as a rule, is partly active, partly passive. It is passive, inasmuch as the movement once voluntarily commenced by the patient, will be completed, if necessary, in the reverse direction by the action of an attached weight, which also regulates the force that the patient must exert.

Another institution well worth visiting at the present time is the new Hôpital Cochin, which for a long time has been growing up alongside Val de Grâce. Built for the most part in separate single-story pavilions, it represents to a large extent the latest French ideas of hospital construction, and, when all its special departments are complete, will be one of the most striking hospitals in Europe. Its annexes include a large theatre for teaching purposes, and a very notable x-ray and electro-therapeutic outfit. The latter is disposed in a series of rooms, each devoted to a different class of work, and colour photography, of which some very remarkable specimens are to be seen, is largely used for recording cases of exceptional interest.

PHYSICAL TREATMENT FOR DISABLED SOLDIERS.

ORGANIZATION IN PARIS.

We have received from Drs. R. Fortescue Fox and J. Campbell McClure, honorary secretaries of a committee of the Section of Balneology and Climatology of the Royal Society of Medicine, a report furnished to them by the courtesy of the French Government and of Dr. Jean Camus and his colleagues, on the work carried out in the Grand Palais and associated hospitals down to the end of 1915. The combined treatment, which has now been carried on some twelve months, includes:

1. Local applications of heat and moisture in strong currents of water ("The Whirlpool Bath") at temperatures rising to 120° and over.
2. Dry heat and local hot-air baths.
3. Light and other radiation baths.
4. Electrotherapeutics.
5. Manipulation and massage.
6. Mechanical treatment by a modified form of Zander apparatus.
7. "Re-education" of muscles and muscular groups by exercise and training.

Careful measurements are taken and graphic records preserved. The objects of the treatment are—

1. To hasten the return of wounded to their units at the front.
2. To reduce expense to the State by reducing disability entailed by wounds.
3. To reduce impairment of civil industry after the war occasioned by the numbers of seriously and permanently crippled men.

It is reported that half the patients treated return to their units and in a shorter time than is possible by other methods of treatment.

In addition to the large institution in the Grand Palais, there are in and near Paris seven other centres for combined physical treatment, and seven complete and four incomplete installations of the same kind in the French provinces.

Drs. Fox and McClure conclude their report as follows:

1. That it is by a novel association and combination of physical methods that our French colleagues have obtained

such good results, and that the hyperthermal "whirlpool bath," hitherto not used in England, forms an effective preparation for massage and mobilization, whether by hand or apparatus.

2. That such physical treatments are most successful when no time is lost in submitting the injured limb to them. Unfortunately that is not the case in England, nor yet in France. Regret is often expressed at the British health resorts that the wounded arrive so long after their injuries that the chance of cure or even amelioration is not infrequently lost.

3. That the number of disabled officers and men who would benefit by an approved physical treatment is now so very large—indeed that the need is so great and so pressing—that the facilities afforded by the health resorts cannot be regarded as sufficient to meet the emergency. In France, which is full of health resorts, it has been found necessary, as above mentioned, to set up eight centres for physical treatment in Paris, besides many in the provinces. We are aware that provision is being made for similar treatment at the British Command Dépôts, but the number of disabled men in the metropolitan area alone appears to us to warrant the establishment at the earliest possible moment of a central institute for physical treatment in London.

MODEL HYDROTHERAPEUTIC INSTALLATION.

Dr. Fortescue Fox has devised a model hydrotherapeutic installation for soldiers within the compass of a single hut (60 by 20 ft.), and the plans have been worked out by Mr. Harley M. Usill. The boiler which serves the baths and warms the building is in an annexe, and there is another annexe for linen and w.c.'s. The building is divided into two parts, the one for the baths and the other for the treatment of disabled limbs. The douche room is fitted with a series of shower baths, a nozzle douche to give varying pressure and temperatures, and a needle bath. In an adjoining room are three tubs for brine and effervescent baths. Beyond this, in the centre of the building, in a separate room, is a special feature of the installation—a pool bath, the temperature of which can be kept at about 60° F. day and night. It is designed for sedative treatments. The patient is seated in flowing water maintained at an even temperature by means of a calorifier fitted with a thermostatic valve. The sedative effect is proportional to the duration, which may extend to several hours. These prolonged "subthermal" baths are said to be specially indicated in cases of mental disturbance with depression and irritability, and are also used for insomnia and restlessness, and for shock, peripheral neuritis, and neuralgia. The pool is 8 ft. square, and ten men can be comfortably seated in it. The department for the treatment of disabled limb consists of two rooms, one with whirl baths and hot-air and radiation baths, and the other with tables for massage and manipulation, and with simple apparatus for mobilization of joints. Altogether sixteen cubicles are provided for rest and changing of clothes.

Shower baths, beginning at 95° to 100°, and finishing cold after two minutes, are used as tonic baths, as are also the nozzle douches, the stimulant effect of which can be heightened by increasing the pressure of the water. The douche should begin warm and finish after one, or at most two, minutes, as cold as can be comfortably borne. In atonic subjects two jets, one at 95° and the other cold, may be used simultaneously. The alternating douche is indicated for chronic neuralgias, for atonic and spinal neuroasthenia, for mental depression and malingering. Tub baths are commonly given at 98° F. for ten to fifteen minutes; brine and carbonated effervescent baths can also be given. Very brief hyperthermal baths, 105° to 115°, are useful in cases of sluggish circulation, fatigue fever, and muscular rheumatism. The first effect is to stimulate the heart and dilate the superficial arterioles; they must not be prolonged beyond two, or at most three, minutes, otherwise the first stimulant effect is followed by debility. Like other hot baths, they should be ended by a momentary affusion with cold water. In the local treatment for disabled limbs, heat, moisture, manipulation, and movement are all used as at the Grand Palais. The whirl baths for the arm and leg are given at 110° to 115° F., or 120° F., or even higher. Their duration is from fifteen to thirty minutes. They increase the arterial and lymph circulation in the injured part and promote the absorption of effusions; they also relieve pain and muscular spasm. They may be used in every case as a preparation for massage and movements, which are thereby rendered easier and less painful. Cases should be recorded on a card prepared by the Section of Balneology and Climatology

and approved by the Medical Research Committee, so that the results may be collected in a uniform way for the use of the Committee on the Medical History of the War. Copies of the cards can be obtained from Messrs. Adlard and Son, 76, Newgate Street, E.C.

JAUNDICE AT ALEXANDRIA.

At a meeting held at Alexandria on November 7th, 1915, a discussion was held on cases of jaundice in the military hospitals there.

Sir RONALD ROSS, who was in the chair, said that the main points at issue were, first, that a large number of the cases were probably only secondary or symptomatic, and occurred in the course of such diseases as dysentery and typhoid; and, secondly, that many cases appeared to be due to a specific disease. There were two types of specific jaundice known to occur in Egypt, one a mild type—*icterus levis*—with practically no mortality; the other, a very severe type—*icterus gravis*—with a mortality of 30 per cent. or more.

Professor KARTULIS divided the local varieties of jaundice into three principal groups: (1) Infectious jaundice due to direct infection by the mouth; (2) infectious jaundice with intermediate unknown causation; (3) infectious malignant jaundice of the Mediterranean with unknown causation. The two first groups were also described under the name of "Weil's disease." The first was caused by spoiled or foul food or by drinking stagnant water contaminated by sewage. It occurred among butchers, or among soldiers living under bad hygienic conditions or bathing in dirty water, and was not epidemic. The second group was sometimes epidemic among persons dwelling in unhealthy localities with defective drainage. The incubation period and duration were short in both groups, and a fatal issue seldom occurred even when the initial symptoms were alarming and intense. The onset was sudden, with rigors, fever, severe headache, and pain in the back and joints, followed by prostration, anorexia, thirst, and diarrhoea without colic. During the first three to five days the patient felt weak and could not sleep. On the fifth day, or later, the jaundice appeared. The urine contained albumin from the onset, was diminished in quantity, and of a dark greenish colour. The liver and spleen were enlarged and tender. From the fifth to the eighth day the symptoms improved and the jaundice faded. A febrile relapse with relatively slight symptoms frequently occurred during the fifth or sixth day. Convalescence, which began after ten to fourteen days, was protracted. During the first stage the tongue was coated and the pharynx congested. Vomiting was very common; labial herpes and persistent hiccough were seen in some cases, and epistaxis and petechiae were not uncommon. In addition to albumin, casts and sometimes blood appeared in the urine, and anuria with uraemic symptoms were present in many cases. Intense headache and severe pains in the muscles, especially in the calves, giddiness, stupor and delirium were common symptoms in nearly half of the cases. The pulse, at first 120 to 150, became normal with the appearance of jaundice. *Post mortem* the liver was seen to have undergone fatty degeneration, some lobules being destroyed, and this was the chief lesion in the kidneys also. The splenic follicles were enlarged and the leucocytes in the pulp augmented. In the third group were included yellow fever, bilious relapsing fever, the Smyrna typhus biliosus, the Nauplia typhus icterodes, and the Alexandria infectious jaundice or bilious typhoid. He dealt only with the infectious jaundice of Alexandria, Smyrna, and Nauplia. There was no doubt as to the identity of the disease in these three towns; in no other port of the Mediterranean did it occur in endemic or epidemic form. He sketched the distribution of the disease in the various outbreaks at Alexandria, which showed that its pathogenic agents must have some intimate relation to sewers and sea-water. It attacked persons of from 16 to 45 years old, but he had only seen 4 cases among women out of more than 300 cases. Most cases occurred during May and June or from September to November. During the last ten years, since the drainage had been conducted out to Chatby, the disease had become rare in Alexandria. Before 1898 probably 100 cases ended fatally each year. In 1898 there were 34 cases with 25 deaths, and in 1901 47 cases with 32

deaths. Afterwards the numbers gradually diminished to 1907, when there were 23 cases with 7 deaths. In 1908 there was a drop in the number of patients to 5, of whom 2 died. It had remained comparatively low since, only 3 cases occurring in 1915, of which 2 were fatal. In Nauplia and Smyrna the disease disappeared after the construction of a better drainage system. After an incubation period of one to three days, the disease commenced with rigor, severe headache, lumbar pain, prostration, increase of pulse-rate to 100 to 120, restlessness, and vomiting. During the next two or three days the conjunctivae became injected, and the patient looked as if drunk and was very restless. The tongue was foul, but red at the point and edges. The pharynx was much inflamed, and swallowing was difficult and painful. The epigastrium and hepatic region were tender. Epistaxis and herpes were common. Other early symptoms were constipation, diminution in the amount of urine, albuminuria, and intense thirst. These symptoms continued from three to six days, and on the fourth or fifth day the second stage set in with jaundice. If the disease took an unfavourable course, the myocardium became affected, the pulse becoming slow and perhaps intermittent. The liver was enlarged and very tender. The spleen enlarged only occasionally, and was rarely tender. Epistaxis, haematuria, and petechiae were often met with. Oliguria and anuria occurred, or the urine might contain, besides albumin and bile pigments, epithelial and blood casts. Hiccough was of bad omen. Parotitis was very common. At the end of this stage the fever lessened, but rose again after two or three days. If the fever became continuous and anuria persisted, the patient became apathetic and his respirations frequent and intermittent, the tongue dry and red, the pulse small and rapid or intermittent, and unconsciousness or delirium supervened. This was the third or typhoid stage. Sometimes anuria was replaced by polyuria. The stools became white and offensive, the jaundice remaining intense. Xanthopsia might be present. The weakness became extreme. Death occurred between the tenth and sixteenth day, and was due to uraemia, haemorrhage, pyaemia after suppurative parotitis, or general weakness. Convalescence was very protracted. The agent of the disease was probably ultramicroscopic, since repeated researches had failed to reveal it. The mortality was from 30 to 75 per cent. *Post mortem* jaundice and haemorrhages were found in an intense degree. There was no essential or constant lesion. The liver was nearly always large and congested. In the early stages its vessels were full of cherry-red coloured blood and its surface was marbled, but afterwards became yellow owing to fatty degeneration. The pancreas was usually large, hard, and yellow.

Captain N. BOULTON, R.A.M.C., said that among cases of jaundice recently under treatment a history of previous jaundice was obtainable in 10 per cent. He had been able in one case to determine the incubation period. A patient developed an attack within a week after exposure to infection. In nearly every case jaundice appeared in from three to five days from the onset. Nausea, anorexia, malaise, and mental depression were present in over 90 per cent. of the cases. Abdominal discomfort occurred after the slightest indiscretion in diet. Headache was present in 60 per cent. Vomiting and abdominal pain were noted in about 30 per cent. Diarrhoea occurred, but was not marked. Pruritus was rare. The temperature ranged from 99° to 103.5° F., and was usually between 99° and 100° F. The pulse was usually slow. The appearance of jaundice heralded a definite amelioration of the symptoms in over 90 per cent., but relapses were occasionally met with. The liver and gall bladder area were tender in nearly every case, but the liver was not definitely palpable. The gall bladder was felt in nearly 10 per cent. No death had occurred. The course varied from three to six weeks. Rest in the horizontal position was the most important factor in treatment. Urotropine and sodium phosphate were employed without definite results. The disease, except in its epidemic character and probable infectivity, differed clinically in no wise from ordinary so-called catarrhal jaundice.

Lieutenant GUNSON, R.A.M.C., had found that the tongue was moist and quite clean in all cases. The liver was invariably enlarged and tender, sometimes extending for 3½ in. below the costal margin. The spleen was also

greatly enlarged and tender. The heart was so definitely and persistently enlarged in many cases that it provided the leading feature of the clinical picture. The cardiac impulse was frequently palpable to the right of the sternum, and the cardiac enlargement was confined to its right side. The heart sounds remained clear, and there was no evidence of tricuspid regurgitation. The pulse was of good strength, but slow during the jaundice. Sinus arrhythmia was constant. General weakness persisted, and the patients, after having been out of bed for two or three weeks, could not perform gentle exercises without experiencing dyspnoea and giddiness, accompanied by increase of the pulse-rate. Usually some enlargement of the heart persisted, and was not reduced by rest. There were no fatal cases. All were treated by absolute rest in bed for several days. Drug treatment had no apparent influence.

Captain KERR, R.A.M.C.T., had come to the conclusion that it was not possible to dissociate the intestinal disorders, which had been prevalent, from the jaundice, and could not see in the latter a distinct disease. In the great majority of the cases under discussion there was a distinct history of diarrhoea or dysenteric symptoms, recent or remote. He did not think that the condition was that usually called epidemic jaundice.

Colonel TUBBY said that there appeared to be two prevailing types of jaundice: (1) Jaundice occurring in the course of some infection of the intestinal tract, as in dysentery and enteric fever. (2) Jaundice *per se* occurring in a definite epidemic form. In a large percentage of cases of the second class there was a history of a sore mouth and tender gums, followed by jaundice, feverishness, and heart weakness. He was inclined to think that the infection started in the mouth and gums, passing later to the intestine and bile ducts.

Captain ALLEN, R.A.M.C.(T.), said that of 30 cases of jaundice 22 had had either dysentery or diarrhoea previously. Eleven cases developed jaundice after admission and 6 of these were in beds near to patients suffering from that condition. In 2 cases only was the gall bladder felt, but its area was tender in the greater number. Dilatation of the heart and enlargement of the spleen were not detected. Four cases, admitted for purely surgical conditions, developed jaundice 8, 10, 14, and 19 days respectively after admission. They were all very ill, their temperatures varying from 100° to 103° F.

Major A. R. FERGUSON, R.A.M.C., regarded the jaundice met with as falling into two classes: (1) A mild form, (2) an extremely toxic form identical with that described by Professor Kartulis. Outbreaks of jaundice occurred among men camped on ground which had been occupied by horses in large numbers. He was of opinion that certain bacteria present in the faeces of such cases had a pathogenic significance. In two cases he had isolated *B. proteus fluorescens* in considerable numbers. Captain Mackie had recently isolated the same organism, as had also Jaeger and Banti some years ago. Like Colonel Tubby, he had observed herpetic or small septic lesions about the lips and gums and he thought that the initial congestion of the pharynx was also of special significance. In recent outbreaks in Egypt the severe toxic forms had not been met with. *Post mortem* both chambers of the right side of the heart were very dilated and flaccid. The liver suggested in some respects that of acute yellow atrophy.

From subsequent discussion, in which Sir RONALD ROSS, Lieutenant GUNSON, and Professor KARTULIS took part, it appeared that the cases from Chatby differed from those from Gallipoli; the former alone showed dilatation of the right side of the heart, were more protracted, and were accompanied by greater nervous depression and more enlargement of the spleen and liver.

CASUALTIES IN THE MEDICAL SERVICES.

ARMY.

THE deaths noted below include those of two officers, Major W. B. Fry, who died nearly a year ago as a prisoner, and Lieutenant J. G. Bute, whose death is presumed.

Lieutenant John Gillis Bute, R.A.M.C., is believed to have been killed in France on October 29th, 1914. He was born in India, the son of Colonel Edward Bute, Army Medical Staff, and was educated at Trinity College,

Dublin, where he was a prominent member of the University Dramatic Society. After graduating M.B. and Ch.B., he entered the R.A.M.C. as lieutenant on July 31st, 1914. He was attached to the Grenadier Guards from September 7th, 1914, and was with them up to October 29th. On that date he was last seen alive attending Colonel Earle, of the Grenadiers, who had been wounded. As the enemy advanced, Colonel Earle was again wounded as he lay on the ground, and Bute is supposed to have been killed at the same time. Colonel Earle lost consciousness, and was unable to say with certainty that Bute was killed, but he appears never to have been heard of since that day. Had he been alive, and a prisoner of war, he would almost certainly have been able to communicate the fact to his relatives. His name, as far as we have noticed, has never appeared in the list of casualties, and for many months was retained in the *Army List*, being included in the list of lieutenants promoted to captains on March 1st, 1915.

Died on Service.

Major Walter Burgess Fry, R.A.M.C., is reported to have died of typhus fever as a prisoner of war at Wittenburg, in Saxony, on March 17th, 1915. He was educated at St. Thomas's Hospital and took the diplomas of M.R.C.S. and L.R.C.P.Lond. in 1900. He entered the R.A.M.C. soon after and attained the rank of major on December 21st, 1911. He was taken prisoner in the retreat from Mons. Six months later an epidemic of typhus fever occurred among British soldiers who were prisoners of war at Wittenburg, and several officers of the R.A.M.C., who were also detained as prisoners, volunteered to attend the sufferers. Captains A. A. Sutcliffe and S. Field, R.A.M.C., also died there of typhus fever contracted from their patients, on March 12th and April 10th respectively, as stated in the *JOURNAL* at the time. Major Fry had given particular attention to the study of trypanosomes and tropical affections. In 1910 he contributed, with Mr. H. G. Plimmer, to the *Proceedings* of the Royal Society of London a paper on the experimental treatment of trypanosomiasis, and in 1911 a paper on the same subject to the *Journal of the R.A.M.C.* In that year he became protozoologist and assistant bacteriologist to the Wellcome Tropical Research Laboratories at Khartoum. His first contribution to the reports of those laboratories (1911) was on animal trypanosomiasis in the Anglo-Egyptian Sudan. In 1913 he published, with Captain H. S. Ranken, V.C., who died in France on September 25th, 1914, from wounds received a few days before, the result of further researches on the extrusion of granules by trypanosomes and their further development. It was published, with a note on methods by H. G. Plimmer, in the *Proceedings* of the Royal Society (June 12th, 1913). The last paper by Major Fry of which we find record is one on antimony in the treatment of syphilis, published in the *Journal of the R.A.M.C.* for 1914.

Died of Wounds.

Captain Alister Ralph Spiers-Alexander, I.M.S., died of wounds in Mesopotamia on February 9th. He was the son of Dr. Spiers-Alexander of Hampstead, and was educated at University College, London, taking the M.B. and B.S.Lond. in 1910. He entered the I.M.S. as lieutenant on January 28th, 1911, and became captain on January 28th, 1914. His name appeared among the wounded in the casualty list published on February 14th; he was then attached to the second battalion of the 7th Gurkhas.

Lieutenant-Colonel John Wilfred Stokes, R.A.M.C.(T.F.), died suddenly in a military hospital at Lachmere, Ham, on February 10th, aged 43. He was the eldest son of the late Rev. Arthur Stokes, of Mussoorie, India, was educated at University College, London, and took the diplomas of M.R.C.S. and L.R.C.P.Lond. in 1895. After qualifying he filled the posts of house-surgeon to the children's hospital at Wicker, Sheffield, and house-physician to the Sheffield Royal Infirmary, subsequently becoming anaesthetist to that hospital, and demonstrator of anatomy in Sheffield University. When the war began he became Lieutenant-Colonel in command of the 3rd West Riding Field Ambulance from August 31st, 1914, and in that capacity went to France in April, 1915, but had twice been invalided home suffering from shell shock, and had been under treatment at Ham since December.

Wounded.

Major W. H. Odum, I.M.S., Mesopotamia.

Lieutenant (temporary) F. M. Vazifdar, I.M.S., Mesopotamia.

DEATHS AMONG SONS OF MEDICAL MEN.

Evans, David Owen, Lieutenant 17th Battalion Royal Welsh Fusiliers, son of Dr. D. D. Evans of Blaenau Ffestiniog, killed in France on February 14th. He was in a bank at Winnipeg when the war began, came over with the first Canadian contingent, and later got a commission in the R.W.F. Three of his brothers also came to England in the Canadian contingents and are in the Indian forces.

Freebairn, Buchanan William, Private 1st Newfoundland Regiment, C Company, eldest son of Dr. Robert Jardine Freebairn, stipendiary magistrate for the district of Ferryland, Newfoundland, died at Malta on October 23rd, 1915, of dysentery, contracted in the Dardanelles, aged 22.

Griffith, Richard Evelyn, eldest son of the late Dr. Herbert Tyrrell Griffith, M.D., of 5, Kensington Square, and formerly of the I.M.S., killed at Anzac, Gallipoli, on August 8th, 1915, aged 27.

Habershon, Kenneth Rees, Lieutenant 12th Battalion Rifle Brigade, second son of the late Dr. S. H. Habershon, killed in France on February 13th, aged 26. He got his first commission on September 19th, 1914.

Waite, J. Thorpe, Lieutenant 5th (Weald of Kent) Battalion the Buffs, or East Kent Regiment, eldest son of the late Dr. Waite, of Halifax, Yorkshire, killed in Mesopotamia on January 21st. His commission as lieutenant was dated August 22nd, 1914.

NOTES.

HONOURS.

CAPTAIN ERIC D. GAIRDNER, M.B., R.A.M.C.(T.F.), the son of the late Sir William Gairdner, has been awarded the French Military Cross for services in Gallipoli; he is attached to the Royal Scots Fusiliers, 5th Battalion (T.F.).

THE SWEDISH WAR HOSPITAL IN LONDON.

The proposal to establish a Swedish war hospital in London for wounded and disabled soldiers was only conceived two months ago. It received influential support not only from Swedes in London but also from Swedes at home, and lately also from many English friends of Sweden, and it has been found possible to establish a fully equipped hospital for thirty in-patients and a number of out-patients at 16-18, Paddington Street, London, W., where suitable premises have been acquired, reconstructed, and approved by the War Office. The hospital has been equipped with an operating theatre and an x-ray installation, and in adjoining premises, arranged to form part of the main building, accommodation for the staff has been found.

The General Committee, of which Count Herman Wrangel, the Swedish Minister, is Honorary Chairman, has obtained the services of a medical staff, including as honorary consulting surgeons Mr. F. Swinford Edwards and Mr. G. B. Mower White, and as honorary consulting physicians Dr. A. J. Jex-Blake and Dr. J. F. Jennings, in addition to Mr. H. B. Grimsdale (ophthalmologist), Mr. Harold S. Barwell (aurist), and Mr. Harry Forsyth (dental surgeon). Regular attendance will be given by Drs. Cyriax, Ryman, Swanberg, and Widegren, and Dr. K. Westman will be the resident medical officer.

The hospital is managed by a general committee, of which Messrs. H. Bendixson, C. Svedberg, and Axel Welin are the trustees, Mr. Allan Broman the honorary superintendent, and Major E. Mossberg and Mr. Louis Zettersten the honorary secretaries.

The hospital was formally handed over to the War Office on February 21st by Count Wrangel, who expressed the hope that it would be taken by English friends as a token of international solidarity. In receiving the gift on behalf of the War Office, Surgeon-General Russell pointed out how its work would tend to unite the two nations; and the Bishop of Willesden, who offered up dedicatory prayers, noted the fact that the day was the tenth anniversary of Count Wrangel's appointment as Swedish Minister at St. James's.

MEDICAL OFFICERS WANTED.

3rd Home Counties Field Ambulance.

Three medical officers are required in this unit. Applications to the Commanding Officer, Halton Camp West, Tring, Herts.

1st South Midland Mounted Brigade.

Three medical officers are wanted for imperial service to complete the 2nd line (T.). Applications to Major D. M. Spring, S.M.O., R.A.M.C.(T.), Head Quarters, Hempton, Fakenham, Norfolk.

England and Wales.

THE CARDIFF HOSPITAL AND WELSH MEDICAL SCHOOL.

LAST week the new wing of the King Edward VII Hospital, Cardiff, providing 150 beds, was formally declared open, and named the "Bruce Vaughan" wing. On the same occasion Colonel Bruce Vaughan, to whom the hospital and the Welsh medical school owe so great a debt, was presented with his bust in bronze, the work of Sir William Goscombe John, R.A. A portrait of King Edward VII was also unveiled in the entrance hall, and Lord Aberdare, who performed the ceremonies, observed that the new wing had been, in fact, in use for some time. General H. H. Lee, in opening the meeting, said that the hospital was greatly indebted to its treasurer, Lord Aberdare; the fact that he held that office had been a great assistance in obtaining the £46,000 which the erection of the wing had cost. The new wing contained pavilion wards for 110 beds, and, in addition, provided isolation beds. The Lady Aberdare operating theatre, which had cost £3,000, was one of the finest in the kingdom. Colonel Bruce Vaughan announced that Mrs. Nixon had doubled her contribution, raising it to £10,000. Of the additional £5,000, £3,000 was to be used to pay for the cost of the hospital chapel, and £2,000 to be placed in trust for a research scholarship in medical pathology. He then went on to speak of the delay which the action of the Board of Education and the Treasury had put in the way of the realization of the scheme for the completion of the Welsh national school of medicine. Sir Donald MacAlister in 1909, and Sir William Osler a little later, had said that Cardiff possessed all the material for a first-class full-time school, and by the munificence of Sir William James Thomas the money for the necessary buildings had been provided more than two years ago. Colonel Bruce Vaughan did not accept the contention that before the medical school was provided the proposed reconstruction of the University of Wales must be carried out. The hospital had been enlarged and equipped for teaching purposes, and apart from the need for the training of medical students there were four reasons why the school in the interests of Wales should be set up: (1) In the interests of the patients of the hospital, for wherever a complete school was established medical and surgical science stood higher than it did where there was no school, and the patients reaped the benefit, not only because there was extra attention, but also because it established discipline in the hospital, and therefore added considerably to its efficiency—no mean advantage in a hospital which would shortly have 480 beds. (2) It would promote research in pathology and therapeutics, for research in those subjects, if undertaken at all, must be undertaken jointly by a great hospital and a medical school. (3) It would form a centre for the diffusion of medical knowledge in the surrounding districts. (4) It would be an institution for consultative purposes to which practitioners seeking advice or knowledge might apply. The unwisdom of the delay enforced by the Government was heightened by the fact that Sir William James Thomas had promised to maintain the school buildings until such time as the Treasury saw its way to make the grant. The plea of "war economy" would not stand, for, as had recently been said, whatever else was economized in this war the grants to science and research should be increased. In an editorial comment on the meeting the *Western Mail* says that "the promoters of the Welsh School of Medicine are as determined as ever to proceed with their project. Their enthusiasm," it adds, "in fact seems to have been increased rather than diminished by the discouragements and delays with which they have had to contend."

FUNCTIONS OF THE PITUITARY BODY.

At the last meeting of the Liverpool Medical Institution Dr. Blair Bell gave an account, illustrated by lantern slides, of his researches on the function of the pituitary body. The experiments were made on dogs, under rigid aseptic conditions. Excess of pituitary secretion resulted in acromegaly, deficiency in dystrophia adipogenitalis. Complete ablation of the pars anterior caused death. Total removal of the pars posterior produced no symptoms. Separation or clamping of the stalk interfering

with the vascular supply of the pituitary body produced dystrophia adiposo-genitalis, carbohydrate tolerance, and genital atrophy, and he had been able to confirm his conclusions by control experiments and *post-mortem* observations. Infundibulin, the pressor agent, originated in the pars intermedia, and apparently passed into the pars nervosa. Dr. Blair Bell alluded not only to the pathological conditions due to lesions of the pituitary body, but touched on the therapeutic action of its extract.

LIVERPOOL HOSPITALS.

The report presented to the annual meeting of the Royal Southern Hospital, Liverpool, on February 15th, with the Lord Mayor in the chair, stated that during 1915 the in-patient department had 220 beds at its disposal; the average number of beds occupied was 180.85 and average number of days each patient was resident 26.57. The average cost per bed was £77 0s. 3½d. in 1915, as against £75 3s. 10d. in 1914. The average cost of each in-patient per week was £1 9s. 7½d. in 1915, as against £1 8s. 11d. in 1914. The total number of in-patients in 1915 was 2,688, a decrease of 178 as compared with 1914, entirely due to the longer stay of the patients under treatment. The military authorities had at their disposal 50 beds for sick and wounded soldiers; not all these beds had been so used, and the committee secured the consent of the military to make use temporarily of 20 beds for the civil patients. The out-patients in 1915 comprised 15,937 new cases, with 60,380 attendances. The average cost per attendance was 5.65d. The increased expenditure in this department, £1,421 5s. 3d., as compared with £1,323 7s. 8d. in 1914, was due to the larger number of patients treated and the additional cost of drugs, dressings, and instruments caused by the war. The Out-patient Maintenance Fund Committee reported that many members of approved societies under the Insurance Act were treated each year, and it expressed the hope that generous grants by these societies would be made towards the upkeep of the out-patient department. The special departments were those which are visited more frequently year by year by insured persons.

The annual meeting of the Royal Infirmary was held on February 17th, under the presidency of the Marquis of Salisbury. It was reported that the number of in-patients during 1915 was 4,328, against 4,898 in 1914. The out-patients numbered 26,078, against 25,316 in 1914. The cost of maintenance had increased from £21,136 in 1914 to £23,273 in the past year, and the debit balance was now £8,022. Dr. T. B. Grimsdale had tendered his resignation of the post of honorary gynaecological surgeon at the Royal Infirmary, which he had held for eighteen years, and the committee, in expressing high appreciation of his services and as a mark of esteem, recommended his election as honorary consulting gynaecological surgeon. Dr. Blair Bell, who was previously assistant gynaecological surgeon, was unanimously elected in his place.

In both these hospitals medical women have been appointed resident medical officers, and senior students have also acted. In neither hospital is there a medical man holding a post who is eligible to join the Army Medical Service.

Ireland.

DUBLIN CASTLE RED CROSS HOSPITAL.

A PUBLIC meeting, convened by the City of Dublin Branch of the British Red Cross Society, in support of the Dublin Castle Red Cross Hospital, was held last week at the Mansion House. The Lord Mayor presided over a large and representative gathering.

Mr. W. M. Murphy said the object of the meeting was to present to the members and supporters of the City of Dublin Branch of the British Red Cross Society a brief account of its inception, its aims, and a statement as to how those aims had so far been fulfilled. Shortly after the outbreak of war in August, 1914, a public meeting, convened by the Countess of Aberdeen, was held in the theatre of the Royal Dublin Society to consider what steps should be taken to promote Red Cross work in Ireland. A Red Cross bureau was established in Dublin

and classes in home nursing and first aid were formed, the programmes issued by the Department of Agriculture and Technical Instruction adopted, and speedily a large number of students qualified themselves to join Voluntary Aid Detachments, working from a Dublin centre. It was then decided that a City of Dublin branch of the British Red Cross Society should be officially organized and affiliated to head quarters, and recognition given to the newly-formed Voluntary Aid Detachments. One hundred and forty Voluntary Aid Detachments had been accepted for special service. Of these, 57 were at work in hospitals at home or abroad, and about 100 were working in dépôts for the making of war dressings. The total number who had attended the classes in first aid and home nursing was 1,726. A clothing and benefits department, as well as a fruit and vegetable dépôt, had been opened. At a meeting held on November 29th, 1914, in the Mansion House, the citizens of Dublin and the Irish public generally were invited to provide funds for the establishment of the Dublin Castle Red Cross Hospital, the King having graciously given his consent to the project. A generous response was made, the structural alterations and equipment of the hospital were carried out without delay, and in two months the hospital with full equipment of operating theatre, x-ray room, etc., was ready for use. On February 17th, 1915, it received its first patients, 100 in number. Since that date 1,206 patients had been received and 1,077 discharged; there had been only six deaths. The hospital had the advantage of having from each of the ten hospitals in the city a surgeon and a physician who gave their services freely; there were two x-ray specialists also on the staff. The resident medical staff consisted of a medical superintendent and an assistant house-surgeon, with three resident medical students as dressers. There was an efficient staff of trained nurses under a matron, and willing help was given in many ways by members of the Voluntary Aid Detachments.

A resolution, proposed by the Archbishop of Dublin, affirming that the Dublin Branch of the British Red Cross Society was worthy of the support of the Irish public, more especially of the citizens of Dublin, was carried, as was a vote of thanks, proposed by Mr. Justice Barton, to the physicians and surgeons of the clinical hospitals of Dublin, who had given, and continued to give, their valuable services freely to the Castle hospital. The President of the Royal College of Surgeons, in acknowledging the vote of thanks, said that the character of the men who had been admitted to the Castle hospital was splendid—a brighter, more cheerful, or more grateful lot of patients he had never seen. The indomitable gaiety and hopefulness of the men was something extraordinary, and it seemed to be a quality common to all—to Canadians, Australians, and New Zealanders, representatives of all the great Dominions. The Managing Committee, he said, deserved credit for the uncomplaining way they had complied with the demands of the medical staff.

BOARDS OF GUARDIANS AND THEIR MEDICAL OFFICERS WHO HAVE JOINED THE R.A.M.C.

It is to be regretted that two Irish boards of guardians—one in the co. Fermanagh and another in co. Westmeath—have cancelled the appointments, made by them at previous board meetings, of locumtenents nominated by their medical officers when joining the Royal Army Medical Corps. On the whole, Irish boards of guardians since the outbreak of war have facilitated recruiting for the naval and military medical services, but in this, as in all other matters dealing with their medical officers, there is no uniformity of action. Some boards, in addition to appointing the locumtenent nominated by their medical officer on joining the Royal Army Medical Corps, pay half, and in a few instances the whole, of his small official salary, while others refuse to appoint either the locumtenent nominated by their medical officer or to pay any portion of his salary while he is in the service of the Royal Army Medical Corps. Such treatment by boards of guardians of Poor Law medical officers who have joined the Royal Army Medical Corps is a formidable obstacle to medical recruiting from the ranks of this Irish medical service. In ordinary times there is an ethical rule, very generally observed amongst the Poor Law medical officers in Ireland, that no doctor should apply to act as locumtenent for another while on holiday or sick leave without

the consent of the doctor going on leave. The strict observance of this rule at the present time would be of the greatest help to medical recruiting in Ireland, and in those cases where a certain number of doctors ignore it, notwithstanding the representations of the Local Government Board and Insurance Commission, other steps should be taken to make such doctors subordinate their individual interests to the greater national interests.

MEDICAL DIALECT AND FOLKLORE OF THE NORTH OF IRELAND.

At a meeting of the Belfast Medical Students' Association held in the McMordie Hall, Students' Union of the university on February 18th, Sir John Byers gave an address on Medical Dialect and Folklore of the North of Ireland to a very large and appreciative audience. He dealt first with the practical importance to a medical man of knowing the strange words and phrases of the district in which he practised; he must know the language of his patients if he were to get a thorough insight into their troubles and woes. These words and phrases threw a light upon the history of a district, and it was a grave mistake to regard them as vulgar; they often represented archaic forms, and were survivals of words in the literature of centuries ago. Ulster possessed a dialect richer and more varied than any other area of the same size in the United Kingdom. This fact was due to the Celtic, Norman, Scottish, English, and French Huguenot immigration.

The lecturer then proceeded to give examples of dialect words and sayings descriptive of the various parts of the body and of the diseases which affect them, as well as of curious expressions employed by the sick; various charms and strange folk cures were touched upon; and, finally, the doctor himself, as described by the people in dialect terminology, was portrayed, and the foods used by the people, both in illness and in convalescence. An interesting discussion followed, and the meeting terminated by a hearty vote of thanks to the lecturer.

Scotland.

At the first meeting of the Central Midwives Board for Scotland, which took place on February 18th, Professor Sir Halliday Croom was elected chairman and Dr. Haig Ferguson deputy chairman. Matters concerning the arrangements for the future work of the Board were discussed, but no final decision was taken.

The Morison lectures before the Royal College of Physicians of Edinburgh will be delivered by Dr. Edwin Bramwell on Monday and Friday, March 6th and 10th, at 5 p.m. The subject is neurology of the war.

At the annual general meeting of the Glasgow Royal Asylum on February 17th Dr. L. R. Oswald, the physician-superintendent, reported that the number of admissions during the year was 93, as compared with 116 in the previous year. The decrease had occurred principally, if not entirely, among the men, and was to be explained by the number of men on service, by the financial prosperity enjoyed by those at home, and by a diminution of the causes producing mental disorder in the class from which the patients were drawn. The war coloured the symptoms produced in some cases, but was not the main causative factor in any. The absorbing interest of the national crisis, which had put self in the background, had thrown many who had previously no vocation in life into active social and philanthropic work, and had thus increased and not diminished the mental stability and general life. The saddest cases he had seen were those in which not the war itself, but the barbarous manner of its conduct by the enemy and the murder of innocent women and children had produced morbid depression closely allied to actual insanity. The directors reported that 534 patients had been treated in the institution during the year. The number of deaths was 37 and of discharges 65. Though the increased cost of maintenance amounted to at least 30 per cent., no change had as yet been made in the current rates of board.

DR. ALEXANDER MORLEY, of Craven Hill Gardens, Hyde Park, who recently died at the age of 79, left estate valued at £21,948.

Correspondence.

JEJUNAL FOR DUODENAL ULCERS.

SIR,—Sir John Bland-Sutton's explanation of the etiology of the so-called peptic jejunal ulcer (February 19th, p. 272) would not account for cases occurring within a short time of the performance of a gastro-enterostomy. A patient upon whom I did gastro-enterostomy had such an ulcer, which gave evidence of its presence six days after the operation, the diagnosis being verified both at the second operation undertaken for its relief, eight days after the operation, and at the subsequent *post-mortem* examination. It is inconceivable that structural alterations could take place in the jejunum in so short a time as six days, and some additional element must be at work in producing these ulcers.

The quotation from which the phrase a "vext duodenum and an agitated pylorus" is taken is to be found as a footnote to the chapter on dyspepsia in the second volume of Tanner's *Practice of Medicine*. The whole passage will appeal, I think, to Sir John Bland-Sutton's sense of humour.—I am, etc.,

Bettws-y-coed, Feb. 22nd.

NORMAN PORRITT.

THE PHYSICS OF A SURGICAL DRESSING.

SIR,—The vehement replies to Lieutenant-Colonel Primrose are sadly narrow in their vision.

Dr. Samways's last sentence is, however, a relief. "A" is not always good nor "B" always bad.

Surely the whole matter is one of osmosis. If you apply a dense fluid like glycerine to the surface of a wound there must be a flow of lymph from the tissues. If, on the other hand, you apply an easily evaporating fluid you tend to dry up the exuding lymph and to seal the wound. If you completely cover a pad of wool soaked in glycerine (with or without carbolic acid) placed upon an open wound it will on removal weigh much more than when applied. My contention is that this osmotic action has prevented the penetration of germs into the tissues, and that the carbolic acid kills those that are on the surface.

Another simple fact is that by no substance in the world can you reach and destroy germs which have penetrated beneath the surface, without also destroying the surface tissues. If, however, you apply a substance which will kill those on the surface, and if you apply it before many have penetrated beneath it, the tissues themselves will dispose of the remainder, provided you allow free exit for the corpses of defenders and invaders alike. A substance which encourages exosmosis and is at the same time germicidal and anodyne appears to me to meet most requirements. Such you have in carbolic glycerine.—I am, etc.,

London, E.C., Feb. 18th.

A. OGIER WARD.

THE INTRODUCTION OF CINCHONA TREES INTO INDIA.

SIR,—In Sir George Birdwood's letter on the introduction of cinchona trees into India Dr. T. Anderson's name is mentioned. Dr. Anderson introduced the cultivation of cinchona into the Bengal Presidency in 1861 from Java, taking also plants to the Nilghiris. He took charge of cinchona cultivation in Bengal at Darjeeling from the first steps, and his labours were completely successful. When he left India in 1869 he had overcome every difficulty in the cultivation of cinchona generally, and particularly as regards *C. Calisaya* and *C. succirubra*, the most valuable species. In a letter from the Acting Director of the Royal Botanic Gardens, Calcutta, dated February, 1871, to Sir William Grey, Lieutenant-Governor of Bengal, on the death of Dr. Anderson at the age of 38, it is stated, "No other person in India appears as yet to have succeeded in growing to economic advantage the invaluable species of *C. Calisaya*. Both *C. Calisaya* and *C. succirubra* now grow there better than in any other plantations in the world." I am informed on the best authority that *C. Calisaya* is not now and has never been a success in the Nilghiris; the climate does not seem to suit it. I am not aware that Sir Clements Markham took any part in the introduction or cultivation of cinchona in Bengal.—I am, etc.,

Horsmonden, Feb. 19th.

F. T. ANDERSON.

THE EDUCATION OF NURSES.

SIR,—Dr. Mildred M. Burgess calls attention in your issue of February 19th, p. 292, to the subject of the education of nurses and to the desirability of granting a diploma in nursing on the basis of an independent examination. I beg to state that, under the powers of a Royal Charter, the Royal British Nurses' Association has, since the year 1907, held independent examinations—written, oral, and practical—and granted diplomas to successful candidates.

The subject acquires additional importance from the fact that efforts are at the present time being made to place the training and certification of nurses on an organized basis. The powers for effecting that purpose have already been secured and are in operation.—I am, etc.,

London, W., Feb. 21st.

W. BEZLY THORNE, M.D.

THE ALLEGED WASTE OF ARMY MEDICAL OFFICERS.

THE following letter was published in the *Times* of Saturday, February 19th:

SIR,—I have recently had the opportunity of paying a prolonged visit to the British army in North France and Flanders in the company of a surgeon whose pioneer work in a particular department is as well known in the capital cities of our Central European foes as it is in the medical seats of learning of New York, Baltimore, Philadelphia, and Chicago. Before the outbreak of this Kultur-versus-democracy war I took an active part in the work of the St. John Ambulance Association and the British Red Cross Society, and had visited the head quarters of the Red Cross national organizations in Budapest, Vienna, and Berlin, whilst I enjoyed the great privilege of "doing my little bit" in the South African campaign; naturally, therefore, I was keenly interested to see how the Royal Army Medical Corps was performing its task of unforeseen and undreamt-of magnitude.

The primary object of the visit was to study a special point in the treatment of a particular class of injury in which one of us was interested, but fortunately we also had time and ample opportunity to investigate a question which is of quite a different character, which, from a national point of view, is more important and requires to be treated without bias, prejudice, or preconception. This matter was one which we had often heard discussed at home during the last few months, which appeared prominently in the press, and in regard to which we had heard and read statements of so definite a kind that we almost necessarily believed them to be true.

We shall be obliged, therefore, if you would afford us space to state that the statements as to the overstaffing of the medical units of the army in France seem to us to be quite unsupported by facts. We are of opinion that a perceptible reduction of the existing standard may in times of greater activity of "push" and counter-push lead to a condition which would lay the medical organization open to legitimate adverse criticism.

This opinion is founded on facts we had ample opportunity of glean for ourselves, since the primary object of our visit brought us into immediate contact not only with the regular officers of the Royal Army Medical Corps, but also with the numerous medical men until recently in civilian practice who hold temporary commissions in that corps, and now form the large bulk of the whole medical service in France. We thus not only saw things for ourselves, but heard the opinion of men who, despite the temptation to return home to look after their own practices, affairs, and personal comforts, continue to perform the duties which they have taken up.

We were thrilled with admiration at the existing perfection of the hospitals, both at the base and the front, and at the marvellous organization which exists throughout the vast medical service. Every detail is considered and seen to, and indeed any suggestions made were everywhere welcomed in the same spirit as one of us indicated in the *BRITISH MEDICAL JOURNAL* not long after the outbreak of this war. It would be impossible in a letter of this kind to enumerate the thousand and one items which struck us as evidence of the businesslike capacity, spelling efficiency and economy, everywhere apparent.

Wherever we went we found under the varying conditions always the same admirable organization and the same high administrative standard for the prevention of disease, and for the treatment of our sick and wounded soldiers. The special departments which have been created for dealing with ophthalmic, dental, skin, and foot troubles complete an organization which is worthy of the highest and best traditions of the British race. It was a source of

pride and confidence to us, who have our only sons serving in the British army, to have at the end of our visit an opportunity to see at the General Head Quarters tables and graphic charts showing us at a glance how every detail is considered and controlled by the Director-General, Sir Arthur Sloggett.

As a member of the War Executive Committee of the British Red Cross Society, which is working in the closest association with the Order of St. John, it is not for me to praise the work which is being done by these two national organizations, but it is known that the aid they give in respect of hospitals and transport is a most valuable auxiliary.

I have the honour to remain yours faithfully,

J. LYNN THOMAS, C.B., F.R.C.S.

P.S.—I have submitted this letter, with the exception of paragraph 1, to my friend in khaki, and he endorses every statement without reservation.

*** In a letter published in the *Medical Journal of Australia* for January 8th, 1916, and therefore written a good deal earlier, Lieutenant-Colonel Gordon Craig, A.M.C., deals with various causes which had prevented the members of the medical profession in Australia from enlisting even more freely than they have.

One of these, he said, was the statement that many medical men are idle at the hospitals in the war area. He called it a half truth, and therefore worse than a lie. "I have realized," he wrote, "that a military organization must be worked out on a maximum, and not a minimum basis, so that when the extraordinary call comes, it may not collapse. The whole history of the war shows big actions, alternating with periods of comparative inaction. During the latter, it is obvious that some men must be idle; but it is in their presence, in their readiness for emergency, that their military strength lies." Another lesson which, he said, must be learnt, was that every man must be ready to do any duty of a medical nature that the requirements of the service demanded. "If an opportunity arises for him to use his special gifts of training, such as that of surgeon or physician, so much the better; let him seize it. But if there is not that work, he must do uncomplainingly the ordinary work of military routine." Another cause of dissatisfaction mentioned was the fear that professional inferiors might occupy a higher position. "This," he wrote, "is bound to happen in a few isolated cases." Medical men are naturally independent, and their training develops that independence, but "as soon as it is realized that the authority is exercised in military matters only, the irksome feeling disappears. Sufficient freedom of thought and action is left to give scope to individuality. If the position is untenable it is always possible to transfer to another unit. In any case matters soon right themselves; the incompetent man is removed to a position more suited to him; and in a game of this sort, what matters it whether a man is captain or a colonel, so long as he serves his country? the rank does not make the man." As to another difficulty—the want of previous military training—he admits that it is real, and adds: "One month's training in the evening by a military instructor would give every medical man enough knowledge to 'carry on' his duties as a military officer. Schools for this purpose could be formed and organized by the local Branches of the British Medical Association."

The Services.

EXCHANGE DESIRED.

CAPTAIN, R.A.M.C.T.F. (civil hospital surgeon), at present in England serving as Medical Officer to Divisional Train, A.S.C., wishes to exchange with an officer in base hospital, or other appointment where surgical work is available, at home or abroad.—Address No. 850, *BRITISH MEDICAL JOURNAL* Office, 429, Strand, W.C.

PROFESSORS MARAGLIANO of Genoa and RUMMO of Naples, vice-presidents of the Italian Society of Internal Medicine, have issued an appeal for funds for the erection of a statue of the late Professor Baccelli to be placed in the Policlinico at Rome, in the foundation of which Baccelli took a leading part.

THE Cambridge University Press announces that it has become the agent in Great Britain for the *Journal of Cancer Research* (quarterly), the organ of the American Association for Cancer Research, and of the *Journal of Immunology* (bi-monthly), the organ of the American Association of Immunologists and the New York Society of Serology and Haematology. The subscription price for each journal is 25s.

Obituary.

SIR WILLIAM TURNER, K.C.B., F.R.S.,

PRINCIPAL AND VICE-CHANCELLOR OF THE UNIVERSITY OF EDINBURGH.

(With Portrait on Special Plate)

THE late Sir William Turner's long life was so rich in opportunities and so fertile in fruitful fulfilment that any attempt to enumerate, much more to describe, his activities and their realizations is at once embarrassed by the number of the competing themes and the variety of their interest. For forty years at least there has been little if anything of lasting value achieved in the various departments of scientific medicine and of medical politics with which Sir William has been associated that was not in some measure at least the work of his hands and brain. So complex an achievement cannot adequately be treated in an obituary notice; it demands a biography.

More than eighty-four years ago the future Principal of the University of Edinburgh was born in Lancaster. He received his medical education at St. Bartholomew's Hospital, and it is no less than sixty-two years since Professor John Goodsir chose the young M.R.C.S. Eng. as his senior demonstrator of anatomy in the University of Edinburgh, and so determined once and for all the direction of the activities which were to be so closely bound up with medical progress in the Scottish capital. Turner graduated M.B.Lond. in 1857, and from that year right up to the past week he marched ever onward in the path into which his feet had been led by Goodsir's choice, a more momentous one than the maker of it ever knew. Men who were undergraduates at Edinburgh in the later Fifties of the last century speak of another demonstrator whom some of them think was more brilliant if less gifted than Turner, but he fell out of the running, and the way was open for the Lancastrian to succeed to the chair of anatomy on Goodsir's death in 1867. Having been thirteen years demonstrator, Turner was for thirty-six years professor of anatomy, and then (in 1903) only resigned the professor's chair in order to occupy the seat of Principal of the University, a high place which he filled and adorned to the end. For part of the time he was also Dean of the Medical Faculty. During these sixty years there were many notable occasions in the history of the University of Edinburgh, and in nearly all of them Sir William Turner played an important and often a leading part; mention need only be made of three of the most outstanding—the raising of the funds necessary for the building and opening of the new university buildings and McEwan Hall, the tercentenary celebrations (in 1883), and the establishment and guiding of the Carnegie Trust (from which the University of Edinburgh, in common with the three other Scottish universities, has benefited so conspicuously).

Whilst the appointments which have been named mark what may be called the main current of Sir William Turner's professional life, there were several side streams, some of which became almost as great. There was, for instance, his work on the General Medical Council. To this body he was elected in 1873 as representative of the University of Edinburgh, and he remained a member of it, with the exception of three years (1883–86), till he was made its President (in succession to Sir Richard Quain) in 1898. He occupied the chair till 1904, and remained a year longer on the Council. Then, again, there was the part he played in connexion with scientific societies and medical institutions; he was a member of the Medical Acts Royal Commission in 1881; he was a Fellow of both the Royal Societies (of London and Edinburgh) and President of the latter; he was President of the Anthropological Section of the British Association, and later (in 1900) of the British Association itself; and he was F.R.C.S. of England (1893) and President and Fellow of the Royal College of Surgeons of Edinburgh. Yet again there was the literary current in his life's activities, with its numerous articles embodying the most minutely detailed and scrupulously accurate of researches on human and comparative anatomy, from his work on placentation (an epoch-making classic) through a long series of contributions on craniology to his masterly exposition of *Pithecanthropus*; with the article on "Anatomy" for the

Encyclopaedia Britannica, which appeared afterwards as a separate volume; and with the conduct and editorship of the *Journal of Anatomy and Physiology*, always a labour of love to Sir William. There was also his connexion with the Volunteer movement from the days when, as Captain Turner, of the Q.E.R.V.B. (IV or University Company), he drilled his men (not a few were also his students) in the quadrangle of the old university, to the more recent days when he was made honorary lieutenant-colonel (V.D.) of the brigade. Only a fortnight before his death he took part in the Officers' Training Corps' service in St. Giles's Cathedral. There were other directions, too, in which his wonderful personality made itself felt, and of some of these, as well as the ones which have been named above, a few of his many friends will record their memories.

So many were the ways in which he influenced others that it is difficult to pick out any one as the most important, yet perhaps first place should be given to his work as a teacher of anatomy. For he not only taught students, he instructed future professors of the subject, and so strong was his personality and so unique was his method that the senior who had reached his third year had not lost the impression he received as a junior attending his first lecture, that ever-memorable one in which Sir William, dealing with the vertebral column, announced that "man was an erect animal," and literally put some backbone into the youngsters listening to him. His lectures were impressive, in fact everything that he did could be so characterized, and one felt instinctively that the information behind them was massive and absolutely exact; his utterance was clear, each word falling with a distinctness which, to quote one of his own favourite expressions, left "no dubiety" in the mind of the hearer; and his habit of looking closely at the object he was describing and only glancing now and again at his listeners had a fascination which kept their gaze fixed on him all the time. No one could doubt that there were immense stores of knowledge behind the facts which he stated with such security, and no one as a rule dreamed of asking a question after lecture in the hope of altering by an iota any pronouncement which had been made. One day, however, a venturesome student drew the professor's attention to a rare anomaly in the insertion of some muscle or in the ramifications of a nerve, and, exhilarated with the thought that perhaps he had discovered a hitherto unrecorded variety, asked his teacher if he had ever seen such a thing before; the reply, given kindly but quite firmly, was that whilst Sir William could not at the moment recall any such occurrence his pupil must not on that account consider that no such occurrence had taken place, for he (his teacher) had seen a great many things and had not tried to retain them all in his mind.

That the expression "he instructed future professors" is no mere figure of speech is shown by the following list (perhaps incomplete) of his pupils who became professors in anatomy: The late Professor Morrison Watson, Owens College, Manchester (who married a sister of Lady Turner); the late Professor D. J. Cunningham, who succeeded him in the Edinburgh chair; Professor Arthur Robinson, late of King's College, London, and Birmingham University, the successor of Cunningham; Professor Arthur Thomson, Oxford; Professor Johnson Symington, Belfast; Professor Robert Howden, Durham University; Professor J. T. Wilson, Sydney University; Professor A. M. Paterson, Liverpool University; Professor P. H. Bryce, Glasgow University; Professor David Hepburn, Cardiff; Professor Richard Berry, Melbourne; Professor James Musgrove, St. Andrews, now succeeded by Professor Waterston, St. Andrews; Professor Primrose, for a time Professor of Anatomy, Toronto University, now Professor of Surgery; Professor Lamont, University College, Dundee.

No life so full and so strenuous as Sir William Turner's could evade honours, and indeed they poured in upon him from all sides. He received his knighthood in 1886, and the K.C.B. in 1901; he was Knight of the Royal Prussian *Ordre pour le Mérite*; Glasgow, St. Andrews, Aberdeen, Montreal, and the Western University, Pennsylvania, gave him their honorary Doctorate of Laws; from Oxford, Durham, and Toronto came the Hon. D.C.L.; he was an Hon. D.Sc. of Dublin and Cambridge; and he was an honorary member of the Royal Irish Academy, as well

as of learned societies in Paris, Berlin, Rome, Petrograd, Brussels, New South Wales, and other places.

Sir William Turner's chief, if not his only, recreation was foreign travel, and his knowledge of places and things was really extraordinary. He had travelled with enthusiasm all over Italy, France, and Belgium, and he also visited Canada and the United States. His appreciation of ecclesiastical architecture was a part of his great mental equipment, and there were few cathedrals in the European countries above named as well as in England with whose structural features he was not well acquainted. He was undoubtedly a great conversationalist, and his wonderful memory, drawing as it could upon immense stores of facts, made him most reliable when dealing with past events.

An Englishman by birth and ancestry, he had an abounding love for Scotland and things Scottish, and perhaps his friends in the North paid him the highest compliment they knew when they expressed their surprise that he had come from the other side of the Cheviots. In 1863 he married the eldest daughter of Mr. Abraham Logan of Burnhouses, Berwickshire. Lady Turner predeceased her husband in 1908. Sir William Turner is survived by three sons and two daughters. One of his sons is Dr. William Aldren Turner, physician and lecturer in neurology to King's College Hospital, London; another is Dr. A. Logan Turner, lecturer on diseases of the ear and throat in the University of Edinburgh; and the third, Mr. Francis R. Turner, is a farmer in Roxburghshire.

As was announced in the JOURNAL last week (p. 287), Sir William Turner was in the enjoyment of his usual good health until ten days before his death. Then gastric symptoms manifested themselves, and he passed away early on the morning of Tuesday, February 15th.

The funeral service took place in St. John's Episcopal Church, Edinburgh, where for sixty years he had always worshipped, and was attended by so large a gathering of the representatives of public bodies as has been rarely seen.

Sir William Turner as Anatomist and Anthropologist.

Professor ARTHUR KEITH, M.D., F.R.S., Conservator of the Museum of the Royal College of Surgeons of England, writes:

When the medical history of our time comes to be written Sir William Turner's name will find a place in the very first rank. To those who love the spectacular his work will not appeal; like another man, with whom he had much in common—John Hunter—he never startled his contemporaries with any single outstanding unforgettable discovery, yet his life—from the publication of his student effort (under the aegis of Sir James Paget in the summer of 1854) until the publication of his great monograph on the Scottish people at the close of last year—was a continuous succession of discoveries. As they were made he fitted them deftly into the mosaic work of acquired and growing knowledge. To appraise Sir William Turner's life-work at its proper value it has to be viewed, not as a series of isolated, often splendid, fragments or pieces, but in its proper setting—as an intrinsic part of the general progress in medicine which has been made in our time. Like Hunter, he was a builder, not restricted to one single line of endeavour, but covering many fields—physiological chemistry, pathology, human anatomy, physiological anatomy, comparative anatomy, zoology, anthropology, and medical history. Like Hunter he built a great museum; he realized that specimens could still live and speak when the printed word was dead. Unlike Hunter he was a statesman; the progress of the community was as much to him or more than the success of his own affairs. On the thread of his life is strung all the beads of British anatomy for half a century and more.

Sir William Turner's career appeals to me more than any other medical man's of our time. It is so continuous, consecutive, logical, fruitful, and full of the right kind of romance. He was, as he often said himself, a "Lancaster lad"; his father, as I learnt from my friend Professor William Stirling, was an upholsterer; he died at the age of 40, leaving his son William a boy of 5. I have notes of him attending "Teddy" Howard's school some seventy odd years ago and catching "bits of coloured wool with a crooked pin, thrown on the floor by a little girl sitting on

a form across the room." In due time he was apprenticed to Christopher Johnston, surgeon, and with him a double influence was brought to bear on the young Lancastrian. When his apprenticeship draws to a close there is no doubt about the hospital he is to proceed to. Richard Owen, a Lancaster lad, was at the height of his fame in 1852 when Turner had to choose his hospital, and, like Owen, he selected St. Bartholomew's. Owen in 1852 was 48 years of age, and was then making up his mind to leave the College of Surgeons for the British Museum. Turner was a lad of 20 in 1852. Paget had just finished the catalogue of the Pathological Collection at the Royal College of Surgeons.

When Turner arrived as a student Sir James Paget was 38 years of age, had given up the resident wardenship of the school, and borrowed money to become the tenant of 24, Henrietta Street. Turner's old master, Christopher Johnston, had engrafted a love and knowledge of chemistry in his pupil; in 1854 Turner is awarded honours in chemistry by the University of London; his personality and his knowledge won him a high place in Paget's esteem. In the same year (1854) Paget communicated Turner's paper to the Royal Society—the one in which he shows that the reducing substance in cerebro-spinal fluid is not a sugar. The fluid had been drawn from a case of spina bifida under Paget's care.

I have said Turner's life is full of romance. When he left Lancaster he followed in Owen's track; the next turn of the wheel of fortune sent him off to Scotland—right into the heart of the most jealous and keen of all medical corporations—the heart of medical and particularly anatomical Scotland. It was Paget who turned the wheel. That grim Calvinist, John Goodsir, the best student of the human body Scotland ever produced, was ill with overwork and with the disease which was ultimately to wreck his health, when he came to see Paget at St. Bartholomew's in 1854. He looked then old and worn, but he was exactly the same age as his friend Paget—42. The result of Goodsir's visit was that Turner was installed as senior demonstrator of anatomy in the University of Edinburgh. But there were three connexions formed at St. Bartholomew's Hospital which were to exercise a permanent influence on Turner's career. There was, in the first place, the close tie he had formed with his teacher, Sir James Paget. In 1863, when a second edition of *Lectures on Surgical Pathology* was called for, the task of preparation fell on the senior demonstrator of anatomy in Edinburgh. There was the intimate friendship which he had formed with his fellow-student at St. Bartholomew's, George Rolleston. What the one did at Oxford the other did in Edinburgh, and vice versa. When Rolleston's premature loss to science occurred in 1881, it was his friend Turner who collected his papers into two volumes, and edited them in company with Professor E. B. Tylor of Oxford. Rolleston's marked bent towards anthropological investigation had an undoubted influence on Turner. There is still another St. Bartholomew's connexion of his which has had an important bearing on the development of anatomical literature in this country. It was through his hospital and through Paget that Turner's friendship with George Murray Humphry of Cambridge was formed. Humphry was Turner's senior by twelve years; Humphry had left St. Bartholomew's ten years before Turner entered it. When Turner set out for Edinburgh in 1854, Humphry was a deputy teacher of anatomy and surgeon in Cambridge. When in 1867 a proposal was broached for a journal to serve the needs of British anatomists and physiologists, it was the two "Bart's" men who conceived and carried the scheme through. By their means they gave an enormous impetus to the progress of anatomy amongst English-speaking peoples. There is another St. Bartholomew's student whose name richly deserves to be recalled because of its connexion with anatomy and with Turner—the late Mr. C. B. Lockwood. Turner and Humphry founded the *Journal of Anatomy* in 1867; twenty years later Mr. Lockwood, with the help of Humphry and of Turner, founded the Anatomical Society. St. Bartholomew's School had no professed anatomist in those days, yet it formed the cradle of the three leading British anatomists of the Victorian period.

I do not suppose that William Turner, when he went to Edinburgh in 1854, had the least intention of making a

home there, any more than Lister had when he went to see Syme at a rather earlier date—1852. Lister was getting married when Turner joined Goodsir in Edinburgh in 1854. We soon find those two young men making a combined research—using carmine as a differential stain for the axis cylinder of nerve fibres. In those days Lister was really an anatomical physiologist—perhaps “biologist” is the better term for him—and Turner was a physiological anatomist. In the dissecting-room at Edinburgh Turner came under the spell of Goodsir—no man of parts could resist that spell. Goodsir proved to be Turner's real master—not Paget. Through Goodsir he absorbed the spirit and the traditions of the Edinburgh school—the standard set by the Monroes, by Barclay, by Knox, and, above all, by Goodsir himself. The Edinburgh anatomists took a wide view of their subject; mere applied or surgical anatomy was held at a discount; they desired their subject to be regarded as a science, resting on a basis of comparative anatomy. Hence the catholicity of their pursuits; one day they are dissecting some fish or whale; on the next they are recording the anomalies of the human body or seeking to apply morphological laws to its structure. For eleven years Turner served under Goodsir; he had Professor Clelland and Professor John Chiene as junior colleagues in the dissecting-room. In 1867, at the age of 35, he succeeded to the chair of anatomy when Goodsir's tragic end came at the age of 53.

Before he succeeded to the chair certain events occurred which give us a key to his strong, firm, honest nature. In 1863 Huxley came down to Edinburgh and gave the substance of “Man's Place in Nature” in the form of public lectures. His teaching and deductions were thoroughly distasteful to the orthodox public; Owen and Goodsir were in sympathy with the public point of view, and made no secret of their opposition to Huxley and to Darwin. It is quite clear from papers published by Turner during the period of the Owen-Huxley controversy—“Anatomical characters of a human cranium found at Amiens” (1863), and “On human crania, allied in anatomical characters to the Engis and Neanderthal skulls” (1864)—that he makes his position quite clear; Goodsir's opposition did not prevent his becoming a follower of Darwin and a believer in evolution, but his statements are temperate and judicious and destitute of that sting which rouses unscientific controversy. He was a statesman even when he was arguing a scientific truth.

It is of importance to note the “Owen-Huxley” controversy, for that and the discovery of the remains of prehistoric men about the same period induced many anatomists to apply themselves to that ill-defined branch of knowledge now known as “anthropology.” Turner's enthusiasm for the subject dates from the Owen-Huxley controversial period. When his students went to their homes at the end of a session they were duly impressed with the documentary value of human skulls—ancient and modern—and the need of gathering and saving such things. When these same students became graduates of the university, and came to hold medical posts abroad, they never forgot the teaching and craniological needs of their old professor. By such means Sir William Turner collected in his museum representations of all the races of the world. His classical monographs on the craniological features of the Scottish people, both ancient and modern, on the peoples of the empire of India, on the extinct natives of Tasmania, on the natives of New Guinea and of Borneo, were based on material which he gradually accumulated—chiefly through the help of his devoted pupils. He was the first to make an accurate study of the development of the lumbar curvature. In anthropology and in anatomy he was a master builder—not an architect.

For over sixty years he issued some four or five papers annually—some small, others great, but always replete with first-hand observation. A survey of his scientific career shows that he followed the normal course of our greatest workers; he spent the latter two-thirds of his active career in completing conceptions he had formed in the opening third. In 1862 he fell, as Knox and Goodsir had done before him, a victim to the structural fascination of whales; only three years ago he compiled, completed, and published an excellent and richly-illustrated catalogue of his whale collection under the title of *The Marine Mammals in the Anatomical Museum of the University of Edinburgh*. In 1866 appeared his first work

on the brain; for twenty years the brain formed one of his chief studies. He began a study of the comparative anatomy of the placenta in 1871; he made placentation a chief subject for investigation for nearly a score of years. If we set out now to make inquiries on any of these subjects, we can be certain of getting help and accurately observed data from his papers, and our successors for many generations will have reason to bless him. He had an unbounded capacity for work and for taking pains, and the most marvellous aspect of the whole of his career was his ability to combine a life of extraordinary scientific industry with one laden with administrative duties—sufficient to tax the whole time and strength of most men. He was that rare combination—a statesman and a researcher. He was for fifty years the outstanding figure in British anatomy.

Turner as a Teacher.

Dr. ARTHUR THOMSON, Professor of Human Anatomy in the University of Oxford, writes:

Sir William was one of the ablest men I have ever known. That is high praise. I lay no claim for him of outstanding genius, but for sheer ability I have not met his equal.

He combined, in a remarkable degree, high attainments in science with unusual business capacity, a blend which, despite the recent correspondence in the press, is oftentimes remarkably scarce. He possessed, too, a shrewd knowledge of men, a keen sense of justice, and an appreciation of the subtleties of diplomacy. In finance his views were sound, if somewhat conservative. There was nothing speculative in his policy, he would take no risks, but when occasion arose he would back his opinion.

It is of him as a teacher, however, that you have asked me to write. That takes me back a long time—to the winter of 1875—but after forty years, the memory remains as fresh as if the incidents had happened yesterday. I confess at the time of my first introduction to the anatomical department I did not know whether I was most impressed with the vigorous personality of the professor or the uncouth appearance of the gigantic James, the dissecting-room porter.

To us boys, university professors were as gods, impersonal and beyond reproach, awe-inspiring and all-powerful. There were exceptions, of course, men, brilliant though they were, unable to control the exuberant spirits of their pupils. Turner was not one of these. When his voice was heard, as he entered the dissecting-room, all was stilled, and every one endeavoured to display an unwonted interest in his work. There was never any rowdy element in his class; if some adventurous spirits were courageous enough to attempt an interruption the disturbance was soon quelled. The method was simple but effective. The professor stopped abruptly in the middle of a sentence, concentrating his gaze—a not altogether pleasant gaze either—on or in the neighbourhood of the offenders, and thus waited till the noise stopped. He had not long to wait, for I never yet met the man who could withstand that stare; then when silence was restored, the professor finished his sentence without further comment, and proceeded with his lecture. That was my first lesson in the discipline and control of a class—Look very fierce, keep perfectly calm, and say nothing.

It was, perhaps, as a demonstrator that the professor was most successful. In those days the class met at 4 o'clock—a sleepy hour; but despite this, he kept the interest of the men awake and keen. I have often heard it said what a wonderful thing it was that Turner could lecture, for an hour on end, on the superficial fascia of the thigh; it was not mere “word slinging,” but a carefully elaborated description devised to bring out the salient points.

His teaching was dominated by a sound perspective. The main features were emphasized by repetition and appropriate reference to points of practical and scientific interest, whilst the details were not unduly enforced. In this way the student carried away an effective and useful impression of the subject treated. In my opinion, the virtue of this method has been too much lost sight of in these latter days, and now the student very often cannot “see the wood for the trees,” a criticism which applies equally to the modern textbook descriptions as well as to the oral instruction.

As illustrating this aspect of Turner's teaching, a story is told, the authenticity of which I cannot vouch for.

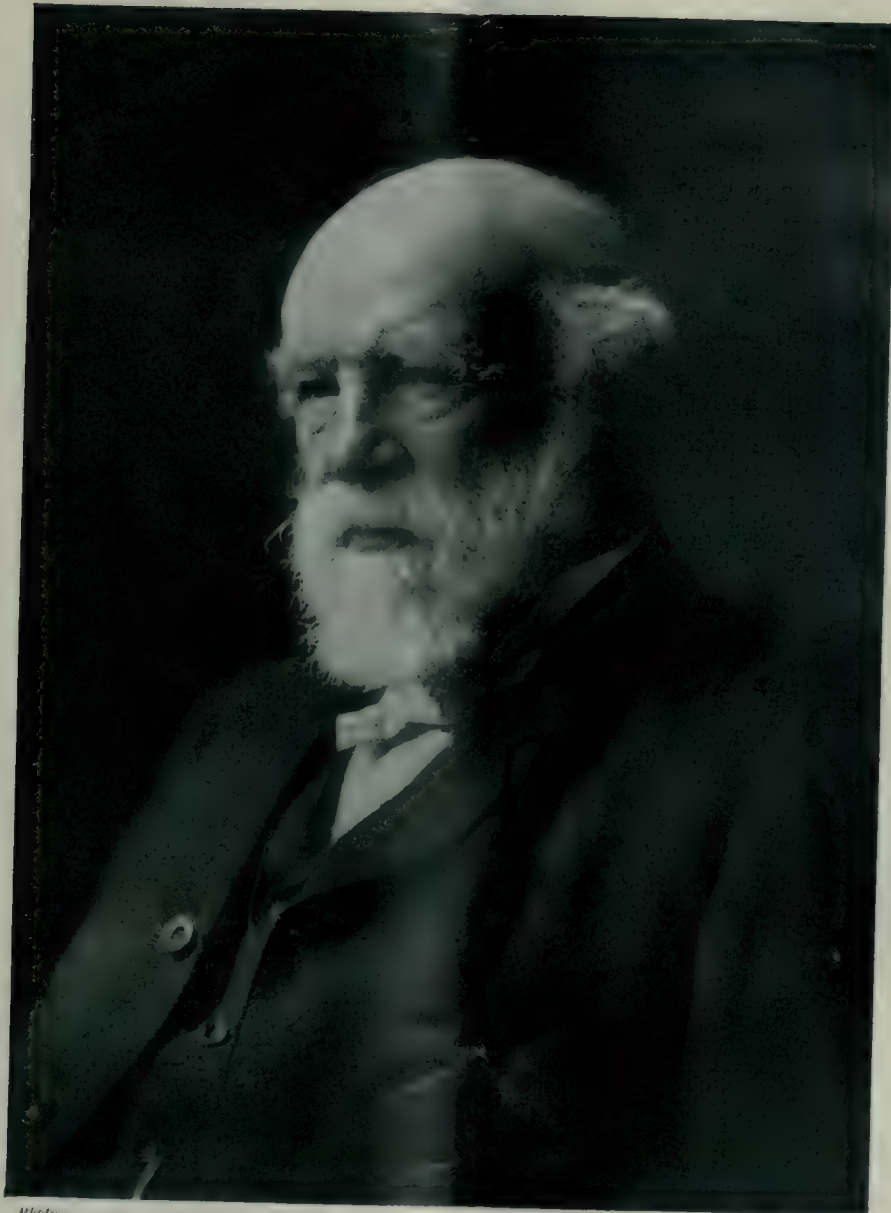


Photo.

Mount.

SIR WILLIAM TURNER, K.C.B., F.R.S.

Goodsir, it appears, was in search of a demonstrator, and, happening to be in London, called on Paget to see if he had any promising pupil. Young Turner was introduced, and, being requested by the great anatomist to give a sample of his capacity by demonstrating the sartorius muscle, the nervous youth at once proceeded: "The sartorius, the longest muscle in the body, takes its . . ." "That will do," interrupted Goodsir, and promptly gave him the post.

As a lecturer he was remarkably illuminating, particularly when dealing with some abstruse point, but the ordinary undergraduate never saw him at his best, for he was handicapped by having to cover the whole subject of anatomy in the course of a hundred lectures. None the less, the summary which he presented to his pupils, and of which I still retain the notes, was most skilfully drawn up, and of extreme value from a didactic point of view. His lectures were prepared with great care, and it was this which brought me first into more intimate contact with him, because, as a student, I was frequently requisitioned to prepare the diagrams necessary to illustrate new points. Hitherto I had known only the official side of the man; now I had opportunities of making acquaintance with the softer side of his nature. My subsequent association with him for five years as one of his assistants enabled me more fully to appreciate his virtues as a master, and kindness as a friend. What particularly impressed me was his thoroughness: no labour was too arduous, if only it revealed the truth. He possessed the infinite capacity for taking pains which resulted in the accumulation of that great store of valuable research which now stands to his credit.

Most men are content to exhaust the fruits of their originality by middle age; Turner continued to the last to retain his interest in research, and that too at a time when his duties as Principal and Vice-Chancellor might reasonably have been regarded as sufficient to tax the energies of a man less capable and strong. He regarded research as a relaxation from the tedium of office work, and his last paper on "The craniology of the people of Scotland," published in the *Transactions of the Royal Society of Edinburgh* for November, 1915, reveals no weakening of effort or performance—a remarkable feat for a man over 84 years of age.

Those only who knew Sir William intimately can estimate the worth of the man. His affection for his university was an outstanding feature. The land of his adoption never had a stouter champion, and colleagues and pupils never a truer friend, but what perhaps we, who knew him well, realized more than most, was that love of home and family which stirred his heart. To us, too, was revealed that hidden fund of humour which few acquainted with him suspected. No doubt to these traits in his character is due the success which he attained in enlisting the sympathy of wealthy benefactors to his university. For this alone he has earned widespread recognition and gratitude.

To me, who have enjoyed his ever-helpful friendship and almost fatherly affection, the loss is sore and grievous, yet tempered with the satisfaction that he has fought the good fight, that he has left a record which few can equal, and that now he is at rest.

Dr. ARTHUR ROBINSON, now Professor of Anatomy in the University of Edinburgh, writes:

Sir William Turner was associated with the anatomy department of the University of Edinburgh for a little over sixty-one years—thirteen years as chief assistant, thirty-six years as professor of anatomy, and for the remainder of the period, up to within three weeks of his death, whenever he could find opportunity amidst his multifarious duties, he continued his anatomical research upon cetacea and in craniology. Indeed, there is still set apart, in the small private workroom reserved for him in the anatomy department, a series of New Guinea skulls which he proposed to investigate and report upon.

The anatomy department, as it stands to day, was his creation. It was built under his supervision, whilst he was professor of anatomy, and is a visible illustration of his grasp of the necessities of his subject and of his foresight for its advance, for when the department was built it was a great improvement upon anything which had preceded it, and it still holds a high place for its utility and adaptability. In it and in the old buildings, now given

over mainly to arts and science, he carried out his numerous and varied investigations with the care, exactitude, and insight which characterized all his work, and placed it on the highest plane; but to those who were fortunate enough to be his pupils, it is not so much the greatness of his life-work and the admiration which it has excited which appeal to them, but rather his character as a teacher, controller, and a man.

His lucid expositions made the most difficult subjects simple; his knowledge of comparative anatomy gave a charm to details of human anatomy which might, without the association, have seemed dry and uninteresting; and the stern discipline which he enforced in his department produced energetic and faithful work. The sternness was, however, largely superficial; beneath it there lay a very human interest in and sympathy for every one who passed through his hands. His complete knowledge of all his students was not the least of his many remarkable characteristics, and he was always ready with advice and help for any one who desired the one or deserved the other. He detested carelessness, but he admired and encouraged work; in fact, he gloried in work, and one of the secrets of his success, which he retained to the last, was a youthful enthusiasm for work, not only as an administrator but also in investigations on the subject which had occupied the greater part of his life; and whilst he worked he gained the respect and esteem of all who were associated with him.

The General Medical Council.

We are indebted to Sir DONALD MACALISTER, K.C.B., who succeeded Sir William Turner as President of the General Medical Council, for the following note:

When I joined the Medical Council in 1889 Sir William Turner had already been a member for thirteen years. He had served from 1873 to 1883 as representative of the Universities of Edinburgh and Aberdeen, and after an interval of three years, when the joint seat was occupied by Sir John Struthers, he had been returned as representative of the University of Edinburgh under the Medical Act of 1886, and he continued in office till his resignation in 1905. His intimate knowledge of medical legislation, in the shaping of which he had borne an active part, his scientific eminence as an anatomist, and his force of character as a man, gave him a strong position in the Council. His contributions to our discussions were always clear, emphatic, and weighty. Many important decisions were taken on his initiative, either in Council or in Committee. Many of our most valuable reports were drafted or re-fashioned by his hand. On matters of medical education, particularly as it is apprehended in Scotland, his authority was admitted. Though his birth and training were English, he approached educational questions from the Scottish point of view, and he harboured no doubts as to its excellence. He was in the succession of the great teachers who had brought the Edinburgh school to the height of its expansion and of its fame, and he gave their due value to its characteristic methods and aims. Other ways might be favoured in the South, but he had misgivings about them; and he often confessed to a certain perplexity in judging of their intrinsic merits. In some respects he had become *Scotis ipsis Scotior*. In our judicial inquiries he was notably free from hastiness or prejudice. He weighed the evidence for and against a practitioner with candour and caution; and though jealous for the corporate honour of the profession, he took full account of what might be said in extenuation of individual offences against it. He possessed the "judicial mind." As a junior member I have often heard my seniors, during an informal discussion of some difficult case, ask one another: "Do you know what Turner thinks about it?"

It was, therefore, not surprising that when the Presidency was vacant through the death of Sir Richard Quain in 1898, Sir William Turner was by common consent called to the chair of the Council. From 1858 onwards his predecessors had all been chosen from the English branch. He was the first President from beyond the Tweed. His position was not always easy. The finances of the Council were not satisfactory. There were thorny questions, personal and professional, that called for careful handling. Criticism of the Council and its officers was free and not always friendly. Reforms of procedure and administration had to be carried through in

the face of opposition that was not readily conciliated. But the President's manifest fairness and firmness, his grasp of executive detail, and his power of evoking loyal support, enabled him to win through. And when he resigned the chair in November, 1904, the members spontaneously offered him the tribute of their grateful esteem at a banquet which will long be remembered by those who were privileged to be present.

It was at the special request of myself, his successor in the chair, that he continued for nearly a year to retain office as an ordinary member of the Council. I was anxious that we might not at once lose the benefit of our Nestor's wisdom and experience. In other hands than his the situation might have been awkward, but his tact, good feeling, and surety of judgement never failed. The new President and the Council as a whole profited greatly by the counsel and the active helpfulness of the President Emeritus, and when at last he retired, on the ground that he had reached his seventy-fourth year and needed rest, he carried with him the loyal affection and regard of all his colleagues.

The University.

Sir LUDOVIC J. GRANT, Bt., LL.D., Professor of Public Law in the University of Edinburgh, Secretary to the *Senatus Academicus*, writes:

I willingly accede to your request that I should write a few lines in appreciation of the great leader whose loss all here are now deeply mourning.

The influence—so wise and so beneficent—which Sir William Turner exercised over the affairs of the University of Edinburgh must not be measured by the comparatively brief period of his reign as Principal. He was an active force in academic administration *Consule Planco*—in the Seventies and even in the Sixties. Engrossing as the duties were which devolved upon him as professor of anatomy—namely, the systematic instruction of the largest class in the university and constant attendance in the dissecting-room—"Turner's Conservatory," as Sir Alexander Grant nicknamed it—he nevertheless found time to make himself a thorough master of university business, especially on its financial side. Long, then, before he was actually installed as Principal, he had become a moving spirit, one of the most vital and kinetic elements, in that mysterious entity known as "The University Authorities." It is this that makes it so difficult—for the older members of the *Senatus*, at any rate—to imagine what the university will be like without Sir William Turner.

It was characteristic of the late Principal, and indicative of his superabundant energy and earnestness of purpose, that even his relaxations were serious. Unconsciously, he directed his own life in accordance with the precepts of the old Scots ordinances which, in the interests of archery, forbade young men to devote themselves to golf and football. So long as bodily activity remained with him he took his recreation chiefly in the form of volunteering, and it is common knowledge how enthusiastic and efficient an officer he proved himself, and how magnificently he trained the University Company of the Q.E.R.V.B. For ordinary games he had no taste. This, however, does not mean that he disapproved of them, still less that he discouraged them. He was fully alive to the importance of furnishing students with opportunities of athletic exercise in all forms.

Nothing, moreover, could be more misleading than to represent the late Principal as solemn or austere. With his high sense of the responsibilities of life and of the importance of work, and his intense devotion to duty, he combined a most genial disposition, a delightful bonhomie, and abundant humour. These lighter attributes were seen, perhaps, to their best advantage when he presided at "Symposia Academica" or at the dinners which he was in the habit of giving on the night preceding graduation ceremonies for the benefit of those who were to receive honorary degrees. He entered *con amore* into the spirit of such occasions, and it was delightful to witness the enjoyment which he himself derived from them.

Those of us who were privileged to come into daily contact with him have suffered by his death an immeasurable loss. He was so considerate, so helpful, so willing to spare trouble to others, and so unsparing of himself.

Some Reminiscences.

The following is from Sir A. R. SIMPSON, who was apprenticed to Professor Goodsir in 1852, and acted as class assistant to Dr. (afterwards Sir John) Struthers when in charge of the anatomical department in the university on the occasion of a threatened breakdown in the health of the professor:

In the autumn of 1854, when Goodsir returned from a year's rest in the Riviera, he brought with him from London three young surgeons to be his demonstrators. They were obtained respectively from his friends Professor Sharpey of University College, Sir William Fergusson of King's, and Sir James Paget of St. Bartholomew's Hospital. Frederick W. Sayer, who was spoken of in glowing terms by Dr. Carpenter, died of fever after a short period of service here. A. M. Edwards was more surgeon than anatomist, and, after serving for a few years in the dissecting-rooms, entered on a brilliant surgical career in Edinburgh that ended obscurely in Australia.

Chief of the three was William Turner. From the first Paget's pupil seemed to grasp the opportunities of the new position and to be grasped by them. They favoured the development of those fine qualities that by-and-by were to be exercised in the higher spheres of the professoriate and principalship so as to win for him the admiration and affection of thousands of students, and of all his colleagues in the *Senatus*, the University Court, and the Court of Curators, and to enable him to render services that will make his name indelible in the story of our university. Foremost among the influences that went to the making of him was the personal influence of John Goodsir. He clearly brought with him from his home great natural abilities and a well-directed disposition which had been fostered through his friendship with Sir James Paget, that great surgeon and good man who has left an inspiring memory for our profession. But with Goodsir his demonstrator's intimacy was to be closer and more prolonged. Even in attitudes and actions Turner unconsciously assimilated some of his master's peculiarities. If any one recalls that some time in talking with him as professor or principal he felt himself touched on the left shoulder, he may know that he was only experiencing what Turner had often experienced. For Goodsir had a trick of shooting out the right forefinger to impress on an assistant any duty he was entrusting to him or fact of science he sought to enforce. What was more important for the young Englishman was that he began early to take colour from his new master in his habits of clear conception of duty, his untiring industry, his delight in pure scientific research, and his firm apprehension of the spiritual aspect of the universe. I refer especially to this last element in the make-up of my friend, for other points in his impressive character and career will be abundantly illustrated by other pens.

The works of Goodsir, edited by Turner, are marked by a patient, serious search for truth, and where need arises, in the presence of the mysterious, by a reverent acknowledgement of the Divine, for he did not dally with agnosticism. The same mind is found in the works of his successor. It may be felt in his address from the chair of the British Association, a position from which the "promise and potency" of mere matter had been so frequently proclaimed. Still more, if he had to address his students on their graduation day, the man who could give the shrewdest advice as to their outlook on life, would remind them that "wisdom is the principal thing," and tell them where to seek it. So, also, if he read the Scripture lesson in some university function, or took the chair at one of Dr. Kelman's Sunday evening meetings arranged by the Christian Union in the Operetta House, the men could recognize in his voice a ring of reality that helped them to feel that the service was not mere routine. When we once came out together from one of Professor Henry Drummond's meetings with students in the Odd-fellows' Hall, after discussing the man and his message, Turner said: "After all, that's just what I'm always trying to teach the men."

About three years ago I sent him a reprint of a paper from the *Expositor* upholding the scientific view of Dr. Stroud as to the physical cause of the death of Christ. He sent me a long typograph in reply, strongly endorsing from his own pathological observation and reflection

the theory of the broken heart, and adding some criticisms as to the testimony drawn from the works of artists. The editor of the journal was prepared to publish the letter, and Turner consented, but first asked it back as he wanted to make some further investigations among the great paintings with the help of his friend, the Rev. Dr. Gordon Gray, in Rome. About a year ago I pressed him to publish his observations, which he said he was quite willing to do, but was still waiting for the collaboration of Dr. Gray. It must have been at that same call on him that he spoke of an article in the new Y.M.C.A. magazine on "Surgical assuagements of war," in which it was indicated that some of the men to whom the world was indebted in this direction were confessedly Christian men. Among these necessarily was the name of Lord Lister. Now Lister came to Edinburgh only a couple of months or so after Turner. The two young men drew together and became fellow-workers and fast friends. I do not know that I ever saw Turner exhibit more emotion than on that occasion when, referring to his old colleague, he said, "I have a place where I keep memorials of Lister, and I have put the little article among them."

John Goodsir, James Paget, Joseph Lister are shining names in the firmament of science. The three each laid their crown at the feet of Christ. William Turner was a kindred spirit.

DR. FRANCIS GETHIN HOPKINS, late P.M.O. Gold Coast Colony, died at Plymouth on February 2nd, while serving as Lieutenant R.A.M.C. He was in his fiftieth year, and was the son of the late Rev. J. W. Hopkins of Aherm, Fermoy. He graduated B.A., T.C.D., and took the M.B., B.Ch. (1888), and the M.D. (1903). After some years as resident to the City Fever Hospital and the Brownlow Hill Infirmary, Liverpool, he entered the West African Colonial Medical Service in 1894. He served with the Anglo-French Boundary Commission between Dahomey and the old Colony of Lagos, and was promoted senior assistant colonial surgeon, Lagos, in 1897. He became senior medical officer on the formation of the West African Medical Staff in 1902, was promoted Deputy P.M.O. on the amalgamation of S. Nigeria and Lagos in 1906, and P.M.O. Gold Coast in 1911. For many years he was M.O.H. Lagos, and also a member of the Executive and Legislative Councils, Gold Coast. During his administration of the Medical Department of the Gold Coast Colony the scope of his activities was widely extended by the development of the sanitary branch, and no small share in the improvement in health conditions must be attributed to the department over which Dr. Hopkins has presided. He was instrumental in obtaining provision of pensions to widows of men in the W. A. medical staff. Dr. Hopkins was a Freemason and helped to found two lodges and a chapter in West Africa. Dr. Hopkins's career in the West African Medical Staff was characterized by serious and energetic work, and he was held in high esteem by natives and Europeans. On his return home in September last he accepted a commission as Lieutenant in the R.A.M.C. and was appointed Medical Officer-in-Charge Troop Citadel Barracks, Plymouth. On January 27th he developed pneumonia, probably post-influenzal, and died on February 2nd. The funeral, which took place at the New Cemetery, Plymouth, was attended by full military honours. Dr. Hopkins leaves a widow and four children. A friend of more than thirty years writes that Dr. Hopkins, though a man with high ideals of and devotion to his work, was also a keen sportsman. He was an expert fly fisher and a good shot. It is, he adds, sad to think that after a strenuous career of working for his country he has been taken away when he might reasonably have hoped for many more years of useful and active life.

SURGEON-MAJOR FREDERICK CARTER, Bengal Medical Service (retired), died at Wearden Ash, Ongar, on January 24th, aged 85. He was born on March 20th, 1830, took the diploma of M.R.C.S. in 1832, and entered the I.M.S. as assistant surgeon on August 4th, 1855, becoming surgeon on August 4th, 1867, and surgeon-major on July 1st, 1873. He retired on April 25th, 1887. He served in the Indian Mutiny with the 17th Light Field Battery, Bengal Horse Artillery, and with the Punjab movable column under Brigadier-General Nicholson, and received the Mutiny medal.

Medical News.

SIR JOHN ROSE BRADFORD, K.C.M.G., C.B., M.D., F.R.C.P., Colonel A.M.S., has been elected President of the London and Counties Medical Protection Society, Limited, in place of the late Dr. George Allan Heron.

PROFESSOR WEINBERG, Chef de Laboratoire, Institut Pasteur, Paris, will give a Dr. James Finlayson lecture in the hall of the Royal Faculty of Physicians and Surgeons of Glasgow (242, St. Vincent Street) on Tuesday next at 4.30 p.m. The subject will be gas gangrene, and all medical practitioners are invited to attend.

A NATIONAL congress on home problems after the war is being arranged by the National Housing and Town Planning Council, to consider the preparation of housing schemes for the building of urban and rural cottages, and the need for Government aid in the preparation by local authorities of schemes for the clearance of insanitary areas. It hopes to assist in the preparation of town planning schemes in anticipation of future developments. The congress will be held in London from April 11th to 14th. Further particulars can be obtained on application to the secretary at 41, Russell Square, London, W.C.

MEETINGS of the Central Midwives Board were held on February 17th and 18th for hearing penal charges. Sir Francis Champneys presided. The reports on four out of six adjourned cases were satisfactory, and the other two were again adjourned for a month. Twelve fresh cases were heard, and in four instances the women were struck off. Judgement was postponed in three cases; three other women were censured, one case was dismissed, and the remaining one concerned an old woman of 81, whose resignation the Board accepted. Allegations of neglect in respect of ophthalmia, rupture of the perineum, and delayed labour were among the charges. One woman, it was alleged, in a case of twins of which one was still-born and the other died before the arrival of a doctor, herself took the bodies to the cemetery in a cardboard box and buried them in a hole 6 in. deep. The monthly meeting was held on February 16th. The Standing Committee reported a letter from the Town Clerk of Rotherham with reference to an apparent case of "covering" of an uncertified woman by a local practitioner, and asked the Board to make the necessary representations on the subject to the General Medical Council. The secretary was instructed to take the necessary steps. The names of sixteen women were removed from the roll on their own application. The chairman reported that arrangements had been made for temporary accommodation during the completion of the new offices.

As chairman of the board of governors, Dr. Edwin Rayner, J.P., Treasurer of the British Medical Association, presided at the opening of the fine new buildings of the Stockport Grammar School erected to replace those opened in 1832, which had become too small. Dr. Rayner recalled the history of the foundation of the school in 1487 under the will of Sir Edmund Shaa, some time Lord Mayor of London, who was born at Dukinfield, near Stalybridge; he left certain land in the City of London to the Goldsmiths' Company, the proceeds of which partly paid for the upkeep of the school to this day. Colonel Dixon, chairman of the Cheshire County Council, in declaring the building open, said that there were only two other public schools in the country which had more ancient foundations—Winchester (1387), and Eton (1441). The school was transferred by the Goldsmiths' Company to the Corporation in 1860, and had been enlarged from time to time. In proposing a vote of thanks to the chairman, Canon Bird said that not only Stockport, but the whole of Cheshire, knew the great educational work Dr. Rayner had done. He recalled the fact that Dr. Rayner had himself been a boy at the Stockport Grammar School; his interest in it had continued to the present day. Sir Thomas Holland, in seconding, congratulated the governors on the great growth of the school. Dr. Rayner, in acknowledging the vote, said it was the duty of the community to afford to every responsible man an opportunity of becoming a good citizen, and to teach the duties of citizenship would be, he hoped, one of the principal objects of the school. The new buildings contain a fine Hallam assembly hall, called after the Mayor of Stockport in 1860; a Sykes lecture room, named after a former chairman of the governors and a generous benefactor; a manual training room, fitted with benches; and a Norris gymnasium, named after two old boys and benefactors.

Letters, Notes, and Answers.

AUTHORS desiring reprints of their articles published in the *BRITISH MEDICAL JOURNAL* are requested to communicate with the Office, 423, Strand, W.C., on receipt of proof.

CORRESPONDENTS who wish notice to be taken of their communications should authenticate them with their names—of course not necessarily for publication.

THE telegraphic addresses of the *BRITISH MEDICAL ASSOCIATION* and *JOURNAL* are: (1) **EDITOR** of the *BRITISH MEDICAL JOURNAL*, *Aitology, Westrand, London*; telephone, 2531, Gerrard. (2) **FINANCIAL SECRETARY AND BUSINESS MANAGER** (advertisements, etc.), *Articulate, Westrand, London*; telephone, 2630, Gerrard. (3) **MEDICAL SECRETARY**, *Medisecra, Westrand, London*; telephone, 2634, Gerrard. The address of the Irish office of the *British Medical Association* is 16, South Frederick Street, Dublin.

Queries, answers, and communications relating to subjects to which special departments of the *BRITISH MEDICAL JOURNAL* are devoted will be found under their respective headings.

ANSWERS.

NASCENT IODINE IN PHTHISIS.

IN reply to a correspondent in India, who asks for information on the subject, we may say that Dr. E. G. Reeve administers a dose of 20 (once he gave 30) grains of potassium iodide in half a pint of water at breakfast time, and an ounce of chlorine water in half a pint of lemonade four hours later, the draught being repeated at two hours' interval until sufficient has been given. In starting, three ounces of chlorine are administered daily. Signs of iodism usually develop, but are soon relieved. At the end of three weeks the dose of chlorine water is increased to four, and later to five ounces. The chlorine water must be very carefully prepared by the action of 2 drachms of strong hydrochloric acid on a drachm of powdered potassium chlorate in a dry 24 oz. bottle.

LETTERS, NOTES, ETC.

THE Central Committee for National Patriotic Organizations, of which Mr. Henry Cust is chairman, and Sir William Grey-Wilson, K.C.M.G., secretary, has issued a report on its work from its institution in August, 1914, to the end of January, 1916. Its object, which was strongly commended to the country by Mr. Asquith, Lord Rosebery, and Mr. Balfour in November, 1914, is mainly to disseminate information at home and in neutral countries. It has not, for want of funds, been able to undertake any systematic explanation of the British position in the newspaper press of foreign countries, but it has distributed much printed information to the universities and libraries in the various countries, as well as to influential politicians and teachers. It appeals for further assistance in money and in personal service, particularly by way of communications to foreign friends. Its offices are at 62, Charing Cross, London, S.W.

PETROL DUTY.

F. E. G. inquires as to a rebate on the petrol consumed in the professional use of his motor cycle.

* * The Act of Parliament refers to "motor cars" only, but a refusal to apply the rebate to motor cycles would be inequitable and uneconomic. In a case which was brought to our notice some time ago the rebate was at first withheld but granted on reconsideration.

INCOMPATIBILITY.

DR. H. DRINKWATER sends us a copy of a note he published in the *Liverpool Medico-Chirurgical Journal* (July, 1911), in which he said that for the previous fifteen years he had found a mixture containing sodium salicylate and liquor ferri perchloridi useful in rheumatic conditions associated with anaemia, and especially in a kind of sore throat with slight redness of the pharynx, and pain, especially on swallowing, which he believed to be rheumatic. He gives the following directions for making the mixture:

For an 8 oz. bottle, take 1 drachm of sodae salicylas dissolved in about 2 oz. of water. Add liquor ferri perchloridi, half a drachm + about an ounce of water. This produces a dark purple mixture, with a precipitate, thick and curdy in proportion to the concentration of the mixture. Then add 1 drachm of potass. bicarb. dissolved in 1 oz. of water, and fill up to 8 oz. with water. The precipitate dissolves on the addition of the potassium solution, and the result is a clear, claret-coloured mixture of an agreeable taste. The colour is lighter still if a little more potash be added.

Theoretically, 218 grains of sodae salicylas is equivalent to the iron in 1 fluid ounce of the liq. ferri perchlor., but *practically* only about one-quarter of this amount of iron can be used. If more liq. ferri is used than in the above prescription, there will be an active effervescence on the addition of the bicarbonate. With the above quantities there is no effervescence. (Of course, it would not do to mix the iron and the bicarbonate *before* adding the salicylate.)

THE PROPHYLAXIS OF DENTAL AND GINGIVAL SEPSIS.

MR. G. S. THOMPSON, F.R.C.S.Eng. (Sydney, Australia) writes: Having good teeth myself, and having given a good deal of thought, reading, and trial to methods for dental conservation, I would like to urge for adoption, amongst other things, a very simple but most effectual method for preventing food deposition on and consequent decomposition in and around the teeth. I am inclined to think that the too frequent use (that is, after every meal) of the toothbrush—especially if hard—is irritating to the gums, and may tend to lower their resistance and favour infection (pyorrhoea). I have reduced this part of the toilet to once a day following the last meal, and during the course of the meal the fluid taken before being swallowed should be vigorously moved backwards and forwards, from side to side, up and down in the mouth, thus passing over and between the teeth and washing off immediately any food deposited thereon. This is not really objectionable, as will be seen after a moment's thought, but it is highly objectionable to allow food (particularly the soft sticky kind) to collect, to render its removal much more difficult, become putrid, and set up inflammation. The food, if washed off at once, is fresh, like that swallowed, and the prejudice is merely a sentimental one that would disappear if the practice became general. For meat, etc., firmly wedged between the teeth, the ordinary method of removal by toothpick and thread will satisfy. I can state from experience that meal lavage as above keeps the teeth cleaner than by any other method I know. To prevent harmful friction on the gum I place the brush in half a glass of boiling water to soften bristles, take out and apply dentifrice, and fill glass with cold water. Movement should be up and down at first, then laterally. Thus with meal lavage, toothbrush after last meal at night, toothpick and thread, I think we have a potent means of averting dental sepsis, or rather of attaining oral hygiene.

THE IMMEDIATE TREATMENT OF SEVERE POST-PARTUM HAEMORRHAGE.

DR. ALEXANDER BROWN (London, N.W.) writes: Evidently Mr. R. K. Howat did not read an impressive article in the *Lancet* on this very subject, some ten to fifteen years ago, by the late Mr. Stanmore Bishop (Mr. Stanmore Bishop's article was published in the *Lancet* of 1901, vol. 1, p. 1069). There the lamented surgeon criticized in a very able fashion the "encyclopaedic list" of remedies; pointed out how the employment of first one remedy, then another, and yet one more, often found the patient dead before the next could be attempted; and then proceeded clearly to lay down that the principles governing the arrest of haemorrhage in, for example, a limb, were equally applicable in haemorrhage from the uterus—namely, elevation and compression at the nearest "pressure point"—the abdominal aorta. At the time, I remember, I looked up the matter in one or two textbooks, and noted how flabby and unconvincing their teachings were, and how unfavourably they compared with the inexorable logic and explicit directions of Mr. Bishop's article. Accordingly I adopted the latter's precepts, and in the few severe cases of post-partum haemorrhage I have since had have always followed them—with success, I am glad to say. It is truly extraordinary to hear from Mr. Howat that obstetricians and textbooks have not mended their old ways in this respect, and Mr. Howat is to be congratulated on once more insisting on a clear course of treatment in the great emergency of post-partum haemorrhage.

DR. J. FARQUHAR (New Romney) writes: "In conversation every one found the suggestion a novelty"—concludes the author of an able article on the subject in your impression of February 5th, p. 193. Well, there is nothing new under the sun. Forty years ago I had seen or heard the method advocated of raising the bleeding area, and can easily remember standing on the bed and raising a rather flaccid multipara in dire straits, feet in air and head hanging downwards, but not using the additions recommended by Mr. Howat. Success was immediate and lasting. I can also remember another way I used. In a very cold house in an exceptionally hard winter season in the West Riding I met with a case of this description. After douching the uterus freely with very hot water, I gave by the mouth about a quart of very hot gruel with a similar happy result. Ergot I had not found very reliable in junctures of this sort.

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

	£	s.	d.
Seven lines and under	0 5 0
Each additional line	0 0 8
A whole column	3 10 0
A page	10 0 0

An average line contains six words.

All remittances by Post Office Orders must be made payable to the *British Medical Association* at the General Post Office, London. No responsibility will be accepted for any such remittance not so safeguarded.

Advertisements should be delivered, addressed to the Manager, 423, Strand, London, not later than the first post on Wednesday morning preceding publication, and, if not paid for at the time, should be accompanied by a reference.

NOTE.—It is against the rules of the Post Office to receive *post restante* letters addressed either in initials or numbers.

An Address

ON

THE TREATMENT OF GUNSHOT WOUNDS.*

By SIR BERKELEY MOYNIHAN, M.S., F.R.C.S.,

LIEUTENANT-COLONEL R.A.M.C.;

CONSULTANT SURGEON, NORTHERN COMMAND.

The problem of the treatment of gunshot wounds has been profoundly modified, if indeed it has not been radically altered, by the knowledge gained during the present war. Neither the civil experience of the last forty years, nor any recent military experience, had prepared us for the kind of work which from the very outbreak of the campaign it was our duty, as surgeons, to perform. The new and unexpected things which occurred were due to a set of circumstances each one of which was in some degree different from anything we had observed before. The character of the missiles in respect of the mode of flight and velocity was not that with which former wars had made us familiar. The damage inflicted upon the tissues was far greater than and different in quality from that commonly seen in South Africa; the organisms carried into the wound from the surface of the body, from the earth around, or by fragments of clothing, judged by their clinical results, transcended in virulence or in fecundity anything known by the present generation of surgeons; and, finally, the soldier, in the earlier months of the war at least, had undergone so serious and prolonged a strain, before being wounded, that he often fell an easy victim to a bacterial onslaught of great ferocity. The efforts of the surgeons to deal with the wounds so grievously infected were at first lamentably inefficient. Suppuration surpassing in profusion or in malignity anything we had seen before occurred in the majority of cases, and the efforts which our civil experience suggested as the most helpful did very little to check the activity of the process. Failures were spoken of, the failure of the antiseptic system, the futility of aseptic methods, and Lord Lister's immortal work was belittled or held of no account. One of the first tasks I set myself on returning from France early in 1915 was to read again Lord Lister's papers with the new knowledge I had gained on foreign service to help me to a better understanding of the problems with which he had to deal fifty years ago. All that Lister wrote can be read with great advantage to-day. The essential problem he confronted and conquered is that which we have still to meet, and the principles he laid down are as strictly applicable now as they ever were. Lister clearly distinguished the difference between the prophylactic and the therapeutic value of antiseptics; he emphasized the all-importance of the former, and pointed out the inadequacy of the latter. The work of surgeons, since Lister taught, has depended for its almost incredible success upon the prevention of infection in wounds deliberately inflicted; not upon the control of an infection already established. This by comparison is a trivial matter. Lister, however, needs no defence, and if he did, none more eloquent and unanswerable could be written than that which is found in his own papers.

What, then, were the several new factors that had to be considered in this war?

In the early days a very large number of the wounds were inflicted by rifle fire. The German bullet has a muzzle velocity of approximately 1,000 yards per second. In the first 800 yards, or thereabouts, the flight of the bullet is not steady but "wobbling." There are three movements—a movement forward along the line of flight; a rotatory movement, in which the bullet spins round on its longitudinal axis as a result of the "rifling" of the barrel; and a third movement, a "mouvement de bascule" of such a character that while the point of the bullet keeps steady the base of the bullet is moving round a circle, or an ellipse, of a gradually diminishing size. The result of this last form of motion is this, that when the bullet impinges upon any substance, even the soft clothing or the flesh,

the infinitely brief arrest in the point which strikes first allows the base, which is, of course, much heavier, to overtake the apex, and the bullet then lies sideways, or begins to turn over and over as it ploughs its way through the soft parts. In this early part of its trajectory the missile has, of course, a great momentum; it is a heavy bullet, travelling with great velocity. The consequence is that the damage inflicted is not confined to the track it rudely makes through the limb; the parts around the track are damaged also, often to a great extent. Every wound, therefore, caused by a bullet at short range, consists not only in a visible tearing and destruction along the path the bullet has followed, but in a dead zone everywhere surrounding that track—a zone in which death and destruction or disintegration of the parts has occurred by reason of the tremendous concussion produced by the bullet as it tore its way clumsily through the tissues. Sir Anthony Bowlby has proved this by a series of exemplary instances. In one of these the kidney was wounded in its lower pole; the upper pole appeared normal to the naked eye, yet on microscopic examination the tubules were seen to be disorganized. Other examples of the widespread damage inflicted are quoted in his Bradshaw lecture. And even that is not all. The momentum of the bullet is such that to everything it encounters it imparts some of its own velocity. As we all know, shreds of the clothing or belt, or the contents of the pocket, may be carried deeply into a wound. So also are pieces of skin or muscle. And if the bullet should chance to strike a bone, the bone is not only broken into many fragments, the "splinter" fracture, but to all fragments there is conveyed enough of the momentum of the bullet to convert them into projectiles also, capable of tearing a way into the softer tissues. Many of the wounds, therefore, were deep, irregular in shape, with large or small cavities; of the variety the French term "anfractuans." Into these recesses blood escapes, and owing to the tearing and unequal retraction of cut muscles, pools of fluid may be shut off from the main track of the wound.

If a rifle bullet is not checked in the first 500 yards of its flight it begins to steady down, and probably when it has travelled 1,000 yards it is moving evenly. An injury inflicted then is of a quite different character. The bullet cleaves its way through the soft parts, bores a neat hole through a bone, and little destruction is done. We see many cases where the chest or abdomen are traversed from side to side, or where the neck has been pierced, and, miraculously, no real damage has been done. Examples of this form of injury were of course common enough in the South African war. They have been less frequent in this war because the range has often been shorter, and the bullet in respect of velocity and weight is different.

The campaign in Flanders and in Northern France has been conducted on fields many of which have been as highly cultivated, and were therefore as heavily manured, as any in Europe. Generations of husbandmen have earned their livelihood from this earth, and it has therefore been necessary to enrich the soil by applications of manure—the faecal material of horses, cows, and pigs. The contact between the soldier and the soil upon which he fought has never been more intimate. The hands and faces, bodies and limbs, were grimy with the mud and dust that penetrated and clung to the clothing of these soldiers. And opportunities for the change of clothing were not frequent. In the earlier days of the war men were commonly a couple of months or more without the chance of taking off their trousers. They were literally covered from head to foot with clay and earth and mud. And this mud, largely manurial in origin, contained micro-organisms which, given the chance of growth in a fertile medium, proved luxuriant. They were the organisms of tetanus, the gas-gangrene bacillus (*Bacillus perfringens*, *Bacillus aerogenes capsulatus* of Welch), the *Bacillus coli*, putrefactive organisms of several forms, and a streptococcus which has since been recognized as the enterococcus of the French writers. All were of faecal origin. It was very interesting to find that while I was in France we rarely found the *Staphylococcus pyogenes aureus*, the common cause of suppuration in the wounds of civil practice at home. It was only at a late stage in the history of the cases that this organism invaded the parts.

In the early months of the war the soldier who was wounded was often wearied almost beyond endurance by

* Delivered at the opening of a discussion on the treatment of gunshot wounds at the Harveian Society of London, February 24th, 1916.

excessive exertion, loss of sleep, and unceasing anxiety and strain. When I had the opportunity of visiting field ambulances and some clearing stations I was struck with the condition of the patients on admission. As soon as a man reached shelter and quiet he fell asleep. Even during the dressing of his wounds he often slept heavily, and the temptation of hot soup or the inevitable cigarette could hardly persuade him to rouse himself for more than a few moments. Left to himself he fell asleep at once. Even at the base hospitals I have known men sleep for forty-eight hours with barely a movement, other than that grudgingly made to take a drink. When the wounds were serious, as in compound fractures of the thigh, the men were often collapsed, cold, and white, with feeble pulse and flickering breath. A part, no doubt, of this reduction of the patient's vitality to so low an ebb was due to the delay in bringing him to an aid post or a field ambulance after he had been wounded. But no organization in the world can alter this, for it does not depend upon us, but on the enemy. Little or no respect is paid to the Red Cross near the firing line, probably because it is not easily visible. A stretcher party bearing a wounded man is exposed to the fire of rifle or of shrapnel, if at any moment it allows itself to be seen. This is equally the rule at night also. It is only by stealth, and at opportune moments, that a wounded man can be taken away, and the delay in tending him, which is deeply regrettable, cannot be prevented.

Such, very briefly, are the conditions present when a man is wounded. The missile inflicts great damage along the track it follows; hollows and recesses, caused by the unequal retraction of torn muscles, are formed everywhere, and within them effused blood may be pent up. In all the parts round this bullet track the parts are dead, offer no resistance to the bacterial invasion, but rather form the most nutritive medium that could be desired for the propagation of bacterial life. Into every tiniest cavity micro-organisms may be carried with some degree of violence, and sown everywhere on a fertile soil. The micro-organisms themselves, if not always of the greatest malignity, proceed to develop with the most intense activity, finding all conditions most suitable. They are given time to make headway, because of the interval that needs must elapse before a careful dressing of the wound can be undertaken. And the victim of this injury is himself very often in a condition of such fatigue or general collapse as will reduce his power of resistance much below the normal. Nothing, of course, in any degree comparable to this condition of affairs is ever seen in civil practice, and when the methods of civil practices were brought to bear on such cases they very naturally failed to give the results which had been expected of them.

The treatment of gunshot wounds may, I think, concern itself with (1) the prevention or control of the infection in wounds at the earliest possible moment after their infliction; (2) the reduction or the abolition of the infection after this has once been fully established in the wound. Before these matters are discussed, however, there are certain first principles, applicable to all wounds, which may be stated once for all.

A.

Excision of the wound, if it can be practised, is, of course, an ideal method. Unhappily the great majority of the injuries inflicted are of such a kind that the wound surfaces are most irregular. This is partly due to the actual damage done by the bullet; partly, indeed chiefly, to the very unequal retraction of torn muscles. An accurate excision of the surfaces of an anfractuous wound is, therefore, hardly possible in the majority of cases. When, however, it can be done, it is certainly the most desirable, for the zone of the infection once cut away there remains only a clean wound, which may be closed completely by suture, and healing by first intention may be secured. Wounds of the scalp, penetrating wounds of the knee-joint, and wounds of the abdominal wall all lend themselves at times to this method of treatment. The technique must be scrupulous and exact, or the good results are jeopardized. Colonel Gray has advocated this method in suitable cases and speaks well of it.

B.

In all cases of large or penetrating wounds a thorough examination and preparation of the wound for its sub-

sequent dressings must be made. The administration of an anaesthetic is frequently necessary at the earliest opportune moment. A preliminary disinfection of the skin with some efficient antiseptic is clearly necessary. I regret to notice that iodine in some form or other is the favourite application. It is, of course, easy to use, and because of its colour it is easy to see whether, and to what extent, it has been applied. But its very simplicity is often a drawback, for we can never afford to forget that the ritual of surgery must on all occasions and at every moment be as scrupulous and exact as it is possible to make it. Perfunctory work at one period breeds laxity at others. It is not easy to sterilize the skin or to keep it sterile for half an hour by any method of preparation. I have more than once seen the tincture of iodine painted over a limb to which dry dung or earth was adhering. To believe in the efficacy of such methods is mere fetish worship. All the methods of iodine preparation of the skin are short of the best, and many of them are utterly inefficient. Abundant experimental evidence, which need not now be quoted, supports this contention, and a thorough trial by myself and others shows clearly that the quality of healing in operation wounds, when the skin has been prepared by any of the iodine methods, leaves something to desire. The cleansing of the skin is very important, because from organisms in the skin the wound may often be reinfected. This is more especially the case when the old form of civil dressing is used. This consists in applying a large amount of gauze, a mass, large or small, of wool, and finally bandages. When the discharges from a wound are free it is probably not many minutes before the gauze, with a layer of this wool, is soaked with them; until the next change of dressing the wound is then fomented with its own secretions, and the discharge infects the parts surrounding the wound. Unless, therefore, the skin is thoroughly cleansed afresh a new dressing is infected by it at the moment of application. The skin must be thoroughly cleansed, then, by ether soap, ether, benzine, petrol, or other efficient material, and an antiseptic liquid applied. Binioidide of mercury in spirit, Harrington's solution, Macdonald's solution, or Dakin's solution are the most effective. The latter, for the purposes of war, is to be preferred, for the subsequent irrigation and dressing of the wound may be carried out with the same preparation. After cleansing the skin adequate drainage must be secured. This may need the enlargement of wounds already existing, or the making of new openings into the large and irregular wound cavity. Whatever is necessary to secure full and free drainage must be ruthlessly done, since the necessity for the unimpeded escape of all wound discharges is paramount. If by any chance the *Bacillus perfringens* has obtained access to the wound the patient's limb or life will depend upon the sufficiency of the drainage. The wound is then carefully examined; any fragment of clothing or any missile felt at once, is removed; dead or soiled fragments of torn muscle are taken away; the whole wound is irrigated with the antiseptic solution which has been selected for the purpose, say Dakin's solution, and the parts are then immobilized and dressed.

C.

Immobilization of Wounded Parts.—I fear that far less attention than it merits has been given to the consideration of this subject. When a bone is broken splints are applied as a matter of course, and the parts, as far as possible, are immovably fixed. This is recognized as essential, not only because of the obvious diminution in the patient's suffering, but also because it is now well recognized that any form of movement in these war wounds aids appreciably the extension of the infection. It is not yet, I think, sufficiently realized that immobilization of wounds in the soft parts is equally essential. The comfort of the patient is sensibly increased, and the spread of infection is checked. Like every other useful measure, however, the immobilization of limbs can be misapplied. It is important to remember that fixation of legs or arms for an undue length of time may result in stiffened joints and withered muscles, and that months of painful passive movements and of massage may be needed to repair the errors of a few weeks.

1. THE PREVENTION OR CONTROL OF INFECTION IN GUNSHOT WOUNDS AT THE EARLIEST POSSIBLE MOMENT AFTER THEIR INFLECTION.

Shortly after the outbreak of the war the surgeons whose duties kept them at home were amazed at the severity of the infection in the wounds of soldiers returning from France. It was felt that adequate measures were not being taken to deal with these injuries. And discussions, both public and private, were frequent and not devoid of acrimony. Sterner measures were advised, the painting of all wounds with pure carbolic acid, or with tincture of iodine, which in the few years before the war had come again into favour among surgeons for many purposes. These various measures were indeed tried in France very thoroughly for a certain period. A large number of wounds were treated exclusively with pure carbolic acid, a certain number with tincture of iodine, others with simple field dressings. By the time the base hospitals were reached it was not possible to say what early measures had been tried. In all wounds suppuration was rampant, and the early and thorough applications even of pure carbolic acid were found not appreciably to alter the subsequent severity of infection. As we now look back upon that experience we realize, I think, that this failure was due, in part, to the feebleness of the antiseptics used. Pure carbolic acid, since Lister introduced it, has been taken as the standard of germicidal power. We have thought and spoken of pure carbolic acid as something of the greatest potency, all-conquering in its fight with germs. The truth is, of course, that, speaking comparatively, pure phenol is a very feeble antiseptic; and in contending with the organisms which had obtained a firm hold on the nutrient medium of these fresh wound surfaces it was little better than nothing. Its bactericidal power, always feeble, is much reduced when it is called upon to act in the presence of serum or pus; and when used in full strength it is apt to damage healthy tissues. It soon became evident, therefore, that if we were to fight with any chance of success against the particular type and degree of infection seen in the war, a few more powerful antiseptics must be discovered. It was here that Dr. Dakin came to our help. Dr. Dakin, an old student of the University of Leeds, had gone out to France early in 1915, with Dr. Alexis Carrel from the Rockefeller Institute in New York, for the purpose of carrying on medical research in a hospital attached to the French army. He had in mind various ideas as to the kind of antiseptic that might perhaps be used with success. One after another of these proved of little value, until finally a preparation was made from chloride of lime—bleaching powder. The details of the making of "hypochlorite" solution have been given by Dr. Dakin.¹ It has on examination proved to have a bactericidal value which is far higher than that of any antiseptic we have been accustomed to use. Pure carbolic acid, for example, will kill the *Staphylococcus aureus* in the presence of serum after acting for two hours when at a dilution of between 1 in 50 and 1 in 100. Dakin's solution acts in like circumstances at a dilution of 1 in 1,500 to 1 in 2,000. It possesses other qualities necessary in any germicide for use in conditions such as I have described. It is diffusible, it does not irritate unduly, it has a remarkable power of clearing away sloughs, it is easily obtainable, and it is very cheap. It has proved, in the hands both of the French and the British surgeons who have tried it, to retard or to prevent the development of sepsis more effectively than any other preparation that has been tried.

The preparation was first made at the University of Leeds by Professor Cohen to Dr. Dakin's formula, and I had therefore the earliest opportunity of acquainting myself with the virtues of the solution. I used it in cases of fresh and of old infection—in cases, for example, of compound fracture into joints where infective material had been introduced. In the cases in which the solution was used from the outset a powerful inhibitory effect was produced. Wounds healed as though no infection was present, and a thoroughly aseptic course was seen. In wounds where suppuration was already in full course very marked benefit was also seen, but of this I will speak later. It was quite evident, therefore, that in this "new antiseptic" a most powerful agent for good had been found. In several

cases, however, a moderate degree of irritation, especially of the skin, was seen. The degree of irritation seems to vary in different cases and in different districts. It may be that the bleaching powder from which the preparation is made is not always of the same quality. It may be, as Dr. Dakin suggests to me, that the solution, which has a strong decomposing effect upon other antiseptics, forms with them, if they have previously been used in the wound, some compound of an especially irritating character. If irritation is seen, a reduction of the strength of the antiseptic is necessary, and still good results will be obtained; for, even in considerable dilution, it is far more effective than pure carbolic acid. The method of the application of the solution varies with the position and extent of the wound. If possible, the wound should be lightly packed with gauze wrung out of the fluid. Underneath the limb a photographer's "developing dish" should be placed, and at intervals of an hour or two a little of the solution should be poured on to the gauze lying in the wound from a Florence flask. The gauze which packs the wound should always be kept damp. It must never be forgotten that there is no such thing as a "gauze drain." Gauze does not drain any wound for more than a very short time; its meshes soon become clogged with lymph, and it is then a plug and not a drain. If the position and extent of the wound do not allow of this method, strips of bandage or of lint may be kept lying out of the wound and their free ends immersed in a dish of the solution, which is then slowly sucked into the wound, whose surfaces it keeps constantly moistened. Or small tubes, with many perforations, wrapped round with one layer of Turkish towelling, may be pushed into the recesses of the wound and left to pass out through a loose dressing of gauze and wool. At frequent intervals small quantities of the hypochlorite solution are injected slowly into the tubes and are diffused through the wounds. This is Carrel's method, and in many cases is the best of all. The skin around the wound may be protected by vaseline. The fluid must always be fresh—not more than five days old. As the solution is so cheap it is not a matter of importance if some quantity of it has to be thrown away. It is very important to ensure that no impermeable material lies outside the gauze, jaconet, or oiled paper, or rubber sheeting. Free escape must always be provided for the Dakin's solution, and for the wound discharges.

I have had the opportunity of trying another preparation of Dr. Dakin's, "chloramine," which in some respects is better than the hypochlorite solution. Chloramine is toluene-sodium-sulphochloramide. The molecular concentration required to kill staphylococci in presence of serum is one-fifth that of the hypochlorite solution. It is very soluble and very easily diffused. After many trials, Dr. Dakin succeeded in preparing chloramine gauze—a gauze in whose meshes powdered chloramine is held. This gauze, thoroughly impregnated with this strongly antiseptic powder, was made in the hope that when introduced into the wound the discharges would dissolve the powder little by little and carry it to all parts of the surface with which they come in contact. In our work in Leeds and elsewhere in the Northern Command we have used a certain amount of this new gauze, with results that justify us in believing that it is the best method so far introduced for checking and controlling the development of infective processes. I have used it in wounds very heavily infected, and its power of cleaning a wound, abolishing the offensiveness of discharges, and bringing about a growth of new healthy granulation tissue is very remarkable. The opportunities for testing its inhibitory properties are very few in civil practice, but such little experience as I possess suggest that it may prove to be one of the most powerful of all known methods for aborting a grave infection in any of the wounds of war.

The researches of Alexis Carrel appear to show that in wounds quite recently inflicted by bullet or by shell the infection at first is slight. When smear preparations are taken at once from the wound surfaces several fields may have to be searched before any micro-organisms are found. Such organisms as are present, even if of no great virulence, finding everything to their liking, grow apace. Every hour that elapses increases the extent, the penetration, and the virulence of the infection. I think, therefore, that the first attack made by a surgeon on a wound

received in battle should be by an antiseptic, and the most powerful which it is proper to use. I do not think that Wright's method is applicable, in the worst cases at least. For, as I have said, the condition of the soldiers who have received severe wounds is one of exhaustion, with lowered blood pressure, cold extremities, feeble pulse, and marked pallor. A few of these patients need infusion before any remedial measures can be attempted, and very many suffer from shock in greater or less degree. The introduction of saline tabloids into the wounds would probably not cause any outflow of serum, and if it did it would be a most undesirable result, for fluid cannot then be spared.

2. THE REDUCTION OR THE ABOLITION OF INFECTION AFTER THIS HAS ONCE BEEN FULLY ESTABLISHED.

When once the processes of suppuration are ablaze in a wound the problem of their treatment, as was recognized by Lister, is a far more difficult matter. To prevent putrefaction in a wound quite recently inflicted, or in a wound about to be made, is by comparison very simple. It is dependence on the certainty of this that has led to all the surgical developments of recent years. To control or check these processes when once they have become rampant is always difficult, and may indeed be impossible. Nothing could be more futile than the methods commonly practised in civil life. A freely suppurating wound may be irrigated for long periods with carbolic or mercuric lotions, and an antiseptic dressing applied; yet when the dressing is removed pus will still be found to pour freely from all parts of the wound, and to lie stagnant on the surfaces of the gauze and wool. In such wounds the old form of dressing is really a pus poultice. We did not realize its hopeless futility before the war, because serious infections in wounds in civil practice are nowadays very rare. A very brief experience of the bountifully purulent wounds of this campaign soon taught us that other methods than these must be found. The methods I have myself practised and seen practised in such cases are briefly the following:

The use of hypertonic salt solution—of a solution consisting of 5 per cent. salt and $\frac{1}{2}$ per cent. sodium citrate. This is the method introduced many years ago by Sir Almroth Wright and revived by him during the present war. Probably every one interested in the surgical treatment of wounds has read all that Sir Almroth Wright has written; if he has not, he should do so forthwith. For his papers state the problems with perfect accuracy and with much insight. The principle of the hypertonic method is to make use of the bactericidal power of fresh serum, which is encouraged to flow from the wound surfaces by the application of a more concentrated saline solution than blood serum. A process of osmosis is at work. It is argued, or rather asserted, which is not the same thing, that serum is a fluid which will not osmose, but the fact is indisputable that when these strongly saline dressings are applied the discharge from all the wound surfaces is increased enormously in quantity. The patient is often compelled to drink freely, so considerable may the drain of fluid be. The discharge from the wound after the first few hours becomes clear, and within two or three days may be found sterile or of low bacterial content. The streptococcus seems the most resistant of all micro-organisms; after two or three days it is often the only germ remaining. As I go round from one hospital to another, or from one ward to another, I think I am generally able to pick out the cases which are being dressed by Wright's solution. The granulation tissues have a fuller, deeper colour, and the surface looks cleaner than when any other form of dressing is being used.

The best method of applying the dressing is that already mentioned as applicable for Dakin's solution. A loose packing of gauze, in a wound well drained, is kept constantly moistened with the salt solution. The copious discharges are collected in a dish. It is important to allow no wrapping up of the limb in wool or swathing in bandages, which restrict the free outward flow of the wound discharges.

There are, however, certain disadvantages in the long continuance of applications of hypertonic saline solution. After the wound has once become thoroughly clean, when the granulations are glowing vividly with health and the discharge is sterile, further treatment with Wright's

solution is apt to cause hæmorrhage, and the granulations become sodden and oedematous. It is therefore desirable before these changes take place to discontinue the treatment. One of two courses may then be followed—either the wound, when of suitable size and proportion, may be closed completely by suture, or its sides may be drawn together by strapping, or some bland dressing may be tried; a dressing of normal saline solution, or of red lotion if moisture is needed; or, otherwise, one with zinc or boracic ointment or sterile vaseline.

As a rule, the treatment by hypertonic salt is painless, but now and again one hears complaints of stinging and burning. To overcome this I had some tabloids made containing chloretone as well as the two salts. Chloretone is a local analgesic of slight power. I think there is some advantage in its use.

A variant of Wright's method, practised by Colonel Lawson and many others, consists in the application to deep anfractuous wounds of a gauze wick into the centre of which tabloids of salt and sodium citrate are placed. There are wounds so placed and of such depth that it is impossible to dress them by the methods applicable in surface wounds. Into the remote recesses of these one or more saline tabloids may be placed, either wrapped in gauze or placed in the extremity of the lumen of a rubber tube, round which a catgut ligature is tied so tightly as to prevent the tabloids from escaping. The tabloids excite a profuse discharge of serum, and the gauze or tube need not be changed oftener than once in every twenty-four hours.

A. E. Morison and Tulloch have advocated the use of a solution of magnesium sulphate in place of sodium chloride. In a preliminary communication² they point out the greater efficacy of their solution in ridding the wound of the streptococcus, which is the hardest and tardiest inhabitant of all war wounds, and the equal efficacy of the solution in cleaning the wound, changing the quality of the discharge, destroying its offensive character, and causing that crimson glow of health which we like to see. In a very few days that blue edge appears on the wound which Solomon had doubtless in mind when he said "the blueness of a wound cleanseth away evil." I have seen some of the wounds treated by Mr. Morison, and can testify that, clinically, his claim is just.

I have had a large experience with Dakin's solution in the treatment of heavily infected wounds, in which the discharge was copious, and very offensive. Its virtues are remarkable. On the first day of trial it was used on three very septic cases in the Isolation Block at the Leeds Infirmary, under the care of Captain A. Richardson. The first case was one of severe infection of the arm arising in an enlarged olecranon bursa. The tissues were sloughing, greenish-black, bitterly offensive. The organisms were cocci, a diphtheroid bacillus, and a coliform bacillus. On the third day the sloughs had all cleared away, the wound was healthy, and no growth could be obtained from the discharge. In two other cases there was a pure culture of the *Staphylococcus aureus*. On the fifth day no organisms were found in the discharge in one case, on the fourth day a very attenuated growth in the other. This experience has been confirmed by many later cases. The most remarkable effect of the application of Dakin's solution is seen in the disappearance of all sloughing, dead and decomposed material. The wound casts them off with great rapidity, and a clean and glowing healthy surface remains. The discharge soon becomes clean, rather "sticky" and inoffensive, and the infection, however virulent, is brought under control or rapidly disappears. It is most essential to dress the wound as I have described. The old methods will not do. A mass of gauze, with tubes securing drainage must be in or on the wound and must be kept constantly saturated with fresh solution. The solution must be newly made every five days; it must not be heated before use, but applied cold or tepid; no other antiseptic may be used at the same time, and the skin must be protected from the occasionally irritant action of this powerful antiseptic. I have found it a little difficult to convince those responsible for the actual dressing of wounds that the old method of applying a layer or two of gauze, a pad of wool, and a firm bandage are utterly unsuitable for the septic wounds of war. Free

access of the antiseptic, constantly renewed, and free escape of the discharges are essential to clean and quick healing.

One of the old fashioned and one of the most successful methods of cleansing the dirty sloughing wound is by constant immersion and irrigation in a bath. For wounds of the hand and forearm, of the foot and leg, this procedure is very simple; but in wounds of the thigh, body, or chest it is difficult or impossible. It is not a matter of any importance as to the antiseptic used in the water; salt solution, a weak solution of carbolic acid, potassium permanganate, or tincture of iodine, all give the same results.

In the treatment of all gunshot wounds where the septic processes are raging, and the temperature varies through several degrees, an immense advantage will accrue from placing the patient out of doors. While in France I developed a great affection for the tented hospitals. There is great movement of air, warmth, and comfort; when a sunny day comes the side of the tent may be lifted and the patient enjoys the advantage of open-air treatment. Major Abye-Curran was the first to convince me of the striking effects caused by exposing uncovered septic wounds to the air and the sun. Wounds which were sullen in healing quickly brightened and became clean. Even in the winter and in Leeds and Sheffield we have some patients out of doors day and night. On Monday last I saw at the 3rd Northern General Hospital with Lieutenant-Colonel Connal a row of beds in the open occupied by ruddy, happy men with quickly healing wounds. I asked many of the patients how they liked the exposure, and all at once replied that they were quite happy and "wouldn't go inside to sleep if they could help it." I am confident we do not sufficiently take advantage of the immense help which open-air treatment can give to patients suffering from the serious wounds of war. I find that wounds clean more rapidly, patients sleep better, eat better, and feel better when they are kept out of doors night and day. The vagaries of the temperature chart need not influence our decision as to the wisdom of this treatment. Many years ago I learnt at Johns Hopkins Hospital that a high septic temperature was an indication for moving the patient on to a balcony rather than a reason for dreading the effects of exposure.

I cannot properly omit mention of the vaccine treatment of patients suffering from septic wounds. It is remarkable to find such widely divergent opinions among physicians and surgeons as to the virtue of a vaccine in any disease. When opinions are so wide apart, so confidently expressed, and so utterly irreconcilable, it is probable that opportunities for judgement are not identical. The changes in wounds are often so swift when any one of the recognized modes of treatment is tried, or indeed when little of value is done; a vaccine when tried is so often only one of several agents brought to bear almost at the same moment upon the patient and his wound; degrees of change in a wound are so difficult to express in terms of accuracy, and their appreciation depends so much upon the desires and prejudices of the observer, that argument and experience are alike fallacious. But no one can deny, I think, that a case has been made out for the trial of vaccines in appropriate cases, and in suitable conditions. The principle of the vaccine method is, of course, to fortify the blood serum in respect of those bodies which are inimical to the development or to the life of an invading micro-organism. If, therefore, a wound is imperfectly drained or not properly dressed, the administration of heroic doses of the most potent vaccine is merely futile. When, however, a wound is well drained and there is a free access of serum to the wound, with a free opportunity for its discharge into the wound and of rapid escape from it, then it would seem reasonable to suppose that the more potent the bactericidal power possessed by the serum, the greater will its effect be in causing the wound to clean and to heal. This suggests that the vaccine treatment, in conjunction with the application of Wright's solution, will be likely to give the best results. Of the great value of the streptococcus vaccine in the serious wounds of this war I am thoroughly convinced, and I have no doubt whatever that advantage would be gained by a freer use of it in cases of infection with this most obdurate organism. So much has reference to the therapeutic use of these agents.

Their prophylactic virtues, if they possess any, have not yet been given a full trial in this war. It would be interesting to watch the effects of vaccines given before a man goes into action, or to a man immediately after his wound is inflicted. But the factors at work are so many, so variable from time to time, from place to place, and from man to man, that the scrutiny of inoculated cases would require powers of analysis denied to most of us. Sir Watson Cheyne, the redoubtable champion of the antiseptic methods—and, indeed, one of the earliest and most successful pioneers of modern surgery—has suggested that bacteriologists have a very great opportunity at the present time, and that they may profitably be employed in raising the immunity of new recruits against all the ordinary bacteria which occur in wounds received in war time.

One of the most sensational experiences in connexion with all wounds, even the most trivial, is the inordinate length of time that micro-organisms may remain dormant in the tissues long after healing is complete. I have seen tetanus and gas gangrene develop in wounds many weeks after their infliction when relatively trivial operations were performed upon them for the purpose of extracting bullets, shell-casing, or fragments of khaki cloth. Even the passive movement of a stiff joint, in whose neighbourhood there is a healed wound, may light up a raging septic process which threatens or takes the patient's life. It appears to be more especially in cases where compound fractures of bones have occurred at the primary injury that these grave troubles are apt to arise. A knowledge of the danger must warn us always to be on guard against premature surgical interference in wounds recently healed, or in sinuses which fail to close.

REFERENCES.

¹ BRITISH MEDICAL JOURNAL, 1915, ii, p. 318. ² British Journal of Surgery, 1915, iii, p. 276.

REMARKS ON DELAYED TETANUS.

THREE CASES, IN ONE OF WHICH GAS GANGRENE DEVELOPED SEVENTY-THREE DAYS AFTER A WOUND.

By GILBERT BARLING, M.B., F.R.C.S.,

LIEUTENANT-COLONEL R.A.M.C.(T); CONSULTING SURGEON TO THE SOUTHERN COMMAND.

At the 2nd Birmingham War Hospital we have had the unusual experience of three cases of tetanus occurring respectively fifty-one, fifty-three, and forty days after suffering wounds, the three cases being under treatment simultaneously.

CASE I.—*Tetanus with an Incubation of Fifty-one Days.*

Private M., aged 20, wounded August 20th, 1915, by shrapnel in the left shoulder and lower lumbar region of spine. The injured parts were treated immediately by iodine, and two hours later the patient was given a prophylactic dose of anti-tetanus serum subcutaneously. A few days later bits of shell were removed from the lumbar wound.

When he was admitted to the 2nd Birmingham War Hospital, on September 20th, the shoulder wound was found to be healed; the lumbar wound was suppurating, and a radiograph showed fracture of the body and transverse process of the fifth lumbar vertebra, but no foreign body. There was threatening of suppuration in the right axilla, and four days later a considerable amount of pus was evacuated from this region.

On October 10th he experienced difficulty in opening his mouth; some days later rigidity was noticed in the muscles of the back and in the sterno-mastoids.

I first saw the patient on October 30th; he was then sweating rather profusely, risus sardonius was well marked, the masseters and sterno-mastoids were only slightly rigid, the belly muscles were very rigid; there was no distinct opisthotonos, though the muscles of the back were rigid. Antitetanic serum was at once given subcutaneously and continued until November 11th, when the tetanic symptoms had practically disappeared; altogether 37,500 units of the serum were given.

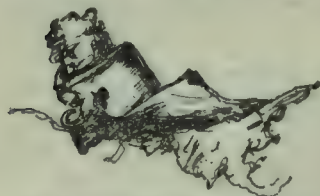
The symptoms in this case were much less severe than in the two about to be recorded.

CASE II.—*Tetanus with an Incubation of Fifty-three Days.*

Lance-Corporal M., aged 22, was wounded on September 25th, 1915, by a bullet which passed through the left forearm, fracturing the radius and ulna, and by another bullet in the upper part of the right arm. A dose of antitetanus serum was given subcutaneously two days later.

On admission to the 2nd Birmingham War Hospital on October 1st, 1915, the forearm wound was healing well; the

wound in the upper arm was suppurating. On November 13th a tiny fragment of cloth was removed with a probe, and later a piece of the casing of the bullet was removed with a fragment of cloth wrapped up in it, as shown in the drawing. Cultiva-



The casing of the bullet is shown with a piece of cloth through it like a wick. The case entered base first.

tation taken from this under anaërobic conditions failed to grow the tetanus bacillus.

On November 17th there was marked stiffness of the neck and back and inability to open the mouth freely. The sterno-mastoids and the muscles of the abdomen were rigid; he was sweating profusely. The temperature was 98° F.; 3,000 units of antitetanus serum were injected subcutaneously and repeated at first every six hours.

During the next few days the symptoms were very severe, difficulty in swallowing was pronounced, spasms were severe, sweating was profuse. An erythematous rash appeared twenty-four hours after the first injection; this was a source of much inconvenience to the patient, and he also experienced a good deal of discomfort in his joints on the tenth and following days. By November 25th a distinct improvement in the tetanus symptoms had occurred, and after this there was no real anxiety as to the patient's condition.

On December 4th, when the doses of serum had been reduced to two in twenty-four hours, a fresh lot of serum caused a recurrence of the rash. On December 8th all symptoms had disappeared. The records show that the temperature at its highest was 102° F., the quickest pulse-rate was 138, and the total quantity of serum given was 153,000 units.

CASE III.—Tetanus with an Incubation of Forty Days, followed by Gas Gangrene Seventy-three Days after Injury and Forty-two Days after the Wound had Healed.

Private S. was wounded in the right upper arm on September 25th, 1915, a flesh wound only. He was admitted to the 2nd Birmingham War Hospital on October 1st and transferred to a convalescent home on October 27th. The case paper states that the wound was then healed. There was no evidence that a prophylactic dose of antitetanus serum had been given.

On November 3rd he complained of pain in the shoulder and back, but was up and about. The next day he was confined to bed, as he complained of difficulty in swallowing and of stiffness of the lower jaw.

On November 8th he was sent back to the hospital. The note then made states that the reflexes generally were increased and ankle clonus was elicited; the muscles of the jaw, neck, back, and abdomen were very rigid; the tongue was occasionally bitten, the right arm was rigid, clonic spasms and slight opisthotonos occurred occasionally, sweating was profuse. Antitetanus serum (3,000 units) was given subcutaneously and repeated every six hours. Bromide and chloral were given by the mouth.

On November 10th the pulse was very rapid and weak; respirations 40. He had had no sleep until morphine gr. ½ was given subcutaneously; this was followed by three hours' sleep. During the following days the records gave alternating accounts of slight improvement and relapses, but the patient was extremely ill and frequently delirious; the pulse varied from 100 to 160, the temperature from 100° to 104.5° F.

On November 18th the tetanus symptoms were much less marked and the amount of serum given was diminished and finally stopped on November 29th, when the patient had recovered from tetanus. He received altogether 189,500 units.

On November 30th there was dullness and crepitation at the base of the right lung, and on the same day a small abscess was discovered in the right thigh, from which a streptococcus was cultivated.

During the next days the patient improved somewhat, as did the physical signs in the lung, but on December 5th the temperature rose to nearly 104°, the pulse was 120, the tongue was brown and dry, and the patient was generally delirious. On December 6th the conditions remained practically the same, but it was noted that the base of the right lung was almost clear and that the scar of the wound was unaltered. On December 7th the note was, "Much the same, scar unchanged." On December 8th he was very delirious, at times unconscious, the scar was distended and livid, with brown discoloration around, the shoulder region was tympanitic. Free incisions let out stinking gas, but very little discharge; the tissues were quite insensative when incised. The patient died early on December 9th.

For the clinical notes I have to thank Major Housman, R.A.M.C., Dr. Archer, and Dr. Foster,

Pathological Report.

The following pathological report is by Dr. C. J. Lewis, visiting pathologist to the hospital, to whom I am greatly indebted for the trouble he has taken in investigating the bacteriology of the case.

At the autopsy subcutaneous emphysema was found over the whole of the chest and neck, the lungs were densely black and

emphysematous, the spleen was enlarged, black, and semi-gangrenous at the upper part.

On December 6th, 1915, a specimen of pus from the (right) thigh yielded *Streptococcus pyogenes* in pure culture.

At the post-mortem examination cultures were made from the spleen and from the gangrenous area near the right shoulder. The former yielded the streptococcus and the latter an anaërobic bacillus in addition to the streptococcus. This bacillus belonged to the type of organism described sometimes as *B. perfringens* and sometimes as *B. abrogenes capsulatus*. It was identified by its morphology and staining reactions, by the characters of its colonies, by the odour of its cultures, and by the rapid production of much gas.

Deferred or latent infections are always of great interest. They occur in infections of the most diverse kind, but are more common perhaps, or at all events more frequently recognized, in tubercle and are less common in connexion with organisms which develop quickly. In carcinoma we occasionally see something parallel to the development of latent infection. Many years, ten or more, after the excision of a carcinomatous breast and when the absolute cure of the patient seemed assured carcinoma may develop in the supraclavicular lymphatic glands. The explanation can only be that for a very long period cancerous emboli have existed in one or more of the glands, have been kept in check but not killed by the resistance of the surrounding tissue or by something circulating in the blood. Then, owing to some alteration in the patient's resistance, the embolus starts growing vigorously, and a fatal process of disease is established. What the circumstances are, what the particular factor is which activates the disease, whether in recognized bacillary infections or in malignant emboli, we are often unable to recognize, but sometimes we are provided with a striking illustration which almost resembles an experiment in a laboratory. The following is an example. A young girl suffered from typhoid fever, and experienced an osteitis of the lower end of one radius. This subsided and the patient worked regularly in a factory for five years, then went for a day in the country on a bank holiday, dressed without regard to the weather, and was, early in the day, soaked to the skin, and so remained until the end of the day. She was indisposed as the result of the chill thus sustained, and a few days later the forearm became painful and swollen. On admission to the General Hospital, five weeks after the incident above related, the lower part of the girl's forearm was found to be swollen and tender, the skin over the radius was red, and fluctuation could be detected. Pus was evacuated, a sequestrum the size of a horse-bean removed from the radius, and cultivation gave a pure culture of the *Bacillus typhosus*. The organism in this case appears to have been activated, after five years of quiescence, by changes in the general body tissues induced by chill, rather than by changes in the locality, for there was no evidence of local injury. It is a commoner experience to find that local damage activates the infection; this is especially true of injuries in the neighbourhood of joints, and may be true in some cases of tetanus in which operation, in the presence of the tetanus bacillus, hitherto not recognized by its clinical effects, has been followed by the development of the disease.¹

To return to the cases I have related. It is certain that two of the patients received each a prophylactic dose of antitetanus serum; in the third case it is uncertain whether a similar precaution was taken. A point of great interest arises: May a prophylactic dose delay the onset of tetanus by directly influencing the growth of the infective organism and so reduce its virulence that it only shows its clinical effect under some special condition favouring more vigorous growth? Or alternatively, does the antitoxin given prophylactically neutralize the first formed toxin and so prevent the development of clinical symptoms, despite the growth of the infection, until all the antitoxin has been saturated? Some light may be thrown on these questions by scrutiny of the cases of delayed tetanus furnished to the War Office, especially if the statistical report is supplemented by experimental observation on animals.

The occurrence of gas gangrene seventy-three days after the infliction of a wound and forty-two days after the wound had healed, appears to be unique as far as I can learn by inquiry and such search as I have been able to make in current literature.

My impression is that the *Bacillus perfringens* was activated by the association with it of a streptococcus in

a subject exhausted by a severe attack of tetanus which, though recovered from, had made a deep impression on the patient.

REFERENCE.

¹ Dean and Mouat, *BRITISH MEDICAL JOURNAL*, January 15th, 1916.

THE TREATMENT OF TETANUS,

WITH SPECIAL REFERENCE TO THE USE OF ANTITETANIC SERUM AND THE LOCAL TREATMENT OF THE WOUND.

BY

R. G. ABERCROMBIE, M.D. CANTAB.,
TEMPORARY CAPTAIN, R.A.M.C.

As a result of his recent statistical analysis of 231 cases of tetanus Sir David Bruce¹ comes to the conclusion that the therapeutic value of the antitetanic serum is doubtful, although he still recommends its use.

The study of individual cases, however, may sometimes serve to supplement the statistical method, and a series of four cases of tetanus recently under my care are of interest, for in them the serum appeared to be of unmistakable value. In two the symptoms subsided under treatment by large doses of serum; on the reduction of the dose the symptoms reappeared with great violence, and on the renewal of large doses the symptoms once again subsided.

The four men were all wounded last autumn. None of them had received a prophylactic dose of serum.

CASE I.

Granulating shell wound of buttock; fragment of shell palpable beneath skin over sacrum. Incubation period, ten days. The symptoms were trismus, rigidity of neck and abdomen, painful spasms of legs. Respiration not affected; able to swallow fluids.

The patient stated that slight stiffness of the jaws had been present on the day preceding the beginning of serum treatment, which therefore commenced on the second day of the disease. From the second to sixth day 9,000 units were given daily; on the second, fourth, and sixth days 3,000 units of this dose were given intrathecally, the remainder being divided equally between the intravenous and subcutaneous routes.

Seventh day: Improved; able to open mouth; 5,000 units given subcutaneously. Eighth and ninth days: Improvement continued; serum omitted. Tenth day: Improvement maintained; 4,500 units given subcutaneously, with the aim of preventing relapse. This was insufficient for its purpose, for on the eleventh day a severe relapse occurred, with agonizing spasms of the legs; 3,000 units given intrathecally, 7,000 units intravenously. Twelfth day: Symptoms subsided; 7,500 units given subcutaneously. Recovery.

Duration of symptoms, twelve days; this period is reckoned up to the last day upon which slight tetanic spasms were present, although in this and the succeeding cases slight stiffness of the affected muscles persisted for several days longer.

CASE II.

Bullet wound of thorax; fractured ribs; small effusion into left pleura, regarded as sterile hæmothorax. Incubation period, twelve days. Trismus; severe respiratory spasms with deep cyanosis; deglutition impossible.

For the first five days 9,000 to 12,000 units were given each day, part subcutaneously and part intravenously; for the first three days 3,000 units of this dose were given intrathecally. Sixth day: Marked improvement; spasms few and slight; deglutition easy; 7,500 units given subcutaneously. Seventh day: Improvement continued; serum omitted. Eighth day: 5,000 units given subcutaneously to prevent relapse. Ninth day: Severe relapse; 10,000 units given intravenously, 6,000 subcutaneously. Tenth day: Considerable improvement; spasms less frequent; 7,500 units given intravenously and repeated in afternoon. Eleventh day: Large hæmorrhage from rectum, and death.

Duration of symptoms, eleven days.

Post-mortem Examination.—A superficial erosion in rectum; lower gut packed with scybala, although an enema had been given on alternate days. Small septic effusion in left pleura.

CASE III.

Shell wound of thigh. Two days after the injury the wound had been freely incised for gaseous cellulitis. At the time of the onset of tetanus large sloughs of muscle were in process of separation by granulation.

Symptoms of tetanus occurred ten days after the date of original wound. Trismus and backward curvature of spine; deglutition and respiration unaffected. The patient stated that slight stiffness of jaws had been present on the day preceding the initiation of serum treatment, which thus commenced on the second day of disease.

Second day: 3,000 units intrathecally, 3,000 intravenously, 3,000 subcutaneously. Third and fourth days: 6,000 units intravenously, 3,000 units subcutaneously. Fifth day: No

definite spasms, but occasional twitchings; 4,000 units intravenously, 2,000 units subcutaneously. This dose repeated on sixth day. Transferred to England, having been free from tetanic symptoms for twenty days. Duration of symptoms, six days.

The muscular sloughs were allowed to separate by granulation.

CASE IV.

Granulating shell wound of thigh. Incubation period, nine days. Trismus, rigidity of neck, painful spasms of wounded leg, tongue frequently bitten. Respiration and deglutition unaffected.

First day: 3,000 units given intrathecally, 4,000 units intravenously, 2,000 units subcutaneously. Second to eighth days: From 7,500 to 10,000 units given daily, chiefly intravenously; on the fourth day 3,000 units of this dose were given intrathecally. Ninth day: Spasms absent; serum omitted. Tenth day: Slight spasms present; 4,000 units intravenously, 1,000 subcutaneously. Eleventh to thirteenth days: Spasms absent, serum omitted. Fourteenth day: Very slight spasms; 4,500 units subcutaneously. Transferred to England, having been free from spasms sixteen days. Duration of symptoms, fourteen days.

In Cases I and II formidable symptoms subsided under large doses of serum, reappeared when the doses were diminished, and again subsided when the large doses were repeated; in each case the relapse occurred on the day following the injection of about 5,000 units subcutaneously. Hence it appears probable that small doses may fail where large ones succeed. Although Case II ultimately died from complications, the effect of the serum in influencing grave tetanic symptoms was marked. The cause of the rectal hæmorrhage is not clear; it would be of interest to learn whether purpuric symptoms have followed large doses of serum in other cases.

The value of intrathecal injection was shown in the relapse of Case I; after the injection, the agonizing spasms of the legs completely subsided, and did not recur. Possibly the intrathecal route is specially valuable when the wound is in the lower part of the body and the spasms localized to the lower limbs, for by this route the serum is brought into immediate relation with the affected lower part of the cord.

Daily Dose.

The effectual daily dose would appear to be about 10,000 or 12,000 units; this may be given twice a day in critical cases. The major portion of this dose should be given intravenously; subcutaneous injections being also used to maintain the effect. Intrathecal injections should be given daily, or at such intervals as the symptoms demand. The dosage must be reduced gradually, in order to avert relapse.

It is worth noting that three of the above cases exhibited a characteristic narrowing of the palpebral fissure, a symptom which I have also observed in several other cases of the disease. This is probably due to a slight continuous contraction of the orbicularis, although the drooping upper lids may sometimes resemble bilateral parietic ptosis. It is more persistent than the risus sardonicus and occurs earlier in the disease, and may therefore be of diagnostic value.

Local Treatment of the Wound.

All will agree as to the desirability of the vigorous treatment of soiled wounds as a preventive of tetanus; but when once the disease has declared itself, I consider that operative surgical interference with the surface of the wound, although recommended by several authorities, is a proceeding of considerable danger. This view is based on theoretical considerations, and on the study of eleven cases during the war.

Tetanus usually shows itself after an interval of a week or more from the time of the injury. By this time there will have been formed the protective inflammatory barrier, the function of which is to check absorption from the surface of the wound. Any active surgical treatment, such as scraping, incisions for drainage, or the removal of sloughs, is likely to make breaches in the inflammatory barrier, and to expose the tissues to the access of the tetanus toxin; and this will hold good whether the toxin gains entrance by way of the nerves, the circulation, or the lymphatics.

The following case illustrates this point:

A patient with septic compound fracture of the leg was well on the road to recovery from a severe attack of tetanus; a

simple incision was made for the evacuation of a collection of pus and the removal of a fragment of dead bone. Although a precautionary dose of serum had been given, the operation was followed within eight hours by a violent relapse of the tetanus.

It is probable that the relapse was not due to the shock of the operation, but to the exposure of a fresh absorbent surface, for I have not observed any similar recrudescence of tetanic symptoms following the administration of an anaesthetic for such purposes as lumbar puncture or the dressing of a wound.

In another case the patient had been wounded in the back; six days after the wound an operation was performed for the removal of a missile lying upon the lamina of the first lumbar vertebra. For a few hours before the operation the patient had complained of severe pain in the wounded portion of the back; this was not at the time recognized as due to the onset of tetanus, although subsequent events showed that the pain had probably been due to that cause, for it increased after the operation, and in six hours was accompanied by trismus. Death from rapidly developing tetanus took place within sixteen hours of the operation.

MacConkey³ has recently collected several instances of operations upon wounds followed after a short interval by the development of tetanus in patients who had previously shown no signs of the disease. It is probable that these cases illustrate the danger of making breaches in the inflammatory barrier.

That the policy of non-interference with the wound may be followed without detriment to the patient is proved by Case I and Case III above. A fragment of shell in one case and large muscular sloughs in the other were left undisturbed; both patients recovered. In each case the belief was justified that it was safer to trust to the protective power of the inflammatory zone than to risk the exposure of a fresh absorbent surface.

While avoiding injury to the granulation tissue, every effort should be made by gentle means towards the removal of debris and the cleaning of the wound; for this purpose irrigation with hydrogen peroxide, followed by irrigation with the hypochlorite of soda solution, may be employed.

The objections to interfering with the infected surface of the wound do not apply to amputation above the site of injury. In cases of tetanus associated with septic compound fracture the patient is exposed to danger from the sepsis as well as from the tetanus, owing to the impossibility of preventing movements of the fractured bones; I have observed two such cases in which the patient survived the tetanus but ultimately died from septicaemia. In cases of this nature early amputation probably affords the best chance of recovery; this course was followed successfully in a case under my care. Antitetanic serum was injected into the nerve trunks exposed in the stump at the time of operation.

In an account of the German experiences of tetanus, Pribram⁴ recommends radical excision of the wound. Owing, however, to the extensive nature of the injuries usually associated with tetanus during the present war, complete excision of the wound would almost invariably be quite impracticable; any attempt to perform it would be necessarily incomplete, and would probably do more harm than good. The case-mortality of tetanus amongst the Germans appears to have been very high.⁴

CONCLUSION.

When tetanus has declared itself, operative surgical interference with the infected surface of the wound is dangerous, and should be a matter for grave consideration; it is preferable to imitate nature's methods—namely, to promote the formation of granulation tissue, and simultaneously to reinforce the patient's production of antitoxin by the injection of large doses of antitetanic serum.

REFERENCES.

¹ Bruce, BRITISH MEDICAL JOURNAL, October 23rd, 1915. ² MacConkey, *ibid.*, December 11th, 1915. ³ German Experiences of Tetanus, *ibid.*, December 18th, 1915. ⁴ German Surgical Experiences, Kümmell, *ibid.*, July 17th, 1915.

It is reported from Sweden that the actual delivery of the Nobel prize in chemistry for 1914, awarded to Professor Theodore W. Richards of Harvard University, together with the other Nobel prizes for 1914 and 1915, will be postponed until June 1st next. The prize winners are invited to go to Sweden in person to receive their prizes and to give their Nobel lectures.

VISUAL NEUROSES OF MINERS IN THEIR RELATION TO MILITARY SERVICE.

BY

CHARLES F. HARFORD, M.A., M.D. CANTAB.,
M.R.C.S. ENG.,
TEMPORARY LIEUTENANT R.A.M.C.

THE visual defects of miners have been the subject of careful investigation by members of the profession, and miner's nystagmus in particular has received close attention, and the monograph on this subject by Dr. T. Lister Llewellyn, entitled *Miner's Nystagmus, its Causes and Prevention*, may be thought to have said the last word on this peculiar affection. It may, however, be of interest to record some of the cases which have been met with recently among miners coming from the counties of Northumberland, Durham, and Yorkshire, who have found their way into the army. There may also be some advantage in noting the persistence and, in some cases, the aggravation of these defects in men removed far from the scene of their former work and employed entirely above ground. I had not previously had the opportunity of noting cases of this disease, and therefore approached the subject with some freshness. I have purposely abstained from using the term "miner's nystagmus" for reasons which will be stated, but nevertheless the series of cases given are, in my opinion, examples of the affection which usually bears this name.

It is obvious that the cases quoted are too few to be of themselves of great value, but the fact that they are corroborative of cases quoted by Dr. Llewellyn seems to indicate their similarity to the condition which he describes.

1. In the first place, there can be little doubt that the group of associated symptoms which are present in what is usually known as "miner's nystagmus" constitute a distinct "disease."

2. On the other hand, the name seems to be unfortunate, seeing that the nystagmus is at most only one symptom out of a group which may be absent even when the "disease" is present in a marked form.

3. The symptoms noted in the series of cases given below correspond very closely with those described on pp. 1 and 2 of Dr. Llewellyn's monograph, and it may be convenient to refer to these *seriatim*, taking them in the order of apparent importance.

(a) Defect of Vision.

This is variable in different cases, and probably is due to a variety of causes, but it has usually been the chief reason which has led to the man in question being sent for examination. There is usually some error of refraction present, but this is insufficient to account for the defective vision, and it will be seen that some of the cases were hypermetropic, some myopic, and some astigmatic in different degrees. In no case was any abnormality of the fundus detected to which any of the disturbance of vision could be attributed, but it was not possible to make an ophthalmoscopic examination in the cases where there was marked photophobia.

(b) Temporary Giddiness.

Next to the visual disability, the occurrence of more or less pronounced attacks of giddiness was a reason for the cases coming under observation. In two instances men complained that they found it dangerous to be on horse-back, and one man came into hospital suffering from bruises because he had fallen from his horse and been dragged along by it. Case I, which was much the worst of the series, used to have attacks of giddiness, in which he would often have fallen if he had not been held up by attendants in hospital. Others would simply complain of feeling "dizzy," often in the early morning; in no instance could it be proved that there was any absolute loss of consciousness.

(c) Photophobia.

Intolerance of light was present in some measure in practically every case, and this symptom may be responsible for the blinking of the eyelid in some cases, the drooping of the lids in others, and the difficulty which was generally experienced in looking upwards. Judging from the occurrence of this symptom in other forms of disease

affecting the eye, it seems most likely that it is due in this instance to some irritability of the retina, for it is suggestive of the photophobia met with in albinos, or in cases where the pupils are widely dilated in a bright light. There was never any corneal trouble present, and only in two cases marked conjunctivitis, but this was not sufficient to explain the photophobia.

(d) Headache.

In most cases there was a complaint of very frequent pain, chiefly in the temples, either at night or in the early morning. Most of them associated this with injuries to the head which they had received in the pit. While there may be some ground for this, the occurrence of the headache, together with other symptoms, was suggestive of that form of headache often met with in cases of functional nerve disorders.

(e) Perverted Visual Impressions.

Under this heading may be mentioned the very general complaint of various apparent movements of lights, referred to by some as "dancing lights," "glittering lights," "dazzling lights," and so forth. It seems that these subjective impressions have been directly associated by most observers with the occurrence of the special form of oscillation of the eyeballs which constitutes the nystagmus. It is very doubtful whether this is so. In other forms of nystagmus there does not seem to be any occurrence of similar visual impressions, and the disorder is probably due to other causes. However this may be, the fact remains that the meeting of lights shining out of darkness, whether they are lamps in a pit or gas lamps on a dark road, seems to set up peculiar disturbances of vision which greatly distress the patient and interfere with many occupations. The symptom which has been referred to as "night blindness" is hardly a true "night blindness," but darkness seems to accentuate most of the symptoms, and it is a strange anomaly that "fear of the light" and "fear of the dark" should be present in the same cases, but so it is.

(f) The Mental Factor.

No one can have watched a number of these cases without recognizing the very great importance of the mental factor. In spite of the fact that the cases were not spoken of in the patients' hearing as "miner's nystagmus," and that no diagnosis was put upon their diet sheets, yet all seemed to be introspective and oppressed by their condition. In most cases detention in hospital seemed to have a depressing rather than a helpful influence, and the graver cases tended to grow worse in spite of change of treatment. Bromides, stomachics, tonics were tried in succession, but all without benefit. Probably the different cases reacted unfavourably upon one another, and yet it was difficult to keep them apart.

(g) Nystagmus.

In those cases which have for months been working above ground this symptom was either not present or was at least very difficult to detect. There is no suggestion that the symptom is not as prominent as has been described in recent cases, but it is significant that in the circumstances in which these men were living the symptom seemed to have disappeared. Some may on this ground question the diagnosis, but it is not likely that any one who has read Llewellyn's book will be inclined to do so.

4. The question now arises as to the effect of military service upon this affection. There seems to be no room for doubt that it is a serious mistake for men who have any tendency to the complaint to be subjected to the arduous strain of military service, which not only involves exertion of all the powers of body and mind, but particularly of the eyesight, and it may be worth while to bear this in mind in examining recruits for the army from the mining community.

5. There is, however, another question of even greater importance, and that is the relation of the disease to military efficiency. From the insidious character of the symptoms serious results may follow from the inclusion in the army of men who may become quickly incapacitated. When it is realized that the vision may without obvious cause be seriously impaired, that vision at night time may be reduced to a minimum, and that attacks of giddiness

may come on at any time, it will be believed that the presence of such a man might prove to be a source of serious danger to his unit if any dependence was placed upon him.

6. In conclusion, it will be seen that no attempt has been made to throw light on the causation of the disease, as this has been very fully worked out, and as the cases given were those which were seen apart from the surroundings in which the disability was acquired; but I desire to express very strongly the view that this affection, which is of such vast importance to miners, and which seriously affects the military efficiency of those who suffer from it, needs to be more carefully studied by the neurologist rather than by the ophthalmologist. It is true that the avenue through which the nervous system is deranged is the eye and that vision is disturbed by it, but it seems clear that the "disease" is a general nervous ailment and should be studied as such, and that too great prominence should not be given to the nystagmus, which is only one symptom in the case. If this course were followed it is possible that better results might be obtained by treatment, which, it will be admitted, is very unsatisfactory in the severe cases. Only one comment may be made here under this head, and that is the possible benefit of suggestion, particularly in view of the great importance of the mental factor.

In the following list of cases it is only possible to state the age of those who were in-patients, but the others were all men of military age. The result of ophthalmoscopic examination is not given, but this was carried out where possible without any abnormal appearances being detected.

CASE I.

A driver, R.F.A., aged 33, was admitted to hospital on June 11th, 1915, on account of defective sight and staggering gait. The following symptoms have been specially noted during two months in hospital, and have gradually increased in severity. V. = R. $\frac{2}{2}$; L. bare perception of light. He can only get about with great difficulty, chiefly by feeling his way. The staggering is probably mainly due to inability to see clearly, but there is also some stiffness of limbs, and there is a kind of spasm on tapping over the patellar tendon. There is marked photophobia, which makes it exceedingly difficult to examine him. Much blinking of eyelids, irregular movements of eyeballs, and apparent inability to fix upon any point, but no definite nystagmus. He says that the symptoms are worse at night, and that then, especially, things seem to dance before his eyes. He complains of almost constant pains in the temples and the occipital region. He sleeps badly, is much depressed, and has nervous attacks, especially at night, in which he does not seem to lose consciousness, but is much agitated.

Previous History.—He stated that he had worked in a pit since the age of 11, and was always short-sighted. He ascribed his trouble to various accidents: Eight years ago, when he was buried in a mine accident; seven years ago, when he was kicked by a horse, and had an injury to the skull as well as breaking his jaw. The symptoms have been worse for the past three years.

Family History.—His father is said to have been "short-sighted." He has four brothers, three of whom are said to be "short-sighted" and two affected similarly to patient. They all work in mines.

CASE II.

A private in an infantry regiment, aged 34, was admitted to hospital on July 1st, 1915. He had previously been seen as an out-patient, when his vision was $\frac{2}{2}$ in each eye. It is not easy to say how far the defective vision was due to any real inability to see, or whether it was occasioned by the well-marked photophobia which made it difficult for the patient to look at any object for a sufficiently long time. There was some fine oscillation of the eyeballs in a lateral direction when the lids were held open, but no rotatory movement was detected. The drooping of the lids, as in Case I, corresponded with the illustrations given by Dr. Llewellyn as characteristic of this disease. He has some conjunctival congestion, but no staggering gait or severe headaches.

Previous History.—He stated that he started work in the pits at the age of 12, and that at the age of 15 he had a bad fall, hurting his head, and has never been well since. He ascribed his recent failure of sight to an attack of discharge from the eyes, from which he said that his wife and four children had suffered.

Family History.—Father and mother are said to have weak eyes, as also four brothers who are working in the pits.

CASE III.

A gunner in the R.F.A., aged 28, was admitted to hospital on July 9th, as he had fallen from his horse, so he stated, on account of an attack of giddiness. He had twitching of the lids and slight photophobia, but no nystagmus. The symptoms were worse in the evenings, when he suffered from severe pains in the temples. He stated that whenever he got upon a horse objects seemed to be dancing about in front of his eyes. V. = R. $\frac{2}{2}$; L. $\frac{2}{2}$; not improved by glasses.

Previous History.—He had suffered for six years from somewhat similar symptoms.

CASE IV.

A driver in the A.S.C., seen as an out-patient on July 9th, 1915, complained of defective vision, which, however, was due to myopia, as follows: V. = R. $\frac{1}{2}$ c - 3 D. = $\frac{1}{2}$ partly. L. $\frac{1}{2}$ partly c - 2.25 D. = $\frac{1}{2}$ partly. With both eyes $\frac{1}{2}$. At the same time he complained of difficulty as a driver, as he felt unsteady and wished to be transferred to an infantry regiment. There was no sign of nystagmus at time of examination.

Previous History.—He stated that he had always had bad sight, that a few years ago he had suffered from nystagmus, that he was affected by the lights in the pit, and that he found difficulty in staring at lights at the present time. He said that he had been at various times in the army, but had twice been discharged on account of bad sight (probably myopia).

Family History.—Father's sight good; mother's sight weak; eight sisters and one brother have good sight; one brother is said to have suffered in the same way as the patient.

CASE V.

A private in an infantry regiment attended as an out-patient for test of vision on July 14th, 1915. V = R. $\frac{1}{2}$ c, and L. amblyopic; hypermetropic with some astigmatism; not improved by glasses to any appreciable extent. He complained of pain in the head, and said that he could not bear a strong light.

Previous History.—He stated that he had had weak eyes all his life, that he had had an accident to the head as a child, to which he ascribes the failure of the left eye; that two years ago he had inflammation in both eyes, and that since then he has noticed dancing or flickering lights when working in the mine. He was better after joining the army until he started musketry practice.

CASE VI.

A private in an infantry regiment came up on July 15th, 1915, as an out-patient for examination of eyes.

V. = R. $\frac{2}{3}$ c + 2.5 D. cyl. ax. $\setminus 50^\circ = \frac{1}{2}$ pty.
L. $\frac{1}{2}$ c + 2 D. cyl. ax. | vert. = $\frac{1}{2}$ pty.

Previous History.—He had been troubled with his eyes for twelve months, especially in looking at lights in the pit, and at night when above ground.

CASE VII.

A private in an infantry regiment was seen on July 17th, 1915, on account of failure at musketry practice.

V = R. $\frac{1}{2}$ pty. c - 3 D. cyl. ax. — hor. = $\frac{1}{2}$ c.
L. $\frac{1}{2}$ pty. c + 2 D. cyl. ax. | vert. = $\frac{1}{2}$ c.

There was some slight sign of oscillation of eyeballs, and it was difficult to get him to look upwards.

Previous History.—He stated that he had suffered from miner's nystagmus, which he believed was caused by knocks over the eyes. He complained of the glittering of lights in the dark and of the moving of things before his eyes, especially if reading a paper.

CASE VIII.

A private in an infantry regiment, aged 33, was admitted July 9th, 1915, on account of conjunctivitis.

V. was at first $\frac{1}{2}$ c in both, improved in hospital so that on August 18th it was

V. = R. $\frac{1}{2}$ c - 1 D. = $\frac{1}{2}$. L. $\frac{1}{2}$ c - 1 D. = $\frac{1}{2}$.

There was much blinking of eyes and complaint of pains in the temples, and occasional giddiness, causing a fall one evening.

Previous History.—He stated that he had had many knocks on the head, some of which had stunned him. He seems to have had conjunctivitis at the age of 21. For a long time he had been dazzled by lights in the pit, and when he passed a lamp in the street at night time he had to shade his eyes; he said that he often turns dizzy.

CASE IX.

A private in an infantry regiment, seen on July 26th, 1915, said that he had had nystagmus five years previously, when he was off work for six weeks.

V. = R. and L. $\frac{1}{2}$ c, improved by + glasses with a weak cylinder to $\frac{1}{2}$ c.

CASE X.

A private in an infantry regiment, seen on August 5th, 1915, stated that he had suffered from miner's nystagmus two years previously, and was obliged to leave the pits. V. = R. $\frac{1}{2}$ c, not improved by glasses; L., amblyopic. Refraction hypermetropic.

THE fortieth annual report of the Boston Medical Library, presented on January 11th, shows that the war has caused a great falling off in the number of books and journals received. During 1915 seventy-six foreign periodicals had suspended publication, at least for a time, while others had appeared at very infrequent and irregular intervals. The number of volumes added during the year was 3,688, making a total of 89,963 in the library. In 1876, the year after its foundation, it possessed only 4,488 volumes. It is now the fourth in size among the medical libraries of the United States, being exceeded only by the Surgeon-General's Library at Washington, and those of the College of Physicians of Philadelphia and the New York Academy of Medicine.

A METHOD OF TREATMENT FOR CONJUNCTIVITIS.

BY

FREDERICK JEFFERSON, M.B. BELFAST,

CAPTAIN R.A.M.C.(S.R.),

OPHTHALMIC SPECIALIST — STATIONARY HOSPITAL;

AND

W. E. M. ARMSTRONG, M.A., M.D. DUBLIN,

CAPTAIN R.A.M.C.(T.C.),

OFFICER COMMANDING — MOBILE LABORATORY.

THE treatment of conjunctivitis is an important problem for doctors in the region of the firing line. The ordinary treatment is sometimes ineffective and often slow, with the result that many valuable men in excellent general health are rendered incapable of service for considerable periods owing to the state of their eyes. What is wanted is a treatment which will be at once more effective and more rapid, and it is also necessary that it should be capable of ready application to large numbers of men, and under circumstances in which the facilities for applying even the most simple remedies may perhaps not be very great.

Some of the cases of conjunctivitis are traumatic in origin, others are dependent upon and secondary to some other diseased condition, but most of the cases appear to be simple bacterial infections of the conjunctiva, and so should be susceptible to treatment by ordinary recognized antibacterial methods.

Experience has shown that immunization procedures are peculiarly applicable to many eye inflammations. Gonococcal, tuberculous, and sometimes streptococcal infections of the organ often give most excellent results when treated with the corresponding vaccine. But simple uncomplicated conjunctivitis is apparently seldom due to any of these organisms, and its bacteriology is so inconstant that to apply vaccine therapy would hardly be practicable under war conditions. It is, however, safe to say that any conjunctivitis cases in which styes are present as a complication should certainly be treated with staphylococcus vaccine.

The value of an antiseptic would appear to depend largely, if not altogether, upon the histological position of the invading bacterial army. When the bacteria are superficially disposed, an antiseptic is the most obvious agent by which they may be destroyed. In this process the tissues themselves will suffer injury and death, but such cellular losses will be replaced from the practically illimitable resources of the body, while the superficially placed bacteria have no such reserves to draw upon. When, however, bacteria have penetrated more deeply and have established for themselves in the tissue labyrinth bases where no antiseptic can reach, they can keep up a continuous stream of recruits which, in a war of antiseptic attrition, will be as proof against extermination as the cells of the organ they have invaded. In such a case antiseptics are not only useless but probably harmful, for by devitalizing the tissues they hinder the physiological forces from trying to accomplish the bactericidal effect which the antiseptic itself has no hope of accomplishing.

In conjunctivitis the inflammation is placed about as superficially as it is possible for any inflammation to be. It is the condition above all others in which we might expect an efficient antiseptic to produce good results. Now the substances used for the treatment of conjunctivitis are, as a rule, more distinguished for their astringent than for their antiseptic properties. We thought it would be interesting, and probably profitable, to try the effect of a remedy in which the antiseptic prevailed over any other action, and after some deliberation we chose enzol solution as the reagent best suited to carry out the idea, for the following reasons: (1) It is a most powerful antiseptic; (2) it seems strangely non-irritating to the tissues, almost as though it might imitate faintly with regard to bacteria the action of salvarsan with regard to a more developed form of microbe life; (3) it has apparently already given good results in the hands of some reliable workers in the field of general surgery, though, so far as we know, it has not yet been used in infections of the eye.

The investigation was carried out in the following manner:

Acting on advice kindly furnished by Professor Lorrain Smith, we commenced with a solution of eusol ten times more dilute than that used in the treatment of wounds. It speedily appeared, however, that this was too weak and that a solution about five times more dilute than the normal strength used for wounds gave the optimum effect in the treatment of conjunctivitis. Every second case of conjunctivitis was treated by irrigating the conjunctival sac freely three times a day with eusol; the other cases were treated with boric acid and zinc sulphate solution, as being probably the commonest of routine methods.

We took the cases absolutely in the order that they happened to arrive from field ambulances. The only thing that was done in the way of selection was to exclude from the experimental group those cases in which any complications coexisted with the inflammation of the conjunctiva. Cases of blepharitis, corneal ulceration, trichiasis, entropion, and ectropion seemed to us to present incalculable elements the inclusion of which would be likely to lead to ambiguous and uncertain conclusions.

One hundred cases were treated in this comparative manner. Of these 100 cases, the 50 treated with eusol took an aggregate time of 303 days to cure. The cases treated by boric acid and zinc took 448 days before they were fit for duty.

The employment of eusol therefore resulted in the saving of many days in the treatment, the average time required for a cure with eusol being 6.06 days, as against the average time of 8.96 days required to get the same result with boric acid and zinc treatment.

It was further apparent as the result of our work that, apart from any gain in time, eusol might yet be a very useful alternative measure for the treatment of conjunctivitis, for in six cases it succeeded in effecting a rapid cure of the disease where boric acid and zinc had proved unsatisfactory.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

INTUSSUSCEPTION OF THE SMALL INTESTINE DUE TO FIBROMYOMA: EXCISION: RECOVERY.

The following case appears worthy of record for several reasons. Fibromyoma of the small intestine is rare, especially as the cause of acute following chronic intestinal obstruction in an elderly patient.

A thin lady, aged 50, had been failing in health and having colicky pains and indigestion on and off for six months. She got suddenly very much worse on December 7th, 1915. She vomited frequently, and on December 12th brought up bilious and brown offensive material. Euenata had at first brought away large masses of scybala, but without much relief. The patient had been more or less constipated for years, but she had been much worse of late. Dr. Clowes saw several coils of small intestine across the middle of the abdomen, and felt a hard lump varying in consistency to the left of the umbilicus. He did not think this was faecal, as it persisted after the enemata. His diagnosis was obstruction of the small intestine, probably due to growth. There was no blood in the results of the enemata, but some slime came away with one of them. When I saw her at Colchester, on the evening of December 13th, she looked exhausted and shrunken, but not very ill.

Operation.

Dr. Worts gave the anaesthetic, and Dr. Clowes assisted. A long incision was made through the middle and inner third of the right rectus. I at once felt an intussusception in the small intestine, probably about the middle of the ileum. It was about 8 in. long, and its apex was hard, and thought to consist of a polyp or carcinoma. Very gradually and gently the intussusception was reduced. As the last bit was released a depression was seen on the wall of the bowel, which indicated the attachment of the growth. The latter could now be well felt and moved inside the bowel. It was polypoid, but with a broad attachment, and was 2½ in. long and 1 in. in diameter. The intestine at and just below the growth was grey and thin; therefore I resected about 6 in. of it with the growth, and joined up end to end with two continuous sutures of fine black thread. The intestine above was greatly hypertrophied, and also considerably dilated, probably to twice the natural size. The abdomen was closed in layers with catgut and mass salmon-gut sutures in the usual way. The operation lasted about forty-five minutes. There was no shock at the end. She was given a rectal saline with 30 grains of aspirin immediately afterwards.

A letter from Dr. Clowes, dated January 30th, 1916, stated that the patient had done very well.

A report from the Clinical Research Association stated that "the tumour is composed of bundles of smooth muscle with a very small amount of fibrous stroma. It is not malignant, and has the general structure of a fibromyoma."

Recovery after resection at the end of six days' complete obstruction of the small intestine is uncommon. Resection seemed to be the best treatment, for even if the innocent nature of the tumour had been certain at the time of the operation, excision of the polyp would have involved cutting into the damaged bowel at its mesenteric border. It seemed better to remove the seriously damaged part. The question of drainage of the distended bowel above arose, but in view of the high position of the obstruction this was not thought necessary.

R. P. ROWLANDS, M.S., F.R.C.S.,
Surgeon to Guy's Hospital.

DUODENAL AND JEJUNAL ULCERS.

SIR J. BLAND SUTTON says (February 19th, p. 272) that surgery has evolved a new ulcer in the jejunum. He says also that "with an unobstructed pylorus gastro-jejunosomy cannot be relied on to cure a chronic duodenal ulcer . . . as it exposes patients to the discomforts and risks of regurgitant vomiting and jejunal ulcers . . ."

I hold that all ulcers in that region after gastro-jejunosomy are due simply to faulty technique. I fail to see the necessity for pylorotomy in duodenal or pyloric ulcers.

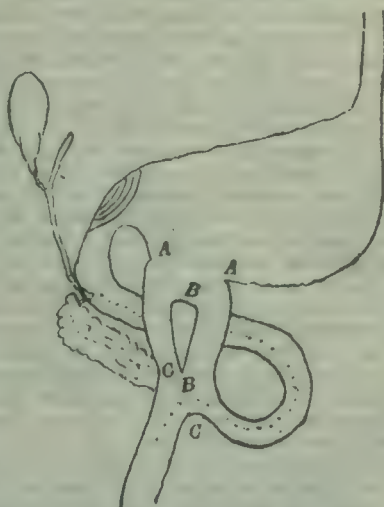
I have shown in my publications in the BRITISH MEDICAL JOURNAL of April 25th and July 25th, 1914, what is, in my opinion, the best operation for duodenal and pyloric ulcers—namely, a posterior gastro-jejunosomy with an entero-anastomosis in every case, done at the same time.

I have had a large experience in this operation, and have had no deaths and no jejunal ulcers occurring afterwards, and no unpleasant symptoms of any kind whatever.

The diagram shows the completed operation referred to.

London.

G. GORE GILLON, Lt.-Col. R.A.M.C.



From A to A, 3 in.; B to B, 2 in.; C to C, 1½ in.

PROCIDENTIA UTERI IN A NULLIPARA.

In the JOURNAL of February 5th, p. 218, in a letter on "Dystocia due to Constricted Os," Dr. W. E. Fothergill of Manchester says that "nulliparous women do not have procidentia uteri (the final or complete stage of prolapsus uteri)." Three years ago I met with a case of complete prolapsus uteri in a woman aged 20, unquestionably a nullipara. The condition had existed for about five months, and was accidentally discovered by her mother, who brought her to me. The vulvar ring had contracted behind the extruded corpus uteri, and an anaesthetic was needed before reduction could be effected. Here there was no overgrowth of the cervix. Cervix and body were both normal in size. It was a case of simple uncomplicated procidentia uteri in a nullipara. She was the daughter of a small farmer, and the condition was attributed by her mother to the carrying of heavy loads of farm produce. A pessary was put in; it was removed a few months afterwards, and, so far as I know, the ailment has not recurred.

Ballinalee, Edgeworthstown.

J. F. KEENAN, M.B.

Reviews.

ROENTGEN DIAGNOSIS IN GASTRO-INTESTINAL DISEASE.

GEORGE and LEONARD, in their book entitled *The Roentgen Diagnosis of Surgical Lesions of the Gastro-intestinal Tract*,¹ have relied largely on 368 illustrations to demonstrate the conclusions they have arrived at in diagnosing these conditions. The proposition they advance, put shortly, is that in pathological gastro-intestinal conditions the clinical evidence is so superficial and inaccurate that it can be, and ought to be, put on one side, and the diagnosis made on the x-ray findings alone. The case they make out is very striking. The construction of the book is interesting. It is divided into nine sections; each is prefaced by a very short summary of the authors' technique and conclusions, and this is followed by a large series of radiographs—fine ones, and admirably reproduced—demonstrating the points on which diagnostic reliance is placed. No clinical findings and no history are given—merely the age and sex, the manner in which the radiograph was made, the Roentgen diagnosis (pointing out the variations from normal on which it was based), and the operative findings. As in by far the larger proportion of the cases an operation followed on the diagnosis, this manner of demonstration is very convincing.

The nine sections are arranged as follows: After describing the normal stomach, the conditions dealt with are gastric ulcer, gastric new growth, the duodenum, the gall bladder, the small intestine, the appendix, the large intestine, and diverticulitis.

An important point, on which great stress is laid, is that the indirect method of arriving at x-ray conclusions (that of the Continental school of workers, in which the standard thick meal is used, and in which the roentgenoscopic and clinical signs are grouped together for the purpose of diagnosis) is altogether wrong in principle. The meal should be of bismuth subcarbonate and buttermilk, and the diagnosis, without any reference to anything else, should be based entirely upon the x-ray appearances seen and recorded on a number of plates. Perhaps the most striking chapter is, with its illustrations, that on duodenal ulcer; without accepting all that the authors claim, it is quite evident from what is shown, that this direct method, as it is termed, gives a far greater number of correct diagnoses than the indirect, or inferential, method. The radiographs showing the departures from normal in the duodenal shadow due to ulcers, the presence of which was proved by subsequent operation, are very convincing.

Some slight criticism we must make. In the chapter on the normal stomach several plates are described as "normal stomach: dilatation and ptosis"; to describe as normal a stomach showing these conditions is misleading. Under the head of Roentgen conclusions we find "hypernephroma causing a pressure effect on a normal stomach"; how can the diagnosis of hypernephroma be a Roentgen conclusion? A further error is to describe one plate as showing the pressure effects on the "greater curvature" of an ascending colon. Taken as a whole the book is the best which has yet appeared on the subjects it deals with, and is one which every x-ray worker should study carefully.

TREATMENT OF INFECTIOUS FEVERS.

In his exhaustive monograph on *The Treatment of Acute Infectious Diseases*² Dr. MEARA of New York goes very thoroughly into the nursing, dieting, and therapeutics of thirty three of the commonest infectious fevers, excluding tuberculosis and including a few diseases, such as dengue, leprosy, and psittacosis, that are rare in this country. The text is clearly written and admirably arranged; at the end of each chapter a headline summary of the procedures advised is given for convenience of reference. In the treatment of rheumatic fever Dr. Meara relies upon the exhibition of large doses of sodium salicylate combined with twice as much sodium bicarbonate, and he describes the drug, introduced by MacLagan in 1874, as a boon. In

the treatment of whooping-cough he gives antipyrin the first place, belladonna the second. In the treatment of laryngeal diphtheria he includes a description of the processes of intubation and debubation, written by Dr. M. C. Hill, but for tracheotomy refers his readers to surgical textbooks. Dr. Meara writes exhaustively upon the subjects with which he deals, and is well up to date. His book should be consulted by all medical men who are in doubt as to the varieties of treatment that may be employed in the management of cases of the acute infectious fevers and their complications.

An excellent handbook of *Fever*³ has been published by Dr. J. CAMPBELL McCURE for the use of students and general practitioners of medicine. First and foremost, it is a practical book; pathology, epidemiology, and bacteriology do not bulk very large in its pages: Twenty-five fevers are included as likely to be met with by practitioners in the British Isles; only seven of them are characteristically diseases of tropical or subtropical regions. Plenty of space is given to diet and treatment, a feature for which all who are responsible for the management of fevers will be grateful to the author. Tuberculosis of the lungs is included. Dr. McCure's book may be warmly recommended to all students and practitioners of medicine.

HOSPITAL CONSTRUCTION AND ADMINISTRATION.

THE second edition of Dr. MACKINTOSH's admirable book on the *Construction, Equipment, and Management of a General Hospital*⁴ has been revised, and enlarged by the addition of a chapter by Mr. John Wilson, architectural inspector of the Local Government Board for Scotland, on the construction of semi-permanent hospitals such as are called for by the war. The author, as is well known, has the Glasgow Western Infirmary to his credit. His book is an ordered exposition of the latest principles in hospital design to which experience has led him. It is therefore to a large extent an account of buildings to be found at this infirmary. Dr. Mackintosh would build a modern general hospital in blocks and units. The book begins with an account of the gatehouse or admission block for all the patients who come to the hospital, with its casualty rooms, emergency wards, suite of rooms for the casualty officers who should be always on the spot, and numerous other offices. The out-patient unit, described in a later chapter as a singularly complete and sumptuous department, is quite distinct; here the patients are first sorted and distributed to the various special departments in which they may require treatment. The in-patients are treated in units, which may be either medical, surgical, or special. The medical unit contains 22 male and 16 female beds; the surgical unit has also a third ward with 14 beds for accident cases; all the units have, in addition, a couple of side wards, each with a pair of beds for cases requiring isolation. The surgical units have each their own operating theatres and classrooms. Dr. Mackintosh makes a special point of having a bedroom, bathroom, and sitting-room in each unit for the house officer in charge, who thus lives in the midst of his patients, but for meals and recreation has the run of messroom, billiard-room, smoking-room, and the like, in common with all the other house officers. The resident staff have no food in their private apartments. Each unit has a further liberal supply of other rooms and offices to make it complete; there are three beds per unit of nursing staff, and each ward has a ward maid, as has the operating theatre. Other chapters in the book deal with the design of hospital kitchens, laundry units, methods of heating, the nurses' accommodation, and provision for cases of nervous and incipient mental disease. The Nurses' Home at the Toronto Hospital for Sick Children is described as probably the best in existence, and is detailed and figured; the building cost £28,000, and appears to accommodate 63 nurses. Dr. Mackintosh gives full lists of the fittings required in the various hospital units and departments, and many illustrations of these are inserted; a number of plans at the end of the book do much to make the designs plain. No key is given to the numbers appearing in the plans of the

¹ *The Roentgen Diagnosis of Surgical Lesions of the Gastro-intestinal Tract*. By A. W. George, M.D., and R. D. Leonard, A.B., M.D. Boston: The Colonial Medical Press. 1915. (Dbl. roy. 8vo, pp. 291; 357 figures. 10.00 dols. in U.S.A.; £2.5s. in England.)

² *The Treatment of Acute Infectious Diseases*. By F. S. Meara, M.D., Ph.D. New York: The Macmillan Company. 1916. (Roy. 8vo, pp. 539. 15s. net.)

³ *A Handbook of Fevers*. By J. Campbell McCure, M.D. Glasgow: Shaw and Sons. 1914. (Demy 8vo, pp. 478; 25 charts. 8s. 6d.)

⁴ *Construction, Equipment, and Management of a General Hospital*. By Dr. J. Mackintosh, M.V.O., M.B., LL.D., F.R.S.E. Second edition. Edinburgh and London: W. Hodge and Co. 1916. (Roy. 8vo, pp. 176; 52 figures, 17 plans. 15s. net.)

Toronto nurses' residence, though this could easily have been done on page 151. The book is full of invaluable practical information, the harvest of years of experience. It should be in the hands of all who have to do with the design of any hospital larger than a cottage hospital.

NOTES ON BOOKS.

THE fifty-second edition of Herbert Fry's *Royal Guide to the London Charities* gives a brief and admirably clear survey of the metropolitan charities of all sorts, in alphabetical order, and with indexes that enable cross-references to be made with ease. The book is up to date and accurate. It should be in the hands of donors as well as beggars, being designed for those who wish to give with due discrimination as well as for those who have some lame dog to help over a stile. The editor's preface sets out clearly the present need for thrift in all public and private expenditure, yet emphasizes the still greater need for keeping the two or three thousand charities he tabulates at full work, unstinted of subscriptions. With these views we heartily concur.

Russia is a country to which few British travellers have penetrated in the past, no doubt in consequence of its remoteness, the long sea journey that usually leads to it, and the difficulties of the Russian tongue and the Cyrillic alphabet. In the future it is to be hoped and confidently expected that the calls of commerce or pleasure will induce a far greater number of the inhabitants of Great Britain to go travelling in the great country of our gallant ally. A Russian grammar and reading book on Hugo's simplified system⁶ do all that can be done to make the language problem easier for a race notorious, as is ours, for its poor skill in the tongues of foreign nations. We have received a copy of Part I of the grammar and reader, each to be completed in three parts, and we commend them to the favourable notice of our readers.

⁵ Herbert Fry's *Royal Guide to the London Charities*. Edited by J. Lane. Fifty-second edition. London: Chatto and Windus. 1916. (Cr. 8vo, pp. 416. 1s. 6d.)

⁶ London: Hugo's Institute for Teaching Foreign Languages. 1916. (Cr. 8vo, pp. 34 and 42. 1s. 6d. the two books.)

MEDICINAL AND DIETETIC PREPARATIONS.

Horlick's Malted Milk Lunch Tablets.

WE have recently received from the Horlick's Malted Milk Company a specimen tin of Horlick's malted milk in tablet form, specially designed for the use of the army and navy. The tablets are sent out in tightly closed flat tins of a convenient size for carrying in the pocket, and are stated on the tin to contain full nourishment for one man for twenty-four hours. The tin supplied to us contained 79 tablets, having a total weight of 107.5 grams (3.8 oz.). From an analysis of Horlick's malted milk made by us some years ago, the weights of sugar, fat, protein, and ash contained in the whole contents of the tin are as follows:

		Approximate Calorific Value in Large Calories.
Protein (from total nitrogen)	15.4 gm. \times 4.1	= 63.1
Fat	7.8 gm. \times 9.5	= 72.5
Reducing sugars calculated as maltose	59.7 gm. \times 4.1	= 244.8
Ash	3.9 gm.	
Total		380.4

The above, however, does not give quite the total value of the preparation, since a certain proportion of the carbohydrate is present in a form other than that of reducing sugars; probably the total calorific value would be about 450 calories. The total calorie value of the ration of the British soldier in this war is calculated to be from 4,500 to 5,000 calories, and that of the German soldier about the same, or possibly a little less. It is evident from the above figures that the contents of one of these tins can only be regarded as containing sufficient nourishment for a man for twenty-four hours, unless it be as an emergency ration to tide over some special period of difficulty. The tablets are palatable and may be sucked in the same manner as an ordinary sweetmeat.

A BILL was introduced into the United States Congress on January 4th providing for the establishment of a fund of £2,000,000 for the construction of drainage works to reclaim wet, overflowed, and swamp lands. This is intended as a measure for the prevention of the dissemination of malaria and other diseases.

THE REPORT OF THE ROYAL COMMISSION ON VENEREAL DISEASES.

THE Report of the Royal Commission on Venereal Diseases was issued on March 2nd. It is signed by all the Commissioners, subject to reservations as to prisoners and poor law patients, by Sir Kenelm Digby and Canon Horsley.

The Commission was appointed on November 1st, 1913, "to inquire into the prevalence of venereal diseases in the United Kingdom, their effects upon the health of the community, and the means by which those effects can be alleviated or prevented, it being understood that no return to the policy or provisions of the Contagious Diseases Acts of 1864, 1866, or 1869 is to be regarded as falling within the scope of the inquiry." Eighty-five witnesses were examined, to whom 22,296 questions were put.

I. INTRODUCTION.

In the first section of the report previous action by the State is noted. This was concerned with the control of venereal disease in the army and navy. The Contagious Diseases Act of 1864 aimed at preventing venereal diseases by subjecting prostitutes to surveillance and medical examination. Amending Acts were passed in 1866 and 1869.

A Medical Committee and Parliamentary Committees appointed to inquire into the working of the Acts in 1868 and 1869 recommended the cautious extension of the system of the Acts.

Formidable opposition to the Acts led to the appointment of a Royal Commission in 1870, which recommended the discontinuance of the periodic examination of prostitutes, but otherwise was in favour of the system of the Acts. The House of Commons Committee of 1879, appointed for the same purpose, was almost equally divided in opinion, but the majority reported against the repeal of the Acts. In 1883 the examination of prostitutes was abolished by Order, and in 1886 the Acts were repealed.

The Commissioners were precluded from "considering the policy of these Acts, but they wish to place on record their view that the evidence they have received, which includes that of several Continental experts, points to the conclusion that no advantage would accrue from a return to the system of those Acts. So far from this being the case it is to be noted that the great improvement as regards venereal diseases in the navy and army has taken place since the repeal of the Acts." They concur in the conclusion of the Advisory Board of the Army Medical Service of 1903: "Better results are likely to be obtained by the diffusion of the knowledge of the serious consequences of these diseases and the provision of effective treatment for both sexes under conditions to which no stigma is attached."

Other departmental inquiries are noted which showed the grave effects upon the poor caused by the diseases, and the totally inadequate provision for their treatment.

Description of Venereal Diseases and Means of Transmission.

After a note on the introduction of syphilis into Europe there is the following significant passage:

"Our present knowledge of the cause of syphilis and the great advances which have been made in its diagnosis and treatment is of less than twelve years' duration; it may be said to have commenced with the successful inoculation of animals by Metchnikoff and Roux."

The clinical description in this section is admirably written.

II. PREVALENCE.

Many pages in the second section are devoted to the critical examination of the statistics presented by various Government departments, and private persons. Few of them satisfactory, only the figures from the army and navy can be considered reliable.

The Registrar-General gave the death-rate from syphilis for many years, and added "the worthlessness of the returns as an absolute statement of the number of deaths from venereal disease scarcely requires demonstration." Deaths from syphilis are not so certified from fear of hurting the feelings of relatives, and large numbers are ascribed

* Royal Commission on Venereal Diseases. Final Report of the Commissioners. [Cd. 8189.] Price 1s. 11d.

to other causes now known, or beginning to be known' to be due to syphilis—for example, locomotor ataxia, general paralysis, and aneurysm of the aorta. Taking into account the curves of syphilis and aneurysm and the rise of the population, Dr. Stephenson is inclined to believe in a "genuine fall" in the mortality from the disease. On the other hand, the number of diseases known to be closely associated with syphilis has largely increased in the same period, while the reluctance to certify syphilis as a cause of death has probably not diminished. "We are therefore doubtful whether there has been any reduction in the mortality justly attributable to syphilis in recent years."

The Scottish figures correspond with those of England and Wales. Ireland, judging by the figures of the years 1901-10, shows an increase of 70 per cent. in deaths from syphilis; but it was explained that "the increase was more apparent than real," and could be traced to better certification and to "the system of direct communication with the doctors."

In the navy the incidence of syphilis has declined from 48.92 per 1,000 in 1905 to 28.93 in 1912. Gonorrhoea shows a higher rate than syphilis and no distinct improvement is exhibited. The Mediterranean and Cape stations present the best records, the Home station the worst.

In the army the number of recruits rejected for syphilis has fallen from 0.63 per cent. in 1890 to 0.14 per cent. in 1911-12, and the decrease has been fairly uniform throughout this period. The fall in the proportion of rejections for syphilis has been far greater than that due to other physical disabilities. Since recruiting sergeants tell would-be recruits to get cured before they present themselves for medical examination, "these figures cannot be regarded as a conclusive indication of decreasing prevalence among the civil population." The returns for soldiers on home service show much improvement. The rate for all venereal diseases has fallen from 224.5 per 1,000 in 1888 to 56.5 in 1912; whilst all other diseases fell from 700.9 to 346.4. In the same period the percentage of venereal disease to the whole fell from 30.7 to 16.3. At first gonorrhoea and syphilis were practically equal in incidence, now their proportion is as 3 to 2. In India the prevalence of syphilis is slightly lower, and of gonorrhoea somewhat higher, than at home.

Professor Blaschko gave comparative figures "showing the incidence of disease in various European armies and navies, indicating a generally falling tendency, except in the navy of the United States." The figures for France and Germany show little change in the periods taken. "Assuming these figures to be directly comparable, which is probably not the case, the British army at home and in India shows higher figures than those of any other army included in the table; but the percentage of infected recruits is more than five times as high in Germany as in Great Britain, and Professor Blaschko considers that the prevalence of venereal disease in Germany is higher among the civil population than in the army, and higher than in Great Britain."

The Local Government Board's figures for the home population and general and Poor Law institutions are not very illuminating, owing to confessedly incomplete returns due to many causes. Perhaps the most instructive are the figures for ophthalmia neonatorum. The case-rate works out at 6.5 per 1,000 births; in urban districts it was 6.8, and in rural districts only 1.0, and it is thought that the difference corresponds to real difference in the incidence of the disease.

The prison returns are similarly unsatisfactory, and consist only of those obtained on specific occasions. In local prisons just under 2 per cent. of the prisoners showed clinical signs of venereal disease. But more noteworthy is the record that half of these diseased persons were discharged in an infective state. In convict prisons 17.04 per cent. presented signs of having had syphilis. In Borstal institutions for young prisoners between the ages of 16 and 21 specially selected as likely to become habitual criminals, of 941 inmates 16.26 per cent. presented one or more signs of congenital syphilis, and there were also five cases of acquired syphilis. "The figures were carefully compiled, and may indicate that mental defects due to this cause conduce to some extent to produce the class of prisoners which come within the scope of these institutions." The Scottish figures are similar, and again 56 per cent. of the diseased were discharged in an infectious state. The Irish figures are much smaller, but there is

the same tale of more than half the diseased discharged whilst still in an infectious state.

The Lunacy Commissioners gave the figures of the incidence of general paralysis of the insane, based upon the pauper admissions to the asylums during the five years 1908-12. The totals gave rates of 3.07 for males and 0.55 for females per 1,000 respectively to the population at the census of 1911. Cases are far more numerous in towns than in rural areas. In the London asylums the total percentage due to general paralysis is a little over 8, and the male admissions a little over 15, indicating the considerable part played by syphilis in peopling the London asylums.

Certain special investigations are quoted. Dr. Fildes summarized the results of 1,002 Wassermann tests made by Dr. Bulloch among patients at the London Hospital specially selected and being treated for reasons wholly unconnected with syphilis; 10.3 per cent. of the males and 5.1 of the females gave positive reactions. Congenital syphilitics were not included.

Sir John Collie submitted the results of the clinical examination of 1,119 cases of accident and of 557 healthy persons examined for the purposes of their work. Amongst these there were 60 cases (including 4 of gonorrhoea), or 3.58 per cent., of venereal disease. He submitted the blood of 491 healthy persons to Dr. Mott for the Wassermann test; 46, or 9.36 per cent., gave a positive reaction. "The investigation dealt only with a somewhat superior class of workers. The prevalence of venereal disease which is indicated seems higher than might have been expected."

The Commission caused the serum test to be performed on all the cases admitted into fourteen asylums, representing all classes of the community, for three months in 1914, with the result that 15.4 per cent. gave a positive reaction.

The investigation of Poor Law patients carried out by Dr. Mott is of interest. Epileptics gave 7.4 per cent. positive reactions, insane non-paralytic patients 8.4 per cent., Poor Law patients in infirmaries in London 19.9 per cent., feeble-minded children 8.1 per cent. Mothers of newborn infants in Shoreditch gave 19.7 per cent. positive reactions, in St. Pancras only 6.6 per cent.; in the Shoreditch cases 29 of the mothers were unmarried, and these gave 27.6 per cent. positive reactions.

(To be continued.)

THE RETRENCHMENT COMMITTEE.

FINAL REPORT.

THE committee on retrenchment in the public expenditure, of which the Chancellor of the Exchequer is chairman, has presented its final report, dated February 21st, 1916. It was appointed to inquire "what savings in public expenditure can, in view of the necessities created by the war, be effected in the Civil Departments without detriment to the interests of the State." Its scope, therefore, did not include expenditure on army, navy, or munition services, and even as regards the civil departments it was warned that questions of policy already decided by Parliament should be avoided as far as possible, as it would be impracticable at the present time to introduce controversial legislation.

The first section of the report states that the increase of civil expenditure in recent years has been enormous and unprecedented—from £32,000,000 in 1895 to £90,000,000, an increase of nearly 200 per cent. The increase is due almost entirely to new grants, or new administrative work resulting from legislation or parliamentary policy. Thus, of a total increase of £40,000,000 on the Civil Service estimates, the grants required for old age pensions amounted to £13,500,000; for national insurance and labour exchanges to £9,500,000; and for education to £12,000,000.

Measures already taken to ensure economy are enumerated. The first attempt was not particularly successful, inasmuch as the estimates for the civil service and revenue departments for 1915-16 showed an increase of £205,000. The corresponding estimates for 1916-17, excluding the cost of new services required entirely for war purposes, show certain increases and certain decreases, but the net decrease is estimated to be over £3,000,000, apart from the large reduction of capital expenditure not shown in the

estimates effected by curtailing the issue of loans to local authorities—a reduction at the rate of over £4,000,000 a year—and in other ways.

The report makes certain recommendations for further economies, and the following notes apply to such as have reference to matters of medical interest.

Factory Inspection and Certifying Surgeons' Reports.

After commenting on the rapid growth of expenditure for the inspection of factories and mines, and apparently accepting the view that it cannot be reduced, the committee makes the following recommendation with regard to reports of certifying surgeons on accidents:

We understand that the reports of certifying surgeons on accidents, which cost £12,500 per annum, are now of little value, and entail in all serious cases a duplication of the reports made by the inspectors. The Committee on Accidents in Factories recommended that legislation should be obtained to enable them to be dispensed with, and we concur in this proposal.

The Board of Control.

This board consists of a chairman and ten commissioners, with salaries rising to £1,500 a year. The committee considers that an equally efficient organization could be secured by a board of not more than five members, and by the substitution for the others of deputy commissioners or inspectors with maximum salaries of £800, as provided by the Mental Deficiency (Scotland) Act. In England legislation would be required to make the change, but the committee recommends that any vacancies arising in the present board should not be filled up. It also recommends that the contributions towards the cost of institutional treatment for mentally defective persons should be reduced except in urgent cases, and a limitation on the cost of maintenance fixed in all cases.

The Local Government Board.

The vote for this department has grown, in round numbers, from £221,000 in 1905–6 to £362,000. The committee recognizes that this increase is mainly explicable by the increased attention paid to medical, sanitary, and housing problems, but recommends that a special inquiry into the administrative staff of the board should take place. The committee then proceeds to make the following reference to fees for the notification of infectious disease:

(Notification.)

We recommend that the Local Government Board should take immediate steps to revise the fees paid to medical practitioners for the notification of infectious diseases. At present the medical practitioner receives a fee of 2s. 6d. if the case occurs in his private practice, and 1s. if the case occurs in his practice as medical officer of any public body or institution. The total sums paid for notification fees in England and Wales in each of the five years ending 1911 was approximately £30,000; but since that time the total cost has steadily risen, and a further substantial increase of cost will probably result from the recent order requiring the notification of cases of measles and German measles.

As doctors have now become familiar with the work of notification, and so many additional diseases have been added to the list since the fees were originally fixed, we consider that the time has come for reducing the 2s. 6d. fee to 1s. The amount of labour involved in filling up the notification form is, we understand, very slight indeed, and a fee of 1s. would seem to be adequate remuneration for the purpose.

The Board of Education.

The committee recommends that children under 5 should only be admitted to schools in special cases, and that an inquiry should be instituted into the possibility of introducing a normal minimum age of 6.

With regard to medical work the report contains the following paragraph:

Medical Work.

We understand that the activities of the Board of Education and the Local Government Board overlap to a considerable extent as regards arrangements for the health of mothers and young children under school age, and that the two departments have found it very difficult to settle a clear line of demarcation between their respective spheres. It is in our opinion most unsatisfactory that two Government departments should deal with what is essentially the same problem, and it can only lead to disputes and an unnecessary inflation of staff.

It is a difficult problem to decide between the two departments in this matter; but as long as there continue to be two medical branches, we consider that, in all the circumstances, the only satisfactory solution would be that the control of all institutions (including schools for mothers and day nurseries)

providing in any way for the welfare, from the health point of view, of mothers or children under school age should be handed over by the Board of Education entirely to the Local Government Board for them to administer in connexion with their public health work generally, and in co-operation with the local health authorities. This plan is being adopted in Scotland, and we see no satisfactory alternative to it in present circumstances. The Board of Education could of course still continue to pay grants, if necessary, in respect of purely educational classes in cooking, needlework, etc., held in any of the institutions or by local education authorities elsewhere, but the duties of the Board's medical branch should, in our opinion, not extend beyond the supervision of the health work carried out for children of school age who are being educated in elementary, etc., schools under the Board's control.

The above arrangement would, of course, be merely a make-shift, and it is very desirable in our opinion that the first opportunity should be taken of amalgamating the medical branches of the two departments altogether.

National Insurance.

The committee does not make any definite recommendations with regard to the amalgamation of the several boards of commissioners; it considers that the centralization of the whole service does not appear to be practicable, but thinks that it should be possible to devise a scheme which would safeguard national interests and sentiments without the retention of so many as twenty-one commissioners with salaries amounting to £24,600 per annum.

An analysis of the cost of the central administration shows that the rate per thousand insured persons is as follows: England, £28; Scotland, £36 14s.; Wales, £51; Ireland, £59 14s. While recognizing that difference in the numbers and distribution of the population would not unnaturally result in a smaller charge per head in England than in other parts of the United Kingdom, the committee is "not aware of any sufficient difference of conditions between Wales and Ireland on the one hand and Scotland on the other to justify the much heavier charges incurred by the Welsh and Irish commissioners."

The committee expresses the opinion "that much could be done to reduce the expense of the Act, and to increase the sums available for benefit by simplifying its more elaborate provisions." Something has been done in this direction by departmental action, but before other alterations from which larger savings would accrue legislative sanction would be necessary. The committee's reference to this subject concludes with the following sentences:

But the evidence which we have taken showed that few, if any, of these proposals would be absolutely non-contentious; and it was quite clear that the questions which afford the best field for economies—the system of medical and sanatorium benefit, the constitution of insurance committees, the approval of small societies, etc.—were acutely controversial. We could not have dealt with any of these questions without going far beyond the terms of our reference, and we have come to the conclusion that the best results would be obtained by a special inquiry into the whole administration of the Act with a view to its reorganization on a simpler basis.

In the concluding section of its report the committee expresses the opinion that all Government departments which require local authorities to furnish statistical or other reports should carefully revise their requirements without delay with a view to simplification, and that this policy should be maintained and extended after the war.

A DISCUSSION on food inspection, standards of purity for food supply in war time, and the utilization of condemned stores, will be opened by Dr. J. Wright Mason, M.O.H. Hull, at the Royal Sanitary Institute, 90, Buckingham Palace Road, S.W., on Thursday, March 9th. The chair will be taken by Sir William Collins at 4.15 p.m.

DR. ROBERTSON, Health Commissioner of Chicago, has found (we learn from the *Journal of the American Medical Association*) a philanthropist to finance for a year his scheme of a public health magazine to be distributed free; the issue is to be about 100,000 copies a month.

IT was announced in the *BRITISH MEDICAL JOURNAL* of January 29th that the *Giornale Internazionale delle Scienze Mediche* had been discontinued owing to the death of the publisher, Enrico Detken. Its place has been taken by *La Medicina Pratica*, the first number of which appeared on January 31st under the direction of Professor Luigi Maramaldi, lecturer on therapeutics in the University of Naples, who was for many years editor of the defunct periodical. The new journal is for the present a monthly, but will be published fortnightly "as soon as barbarism is humiliated and right restored."

British Medical Journal.

SATURDAY, MARCH 4TH, 1916.

RECRUITMENT OF DOCTORS IN ENGLAND AND WALES.

WE are officially informed by the War Office that, in accordance with their previous announcements, doctors who have undertaken to accept a commission in the Royal Army Medical Corps (if offered one) will not be taken for general service; and therefore that any doctor in England and Wales who (whether attested under the Derby scheme or not) has enrolled under the scheme of the Central Medical War Committee or has offered his services in the Royal Army Medical Corps direct to the War Office should, if he receives a notice paper from a recruiting officer calling him up (whether by reason of attestation or under the provisions of the Military Service Act), return it to the recruiting officer, together with his certificate of enrolment, or the War Office acknowledgement of provisional acceptance, as the case may be; and the notice will then be cancelled and the practitioner remain in the Reserve until selected for a commission in the Royal Army Medical Corps.

Doctors will not be called up, whether by reason of attestation or under the Military Service Act, until after March 31st, 1916.

Doctors in England and Wales who have not undertaken to accept a commission (if offered one) in the Royal Army Medical Corps will, when called up (whether by reason of attestation or under the Military Service Act), have the same rights of appeal for exemption as men who are not doctors; but all cases coming before the Central Tribunal will be decided by that tribunal after receiving advice from the representative committee of the medical profession specially recognized for the purpose.

Analogous arrangements will obtain in respect of doctors in Scotland.

The importance of the above official information will, we have no doubt, be fully appreciated, and the question may be asked:

What, then, is the course that a medical man of military age should now take to ensure that his services shall be used in the way that shall best serve the interest of the nation?

In the first place, we would advise him, if he has not already done so, to enrol at once—that is, send in his name to the Central Medical War Committee, 429, Strand, London, W.C., or to the Scottish Medical Service Emergency Committee, Royal College of Physicians, Edinburgh, undertaking to accept a commission in the Royal Army Medical Corps, if offered to him, realizing that, if he takes this course, all his circumstances—public and, so far as he wishes, private—will be considered with the utmost care by a professional body before it is decided whether he should in fact be called upon to take a commission.

In the second place, every medical man who has already enrolled should make it his business to point out to every one not enrolled that it is his duty and advantage to do so at once. It is to his advantage because, when he receives a notice paper from a recruiting officer calling him up, the production of his certificate of enrolment will ensure that the notice shall be cancelled and that he will remain in the Reserve, thus securing that, as explained above, his case shall be fully considered by a professional body before it is decided whether he should be called upon or not. It is his duty, because it is only by having before it provisional offers of service from the general body of medical men that the Central Committee can arrange an equitable distribution of military and civilian services throughout the country.

An interesting case of a medical practitioner on the staff of a well known hospital applying for exemption from service was heard at a local tribunal last week. The tribunal, according to the report before us, granted him one month's extension and expressed the opinion that the applicant ought to go. It would appear, therefore, that this gentleman might shortly have found himself in the combatant ranks of the army had he not, as we hear is the case, since enrolled himself, so that his case, as above explained, will now be dealt with by the professional body.

THE STATE AND THE CARE OF THE CHILDREN.

IN recent issues we have reviewed the Report of the Medical Officer for the Board of Education for the year 1914. Blue books are not seductive reading at any time; in war time we fear few will be attracted to the first-hand study of this report. Yet there is no production that is more pertinent to these grave times, and to the fearful destruction of life that has reduced, and must still more reduce, the virility of our people. For the report deals with the coming generation, and from this we must hope to rebuild the waste places of our homes.

The time was when education meant no more to the average citizen than a due instruction in the three R's. But here in a blue book we find the chief medical officer of the Board of Education dealing almost wholly with the production and preservation of life, for that, after all, is the meaning of schools for mothers, care committees, and the like. When the school medical service is viewed from this standpoint it takes an altogether different value in the national assets. The service is no longer merely an aggregation of inspectors who prow round the schools with eyes alert to find fault with curriculum, buildings, lighting, books, and the bodies of the children themselves; that work, truly falls to them, but they are now found to have a far more important sphere of action—a solicitude for the very fount of life.

With the war many of the medical officers have undertaken military service, and money grants have been cut off. Therefore much of the work must be curtailed, clerical work especially; the preparation of reports, even research work, must be foregone. But there should be no slackening of the residual and essential part of the school medical officers' work, the supervision of the schools in the interest of the common health, the prompt elimination and care of the obviously unfit, and the promotion by every means, official and voluntary, of a healthy motherhood and a well-born infant. The Board of Education has recognized in the most prompt fashion the necessities of the situation; it has freely permitted the release of

its medical officers for military service, and no red tape has hampered the revision of the orthodox procedure in regard to routine medical examinations.

The gain from the medical side of educational work may not be immediate, but it is certain and cumulative. We may take it that some part of the diminution of the infantile death-rate is to be credited to it. As Sir George Newman writes: "The decline in recent years in infant mortality-rate is providing broadly a direct saving of 20,000 lives per annum. This direct gain is mainly due to more enlightened mothering, the better care and management of infancy, and the effective treatment of infantile disease—all three contributions being due, generally speaking, to an improvement in the education and training of the mother in all that concerns healthy maternity and infant welfare." The school work done is no less impressive. In London alone in 1914 upwards of 194,000 children were examined; 101,000 were found to be in need of treatment and 86,000 received treatment. It is estimated that in England and Wales 1,900,000 children are examined each year, of whom 650,000 present remediable defect and 375,000 actually receive treatment. There is reason to take to heart Sir George Newman's aphorism, "To save child life is an axiom of State preservation; to remedy defect is an axiom of State economy."

One of the most interesting sections of the report deals with the schools for mothers. These institutions originated in voluntary effort; they are now recognized and subsidized by the State to the half of their expenditure, and many have been opened and are now worked by the local authorities. But the working of these schools affords a situation not without its humorous aspects. There are, besides many local authorities, two Government departments interested in them. The Board of Education takes a paternal interest and loosens its purse strings on their behalf in so far as they are schools for mothers, whilst the Local Government Board is willing to act as the foster mother of these self-same institutions and dole out something for their sustenance in so far as they are maternity centres. Each of these Boards issues regulations, and tells the workers in these institutions what features of their work it is that stimulates its affectionate interest, and at the same time states upon what score the needful money can alone be obtained.

The report of the Board of Education attempts to show that there is a difference in the ultimate work of these two governing bodies. "If the ultimate object of the efforts made be considered, a broad line of demarcation between the two can be established without much difficulty. Thus the institutions included under the title 'schools for mothers' have for their main objects the reduction of infant sickness and mortality by means of the education of the mother. They train the mother to keep her baby in good health through a common-sense application of the ordinary laws of hygiene. The training may be given by means of personal advice from doctor or nurse to individual mothers, by home visitation, and by means of collective teaching and systematic classes. 'Maternity centres,' on the other hand, have the health of the mothers and children as their main care. They provide medical advice and treatment for expectant and nursing mothers, and for infants and little children."

We may be particularly dense and lacking in appreciation, but we wholly fail to see any "broad line of demarcation" in "the ultimate object" of these two modes of action. The one has for a "main object the reduction of infant sickness and mortality," the

other "the health of the mothers and children as their main care." It is scarcely arguable that the means adopted to attain these ends are different, but to maintain that there is any difference in the end is to maintain a distinction without a difference.

Even the point that the education authority has nothing to do with the treatment of disease fails in practice, for in the discussion of "The Infant Consultation" we read: "If any treatment is provided, this should be incidental in character and limited to children suffering from minor and temporary ailments—an occasional grey powder, a little boracic ointment, etc." One is inclined to ask if the point of the order lies in the quantity of the ointment to be supplied. The fact is that the more the report tries to show that the Board of Education and the Local Government Board have separate functions in regard to these "schools for mothers" or "maternity centres," or by whatever other name they may be known, the more effective is the demonstration that there is no difference between the aim or the effective attainment of these two bodies; and in these times, when thrift and reasonable economy is a vital necessity, it would be well that the two bodies should compose their differences and put a single effort into a piece of work that is of inestimable value. The Retrenchment Committee in its last report goes somewhat further, for it recommends as a temporary expedient that the control of all institutions, including schools for mothers and day nurseries, providing in any way for the welfare, from the health point of view, of mothers, or children under school age, should be handed over by the Board of Education to the Local Government Board, to be administered in connexion with that Board's public health work generally and in co-operation with the local health authorities. The duties of the medical branch of the Board of Education should not, in the Committee's opinion, extend beyond the supervision of the health work carried out for children of school age who are being educated in public elementary schools. We are not sure that this proposal will prove to be non-contentious, for there is a good deal to be said for the transfer in the opposite direction. In any case, however, the Committee considers this arrangement merely a makeshift, and expresses the opinion that it is very desirable that the first opportunity should be taken of amalgamating the medical branches of the two departments.

Up to the present it would appear that the only effort for united action between the two departments has been the issue of a joint circular (No. 906, May 31st, 1915) in which the position of each department is set out; a hint is given that the institutions are to range themselves under one or other department for the purpose of grant earning, "though joint aid by both departments in exceptional cases is not precluded"; and the statement made that "questions arising under this Memorandum will be referred for investigation and decision to a joint committee of the two boards." Let us hope that the "questions arising" will be in such a continuous flow that the joint committee will ultimately become the single governing authority of these "maternity centres" and "schools for mothers."

RETRENCHMENTS.

THE Final Report of the Treasury Committee on Retrenchment in the Public Expenditure is a disappointing document, not so much because the retrenchments it recommends do not in the aggregate

amount to the cost of the war for a single day, but because of the failure to make plain what economies it thinks can at once be effected. The Committee was not instructed to consider the expenditure on army, navy, and munition services; nor was it allowed to consider the question of the payment of salaries to members of the House of Commons, though it has ventured to recommend the House to withdraw the subsidy of £2,600 a year which it has been in the habit for the last twenty-two years of voting towards the cost of its refreshment room. The Committee was also told that even as regards the civil departments questions of policy already decided by Parliament should be avoided as far as possible, "as it would be impracticable at the present time to introduce controversial legislation." The student of the report is left in some doubt whether the Committee considers that the recommendations it makes, the majority of which would require legislative sanction, do or do not come within the scope of the definition of "controversial legislation"; nor is it made plain what changes it thinks should at once be made and what must be deferred until after the war.

Speaking generally, it seems to have come to the conclusion that the country is over-inspected; it states that as a temporary measure some departments have arranged to curtail inspecting work to a large extent, and it recommends that this policy should be generally adopted as far as possible throughout all departments of the civil service.

Whether the proposal that children under 5 should only be admitted to elementary schools in special cases, and the suggestion that it may be possible to introduce a normal minimum age of 6, are to be considered matters outside the scope of controversy is not plain; it will be surprising if they prove to be so. The Committee definitely recommends—apparently for immediate action—the transfer from the Board of Education to the Local Government Board of the responsibility for medical work, except in public elementary schools, and that the first opportunity should be taken of amalgamating the medical branches of the two departments. This recommendation seems to bring us a step nearer to the ideal of a ministry of public health, although as matters now stand it is difficult to see how such a ministry could be placed on a logical basis without including national insurance, for the Act by which it was instituted is entitled "An Act to provide for insurance against loss of health and for the prevention and cure of sickness. . . ." The Committee was evidently itching to make some drastic recommendations with regard to the Insurance Act, but was told that few, if any, proposals which could be made for economy would be absolutely non-contentious, and that it was quite clear that the system of medical and sanatorium benefit, enumerated as among the questions which afforded the best field for economies, were acutely controversial. They were expressly excluded from the reference to the Insurance Finance Committee, which is instructed to report upon "any amendments in the financial scheme of the National Insurance Acts which experience of the administration of sickness, disablement, and maternity benefits may suggest as desirable, within the existing limits of contributions and benefits, and apart from further Exchequer grants." The Retrenchment Committee evidently does not favour further grants, seeing grave objections to departing from the principle that the benefits to be paid should be measured by the contributions received, including the automatic contribution from the Exchequer.

Two of the recommendations made by the Retrenchment Committee have a very direct, and it seems

possible an immediate, interest for the medical profession. The first is the proposal to reduce the fee for the notification of infectious disease occurring in a practitioner's private practice from 2s. 6d. to 1s.; the amount now paid for notifications of cases occurring in his practice as medical officer of any public body or institution. The reasons given for this recommendation are rather curious: first, that doctors have now become familiar with the work; secondly, that many additional diseases have been added to the list since the fees were originally fixed; and thirdly, that the labour involved in filling up the form is very slight. It does not seem to have occurred to the Committee that the fee is not paid for clerical labour, but for knowledge and skill. The other recommendation is that the reports of certifying factory surgeons on accidents should be abolished, mainly on the ground that in all serious cases they entail a duplication of the reports made by the factory inspectors. These two recommendations will call for the serious consideration of the British Medical Association and the profession in general, and we have therefore quoted them textually at page 347.

CRIPPLED SOLDIERS.

ST. DAVID'S DAY was celebrated by Welsh men and women in London by a great patriotic meeting in the Opera House in Kingsway, and, appropriately enough, since St. David is said to have been something of a physician, the occasion was taken to help the fund for providing comforts for the Welsh soldiers; for, as Lord Harlech, Colonel of the Welsh Guards, who presided, told the meeting, Wales has provided over 200,000 soldiers for this war. Another Welsh soldier, Sir Francis Lloyd, the General Officer Commanding the London District, made a stirring speech, but, before this, Major Robert Jones, F.R.C.S., of Liverpool, had paid fitting tribute to the manner in which the traditions of the Welsh troops were being maintained. One of his most impressive experiences had been to hear in the dusk, from a village close to the Welsh lines, the men coming back from the trenches singing as only the Welsh could sing. The story of sanitation at the front was like a fairy tale. The rude ploughed fields of twelve months ago had undergone a marvellous transformation at the touch of sanitary science, and now the sanitation of the war area in Northern France was better than that of any rural area in England. He concluded with a plea for the crippled soldier; to keep him from pain and poverty was a sacred charge upon the nation. Mr. Lynn Thomas made a strong appeal to the patriotism of Wales. He spoke of the teaching of St. David and his insistence upon the value of discipline. Were he alive to-day St. David would have sought to induce his countrymen to understand the importance of strict discipline to attain victory over the monstrous doctrine of might and frightfulness. Mr. Lynn Thomas dwelt on the urgent need and very crying call to go at once to the rescue of the tens of thousands of crippled men, victims of the war. He knew of cases in which young soldiers had been reported unfit for further service who, he believed, could be rendered fit by modern orthopaedic treatment. When it was remembered that the United States after the Civil War had about 400,000 cripples from their army, which was not quite so large as the British army to-day, the necessity would be apparent for immediate action in order to give wounded soldiers with crippling injuries the advantages of the newer principles of treatment. He had recently visited in France a hospital conducted by eminent American surgeons who confessed that they were confronted by new conditions in

crippled limbs and asked for new light. When it was given they expressed their warm appreciation of it. The head of the Army Medical Department at home was fully alive to the need, and was working hard to ensure that the new light should be made to shine upon the large number of crippled soldiers. The public should give its support. A special ministerial department should, in his opinion, be formed to deal with the restoration of crippled men so that they might again become useful citizens. He appealed to the Welsh members of Parliament to render all assistance in their power to hasten the desired consummation.

TRENCH NEPHRITIS.

TRENCH NEPHRITIS, which was recently the subject of an illuminating discussion¹ at a meeting of the Sections of Medicine and of Pharmacology and Therapeutics of the Royal Society of Medicine, has lately been described in a preliminary note² by Sir John Rose Bradford, who has had considerable experience of it in Flanders. He finds that but few cases of nephritis occurred among our troops until March and April, 1915; but in those two months far more cases were admitted to hospital than the total admissions for the whole period of the war up to that date. Further, in March and April typical renal dropsy, previously absent, was a marked feature of the cases. Trench nephritis continued to increase absolutely (and probably also relatively) during the summer of 1915; Sir John has clinically seen some hundreds of cases, and has had the opportunity to study the special case sheets of 1,455 cases under treatment at various periods since the outbreak in all the base hospitals of the Expeditionary Force in France. Early in the disease two symptoms are especially prominent—namely, dyspnoea and oedema. Casts were absent from the urine in over a third of the cases. The greater part of the paper is based on a series of 571 cases in which casts were present (usually both hyaline and granular), while occasionally blood casts were found. In one group of patients smoky or blood-stained urine was passed early in the disease, and fever was noted, much as may be seen in the infective nephritis of bacterial origin seen in civil practice. When dropsy was present the urine was much diminished in amount, and might indeed be suppressed for periods of twelve or twenty-four hours. Only three fatal cases have come under his own observation. In one a chronic Bright's disease had been present, in the other two congenital defects of the kidney were found, and in all death was due to uraemia. It is remarked that the facies typical of acute renal disease was of exceptional occurrence, and that the dropsy was never excessive in amount. The albuminuria was considerable in the acute stages, and was found to be much more persistent than the dropsy; uraemic symptoms were common, particularly an ammoniacal odour, apathy, drowsiness, headache, nausea, and occasionally vomiting. Epileptiform seizures of a considerable degree of severity, and increased arterial blood pressure, the latter often accompanied by severe headache, were by no means rare. In a few cases the characteristic dyspnoea was accompanied by the physical signs of pulmonary oedema. Other uraemic symptoms, such as twitchings, cramps, and skin eruptions, were not noted in this series of cases. Bronchitis occurred in some 30 per cent. of a series of 278 soldiers with trench nephritis; in those instances in which they were looked for, changes in the fundus oculi were absent, so far as the acute cases were concerned. Men of all ages and all branches of the service were attacked, but the disease occurred only in the British troops of the Expeditionary Force, and not amongst the Indian troops—among whom, in fact, but three cases were reported. Sir John sums up his account by saying that trench nephritis may be described as a clinical entity, characterized by the follow-

ing five features: The rapid subsidence of a well-marked renal dropsy, the frequent presence of bronchitis and dyspnoea, the severity and suddenness of onset of uraemic manifestations such as epileptiform seizures, the rarity with which inflammatory complications occur, and the extraordinarily low mortality of only 3 or 4 per thousand cases. He is inclined to believe that this form of acute nephritis is due to some infecting agent, which causes in the first place some illness, such as bronchitis, a severe cold, or diarrhoea. On the other hand, he remarks that bronchitis was common among the Indian troops, who yet escaped the acute nephritis. It may be added that in the discussion held by the Royal Society of Medicine referred to above, Dr. Abercrombie stated that he had been led by his large experience of the disease to assume that it was infective in origin and epidemic in distribution. The infecting agent, presumably a microbe, remains unknown.

BATHS EXTENSION AT BATH.

ALTHOUGH retrenchment is the order of the day, the city of Bath is engaging in fresh enterprise and cultivating its natural advantages to the utmost. Its apologia for so doing is the eight or nine thousand wounded or sick men who have already received free treatment at its springs. This influx, and the anticipation that the popularity of German and Austrian spas among British people will not be regained, has justified a new extension of the bathing establishment. The new "block" of baths, which was opened by Viscount French on February 23rd, consists of some fifty separate apartments arranged along either side of a corridor 200 ft. long. The accommodation provided here is chiefly for deep baths, in which the patient can be almost entirely immersed, while an undercurrent douche is applied to affected joints and muscles. There are also facilities for obtaining radiant heat and light baths, various modifications of the douche and douche-massage, and the Plombières treatment, which last is stated to have proved beneficial for men returning from the Eastern theatres of war suffering from the after-effects of malaria or dysentery. There is a room for mechanotherapy, and, reached by subterranean passages, a large swimming bath of the mineral water suitably cooled. With its floor of vitreous tiles, walls of glass mosaic, and bath linings of glazed fire-clay, the new building looks both pleasing and sanitary. Lord French, whose speeches had a soldierly brevity, made the acknowledgement that although scientific resources were being applied on an unheard-of scale in every branch of military activity, he had never seen, in flying school, or munition factory, or anywhere else, such a remarkable example of modern efficiency and adaptability as in the measures taken for the care and treatment of the wounded. With Lord French was Surgeon-General Russell, who suggested that it required no great stretch of imagination to suppose that the Romans took advantage of the waters of Bath for their wounded soldiers, in just the same manner as with the British wounded to-day. The civic luncheon at the Guildhall was made noteworthy by speeches from representatives of the medical services overseas. Surgeon-General G. C. Jones, Canadian Army Medical Corps, said that Canada had provided ten thousand beds in France and elsewhere; but although the hospitals were staffed and maintained by Canadians, they were for the wounded and sick from all parts of the empire, and imperial bonds were being formed in the military hospitals which would never afterwards be severed. Surgeon-General W. D. C. Williams, C.B., Australian Army Medical Corps, said that in Australia more motor ambulances were given at the beginning of the war than they knew what to do with, and these were readily offered to other imperial units requiring them. The medical profession in Australia, like the consultants, professors, and general practitioners, had given up everything to serve the empire. Lieutenant-Colonel P. G. Stock, D.M.S., South African Medical Corps, gave some reminiscences of the South-West African

¹ BRITISH MEDICAL JOURNAL, 1916, i, 278.

² Quarterly Journal of Medicine, Oxford, 1916, ix, 125.

campaign, and said that the bountiful waters of Bath gave an additional vividness to the recollection of how in that campaign the water had to be carried a thousand miles, with only one pint a day allowance for each man.

CHOLESTEROL AS A CAUSE OF ATHEROMA.

IGNATOVSKI found in 1908 that rabbits fed on animal food, particularly milk and eggs, developed arterial atheroma, cirrhosis of the liver, and enlargement of the suprarenal glands. These experiments have been followed up by Stuckey and others, and in 1913 Wesselkin came to the conclusion that the atheroma produced was due to the cholesterol contained in the eggs and milk. Dr. C. H. Bailey has repeated and extended¹ these observations. He finds that in rabbits a diet rich in cholesterol produces abundant deposits of anisotropic (or doubly refracting) fat in various organs and tissues. Prominent among these lesions is an atheroma of the aorta and pulmonary branches similar to that seen in human beings. In the liver these deposits produce cirrhosis, in the kidneys a proliferation of the interstitial tissue, mainly about the medulla. It is clear that the rabbit is unable to cope with large doses of cholesterol; if there is too much of this substance in its food, the animal becomes atheromatous. How far cholesterol can be regarded as the precipitating cause of atheroma or other forms of arterial sclerosis in human beings is a question of no little interest. It has been attacked by several writers, but their conclusions at the present time must be largely theoretical, as Dr. Bailey points out, for want of any adequate experimental basis.

THE LATE SIR WILLIAM TURNER.

THE funeral of Sir William Turner, on February 18th, was preceded by a service in St. John's Episcopal Church, of which he had been a member. It was attended by, among others, the Lord Provost, the magistrates and corporation of Edinburgh, the commander-in-chief in Scotland (representing Lord Kitchener), and by representatives of the University Court, the Senatus Academicus, the General Council, the Students' Representative Council, and the University Union of the Universities of St. Andrews, Glasgow, Aberdeen, Oxford, Leeds, and Bristol; of the Royal Colleges of Physicians and Surgeons of Edinburgh; of the Faculty of Advocates; of the British Association; of the Royal Societies of London and Edinburgh; of the Royal Infirmary, the School of Medicine for Women, and the Royal Medical Society. Sir William Turner has bequeathed the bust of himself to the University Court, with the request that it may be placed near the bust of his old master, Professor John Goodsir, in the anatomical museum of the university, in the planning of which and in the acquisition of specimens for which he took an active part as professor of anatomy. At the meeting of the University Court on February 24th a letter was read from the Secretary for Scotland, expressing his regret at the death of Sir William Turner and his sense of the loss the university had sustained. On the motion of the court the chairman adopted a minute, which concluded in the following terms: "The University Court, in placing upon record their sense of personal and corporate loss, desire also to express their conviction that the university will long cherish the memory of the unceasing and self-sacrificing labour which the late Principal devoted for so many years to its service." Sir James A. Russell (Edinburgh) writes: "I miss the names of the late John Halliday Scott, M.D., 1877, Professor of Anatomy at Otago (N.Z.), and of the late Alfred Harry Young, who succeeded the late Morrison Watson as Professor of Anatomy at Manchester, from the list of Sir William Turner's former assistants who became professors of anatomy which is given in your obituary notice. Professor Young served

about a quarter of a century; and Professor Scott, who died more recently, must have held office longer."

R.A.M.C. COMFORTS FUND.

At the beginning of October, 1914, a central committee of ladies was formed, composed of wives of Surgeon-Generals of the Army Medical Service, with Lady Sloggett, wife of the Director-General of the British Forces in France, as president, and Mrs. C. K. Morgan as secretary and manager. Its object was to collect, pack, and forward comforts to the various medical units in France. During 1915 this work was enlarged, and bales of comforts were sent to Gallipoli, and latterly to Salonika. Since the spring of 1915 parcels have been forwarded weekly to R.A.M.C. men who were prisoners of war in Germany, either directly by the comforts fund or by ladies who kindly "adopted" a man for a given period. Altogether 2,040 bales have been sent out from the Royal Army Medical College, London, where packing rooms were placed at the disposal of the committee. Of this number, 607 bales, each weighing 11 lb., have been sent to prisoners of war in Germany, and 1,433 bales, averaging 50 lb. in weight, have been forwarded overseas. From the list of garments dispatched it appears that shirts, socks, pants, and vests are those most in request; but cardigans, scarves, handkerchiefs, mittens, and towels have also been sent, as well as complete suits, greatcoats, caps, and boots to prisoners. From the numerous acknowledgements both from prisoners of war and from the officers commanding the various medical units on active service, the ladies feel that their efforts have been greatly appreciated by those they have endeavoured to help. The committee has been greatly assisted by various ladies of the corps who have established "dépôts" in Scotland, Ireland, and different parts of England for the collection of comforts. The amount of money received to the end of December, 1915, was £2,152 5s. 11d. The fund has been most generously supported by the various Royal Army Medical Corps Institutes, both at home and abroad. The committee wish to thank most heartily all those who have so generously helped in the past by donations, both in money and kind, and hope for a continuance of their support. Parcels of comforts should be sent to the secretary, Mrs. C. K. Morgan, "R.A.M.C. Comforts," Royal Army Medical College, Grosvenor Road, London, S.W., and cheques to the treasurer, Lieutenant-Colonel F. W. H. Davie Harris, 124, Victoria Street, S.W.

THE RISE IN THE PRICE OF PETROL.

FURTHER representations have been made to the Government in connexion with the price and supply of petrol to medical practitioners, and the Medical Secretary has received from the Commercial Department of the Board of Trade a letter stating that the matter is engaging the earnest attention of that department in conjunction with the Ministry of Munitions, and that it is hoped that arrangements will shortly be made whereby the difficulties which have recently been experienced will be as far as possible removed.

THE lectures during this session before the Royal College of Physicians of London will be given as follows: The Milroy lectures by Dr. S. G. Moore on infant mortality on March 9th, 14th, and 16th, the Lumleian lectures by Dr. F. E. Batten on polio-encephalo-myelitis on March 30th, April 4th and 6th, and the Oliver-Sharpey lectures by Dr. M. S. Pembrey on the development and regulation of temperature on April 11th and 13th.

AMONG the fifteen candidates selected by the Council for election into the Royal Society are Dr. J. A. MacWilliam, Professor of Physiology in the University of Aberdeen,

¹ *Journ. Exper. Med.*, New York, 1916, xxiii, 69.

and Sir Leonard Rogers, I.M.S., Professor of Pathology, Medical College, Calcutta. The other candidates include: Dr. D'Arcy W. Thompson, Professor of Natural History, University College, Dundee; Mr. H. H. W. Pearson, Professor of Botany in the South African College, Capetown; and Mr. C. Shearer, Lecturer on Experimental Morphology in the University of Cambridge.

Medical Notes in Parliament.

Central Medical War Committee.

In the official reports for February 29th the following questions and answers with reference to the Central Medical War Committee appear:

Mr. King asked: By what authority is the Central Medical War Committee compelling all single medical men of military age, under threat of conscription, to enrol themselves as ready to enter the Royal Army Medical Corps and to place their services at the disposal of this Committee, acting under the direction of the War Office?

Mr. Tennant: The Committee referred to is taking no such action as is alleged in the question. It has circularized medical men in England and Wales, explaining and emphasizing the need of more doctors for the R.A.M.C., and it has brought to their notice an enrolment scheme under which any man below 45 years of age who is willing to take a commission (if offered him) in the R.A.M.C. can secure that his application will be taken up by the War Office at the most suitable time, regard being had both to his particular circumstances and to the medical needs of the civil population in the area where he practises. In all these activities the Committee has been giving very valuable assistance to the War Office, and has been working in intimate relations with the various Government departments concerned.

Mr. King asked the Under Secretary of State for War whether the Central Medical War Committee, whose members are appointed, elected, or co-opted by the British Medical Association, is regarded as truly representative of the whole medical profession; whether he is aware that there are numbers of medical men who are not members of that Association; and whether the doctors who are needed to attend to the civil population are receiving by this arrangement adequate consideration.

Mr. Tennant referred to the answer he gave to a similar question by Mr. Shirley Benn on January 12th (see *BRITISH MEDICAL JOURNAL*, January 22nd, 1916, p. 140), and continued: I need only add to-day that since that date the Committee has been still further strengthened, and that the civilian aspects of the whole matter, to which the hon. member refers in the concluding paragraph of his question, are amongst the main preoccupations of the Committee working in conjunction with the Government departments involved.

Mr. King asked the Under Secretary of State for War whether, in view of the failure of the Army Medical Department to utilize effectively the medical services which have been freely offered to the army, it is the present policy of the Government to permit the Central Medical War Committee to portion out the supply of medical aid to the industrial community, including munition workers, upon whose energy we are so dependent; and whether, in order to secure the health of the civilian population, the medical profession will in future be classed, like clergymen, as a reserved occupation.

Mr. Tennant: No, sir, I am not aware of any such failure. Such a word seems quite out of place in commenting on the work of the Royal Army Medical Corps. The Committee referred to has collected valuable information as to the existing and prospective provision of medical services for the industrial community, and is endeavouring to assist various members of the profession in bringing about such rearrangements and co-operation as may facilitate the most effective distribution of those services where needed. Information as to the present condition of medical provision in England does not afford any grounds for resorting to the sweeping measures suggested in the concluding paragraph of the hon. member's question.

War.

Employment of Medical Staffs.—In reply to Mr. Lynch, Mr. Tennant said that civilian medical officers were employed to a very small extent in Territorial general

hospitals, which were staffed by officers of the Territorial Force. The number mobilized varied with the number of patients in the wards. The number of medical officers in the base hospitals in France could not be reduced, as the military authorities considered that the number now so employed had reached an irreducible minimum. Mr. Lynch also asked whether a certain number of medical officers were attached to each division and their services limited exclusively to it; or whether, when a single division was engaged in a struggle so protracted that its medical officers and staff were exhausted, medical officers from a neighbouring division not engaged could be drafted into the exhausted division. Mr. Tennant said that this course was followed. It was the duty of the higher military authorities to distribute the medical officers under their command so as to meet the various exigencies which might arise. The watertight compartment arrangement was obviously undesirable. He added, in reply to another question, that he had no knowledge of an instance in which some medical officers were employed for fifty-two hours at a stretch, whilst those of another division were unemployed. Movable hospitals or a closely connected series of hospitals within a short distance of the firing line had been in use for many months.

Army Medical Advisory Board.—In reply to Mr. Lynch, Mr. Tennant stated that the unofficial members of the Advisory Board for Army Medical Services were Professor Kenwood, Sir John Rose Bradford, Professor Leonard Hill, Sir Anthony Bowlby, and Sir Charles Cameron. Sir Anthony Bowlby and Sir John Rose Bradford were on the Board as representing surgical and medical knowledge respectively, and not as representatives of what Mr. Lynch had called "civilian interests."

Theological and Medical Students.—Mr. Robinson asked, on February 29th, whether the exemption of students preparing for the Roman Catholic priesthood would be extended to other theological students, and Mr. Snowden whether the exemption would be given to medical students. Mr. Tennant said that instructions were being prepared under which theological students of all religious denominations would be treated alike. No alteration had been made in the decisions already announced in reference to medical students. The regulations had been framed upon the same lines as those for theological students; if there were any distinction, perhaps the treatment of the medical student was the more generous.

Blinded Soldiers and Sailors.—Mr. Tennant has given the following statistics as to the number of officers, non-commissioned officers, and men discharged from the army for blindness, which he had obtained from Mr. C. Arthur Pearson, chairman of the Blinded Soldiers' and Sailors' Care Committee, who, as Mr. Tennant said, has done admirable work. The total number of non-commissioned officers and men was 156 (English 122, Irish 16, Scottish 15, Welsh 3). The number of British officers was 9 (English 6, Irish 2, Welsh 1). Dr. Macnamara stated that 5 naval officers and men had lost their sight in the war entirely, and, as it was believed, permanently; 2 had been discharged, the one a sapper, R.N.D., with a life pension of 25s. a week, and the other a petty officer, second class, coastguard, with a life pension of 27s. a week; 1 midshipman, 1 ordinary seaman, and 1 boy were still under naval care. One private, Royal Fleet Reserve, had lost the sight of one eye, and that of the other was so affected that the man was practically blind. He was receiving a pension of 26s. 2d. a week, and his case would be reconsidered in six months. The question whether men who had been blinded would be able to earn anything could only be settled when their aptitude for acquiring knowledge as blind men had been gauged, and this would be a matter for the Statutory Committee of the Royal Patriotic Fund Corporation, on whom the responsibility for finding employment for disabled sailors and soldiers had been placed by Parliament.

Nervous Shock.—In reply to Mr. King, the Under Secretary of State for the Home Department (Mr. Brace) stated, on February 23rd, that no further facilities were being offered through the Board of Control for the accommodation and treatment of nerve-shaken soldiers, as no further accommodation could be spared. At the request of the War Office, the completion of the new Hampshire Asylum at Park Prewett was being expedited with a view to its being equipped and staffed by the military authorities as a

temporary war hospital. The Board of Control did not exercise supervision over any military hospitals. Visits that it had made for many years to a special section of Netley Hospital, and more recently to temporarily adapted hospitals for nerve shaken soldiers, including the Maudsley Hospital at Denmark Hill, had been made at the request of the military authorities. The responsibility for the treatment of the soldiers in question rested entirely with the military authorities, and not with any asylum authorities. On February 24th, in reply to Mr. Butcher, who asked whether a special hospital had been established for these cases, Mr. Tennant said that they were being treated in the neurological section of the Territorial General Hospitals, in the Springfield War Hospital, Wandsworth, and the Red Cross Military Hospital, Maghull, near Liverpool. The present arrangements were satisfactory and it was not proposed to alter them.

Hospital Beds in London.—In reply to a question on February 29th, Mr. Tennant stated that on February 12th, 1916, there were in military hospitals in London 2,437 wounded soldiers; in auxiliary hospitals 1,267; and in civil hospitals 578. There were 5,346 vacant beds.

Standard of Vision.—Mr. Tennant informed Mr. Duncan Miller, on February 29th, that the vision of applicants for commissions in the army must not be below $\frac{1}{2}$ without glasses, and after correction with glasses it must be normal in the better eye and $\frac{1}{3}$ in the other. For candidates in the Special Reserve of Officers the standard required is as just stated, except that vision without glasses in each eye must not be below $\frac{3}{8}$. There is no special standard required for active service as distinct from home service.

Military Service Act.—The following are notes of replies to various questions in the House of Commons on February 29th:

Mr. Tennant said that it was not at present proposed to follow the example of enemy countries by extending the age for enlistment to 45, but there was power to extend the age limit to the extent which might be necessary. A single man of military age discharged from the Territorial Force on grounds of ill health, or on completion of his period of service, was exempted from the provisions of the Military Service Act, 1916. The production of a certificate issued to a man by a doctor employed by the military authorities, showing that the man had been rejected, was sufficient to relieve the man from liability to military service under the Act, provided the authorities were satisfied that the certificate was really issued to the man in question and was issued since August 14th, 1915. The question of reserving plumbers from recruiting owing to the importance of their work to the public health, was under consideration. It was expedient that a man should be vaccinated or revaccinated, but if he did not sign an undertaking to be vaccinated, no pressure was to be brought to bear upon him if he had conscientious objections. The present arrangements were provisional for the period of the war only. Dr. Addison (Parliamentary Secretary to the Munitions Department) said that a certificate rightfully held by a workman in a controlled establishment, with a war badge, on March 1st would be valid as a certificate of exemption under the Military Service Act. The wife of a man married since November 2nd and now called up would, Mr. Forster stated, be entitled to receive separation allowances. Mr. Long stated that twenty-five appeal tribunals, representing counties or parts of counties, had been set up, and the remainder, together with the central tribunal, would, he hoped, very shortly be constituted.

Pensions for Discharged Soldiers.—In the House of Lords on February 29th Viscount Peel raised the question of pensions and allowances to soldiers discharged from the army on account of wounds and diseases contracted or developed on service, and urged that the stipulation that in order to entitle a man to a pension his disablement must be due wholly to the war was too severe. Lord Beresford said that men discharged from the army were left for weeks at what was for them the most critical period without pensions; he suggested that pay and allowances should be continued until the pension was fixed, that the gratuity of £2 should be given to the man immediately on discharge; that back pay should be paid on discharge, and that pensions should be equalized. The Paymaster-General (Lord Newton) said that the Chelsea Commissioners who administered the pay pension warrant were uniformly sympathetic to the disabled soldier, but an enormous amount of work had been thrown upon them, and unfortunately a large number of the men made no effort to obtain employment. There were numerous instances of pensions having been awarded

to men who had hardly performed any military service. With regard to the allegation that the War Office did not recognize tuberculosis and frost bite as being due to military service, he said that last January 87 cases of tuberculosis contracted in France were dealt with at Chelsea and pensions awarded in '79, the remaining 8 being still under consideration. The allegation with regard to frost-bite was founded on a pure fiction related in a police court. He admitted that there were cases of hardship, and it was to deal with such that the Statutory Committee had been created. Where military service had brought to light a latent or constitutional disability the practice was to give a small pension under an earlier warrant. The continued conflict which went on was due to the fact that vast numbers of physically unfit men had been recruited, but such a condition of things was inseparable from the voluntary system, for the Government had to choose from among the men who offered. In one battalion no fewer than sixty men had been invalided who had practically had no military service. The total amount paid in pensions for disabilities incurred during the war was £1,500,000 a year, and if the war lasted to March 31st, 1917, this amount would rise to £7,500,000. If all men discharged received pensions the amounts would be £2,250,000 and £11,360,000 respectively. The Marquess of Lansdowne said that the fact could not be disguised that in a great many cases medical examinations had been conducted with culpable negligence and laxity, and he was not prepared to say that when a man had been formally accepted in the army by responsible officials of the State, he could afterwards be mulcted because those officials failed to perform their duty with the amount of care reasonably to be expected from them. In reply to an inquiry, the Marquess of Crewe said that the Statutory Committee had already appointed certain subcommittees, which were preparing a model scheme. The statutory subcommittees would be appointed within a few days. At present the work of looking after disabled men was being continued by the voluntary organizations, which were doing it well, and the Statutory Committee would maintain permanent relations with them. From June, 1915, to the middle of January, 1916, the names of 23,000 men were received by the Board of Trade from the War Office and the Admiralty; of these 13,000 applied to the Labour Exchanges for help in finding employment; 5,400 found places through the exchanges; 1,439 were still on the register, but close on 6,000 had cancelled their applications, no doubt in many cases because they found they were not fit to take up any kind of serious employment, and in others because they had found work otherwise.

Midwives (Scotland) Act.—In reply to a question by Mr. Watt, who asked whether the Central Midwives Board (Scotland) had power to spend money with the right to tax municipalities and other local authorities for any deficit between its income and expenditure, Mr. McKinnon Wood referred to Section 13 of the Act, which provides that if the annual official statement shows a balance against the Board and the accounts are approved by the Privy Council, the Board may apportion such balance between the local supervising authorities in proportion to the populations of their districts as ascertained at the last preceding census. Mr. Wood said that, judging from the experience of the working of the English Act, there appeared no likelihood of any immediate or substantial claim upon local authorities.

On January 24th the President of the United States received a deputation consisting of the President of the American Medical Association, Dr. W. L. Rodman, and the presidents of fourteen State medical societies, to present a formal request that in any new legislation for the defence of the country the medical departments of the army should be treated with equity, and be increased in proper proportion to the military needs as finally determined. It was therefore urged that a trained corps on a scale sufficient for peace needs and for any other eventualities should be created. Urgent messages were submitted from the presidents of the medical societies of all the other States of the Union not represented in the deputation, supporting its action and calling for medical preparedness. The President promised to consider the matter.

THE WAR.

A GIANT DISINFECTOR.

(From a Correspondent in Northern France.)

In a war when everything is on so large a scale one's perception perhaps gets a little blunted. Otherwise I suppose I should have already mentioned a super-dreadnought in the way of mobile disinfectors that is at work out here. It is some months since I first saw a specimen, but only recently that I realized its strong points. These are its durability, the effectiveness with which it does its work, and the amount of this that it is capable of completing within a relatively short time.

In its general appearance it recalls a brewer's dray carrying two extra large barrels. The dray is a flat-topped motor lorry whose chassis is supplied not with a petrol, but a steam-driven engine. The two hogsheads or barrels are the bodies of twin disinfectors built upon the Thresh principle and capable of being used either separately or simultaneously. They are connected by piping with the engine of the lorry, and all that is necessary to set them in action is to cut off the steam from the driving cylinders, and turn it into the jackets of the disinfecting chambers. Consequently the disinfector is ready for action the moment a journey has been completed, and of course can be left standing, but still in use, for an unlimited time, at any place to which it has been brought. The chamber of each twin has a capacity of 60 cubic feet. The joint capacity is therefore nearly three times that of an ordinary mobile Thresh apparatus, such as has long been more or less familiar in sanitary work in Great Britain.

The construction, however, of this giant—which is capable of dealing with the whole of the blankets of a battalion within a limit of two ordinary working days—was, I understand, originally due less to a desire for larger Thresh disinfectors than those at first in use than for a type which would stand the wear and tear on active service more satisfactorily. The original pattern was attached to a horse-driven vehicle with iron shod wheels, and this, when driven over roads so rough as are many of those in Northern France and Flanders, shook so much that pipe-joints and steam-tight doors soon became defective. The chassis on which the present machine is carried has, like all other lorries, twin back wheels with solid rubber tyres. The vibration, therefore, is reduced to a minimum provided the pace at which it is driven does not exceed ten or twelve miles an hour.

I understand that quite a large number of divisions are now supplied with disinfectors of this type.

INDICATIONS FOR AMPUTATION.

It appears from a recent address by Professor Albrecht¹ at a meeting of war surgeons that the Austrian army surgeons have been accused, not only by the lay public, but even by their civilian colleagues, of performing too many amputations. Professor Albrecht indignantly denied these accusations. That surgeons in the interior did not find it necessary to amputate was obviously due to the fact that patients in need of amputation either died at the front or were operated on there. He admitted, however, that the decision for or against amputation was often one of the most difficult problems of war surgery; he had never sacrificed a limb needlessly, but he had occasionally regretted that he had not amputated, or had deferred the operation too long. During eight weeks he had treated about 2,500 patients, most of whose wounds were severe, and of the 240 operations 18, or 8 per cent., were amputations.

Gangrene due to Tourniquets and Bandages.

From time to time he had seen cases of gangrene provoked by the constriction of bandages. Rubber tubing tied round a limb to arrest haemorrhage, uncontrollable by other means, was the commonest cause. The surgeon who had applied such a tourniquet should not let the patient be transferred elsewhere unless it were absolutely certain that he would be under medical care again within three hours. The patient who had perforce to be transferred

under these conditions should be liberally labelled "rubber tourniquet." Another fatal mistake was the changing of the outer dressings only; no dressing should be applied until the wound had been freely exposed. How fatal the neglect of this precaution might be was illustrated by the following case:

Among a convoy of severely wounded was a patient whose appearance was miserable. He was exceedingly restless, and complained of excruciating pain. A projectile had passed through the upper third of the right humerus, and around the arm and shoulder a spica bandage had been secured. The arm was gangrenous, and there was oedema encroaching on the right side of the neck. After the spica had been removed a second, circular bandage was found to have been applied to the upper third of the arm. Under this bandage again a rubber tourniquet was found, encircling the arm just below the shoulder. This tourniquet had been in place forty hours. The humerus was enucleated, but the patient died next day.

Occasionally plaster-of-Paris bandages were secured too firmly, and not watched closely enough. It was a mistake ever to let a patient be moved elsewhere directly after a plaster-of-Paris dressing had been applied. The case should be kept under observation for the first forty-eight hours by the surgeon who had applied the dressing. The neglect of this precaution might provoke gangrene, and in November, 1914, Professor Albrecht had to amputate the arm of a patient, the diaphysis of whose humerus had been fractured by a rifle bullet. A plaster-of-Paris dressing had been applied, and when he reached hospital gangrene of the forearm had developed. Another source of danger were starch bandages (Organtin-Stärkebinde) which shrank considerably on drying. Unless the surgeon was careful to interpose plenty of cotton-wool between the margins of this bandage and the limb, gangrene was liable to supervene.

Gangrene due to Wounds of Blood Vessels.

At the beginning of the campaign he had hoped to practice the latest technique of blood-vessel suture, but in the course of a whole year he had not seen a single case of wound of an artery suitable for this delicate operation. Either the limb was gangrenous or it was the seat of such severe phlegmonous inflammation that this operation was out of the question. The surgeons who attended the wounded at the outset had seldom the necessary time, experience, or instruments.

Gangrene due to Infection.

Fractures and wounds of joints frequently necessitated amputation owing to infection. Among a draft of over 100 severely wounded, which reached Professor Albrecht's hospital in November, 1914, were three whose appearance suggested the final stage of pernicious anaemia. They had been wounded only thirty to forty-eight hours earlier, and none of them had lost much blood. Yet they were very febrile, and lay groaning motionless in bed, with sunken eyes, small rapid pulse, and dry tongue. All three had been wounded by projectiles, which had fractured one or more bones of the lower limbs. Two of them were too debilitated to stand an amputation, and died next day. The third, a powerful young man, was operated on at once. He was febrile a few days after the amputation, but ultimately recovered. Professor Albrecht's suspicion that these patients were infected by haemolytic micro-organisms was confirmed by subsequent observations on similar cases in which a bacteriological examination was made. In one such case the clinical picture was that of the last stage of cholera, although the patient was not suffering from this disease, but from infection with a streptococcus and *Bacillus proteus*. As a rule, infection due to the colon and *proteus* bacilli was less serious than with the Fraenkel-Welch bacillus, and that of malignant oedema. Amputation had been performed only in the most severe cases of gas gangrene. It had been avoided in many cases by the free use of long incisions carried far into the apparently healthy tissue. They were made in the course of the wound, and were carried through the deep fascia to the muscles, so that no crop of anaerobic germs could escape free ventilation. When the general condition was very bad, and the gas gangrene spreading rapidly, amputation, well above the level of the gangrene, was inevitable. From his experience of several cases, he repudiated v. Oettingen's dictum that infection with the *Bacillus pyocyaneus* was in itself an indication for amputation.

¹ *Wien. med. Woch.*, November 6th, 1915.

Septic Wounds of Joints.

The conservative treatment of a suppurating joint required the greatest skill and experience. Provided the patient's general appearance and appetite were good, the tongue was moist, and the action of the heart satisfactory, fever did not of itself warrant amputation. But if the pulse became more and more rapid, weak and irregular, no time should be lost. Special importance was to be attached to irregularity of the pulse as a warning not to delay operating. The problems arising in connexion with amputations required such skill and experience that the Austrian army would do well to follow the example of the German army and provide a consulting surgeon for every army corps.

PROPORTION OF RECOVERIES AMONG THE WOUNDED.

A RECENTLY published report embodying the statistics of a large *hôpital de triage* (sorting hospital) at Bordeaux gives some interesting figures. The hospital in question received in twelve months 64,385 wounded; of these 38,902 (60 per cent.) were able to rejoin their regiments after treatment. To this number must be added those who rejoined their regiments after a furlough for convalescence, 18 per cent. The remainder comprises two categories of men, namely, those who are set back temporarily and are subject to periodical re-examination, and those who are discharged altogether. The former of these two categories accounts for 15.45 per cent. and the latter, the discharged men, to only 6.55 per cent. of the total. It follows that of the wounded who reached this hospital only just over 6 in a 100 had been rendered permanently unfit for military service.

The German authorities recently claimed that during the first year of war the monthly average percentage of their wounded who were discharged "fit for service" was 89.5, and "discharged or sent on leave" 8.8 per cent.; the deaths were 1.7 per cent. The results of treatment in military hospitals in Great Britain and Ireland during the first year of the war were as follows—died 0.86 per cent., permanently unfit 4.14 per cent., discharged to duty, on furlough or sent to convalescent homes 95 per cent. Such statistics are interesting, but as has been pointed out on previous occasions they do not indicate the ratio of men who have died of wounds to those who have recovered more or less completely. They throw light only on the results in men who reach a certain class of hospitals.

CASUALTIES IN THE MEDICAL SERVICES.**ARMY.***Killed in Action.*

LIEUTENANT FRANCIS SIDNEY MITCHELL, R.A.M.C., was killed in France on February 15th, aged 26. He was the youngest son of George Mitchell of Ardlui, county Dublin, and was educated at Trinity College, Dublin, where he took the M.B., B.Ch., and B.A.O. in 1915. He had only recently taken a temporary commission in the R.A.M.C., and was attached to the 9th Battalion of the Sussex Regiment when killed.

Lieutenant Bernard Bradley Gough, R.A.M.C., was killed in France on February 16th. He was educated at Guy's Hospital, and took the diplomas of M.R.C.S. and L.R.C.P.Lond. in 1897, after which he acted as clinical assistant in the medical wards at Guy's, and as house-surgeon of the General Infirmary, Burton-on-Trent. He then went into practice at Compton Martin in Somersetshire, near Bristol, where he was medical officer and public vaccinator of the Harptree district of the Clutton Union. He was attached to the 8th Battalion of the South Staffordshire Regiment.

Died on Service.

Captain John Dykes Wilson, Indian Medical Service, died at Tillicoultry on February 16th. He was educated at Edinburgh University, where he took the M.A. and also the M.B. and Ch.B. in 1909, afterwards studying at Munich, Vienna, and Breslau. After qualifying he acted as house-physician of the Sunderland Royal Infirmary, and as assistant medical officer at the Royal Infirmary, Sheffield. He entered the I.M.S. as lieutenant on July 27th, 1915, and became captain on July 27th, 1915.

Captain Alfred Gwilym Jones, R.A.M.C., died of pneumonia at Rawal Pindi on January 27th. He was educated at Guy's Hospital, and took the M.R.C.S., the L.R.C.P. London, and the M.B. and B.S. London in 1905. After qualifying he filled the posts of house-surgeon, clinical assistant, and out-patient officer at the London Hospital, and then entered the R.A.M.C. as lieutenant on July 31st, 1909, becoming captain on January 31st, 1913.

Captain Peterswald Pattison, R.A.M.C., died in Edinburgh on February 22nd, and was laid to rest in Warriston Cemetery, Edinburgh, on February 25th. Though known intimately to only a very few of his profession, he was unhesitatingly regarded by them as one of the choicest spirits they had ever met. "Pete," as he was always affectionately called by his intimates, graduated M.B., Ch.B. in 1901 at the University of Edinburgh, and though his own tastes lay in the direction of the navy, he relinquished this ideal, deferring to the wishes of his invalid father. Hospital residencies at Stirling and Chester, and several voyages as ship surgeon, preceded his starting practice at Colinton. A character such as his, however, was little suited for the rough-and-tumble of a practitioner's work, and accordingly, after taking the diploma of D.P.H. in 1910, he became school medical officer in Fife, acting also as Assistant M.O.H. for the county. This position he resigned on receiving a commission as temporary lieutenant R.A.M.C. on November 21st, 1914, and he seemed at last to have found the real work suited to his cheery optimism. He was promoted to temporary captain on November 21st, 1915. In France he was attached to the K.O.Y.L.I., in the trenches doing splendid work, but after struggling for weeks against grave symptoms which had begun to appear, he was invalided home in July; his malady was found to be incurable, and he lingered for six months in a nursing home. His was a most lovable nature combined with a strong individuality. Reserved almost to shyness, to his intimates he revealed himself as a man of the staunchest character, with an almost exaggerated sense of duty, of unsurpassable kindness, and endowed with a quaint and whimsical humour. In health it was his to "labour smiling," and when there came "the day marked for sorrow," he was no less "strong to endure it."

Captain Archibald Thomson Campbell, R.A.M.C., died in Glasgow on February 22nd. He was educated at Glasgow, where he took the M.B. and C.M. in 1886, and was in practice in that city, where he was for some time anaesthetist to the Glasgow Dental Hospital. He took a commission as captain in the Home Hospital Reserve of the R.A.M.C. from August 16th, 1914.

Lieutenant Richard Gavin Brown, R.A.M.C., died at the 5th Southern General Hospital, Portsmouth, on February 14th. He was the only surviving son of Deputy Inspector-General R. Gavin Brown, R.N. He was educated at Aberdeen, where he took the M.B. and Ch.B. in 1903, afterwards serving as assistant medical officer, Lambeth Infirmary, and house-surgeon, Tynemouth Victoria Jubilee Infirmary. He then went into practice at Portsmouth, where he was assistant anaesthetist to the Royal Portsmouth Hospital. He took a temporary commission in the R.A.M.C. from March 29th, 1915, and had recently returned from service in the Gallipoli peninsula.

Wounded.

Captain H. B. Cunningham, R.A.M.C.(T.F.), France.
Captain W. M. Biden, R.A.M.C., Special Reserve, France.

Prisoners of War.

Major Priestley and Captain Vidal, R.A.M.C., released prisoners of war from Germany, reached England on February 23rd. Both were taken in August, 1914, in the retreat from Mons, and had been detained as prisoners ever since. Both had served in the epidemic of typhus among prisoners of various nationalities at the soldiers' prison camp at Wittenberg, in Saxony, where Major W. B. Fry and Captains A. A. Sutcliffe and S. Field, all of the R.A.M.C., contracted the disease and died last March and April.

Combatant Officer Killed.

Lieutenant J. Thorp Waite, whose death in action was noted last week under the head of "Deaths among sons of medical men," was himself a member of the medical profession. He was born in 1870 in Halifax,

where his father had long practised. He received his medical education at the University of Edinburgh, and took the Scottish triple qualification in 1896. After practising at home for some time, he joined the West African Medical Staff and served in Northern Nigeria, and later acted as ship surgeon. In 1899 he returned to England, married, and began to practise first in Yorkshire, and then in Pluckley, Kent. He joined the Territorial Force, and took a keen interest in stimulating recruiting for it. He received a commission as lieutenant (combatant) in the 5th Buffs on August 22nd, 1914, and was sent to India. Afterwards he went with the Expeditionary Force to the Persian Gulf, and was killed when serving with the machine gun section of his battalion. He leaves a widow and young son.

DEATHS AMONG SONS OF MEDICAL MEN.

Griffin, Innes Edward, Captain 14th Battalion, Oxford and Bucks Light Infantry, son of the late Dr. Innes Griffin, medical officer of health, Banbury, died of wounds on February 19th. He had just returned to the front after short leave home. His first commission as second lieutenant was dated August 8th, 1914; he was promoted to lieutenant on January 9th, 1915, and to captain last summer.

Hood, George Christie, Lance-Corporal 16th (Public Schools) Battalion, Middlesex Regiment, only son of T. A. F. Hood, M.B., of Ivybank, Blairgowrie, died at No. 33 Casualty Clearing Station, in France, on February 19th, of wounds received on February 15th, aged 21.

CORRECTION.—In the list of casualties published last week the name of Lieutenant John Gillis Butt was incorrectly printed Bute.

NOTES.

HONOURS.

ROYAL NAVY.

AMONG various honours announced by the Admiralty on February 24th, the Distinguished Service Cross was conferred upon Surgeon Alfred Robinson MacMullin, R.N., "for services on January 23rd, 1916, at Sereugeti, in East Africa, when he showed remarkable bravery in searching for and rescuing a severely wounded officer under heavy machine gun and rifle fire close to concealed enemy entrenchments."

FOREIGN ORDERS.

The *London Gazette* of February 24th announced the names of a number of officers to whom His Majesty had given permission to receive and wear certain French and Belgian orders conferred on them for services in the war. Among them were the following medical officers:

France.

Commander of the Legion of Honour.—Surgeon-General W. G. Macpherson, C.B., C.M.G., A.M.S., Surgeon-General T. P. Woodhouse, C.B., A.M.S., Colonel Sir W. B. Leishman, C.B., A.M.S.

Officer of the Legion of Honour.—Colonel C. H. Burtchall, C.M.G., A.M.S.

Chevalier of the Legion of Honour.—Major W. R. Battye, D.S.O., I.M.S., Major R. B. Black, Reserve of Officers, R.A.M.C., Major J. S. Pascoe, R.A.M.C., Major E. Ryan, D.S.O., R.A.M.C., Major J. W. West, R.A.M.C., Captain F. Casement, R.A.M.C., Captain D. M. McWhae, Australian A.M.C., Major J. Morley, R.A.M.C.(T.F.), Captain J. W. Craven, R.A.M.C.(T.F.).

The Croix de Guerre and the Médaille Militaire have been conferred upon a large number of British Warrant Officers, N.C.O.'s, and men, among whom were the following members of the medical services. All are R.A.M.C. unless otherwise stated:

Croix de Guerre.—Quartermaster-Sergeant R. E. Halford, Corporal E. Allen (T.F.), Driver J. C. Conyns (Australian A.M.C.), Private H. W. Strong (Australian A.M.C.), Bearer Beni (Indian Army Bearer Corps).

Médaille Militaire.—Second-class Assistant Surgeon G. C. Rehling (I.S.M.D.), Quartermaster-Sergeants G. Carroll (T.F.), H. W. Lee, and J. E. Newton, Staff Sergeants W. H. Mattison and J. Rouse, Sergeants W. Brooks (T.F.), and W. D. Gibb (T.F.), Corporal G. E. Thain, Driver E. Smith (R.F.A., formerly R.A.M.C.), and Private W. Adamson (T.F.).

Belgium.

Commander of the Order of Leopold.—Surgeon-General Sir A. T. Sloggett, K.C.B., A.M.S.

Officer of the Order of Leopold.—Colonel S. G. Moores, C.B., A.M.S.

Commander of the Order of the Crown.—Surgeon-General R. Porter, A.M.S.

Officer of the Order of the Crown.—Lieutenant-Colonel S. L. Cummins, C.M.G., R.A.M.C., Lieutenant-Colonel A. Chopping, C.M.G., R.A.M.C.

MEDICAL OFFICERS WANTED.

2nd London Sanitary Company R.A.M.C.(T.).

There are some vacancies for commissions in this company. Gentlemen with public health experience or holding the D.P.H. preferred. There is a prospect of active service abroad after a brief period of training. Apply, Captain F. G. Caley, O.C. 2nd London Sanitary Company, Duke of York's Head Quarters, Chelsea, S.W.

3rd City of London Field Ambulance, R.A.M.C.(T.F.).

Three or four medical officers (Imperial Service) are required for this ambulance, promotion to captain at the end of six months' service. Very economical mess. Field allowance, in addition to pay, is being drawn. Applications should be sent to the Commanding Officer, Beech Hill, Hadley Wood, Barnet.

South Wales Mounted Brigade.

There is a vacancy for a medical officer in the Mounted Field Ambulance and also in one of the Yeomanry regiments of the 2/1st South Wales Mounted Brigade. Applications should be sent to Lieutenant-Colonel Herbert Jones, S.M.O., Bulcamp, Blythburgh, Halesworth.

England and Wales.

It was announced a couple of months ago that a memorial fund was being raised to commemorate the devoted and faithful service at the Manchester Royal Infirmary of Sister French, who died last November. It is proposed to place a tablet in her old wards in S.I. Unit, and a small stained-glass window in the infirmary chapel. We have received a letter from Mr. G. A. Wright, consulting surgeon, and Mr. J. Howson Ray, surgeon to the Infirmary, in which they say: "We believe that many former students of the Manchester Royal Infirmary would like to join in this memorial, and we invite donations, which may be forwarded to the general superintendent and secretary, by whom all contributions will be gladly acknowledged."

At a meeting of the Manchester Board of Guardians last week it was decided to accept the proposal of the War Office, which had requested that a large part of the Withington Hospital should be devoted to the care of sick and wounded soldiers, the guardians continuing the administration of the place, as they already possess a trained staff. Arrangements are accordingly being made for the transfer of something like 1,200 of the present inmates to other institutions. The Booth Hall Infirmary will be vacated by the military authorities and is to be used for the housing of the sick children, while the two other institutions at Crumpsall will be utilized for other cases. It is expected that the new arrangements will provide accommodation for 2,000 sick and wounded soldiers, in place of 400, as at present.

CENTRAL COUNCIL FOR DISTRICT NURSING IN LONDON.

The Central Council for District Nursing in London, founded in 1914 as the result of a conference under the auspices of the Local Government Board, held its annual meeting on February 25th, when Sir William Collins presided. The annual report stated that the Ranyard Nurses and the associations affiliated to Queen Victoria's Jubilee Institute reported that there had been an unexpected decrease of work in certain areas, at least so far as ordinary acute cases were concerned; this was ascribed to the fact that people were better paid and better fed. The executive committee reported that at the next meeting a statement would be made as to the desirability of extending the Council's work beyond the area of the County of London, and that a subcommittee was now engaged in investigating the adequacy and efficiency of district nursing in various London boroughs. A proposal was approved to publish a directory and guide to district nursing whereby medical practitioners, hospital authorities, and others might readily ascertain where to apply for the services of a district nurse in any part of the metropolis. It was explained that the preparation of the scheme for the district nursing of measles, German measles, and whooping-cough, which the executive committee had been directed to draw up, had been delayed to some extent by the order of the Local Government Board for the compulsory notification of measles, which conferred upon any borough council the power to

provide, or contract with any person to provide, a temporary supply of medicine and medical assistance for the poorer inhabitants of the district. An arrangement whereby a borough council could contract with a district nursing association would be both economical and efficient. Not every case would need actual nursing, as distinct from advice and supervision, by a district nurse, and in making the selection of cases the M.O.H. would be assisted by the knowledge of the families and the local circumstances in the possession of the education and other local authorities. On the subject of medical attendance it is stated categorically that "the district nurse should under no circumstances assume any responsibility for medical treatment." It was her duty to advise the parents that a medical man should be called in. She should continue to urge the need for calling in the doctor, and in the meantime do her best for the patient. The memorandum prepared by the medical officer of the Local Government Board was quoted to the effect that, "without taking medical responsibility, the nurse can do much to prevent complications." Various suggestions were made as to the desirability of providing beforehand for medical attendance by means of provident dispensaries and the like. In the absence of all other provisions application might be made to a relieving officer, or resort might be had to a charitable fund, raised through the District Nursing Association, out of which the payment to medical men could be made. So far as admission to hospital was concerned, the nurse was only affected in that it was her duty to select the more urgent and necessitous cases for hospital treatment. In an appendix to the draft, suggestions were put forward for the modification of district nursing rules as an addendum to any existing rule barring the nursing of infectious cases. These ordain that the nurse shall carry out all instructions given by the medical attendant for the avoidance of risk of conveying infection to her other patients; in the absence of such instructions she shall comply with the rules of the committee of her association; she shall assist the sanitary authorities as far as possible in preventing the spread of the infection, and shall not visit a maternity case without the sanction of a medical practitioner. An addendum is also suggested to existing rules regarding the nursing of cases to which no practitioner has been called. This requires that the nurse shall urge the parent to call in a doctor, explaining, especially as regards children under 5, the serious dangers which may develop, and that in the event of continued neglect on the part of the parent, she shall report the case to the M.O.H., and also to her superintendent, and, pending their instructions, shall continue to urge the parent to obtain medical attention, at the same time doing her best for the patient by homely advice and household management. (The draft of the scheme is published by P. S. King and Co., Limited, price 2d.)

On the motion of Sir Arthur Downes an executive committee of twenty-five members were reappointed, the medical representatives being Dr. William Butler, Dr. Ronald Carter, Sir William Church, Sir Arthur Downes, Dr. C. J. Harrison, Dr. G. F. McCleary, Sir Shirley Murphy, Dr. B. A. Richmond, and Mr. E. B. Turner.

TUBERCULOSIS IN LONDON.

It was stated at the meeting of the London County Council on February 22nd that a model scheme for the formation of tuberculosis care committees, to form part of the organization of each tuberculosis dispensary, which was approved some eight months ago, would be considerably delayed owing to the increasing demands made on voluntary workers. The Council agreed to the formation of interim care committees, to include existing local dispensary care committees, the M.O.H. for the borough, the tuberculosis officer, local social workers, representatives of local hospitals, and other persons contemplated in the model scheme as originally put forward. The Public Health Committee stated that, owing to various causes, the scheme for the residential treatment of tuberculosis in London had not developed as rapidly as was anticipated. It seemed probable that, apart from the beds supplied by the Metropolitan Asylums Board, not more than 231 beds for children and 100 beds for adults would come into use during the current year. On this basis the estimated cost of residential treatment would be £16,800.

MEDICAL EDUCATION OF WOMEN IN WALES.

The first public meeting of a committee formed to promote the medical training of women in Wales was held at the University College of South Wales and Monmouthshire last week. Mr. D. Lleufer Thomas, who was in the chair, said that head mistresses stated that girls likely to be successful in a medical career were prevented from embarking on it by the heavy expenses and the long period of training. There were very few medical scholarships for women, and the object of the committee was to raise a fund to give help to students of exceptional promise to enable them to enter upon a medical course in the medical school of the University College at Cardiff. The fund would be used to assist students mainly in the fourth and subsequent years of their training, and in special cases to make small loans. The committee would take into consideration the academic record, health, personality, and general fitness of the applicants, as well as the financial position of the parents. Mr. Thomas urged that women were specially fitted for posts as medical inspectors of school children and the treatment of defectives, and women; they were also well suited to act as resident medical officers of many institutions. There was also a call for their services in the Crown Colonies and in mission work. The committee proposed to represent to some of the intermediate schools for girls that they should apply to the medical authorities for the recognition of their laboratories as places where biology, as well as physics and chemistry, might be taught, so that girls intending to be medical students might while at school prepare for the preliminary scientific examinations. Principal Griffiths said that the movement had not originated in the college, which, however, welcomed it, as there was a general feeling that something of the kind was wanted. Professor Hepburn, dean of the faculty of medicine, University College, Cardiff, also supported the proposal, and a resolution in the sense indicated was carried unanimously after Sir Henry R. Reichel, principal of the University College of North Wales, Bangor, had urged that a loan fund would be preferable to the establishment of scholarships. It was announced that Lord Kenyon had consented to be president of the committee, and a number of vice-presidents were chosen, including the Countess of Plymouth and Ladies Aberdare, Tredegar, and Varney. Miss Mabel Howell (Cardiff) was elected honorary secretary, and Lady Owen Philipps honorary treasurer.

SMALL-POX AND TUBERCULOSIS.

The Salford Insurance Committee has for the third time since the Insurance Act came into operation been placed at a serious disadvantage in dealing with tuberculous patients by the outbreak of small-pox in the borough. For six years before the Insurance Act there had not been a single case of small-pox, and by the permission of the Local Government Board the Public Health Committee was allowed to use the Drinkwater Park Small-pox Hospital for tuberculous patients so long as it was not required for small-pox, and the Insurance Committee by virtue of its contract with the Health Committee had recently about thirty insured persons suffering from tuberculosis in the hospital. On the occurrence, about a fortnight ago of a case of small-pox in Broughton, the medical officer of health first tried to obtain admission for the case into some other small-pox hospital, but no other authority could be found to take it, and it was then necessary at once to turn out all the tuberculous patients from Drinkwater Park Hospital to make room for the small-pox case and for contacts. The Salford Corporation some time ago completed plans for a large new sanatorium at Marple, and the sanction of the Local Government Board had been obtained, but the Treasury stepped in and forbade the work to be commenced at present owing to the war. The Public Health Committee is bound by its contract with the Insurance Committee to do all it can to find accommodation for insured tuberculous patients admitted to sanatorium treatment, and beds have been found for several of the displaced patients at the Crossley Sanatorium and the Bowdon Home, but the majority have had to be sent to their own homes, and to be content with dispensary or domiciliary treatment. No blame can be attached to the local authorities, but it is a most unfortunate thing that for the third time in three years so many insured tuberculous patients, as well as a

number of others non-insured, should have had to be displaced for the sake of a very small number of small-pox cases. Up to the present only four or five cases have occurred, but one has died, and there were a large number of "contacts"; in the best event it will not be possible for any tuberculous cases to be readmitted to the hospital for some weeks, and it appears to be impossible to find accommodation for more than a very limited number at other sanatoriums.

A PUBLIC MEDICAL SERVICE.

At the annual meeting of the Leicester subdivision of the Union of Medical Practitioners and of the Leicester Public Medical Service worked in conjunction therewith, it was stated that practically the whole of the medical profession in Leicester are members of the Union and about three-fourths are on the panel for State insured persons and are acting members of the Public Medical Service. The Union is intended to ensure uniform action to be taken in the interests of medical men, to effect insurances, and to collect debts on favourable terms. The meeting adopted a scheme which had been carefully considered to provide for the attendance on patients of doctors engaged on military service and to safeguard the interests of the absentee doctors.

The subscribers to the Public Medical Service, chiefly women and children, number about 43,500. In addition, the friendly societies in Leicester have made arrangements for their members to avail themselves of the services of the doctors on the Public Medical Service list. The chief societies have their own dispensaries and pay certain rates per annum to the Public Medical Service for medical attendance on their uninsured members and their wives and children, who are included in the above total of 43,500, and in addition for about 12,000 of their members who are State-insured. The service has a central dispensary and offices with eight branch dispensaries, and there are eye, nose, ear, and throat and dental departments in connexion with it; subscribers may consult specialists on payment of moderate fees. Arrangements have been made with the local education authority for the purposes of the school clinic, and 1,644 school cases have been treated during the year. Also there is an arrangement with the board of guardians whereby the necessary medicines for the outdoor sick poor of Leicester are dispensed by the Public Medical Service. The total number of prescriptions dispensed for the various sections during the year was nearly 230,000. The sum collected from subscribers to the service was £8,558, and payments from friendly societies, guardians, and other sources, brought the total income for the year to over £15,000. After all expenses had been defrayed, the sum of £11,430 was distributed among the medical officers and specialists for attendance on subscribers.

It would be of interest to know how these payments compare with private practice and with the sums received by panel practitioners for insured persons.

Ireland.

SIR CHARLES CAMERON has published some statistics as to the work of food inspection in Dublin, and to show their significance has compared them with similar work in Sheffield, the population of Dublin being 310,467 and that of Sheffield 476,971. The number of analyses of food and drugs in Dublin was 4,075, in Sheffield 1,037; 146 prosecutions were instituted in Dublin, and the penalties imposed amounted to £386 7s. 6d.; in Sheffield the number of prosecutions was 35, and the penalties amounted to £39 17s. 6d.

The fortieth annual report of the Incorporated Orthopaedic Hospital of Ireland, read to the annual meeting last week, stated that the hospital now had accommodation for 79 patients in Upper Merrion Street and 66 in the country at Templeogue. During the year 162 children were under treatment, 52 were discharged cured, 30 improved, and only 1 died; 75 remained under treatment. The average number of beds in daily occupation was 71, and the average residence in hospital 160 days. The annual subscriptions and donations were £177 less than

last year. The sum of £692 had been spent during the year on additions and improvements.

CEREBRO-SPINAL MENINGITIS.

At the last meeting of the Ulster Medical Society, Captain W. J. Wilson, M.D., read a paper on the epidemiology and bacteriology of cerebro-spinal meningitis. He rejected the pleomorphic explanation chiefly advocated by Hort, and advanced evidence in support of the theory that infection by the meningococcus in some way lowered the resistance of the intestinal wall, and allowed secondary infections from the intestine, of which he mentioned several, and gave the agglutination results. In the epidemic of cerebro-spinal fever some years ago Professor Symmers always found the mesenteric glands inflamed. Out of 900 contact cases that Dr. Wilson had examined in soldiers he found eighty carriers, but not one of these developed the disease. Dr. Wilson thanked Dr. Georgina Darling, Lieutenant Purce, Dr. Gardner Robb, and the residents at the Purdysburn Fever Hospital for their valuable help. At the same meeting a number of specimens were shown, and Dr. Calwell read a short paper in which he laid stress on the fact that cardiac murmur was often heard in the supine position, which sometimes entirely, sometimes to a great extent disappeared in the erect. He emphasized the importance of this fact in life assurance and examinations for the services.

IRISH AUTOMOBILE CLUB AND THE WAR.

The report of the Irish Automobile Club is a splendid record of voluntary work done for the benefit of the soldiers, especially the wounded. The club has four ambulances on service in France, and a number of members have had their cars converted into ambulances for use on the arrival of hospital ships in Dublin. A great many members are giving their cars up almost entirely for military purposes. Some months ago the D.D.M.S., Irish Command, sent a letter of thanks to the club, in the course of which he spoke of "the unostentatious way in which the Automobile Club carries out this humane and patriotic self-imposed work." The work done by the members of the club include ambulance service, railway station buffets, reception of wounded soldiers on sick furlough, assistance of recruiting, help to the Army Forage Committee, and the entertainment of soldiers in the Dublin hospitals. Much of the work for the wounded and travelling soldiers was done under very trying conditions, but no matter how bad the weather was at Kingstown Pier or at the North Wall, there were ladies and gentlemen working in the early hours of the morning. No less than 170,000 meals have been provided for soldiers and sailors at these buffets since they were opened.

CORK SOUTH CHARITABLE INFIRMARY.

The report of the South Charitable Infirmary and County Hospital, Cork, for 1915 records another year of successful work. In the medical wards 633 patients passed through the wards; 577 were discharged cured, while 42 died, of whom 22 were hopeless on admission. There were 50 cases of pneumonia, and 4 of these had a fatal ending.

In the surgical wards 675 cases were treated, of whom 608 were discharged cured and 27 died, several of these being young children who succumbed to the shock of severe burns. The large number of 4,115 new cases passed through the extern departments, with a total attendance of 15,607. In the early part of the year the wounded soldiers admitted in October and November of 1914 were all discharged recovered; 30 more wounded were admitted in April, 1915, and two men rescued from the ill-fated *Lusitania* and two seriously injured in the sinking of the *Arabic*.

An interesting incident of the annual meeting at which the report was read was the presence of the new Lord Mayor of Cork, himself a member of the staff of the institution. The Right Honourable T. J. Butterfield was most heartily congratulated on the honour conferred on him by his native city, and wished by his colleagues and friends a very prosperous year of office. Several of the younger members of the medical staff have been accepted for war work, some in the R.A.M.C. and one as civil surgeon at Cork Military Barracks. Much regret was felt at the resignation of Mr. Samuel Henry Newson, as treasurer to the institution, a position he had held for twenty-five consecutive years.

BELFAST HEALTH SOCIETY.

The report presented to the annual meeting of the Belfast Health Society, held on February 22nd, stated that during 1915 the attendances of mothers and babies at the babies' clubs organized by the society had numbered 8,422, while 8,864 pints of milk had been given to the mothers for their babies. The society had also established a system of "home helps," who, when the mothers were temporarily laid aside, took charge of the house and children. Sir John Byers, in seconding the adoption of the report, which was carried, said that during 1915 no fewer than 924 new babies had been enrolled in the babies' clubs. Many deaths of infants in the first twelve months of life were due to the fact that they were born prematurely and congenitally weak, and that some had the taint of constitutional disease. To improve this state of things the nation required the help of the medical and nursing professions, of public health authorities, and philanthropic organizations such as the Belfast Health Society. Constitutional disease must, he said, be got rid of by a more thorough investigation of the prenatal conditions, and deaths as a result of accident at birth by improving the science of obstetrics and especially by examination of the mother before the time of her confinement.

Scotland.

At the annual meeting of the Royal Victoria Hospital, Dundee, Dr. R. C. Buist, in seconding the adoption of the report, said that the death-rates from tuberculosis and other early killing diseases had gone down, but those from cancer had risen, so that its alleviation was likely to be a problem for the hospital for a long time. Among the new knowledge and new forces becoming available, which sometimes promised a cure and frequent alleviation in cancer after it had passed beyond the surgeon's skill, was radium. A small stock had been placed at the disposal of the Royal Infirmary by a generous donor, but it was not sufficient for what was needed, and there was room for further handsome donations to purchase radium for the use of hospitals in Dundee.

CENTRAL MIDWIVES BOARD FOR SCOTLAND.

The Privy Council has intimated approval of the appointment of Mr. D. L. Eadie, 50, George Square, Edinburgh, as Secretary to the Central Midwives Board for Scotland. All communications thereabout should be sent to Mr. Eadie at the above address. Several meetings of the board have now been held, and we understand that one of the matters engaging its attention has been that of filling up the two remaining vacancies on the board by the appointment of two midwives. In the Act it is left in the hands of the Lord President of the Council to fill up these places when the number of midwives qualified is sufficient. The position of a midwives board without midwives on it may be felt to be something of the nature of the play of *Hamlet* with the part of the Prince of Denmark omitted. The board in Edinburgh has shown its anxiety to pass as quickly as possible through an incomplete stage in its development, and has, it is understood, petitioned the Lord President to fill up the vacant places. The difficulty is the absence of a midwives roll for Scotland, but it is hoped that as soon as a sufficient number of women have been put on the roll—and there seems no reason why that should not be soon—the two midwives will be chosen and the board completed. It has been further arranged that the two boards, the one for England and that for Scotland, shall exchange minutes.

India.

THE LONDON MISSION HOSPITAL, JAMMALAMADUGU.

From the annual reports of the London Mission Hospital at Jammalamadugu, in Southern India, for the five years 1910 to 1914 inclusive, it appears that the mission staff consists of two European medical men and a nursing superintendent, with a number of Indian dispensers, dressers, and nurses.

A small medical school, with eighteen or twenty students, is carried on in connexion with the hospital. At the beginning of 1910 there were 50 beds in the hospital at head quarters, and two small branch dispensaries had 4 beds each. A third branch was opened in February, 1910, and a fourth in October, 1914, while in November, 1913, Surgeon-General Bannerman, C.S.I., of Madras, opened a new ophthalmic wing at the head quarters hospital; by the end of 1914 there were 79 beds there, and 6 at each of the four branches, providing accommodation for 103 in-patients in all. The total number of in-patients treated in 1910 was 1,006, and in 1914 had risen to 1,229; of out-patients, 14,761 in 1910, rising to 16,203 in 1912, but falling again to 14,621 in 1914. The total number of operations, major and minor, rose from 1,642 in 1910 to 2,819 in 1914. The numbers of the more important operations performed during the whole period of five years were: Cataract extraction, 641; litholapaxy, 20; lithotomy—suprapubic, 15, others, 4; prostatectomy, 6; abdominal operations, 102; malignant tumours, 120. Operation for cataract is done chiefly by Smith's method, extraction in capsule. The great majority of the patients were Hindus, but a considerable number of Mussulmans, and, especially at head quarters, of native Christians, were also treated. We learn from the reports that malaria is uncommon in the tract of country served by the mission, dysentery and tuberculosis common. The mission seems to do much good in an out-of-the-way part of India.

Correspondence.

THE NOTIFICATION OF MEASLES.

SIR,—The letter of Dr. Garrett in your issue of February 19th is interesting from the point of view of a whole-time M.O.H., but the part-time M.O.H. is in a more invidious position.

Formerly the notification of an infectious disease came invariably from a doctor, and the subsequent visit of the M.O.H. was quite impersonal, to deal with the discovery, of the source of the disease, to take steps for the prevention of the spread of the infection, usually by the removal of the case to an infectious hospital, and to attend to any existing sanitary conditions. The regulations of the Local Government Board regarding measles alter the whole situation. As Dr. Garrett says, the chief object of the notification of measles is or ought to be to prevent the death of children from the disease, that is, that they ought to have medical attendance; but there is nothing in the regulations that is effective to this end; it is not stated, though it may be tacitly implied, that it is any part of the duty of a M.O.H. to give personal advice as to what steps should be taken as regards the treatment of a case, even as to whether any treatment by a doctor should be suggested—a more important matter than the discovery of the source of infection which is probably obvious, or than the limitation of the spread of the infection, which may present difficulties.

The difficulties of the part-time M.O.H. are more complicated; if we suppose that the notification arrives from parent or school teacher in respect to a patient in the practice of the M.O.H., and on a visit of inspection their diagnosis proves to be correct and he advises that a doctor be called in, he is obviously placed in the unpleasant position of touting for custom, and the parent may also assume that as the first visit was official and cost nothing, subsequent visits ought to come into the same category or else be dispensed with.

As 95 per cent. of the children who have measles in a rural district never see a doctor, the latter solution would probably be adopted by the parents. Another difficulty that confronts the part-time M.O.H. is that most country practices overlap, and that notifications from parents and school teachers may arrive in respect to people who for various reasons may not previously have selected a doctor, the M.O.H. may then have to decide whether he will suggest himself as a suitable person to attend the case, or be sufficiently magnanimous to pass it on to one of his colleagues, and, if so, which one. The school teacher must always play an important part in the working of the regulations. Since they came into force I have received

one notification from a doctor and five from school teachers of suspected cases, none of which were measles; in four out of the five cases I subsequently discovered that doctors were attending. These cases only involved a journey of nine or ten miles there and back, but had they occurred in other localities they might have involved a journey of fifty miles there and back.

The chief result of the regulations will be to put an enormous amount of extra work on all medical officers of health and their officials without any corresponding result; it is almost impossible to prevent the spread of the infection of measles by a wholesale isolation of children, and it is difficult to see that the regulations will provide for the proper treatment of more than a very small proportion of the cases, as the children below school age will probably not be notified by their parents.—I am, etc.,

A PART-TIME M.O.H.

THE PHYSICS OF A SURGICAL DRESSING.

SIR,—In the recent correspondence on the treatment of septic wounds I do not think that sufficient attention has been paid to two important principles which should guide one in the inquiry as to the best method of treating these wounds—namely, antiseptics and osmosis.

Most observers have been satisfied with finding a suitable antiseptic, but they have omitted to take into consideration the necessity of providing for some drying-up process which shall be exerted on the wound from start to finish. For the past year I have been using a 20 to 50 per cent. of ichthyol in glycerine painted on the wound and surrounding skin once daily. This combination fulfils the above mentioned conditions, does not adhere to the surface of the wound, and places the wound in a more favourable condition for healing than other methods. Those who find it difficult to procure ichthyol, or consider it too expensive, can easily substitute some cheaper antiseptic of a non-irritating character.

I am in absolute agreement with Lieutenant-Colonel Primrose as to the undesirability of applying impermeable material over a wound. I have used oiled silk by way of experiment, and soon learnt to discard it. For the first two days it did not appear to exert any marked influence, but if retained longer, healing was invariably delayed.

I am no believer in a wet dressing at any stage in the treatment of a wound; it deserves equal condemnation with oiled silk, etc. Why this antiquated absurdity is still retained any more than drainage tubes in septic wounds is a great mystery to me.

The placing of a septic limb in a bath is to my mind the height of folly; it delays healing indefinitely, and may lead to amputation. I am quite convinced that if ichthyol and glycerine are used in these cases many limbs will be saved at the front and in this country.—I am, etc.,

C. W. DUGGAN,

Military Hospital, Lincoln, Feb. 24th.

Major R.A.M.C.

SIR,—Like Dr. Shirlaw, I have often seen the evil effects of the application of dry dressings to septic wounds, and many will hope, with him, that we shall not depart from the principle of using dry dressings for aseptic wounds, and moist dressings covered with impermeable material for all septic injuries.

I have often seen dry dressing removed from a septic wound almost well, but in taking off the dressing a collection of pus was to be seen on the area of the dressing corresponding to the wound, and sometimes a gush of pus. The discharge had not spread laterally in the dressing, as a result of no outside impermeable material. Moreover, the new epithelium at the edges is frequently torn unless time and trouble are spent in moistening the wound.

A septic finger in an early acute stage needs a warm wet dressing (1 in 20 carbolic, 5 per cent. lysol, etc.), covered with oil silk. I have had them in my own person, and know their comfort. After incision wet gauze covered with oiled silk or jaconet is incomparably more comfortable than a dry dressing. A case I visited just after reading Lieutenant-Colonel Primrose's letter was a good illustration. A lady had a tube tied in the gall bladder, and as she complained of the moistened gauze and wool getting dry and the discharge escaping at one edge of the dressing and not soaking into the latter, I directed her to apply jaconet. On my next visit I was met with the remark,

"I have had no discomfort from the dressing since the addition of the jaconet"—the dressing had taken up the discharge in a uniform manner.

It is sufficient, in a clean wound covered with gauze and then with layers of aseptic wool, to use the impermeable covering a size smaller than the underlying layers, for the discharge, taking, as it does, the shortest line to the surface, finds its way to the jaconet and then perforce spreads laterally and diffuses itself through the dressing.

There will be numbers who most assuredly will disagree with the statement that "it would be greatly to the advantage of the wounded if impermeable oil silk, etc., were removed from the armamentarium of the army." The economy occasioned by the use of tissue is also a point. Antiseptic wools can be used again so far as those parts untouched by discharge are concerned.

As a wound progresses towards recovery it is true that a layer of non-absorbent wool over moist absorbent wool has much the same action as jaconet, and pus meeting it is thrown laterally. I remember reading a very interesting article by a Norwegian surgeon, wherein he spoke of hydrophil and hydrophobe wool, the former being placed next the wound and the latter outside all.—I am, etc.,

Norwich, Feb. 28th.

HENRY C. NANCE, F.R.C.S. Eng.

BREADS FOR CHILDREN.

SIR,—By the theory of existence of vitamins in all cereals, the Japanese scientists "built better than they knew," for not only does the discovery reveal the cause of beri-beri, but goes a long way towards solving our own food problem. The manifest deterioration in physique of our rural population, the wretched teeth possessed by 90 per cent. of the children, the prevalence of various developmental defects, can only be accounted for by insufficient nourishment, and the most unobservant must be startled by the fact that, in spite of a lowered standard, more than 30 per cent. of the young men attesting have been rejected as medically unfit. When we reflect that bread made of roller-milled flour—destitute of vitamins—with a little cheap jam, forms the chief dietary of the majority of these children, the inference is obvious that henceforth the white bread in general use may be fairly classed with polished rice, for besides being poor in fats, and minus nearly two-thirds of its minerals, it has been deprived of the all-important germ, which is sold to the makers of the various "gorm breads" on the market. As to remedies, the whole matter hinges on the methods of milling; it resolves itself into a question of roller v. stone compression or grinding. There can be no doubt as to the answer, for rollers have the fatal defect of flattening the glutinous germs into discs, which cannot pass through the screen and are lost, whereas with stone mills everything is retained. The profession surely ought no longer to acquiesce in this state of affairs. It is our duty, in the matter of food, to insist on nothing short of the best, nor rest content till there is placed within the reach of every man, woman, and child in the realm bread which shall be in fact, as well as in name, the "staff of life."—I am, etc.,

Brockenbush, Feb. 28th.

HENRY J. HIBBERD.

AUSCULTATION OF THE HEART OF THE RECRUIT.

SIR,—In your issue of November 20th Sir James Kingston Fowler gave extracts from an article of his written some years ago. There was much in these extracts which will appeal to every one, but on one point there must be a difference of opinion. It is when he says:

A murmur which suddenly and completely disappears when the patient lies down, provided there is not at the same time any marked alteration in the pulse-rate, is almost certainly due to organic disease of a valve.

And again:

Functional and false murmurs often disappear when the patient lies down, whilst an organic murmur, especially that of mitral stenosis, may be only audible in that position.

The letter called forth one from Sir James Mackenzie. With the subject of their difference of opinion I am not here concerned, but I see in your issue of December 25th, 1915, p. 943, that Sir James Kingston Fowler repeats his belief that "Loud murmurs often disappear when the patient lies down."

Surely, as an indication of some leakage or obstruction

which throws more work on the heart muscle, murmurs have their place, and it is as important as ever to distinguish between those murmurs produced by an organic valvular lesion and those due to some temporary and passing condition. In endeavouring to make this distinction, the effect of posture is of great importance, and I would venture to say that the so-called "functional murmurs"—which, by the way, are always systolic in time—tend to be louder in the horizontal posture, and become less audible and even disappear completely in the vertical. Systolic bruits due to organic disease vary in the same way with posture, but to a much less extent. It will be seen that this is the exact opposite to what Sir James Kingston Fowler states, and I can only leave it to your readers to decide. I would ask any doubter to go round any ward and listen in the second and third left interspaces close to the sternum of patient after patient, each patient being recumbent. A systolic murmur will be heard in a great many of them, and it will be especially loud at the end of expiration. In each instance, when a murmur has been detected, get the patient to sit or stand up, and it will be noticed that the murmur will tend to lessen, or even disappear. This pulmonary systolic murmur is, of course, the commonest type of "functional" murmur, but the effect of posture will be also found to apply to those in other areas. These very common functional murmurs are of little or no significance, and have no bearing on the patient or the recruit's "fitness" for active service. If it were only generally realized that they mean nothing, soldiers who come to the base hospital labelled "valvular disease of the heart" would be able to remain with their units, and thus they would be saved much worry and the Government much expense. In the same way many recruits would be accepted who at present are rejected.

May I add in closing how thoroughly I agree with the view that all men should be examined both in the recumbent and in the vertical postures? This not so much for its bearings on murmurs as its effect on the heart-rate. In all doubtful cases they should also be examined after a definite amount of exercise. This routine is always carried out in this base hospital, and is constantly found to be of great value.—I am, etc.,

ROBERT DAWSON RUDOLF, M.D. Edin.,
F.R.C.P., Lieut.-Col. C.A.M.C.

British Expeditionary Force, France, Jan. 1st.

Universities and Colleges.

UNIVERSITY OF BRISTOL.

THE following candidates have been approved at the examinations indicated:

M.B., CH.B.—O. C. M. Davis, Hilda K. Ewins. *Part I (including Forensic Medicine and Toxicology)*: E. J. Ball.

SOCIETY OF APOTHECARIES OF LONDON.

THE following candidates have been approved in the subjects indicated:

SURGERY.—*W. J. May, *H. S. Mitchell, *L. F. Pain, *G. C. N. Younger.

MEDICINE.—*E. V. Beaumont, *H. M. Gray, *L. Kahan, *W. J. May.

FORENSIC MEDICINE.—J. Y. Dent, P. C. C. Fenwick, H. M. Hobson, G. C. N. Younger.

MIDWIFERY.—P. G. H. Baron, W. F. R. Castle, B. Ghobrial, E. N. Glover, W. H. A. Pratt, A. L. Watts.

* Section I. † Section II.

The diploma of the Society has been granted to the following: W. F. R. Castle, L. Kahan, W. J. May, and G. S. Mitchell.

The Services.

EXCHANGES DESIRED.

CAPTAIN H. W. BAYLY, R.A.M.C.T., 2/1st South-Western Mounted Brigade Field Ambulance, Maresfield Park Camp, Uckfield, Sussex, gazetted Captain September 4th, 1915, late Civil Surgeon, General Plummer's Force, South Africa, wishes to exchange with a Medical Officer to a British Cavalry or Yeomanry Regiment in France.

Captain R.A.M.C.(T.F.), honorary surgeon to civil hospital at present stationed in England, attached as Medical Officer to Divisional Train, A.S.C., desires an exchange with an officer holding a hospital appointment at home or abroad in which operative surgery is available.—Address No. 950, BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C.

Obituary.

NATHANIEL E. ROBERTS, M.B., C.M. Edin., D.P.H.,
ASSISTANT MEDICAL OFFICER FOR THE PORT OF LIVERPOOL.

WE regret to announce the death of Dr. N. E. Roberts, which took place at Menai Bridge. Until twelve months ago he was enjoying life and fulfilling his various public duties with his customary energy. His health gradually began to fail and he was reluctantly compelled to retire from active practice. For some months he had lived with his sister, and it was hoped the rest in his native land would restore his health. Dr. Roberts was a good example of self-help and dogged perseverance. In his early youth he worked as a pork butcher, then he qualified as a chemist, and finally by his indomitable energy studied medicine at the University of Edinburgh, where he graduated M.B., C.M. in 1879. He took the D.P.H., L.R.C.P.S. Edin. in 1892. After spending some time at Bangor he went to Liverpool where he held many public appointments. He was recognized as an authority on infectious fevers, having gained his experience during the twenty-three years he was visiting physician to Grafton Street Fever Hospital. He was also assistant medical officer to the Port of Liverpool; his duties were to visit ships arriving in Liverpool and inspect the bills of health and detect and deal with any source of infection. He was also an examiner in and teacher of vaccination and lecturer on infectious diseases in the University of Liverpool; at one time he was Vice-Chairman of the Medical Faculty.

Dr. Roberts was an enthusiastic volunteer and territorial, retiring with the rank of Lieutenant-Colonel R.A.M.C. (T.F.).

A man holding so many public appointments had little time for private practice, and this partook more of consultations in the special subjects on which he was an authority than of general practice. Nevertheless Dr. Roberts was a man who never narrowed his interest in matters medical, and was a frequent attendant at the meetings of the Liverpool Medical Institution.

He had many friends, won for him by cheerful genial disposition and sense of humour, and, in spite of a rugged impression, rendered more noticeable by his shaggy eyebrows and massive hair, he was always welcome among his medical friends, and many a joke about his fellow countrymen and their ways passed his lips. He was a widower, and leaves no children. The funeral, at Smithdown Cemetery on February 23rd, was attended by representatives of the public institutions with which he was connected.

By the death of Mr. CHARLES LAKIN on February 10th, at the age of 67, Leicester loses one of its oldest medical practitioners. Mr. Lakin was educated for the medical profession at Queen's College, Birmingham, and after taking the diploma of L.R.C.P. Edin. in 1872 was for a time resident obstetrician at Queen's Hospital. Later he took the diplomas of L.R.F.P.S.G. and L.S.A. He commenced practice in Leicester in 1873 and quickly attained a prominent position. For the last thirty years he had been a member of the town council, and in 1892 was appointed an alderman, a position which he held at the time of his death. His best known public work was in connexion with the Sanitary Committee, of which he was vice-chairman for many years; he was also chairman of the Isolation Hospital Committee. He was Mayor of Leicester in 1908, an office that he filled with dignity and credit to the town. Of quiet, unassuming character, he spoke seldom, but rendered splendid service by bringing his medical knowledge to bear on questions relating to the welfare of the rapidly growing borough. Among his multifarious duties he found time to carry on the work of the honorary medical officer to the Wycliffe Society of the Blind, which looks after the interests of over 200 blind persons. Of genial nature, his patients found him full of kindness and sympathy, and many will mourn the loss not only of a trusted medical adviser but of a valued friend.

DR. GEORGE ALFRED HEBERDEN, D.S.O., of Victoria West, Cape Province, South Africa, died in a sanatorium on January 23rd, aged 55. He was the eldest son of the

late Rev. George Heberden, vicar of Rothwell, Yorkshire, received his medical education at St. George's Hospital, and took the diplomas of M.R.C.S. and L.R.C.P.Lond. in 1888. Settling in South Africa, he served as surgeon-captain with the mounted forces in the South African war, went through the siege of Kimberley, and received the D.S.O., as well as the medal. He was afterwards district surgeon and railway medical officer at Victoria West.

MAJOR FREDERICK RICHARD MILLER, R.A.M.C.(T.F.), Deputy Assistant Director of Medical Services, 60th Division, died at Alum Chine Towers, Bournemouth, on February 4th, aged 50. He was the younger son of the late T. Lanfear Miller, of Cape Town, was educated at St. Bartholomew's, and took the diplomas M.R.C.S. and L.S.A. in 1886, and that of L.R.C.P.Lond. in 1887. He graduated M.D.Brux. with distinction in 1889. He was clinical assistant in the Royal Ear Hospital, and before the war was in practice in Kensington; he was a captain in the 6th London Field Ambulance, and was appointed to his late post on February 22nd, 1915. He was an ex-president of the Brussels Medical Graduates' Association and a member of the Red Cross Society of Madrid.

LIEUTENANT WILLIAM DENMORE MURRAY, R.A.M.C., died in London in January, aged 48. He was educated at Glasgow University, where he took the degrees of M.B. and C.M. in 1888, and had been in practice in London for fifteen years, when he took a temporary commission in the R.A.M.C. He had recently been stationed at Colchester. He leaves a widow and two sons, the elder of whom is serving in the Northumberland Fusiliers.

Medical News.

THE University Court of Edinburgh has elected Dr. R. McKenzie Johnston a Curator of Patronage in the room of the late Sir William Turner.

H.R.H. the Duke of Connaught, Grand Prior of the Order of St. John of Jerusalem in England, has approved of the appointment of Sir William Bennett, K.C.V.O., F.R.C.S., to be Surgeon-in-Chief to the St. John Ambulance Brigade.

PROFESSOR M. WEINBERG, of the Pasteur Institute, Paris, will deliver a lecture on bacteriological and experimental researches on gas gangrene, with epidiascope demonstration, before the Royal Society of Medicine (1, Wimpole Street, London, W.), on Friday next, at 5 p.m.

THE Health of Munition Workers Committee has issued a memorandum on canteen construction and equipment numbered 6 (Cd. 8199. Price 4d.), which is an appendix to memorandum 3 on industrial canteens. The new memorandum is illustrated by detailed constructional drawings. Communications on the subject should be addressed to the secretary, Canteens' Committee, Central Control Board, Canada House, Kingsway, London, W.C.

THE Royal Free Hospital has made its clinics for safeguarding infant life the consultative centre of departments devoted to infant welfare. An appeal is now made for £200,000 for additional accommodation for maternity and other special cases. A generous benefactor has already presented over an acre of ground adjacent to the hospital, and the first block of the new building will be commenced as soon as funds and circumstances allow. Donations should be addressed to Sir Francis Layland Barratt, Bt., M.P. (honorary treasurer), Royal Free Hospital, Gray's Inn Road, W.C., where full information can be obtained from the secretary, Special Appeal Fund.

AT the annual meeting of the Southport Infirmary on February 26th a tribute to the memory of Sir George Pilkington, adopted by the board of management, was reported. The resolution recalled that he had been chairman of the board for fifteen years, and concluded as follows: "Sir George's relations with his colleagues and the entire staff were always of the most cordial nature, and he enjoyed the confidence and affection of all. In him the infirmary has lost a leader of wisdom and resource, and a friend whose generous help was ever available. His memory will long be a stimulus to those who remain to carry on the work for the sick poor of this district, and especially at this time for the wounded soldiers who are entrusted to our care."

THE Pirogoff Society, the leading medical society of Russia, in a recent report states that the suppression of the drink traffic has led to a diminution of sickness, especially venereal and mental diseases, accidents (especially railway), fires, suicides, and crimes; and to an increase of industry and material wealth. Whether a return to beer and wine should be allowed while vodka continues to be forbidden is answered in the negative on the ground that these drinks, being pleasanter to the taste, attract women and children. Other measures to supplement prohibition are urged, such as a betterment of social conditions and an active propaganda for the enlightenment of the people regarding the evils of alcoholism. An inquiry made in the province of Penza showed that only 14 per cent. of former drinkers had used substitutes, and most of these were comparatively harmless beverages.

MR. LEWIN PAYNE opened a discussion at the meeting of the Odontological Section of the Royal Society of Medicine on February 28th on war injuries of the jaws and face. Communications were made by Dr. Hayes of the American Ambulance in France, Dr. Hotz of Paris, and Mr. J. F. Colyer. The debate will be resumed on Monday next at 5.30 p.m. In connexion with the discussion an exhibition of splints, models, photographs, and x-ray pictures is on view at the house of the society (1, Wimpole Street). M. Pont of Lyons has sent photographs and descriptions of cases of very extensive destruction of the jaws and face, and specimens of the apparatus used. The American Ambulance in France and the Ecole Dentaire de Paris have sent similar exhibits. The photographs show well the form of splint used and the permanent restorative apparatus. There are similar exhibits from the British hospitals, including x-ray pictures of two cases of bone-grafting of the mandible operated on at the Croydon Military Hospital. The exhibition is of the utmost practical interest, and remains open till Monday evening, March 6th.

THE Territorial General Hospital at Birmingham has followed the example of some others, and on January 1st issued the first number of a hospital periodical, with the title *The "Southern" Cross*. The 1st Southern General Hospital was established in the university buildings, Edgbaston, Birmingham, with 520 beds, and received its first convoy on September 1st, 1914. The number was subsequently raised to 1,040; sections were opened at Dudley Road, Stourbridge, Selly Park, and King's Heath; forty-seven auxiliary hospitals were organized, and many civil hospitals in the Midlands put beds at the disposal of the 1st Southern. Altogether 30,501 patients, of whom 235 were officers, were treated to the end of 1915. The first number opens with a portrait of the administrator, Lieutenant-Colonel F. Marsh, and a short note by him, in which he very justly observes that the work of such hospitals does something more than relieve suffering, for restoration of the sick and wounded to health means the return of trained soldiers to the firing line. Like its hospital contemporaries, this periodical is not all serious; in fact, it is very little serious. It contains a good many hospital jokes and some excellent caricatures. It is edited by N. Pollock, whose rank is not stated.

AT the usual monthly meeting of the Medical Sickness and Accident Society, on February 18th, when Dr. F. J. Allan was in the chair, it was reported that the sickness experience for January was slightly in excess of the expectation at this time of the year, and was generally accounted for by the number of claims for influenza. Special reports on all the chronic claimants now drawing sickness benefit showed that they numbered 40 and that the amount paid annually was £2,000. This is considered to be the most important work the society performs, as it is principally the sickness benefit received each week that enables the recipients to maintain themselves and their families. The votes obtained in consequence of the annual subscription of £105 to Epsom College has also enabled members of the society, crippled in health and unable to earn their living, to obtain Foundation Scholarships for their sons, thus giving them a first-class education at one of the foremost schools free. The balance-sheets for the year showed that the total funds of the society were now £274,700 and the annual income £37,000. It was resolved to place before the annual meeting in March a scheme of deferred annuities, starting at age 65, with five options before that age. Registered dental surgeons of military age are accepted under certain conditions which will be given on application. All applications should be addressed to the secretary, Medical Sickness and Accident Society, 300, High Holborn, London, W.C.

Letters, Notes, and Answers.

THE telegraphic addresses of the BRITISH MEDICAL ASSOCIATION and JOURNAL are: (1) EDITOR of the BRITISH MEDICAL JOURNAL, *Aitoliway, Westrand, London*; telephone, 2631, Gerrard. (2) FINANCIAL SECRETARY and BUSINESS MANAGER (advertisements, etc.), *Articulate, Westrand, London*; telephone, 2630, Gerrard. (3) MEDICAL SECRETARY, *Mediscera, Westrand, London*; telephone, 2634, Gerrard. The address of the Irish office of the British Medical Association is 16, South Frederick Street, Dublin.

Queries, answers, and communications relating to subject to which special departments of the BRITISH MEDICAL JOURNAL are devoted will be found under their respective headings.

QUERIES.

INCOME TAX.

J. M. states that the separate income of her husband is probably under the exemption limit, and that their combined incomes do not exceed £500. Should separate returns be made?

* A recent Finance Act provided that a married woman might be assessed separately where notice requiring that method to be adopted had been given in due time. "J. M." is now too late to make that claim for 1915-16, but might send a note to the local surveyor of taxes, asking for any appropriate form of claim to be sent to her for the year 1916-17. The fact that separate returns are made does not affect the amount of the total allowances to be made, but the resulting assessments should be more convenient and be more easily verifiable by "J. M." when the notices are issued next autumn. Assuming that "J. M.'s" earnings are independent of those of her husband, the abatement (or exemption) would apply as if she were a femme sole.

T. R. A. has been asked by the surveyor of taxes to supply him with a statement showing his receipts and expenses for the year 1915.

* From the extract quoted the letter of the surveyor would appear to refer to the next assessment to be made, namely, that for the financial year 1916-17. Presumably the request is made with a view to agreeing our correspondent's liability with him before the return forms are issued for 1916-17. "T. R. A." is not under any statutory obligation to comply with the request, but we may perhaps say that we understand that the surveyor's procedure is not unusual. If the amount to be returned for assessment be agreed beforehand, the possibility of an estimated assessment being made is eliminated, and therewith the risk that our correspondent may ultimately be required to produce the statement in question in connexion with an appeal.

THE TREATMENT OF PRURITUS ANI.

A. E. asks as to the treatment of pruritus ani with surrounding eczema in a man of gouty habit, aged 50. General treatment and diet for the gout and many ointments locally, and an operation for haemorrhoids both internal and external, and division of the nerves on both sides have been tried during the last three years. The irritation is no better and is only relieved by cocaine locally.

* An instructive series of letters on this subject will be found in the JOURNAL, vol. i, 1914, following a surgical memorandum by Dr. J. Cropper, p. 966. One correspondent declared that, according to his experience, about five or six applications of x rays will cure any case which is not merely a complication of polypus, fissure, haemorrhoids, etc. Dr. Cropper, however, replied (p. 1330) that few people will use x rays if they can get relief from simpler remedies. The local treatment, advocated by Dr. Cropper and also successfully carried out by a medical patient suffering from severe chronic pruritus, was the application of tincture of iodine in full or half strength, three times weekly. Compound tincture of benzoin, painted on the parts twice or three times daily, is said to be even more efficacious after several applications of iodine, which should be reapplied from time to time when found necessary.

LETTERS, NOTES, ETC.

COLONEL RIORDAN, R.A.M.C. (ret.), has reduced the price of his *Manual for Army Medical Services* (London: Eyre and Spottiswoode) to 3s.

WITH a view to liberating Russia from the yoke of dependence on German trade, the Russo-British Trade Exchange Company has published a *Directory of British Manufacturers for Russian Trade* (5s.). It furnishes the Russian consumer and tradesman with an authentic directory of British manufacturers, printed in the Russian language, with trade headings in Russian and English, and copious advertising

pages. The book is well got up and illustrated, and is designed for circulation in Russia. So far as we can judge, it has received the support of many of the most representative British manufacturing houses. It fills a want that has been cried aloud for many months by all our British writers and authorities on Russian affairs, and we wish it all success.

"URODONAL."

WE have received for examination a sample of a granular effervescent preparation made by J. L. Chatelain (Paris) and put forward under the name "urodonal" for the treatment of rheumatism and all uric acid troubles. It is stated to contain hexamine, lysidine, and quinate of piperazine; it is in the form of large dry granules, which dissolve in water with slow effervescence. Analysis showed the presence of a substantial amount of hexamine, together with a much smaller quantity of a base or bases of the group represented by piperazine and lysidine. Hexamine, it will be remembered, is the term used in the *British Pharmacopoeia* of 1914 for hexamethylenetetramine, a synthetic drug to which a great number of names have been given, including formamine and urotropine. Lysidine is ethylene-ethenyl-diamine, and is nearly related, both chemically and in its properties, to piperazine, which is diethylene-diamine. Piperazine usually dissolves the uric acid in a test tube, but it is very doubtful whether it exercises any such solvent action in the body. The *British Pharmaceutical Codex* states that the amount of piperazine appearing in the urine is very small, and is found to be in combination with the stronger acids and not with uric acid. The antiseptic action of hexamine is exerted only in acid urine. Urodonal appears to be freely advertised to the public in France, and also in this country, as a specific for uric acid troubles. Its composition, however, does not seem to us to justify any very sanguine expectations as to its efficacy in this respect.

THE CLINICAL VALUES OF A URINE TEST GLASS.

DR. C. O. HAWTHORNE (London, W.) writes: In these days of multiplied and costly clinical machines on the one hand and of the need for economy on the other, it may be worth while to note what varied and practical services may be obtained from so simple and inexpensive a piece of apparatus as a urine test glass. In the first place, the glass makes an excellent stethoscope, more particularly when—as cannot always be avoided—auscultation has to be conducted through the patient's clothing. Secondly, if the cylinder is grasped in the physician's hand and the edge of the flattened base used as the head of a hammer, a suitable plexor for heavy percussion is provided, should this mode of inquiry be regarded as necessary. Employed in this same way also the glass is exactly the apparatus required to provoke the knee-jerk and the heel-jerk, as well as the tendon-jerks of the upper limbs, while the "spont" offers itself invitingly when the enterprise of the plantar reflex has to be undertaken. Again, rolled over the surface of the skin, the glass differentiates haemorrhagic and pigment spots from spots due to congestion or inflammation; and, once more, the cylinder is a convenient object for the patient's grasp when intravenous medication or venesection is in progress. All these functions may be added to the particular purpose for which the glass was called into being, and there still remain for gratitude the modest market value of the apparatus and the readiness with which it may be kept in a condition of cleanliness exalted even to the level prescribed by the most rigid of the bacteriological pharisees. I have often demonstrated these utilities to classes of students and practitioners, and perhaps, under the stress of the present economic situation, they may be deemed worthy of introduction to a wider audience.

THE IMMEDIATE TREATMENT OF SEVERE POST-PARTUM HAEMORRHAGE.

DR. W. J. L. FRENCH (Barnetby, Lincolnshire) writes: After an experience of over twenty years in an extensive midwifery practice, I have no hesitation in stating that the most satisfactory and expeditious method of dealing with this urgent condition is to introduce the right hand into the vagina, grasp the uterus firmly, and make pressure against the left hand pressed equally firmly on the fundus externally. There need be no fear of sepsis, except in the minds of the nervous and inexperienced, if the hand has been previously thoroughly cleansed with ethereal soap.

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

	£	s.	d.
Seven lines and under	0 5 0
Each additional line	0 0 8
A whole column	3 10 0
A page	10 0 0

An average line contains six words.

All remittances by Post Office Orders must be made payable to the British Medical Association at the General Post Office, London. No responsibility will be accepted for any such remittance not so safeguarded.

Advertisements should be delivered, addressed to the Manager, 429, Strand, London, not later than the first post on Wednesday morning preceding publication, and, if not paid for at the time, should be accompanied by a reference.

NOTE.—It is against the rules of the Post Office to receive *postes restantes* letters addressed either in initials or numbers.

AN ACCOUNT, WITH COMMENTARY, OF A CASE OF SPLENECTOMY

IN ADDENBROOKE'S HOSPITAL, CAMBRIDGE,

UNDER THE CARE OF

SIR CLIFFORD ALLBUTT, K.C.B., F.R.S.,

L. HUMPHRY, M.D.,
F.R.C.P.,

F. DEIGHTON, M.B.,
M.R.C.S.,

AND

DOROTHY C. HARE, M.D., B.S.LOND.

SPLENIC ANAEMIA, that is, a progressive "secondary" anaemia with enlargement of the spleen, is probably more common than was supposed before the comparatively recent investigations of Sir W. Osler and others drew the attention of the clinician more definitely to its characters. During the autumn of 1915 three cases of this malady came under the care of one of us (C. A.) in the Addenbrooke's Hospital. (Malaria has been unknown in Cambridgeshire for more than forty years.) One of these cases was seen once or twice only and lost sight of; the second was in a little boy (aged 6 or 7) who presented all the now well-known features of the disease. After long consideration it was decided to remove the spleen, an operation to which the mother gave her consent; unluckily however the boy got to hear of our intention and howled until the mother's resolution, not unnaturally, gave way, and he was removed. The case was a severe one; haemorrhages, intestinal and other, were frequent, and probably the boy is no longer living. In this case Dr. Dorothy Hare and Dr. Humphry took much pains to perfect the method of testing for corpuscular fragility, and Dr. Hare, on repeated examinations, found the fragility normal. There was no other point in it of sufficient importance to detain us. The third case was as follows:

Mrs. K., aged 45, was admitted under the care of Professor Allbutt on October 25th, 1915. She was extremely prostrate, blanched, and short of breath. The colour of the face—save some venous injection on the malar bones—and of the whole body was that of an old tallow candle. No discoloration could be found on the skin; indeed the axillary and other folds of the body were, like the skin elsewhere, unusually pallid. No notable emaciation. The mucous membranes were almost as pale as the skin. The teeth were ill kept, two of them loose and protruding. These teeth were drawn without any excessive bleeding; the rest, in consideration of the woman's state, were not extracted, but the mouth was thoroughly cleansed and the gums dressed daily with iodine. There was no definite pyorrhoea. The tongue was pallid, but quite normal in appearance and soft in its substance. The

spleen was moderately enlarged, fairly soft, and a little tender; the notch distinct. No sign anywhere of enlarged lymphatic glands. Excepting haemic murmurs and a very feeble pulse nothing of importance was noted on the side of the heart and blood vessels. The ankles were a little puffy. The liver was apparently normal, but the edge just perceptible below the ribs. No signs and no history of haemorrhages; but occasional passing attacks of diarrhoea or vomiting. From the time of admission onwards the charts showed a continuous pyrexia, as recorded in the annexed reprints of them.

As the woman grew steadily worse, and the occurrence of haemorrhages was feared, it was decided, after careful consultation with colleagues, and especially with Mr. Deighton, to remove the spleen. The patient at last gave her consent, and on December 3rd the operation, to be described by Mr. Deighton, was performed.

Operation.—The abdomen was opened by a vertical incision through the upper part of the left rectus; a few adhesions were met with. The spleen was then gently brought into the wound, the lienorenal ligaments and gastro-splenic omentum were tied and divided. The pedicle was then transfixed and ligatured in three portions with interlocking ligatures; there was hardly any haemorrhage. The wound was then closed.—(F. D.)

The spleen weighed 1½ lb. Histological examination showed nothing abnormal.

The patient then came under Dr. Humphry's charge, and for a few days after the operation suffered a good deal. So severe an operation was a great trial to a woman disheartened, anxious, and very feeble. She suffered also for some days rather severely from the after-effects of the anaesthetic; the stomach was upset, and food ill tolerated. Not only so, but, as recorded on the charts, the pyrexia, after a promising fall towards normal, became still sharper. Evidently, as the appended blood counts will show, a great commotion was set up in the blood factories. However, on December 28th—as seen in the charts—the pyrexia began to fall, and on January 5th was settling down when another sudden rise took place, coincident with an accumulation in the colon. Notwithstanding, during these weeks the patient was obviously rallying; a little bloom of colour and a little ray of hope brightened her face, and she began in small ways to help herself. And happily this rise of temperature proved to be the last; thenceforward the fever ceased, and on January 24th she was discharged convalescent. For a week she had been sitting up and walking about the ward. Her appearance, if still somewhat anaemic, had greatly improved, and she felt able to return to her home duties.

On the blood counts taken at intervals during her stay in the hospital we need not dwell, as the appended records—all taken by Dr. Dorothy Hare—speak for themselves. The variations are closely in accordance with those displayed in the other published cases. There is an excellent tabulated collection of blood counts in splenic anaemia

Table showing Results of Blood Examinations.

Date.	Haemo- globin.	Red Cell Count per c.mm.	Nucleated Reds Counted per 100 Leucocytes	Total Leucocytes per c.mm.	Differential Leucocyte Counts.						Remarks.
					Poly- morpho- nuclears.	Lympho- cytes, Small and Medium.	Mono- nuclears, Large.	Hyalines	Coarsely Granular Eosino- philes.	Baso- philes.	
1915. Oct. 22	Per cent. 33	2,980,000	0	4,500	Per cent. 72	Per cent. 23	—	2	—	3	Slight poikilocytosis.
Nov. 27	35	2,110,000	0	33,000	—	—	—	—	—	—	Period of irregular pyrexia from Nov. 25 to Dec. 3.
Nov. 30	—	2,630,000	—	11,000	—	—	—	—	—	—	
Dec. 13	■	4,000,000	2	36,000	77	—	23	—	—	—	Dec. 3 operation. Count 10 days after operation. The lymphocytes were chiefly large cells, not distinguish- able from atypical hyalines.
Dec. 18	42	3,850,000	3.5	22,600	69	■	■	3.5	—	0.5	15 days after operation.
Dec. 29	40	4,270,000	1.5	17,200	57	■	■	5.5	■	0.5	25 days after operation.
1916. Jan. 8	42	3,480,000	2	27,600	■	27	3	1.5	0.5	—	31 days after operation. Pyrexia during three pro- vious days.
Jan. 19	■	4,010,000	0	10,000	28.5	55	■	■	■	1.5	47 days after operation.
Jan. 23	—	—	—	—	33	47	13	7	—	—	51 days after operation.

in Thursfield and Gow's paper in *St. Bartholomew's Hospital Reports*, Vol. L, part i.

As our paper is entirely clinical we need not enter into the obscure problems of splenic physiology. Suffice it to say—strange as it may seem—that this large organ, presumably with a function, or functions, so ample, may nevertheless be excised without ultimate, or indeed proximate, impairment of life. After some temporary commotion the body seems to settle down again to work without sensible shortening of its vital capacity. We have not yet data, it is true, to assure us that after splenectomy life may be extended to fullness of years, though some such patients are now under observation whose lives have been prolonged in apparent health for such periods as eight and ten years after the operation; two of Osler's patients have survived for nine and fourteen years (Ede). How this remarkable compensation comes about is variously explained; it is enough for the present to say that our experience is now sufficient to justify us in excising a diseased spleen if symptoms seem to require it.

Dr. Cutlbert Ede (in his M.D. thesis, Cambridge, December 10th, 1915) formulated the following conclusions:

1. No ill results follow removal of the organ; that is, of course, assuming that the operation is performed successfully and under favourable conditions.
2. The first and best marked change in the peripheral blood is an increase in the total number of the polymorphonuclear cells, and a large increase in the number of the red cells. This is instantaneous.
3. During the first year after the operation there is an increase in the absolute number of the lymphocytes.
4. Later these become normal in number, but eosinophiles are increased.
5. Finally the blood picture resumes a perfectly normal state.

Noguchi, quoted by Dr. Ede, comes to the same conclusions, and they are confirmed by our patient's case, and by Captain Jones's case in this JOURNAL, February 5th, 1916. Dr. Ede and others have suggested that in these cases of splenic anaemia the fragility of the reds is increased; to this point Dr. Humphry and Dr. Dorothy Hare gave close attention and care, but reported that in both the cases here mentioned (the boy and the woman) the fragility was not increased—was, in fact, normal.

Another curious point in recovery from splenectomy is that thereby the protective virtues of the body against infection are in no way impaired. (See Fuhs,² and our own case, January 4th to 7th.)

Osler and Rolleston have done much to elucidate and differentiate diseases of the spleen. Splenic anaemia they describe as follows (the quotation is a little abbreviated):

1. Diminution of the number of reds with a falling haemoglobin value per corpuscle.
2. No leucocytosis, usually leucopenia.
3. Enlargement of the spleen, not correlated with any other known splenic disease.
4. The tendency to gastro-intestinal haemorrhage.
5. The termination, if sufficiently prolonged, in hepatic cirrhosis with ascites (Banti's disease).

We are indebted to Dr. Ede for references to published results of operation (excision)—namely, Johnston,⁷ Redman and Willard,⁸ and Sidney Boyd.⁹ The issue of the present series of operations is to show that the advantage of operating in an early and uncomplicated stage of the disease is enormous; the mortality is thus reduced in cases of this class from about 50 to about 10 per cent. Banti's figures are to the same effect. The most perilous event of the operation is that of intestinal haemorrhage, due perhaps to thrombosis of the splenic and other larger veins; but in cases operated upon betimes and under favourable conditions this event also is far less frequent.

It will be seen that our case, both in respect of its issue and of the behaviour of the corpuscles, was conformable with all the chief points of Dr. Ede's experience and that of the authors quoted by him.

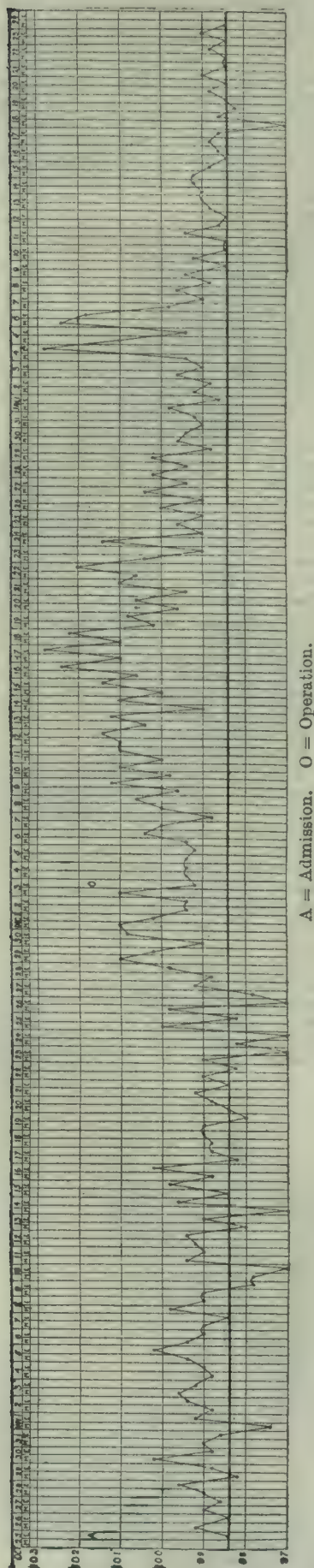
NOTES ON TABLE (D. C. H.).

The most interesting feature of the chart is the record of the behaviour of the polymorphonuclears and lymphocytes. Even before the operation their numbers varied widely. The first count showed the leucopenia usually associated with the disease, but later there was a high leucocytosis, coincident with a period of increased irregularity of temperature.

After the operation the variations in the chart followed in the main the usual course. There was an early increase in the polymorphonuclears, succeeded in about six weeks by a sharp rise in the lymphocytes. A high polymorphonuclear count in the fifth week followed a few days of high temperature (January 4th to 7th), which supports the observation of Fuhs that removal of the spleen does not abate the capacity for reaction against infection.

The classification of the lymphocytes and hyalines in the early days after the operation presented some difficulty, and in the first count the large mononuclears are grouped together. Later the types became more distinct, but there still remained at the last examination a large number of these cells intermediate in type.

Before the operation the test for the fragility of the red corpuscles was carried out by Thursfield's method with unwashed corpuscles and gave a normal result. The urine was also tested for the presence of haemolysins and



a positive reaction obtained. The method used was that recently published by McKee (in the JOURNAL, October 23rd, 1915).

P.S.—On February 28th Mrs. K. presented herself again at the hospital for examination. She seemed quite well, and said she felt well. She had done all her housework almost from the date of leaving the hospital. Her tongue, pulse, temperature were all normal; appetite good, bowels regular. Complexion now well coloured, and all the tallowy tint had disappeared. She was strongly urged now to have her mouth attended to and all bad teeth removed from unhealthy gums. Dr. Hare made a fresh blood examination, which is here appended.—C. A.

Blood Examination, February 28th, 1916.

Haemoglobin ...	...	48 per cent.
Red blood cells ...	...	3,900,000 per c.mm.
White blood cells ...	...	41,000 per c.mm.
Differential leucocyte count:		
Polymorphonuclears ...	...	48 per cent.
Lymphocytes small and medium...	...	44 per cent.
Large mononuclears ...	...	5 per cent.
Hyalines... ..	...	1 per cent.
Basophiles ... ..	...	2 per cent.
Nucleated red cells, 1 per cent. of leucocytes counted.		

REFERENCES (collected by Dr. Ede).

- ¹ Hutchinson, *Proc. Roy. Soc. Med.*, 1913, vi, Surg. Sec., 241. ² Faltin, *Deutsch. Zeit. Chir.*, cx, 160. ³ Noguchi, *Berl. klin. Woch.*, 1912, ii, 1839. ⁴ Thurfield and Gow, *St. Bartholomew's Hosp. Reports*, Vol. 1, Part 1. ⁵ Fuhs, *Amer. Journ. Med. Sci.*, 1911, cxlii, 713. ⁶ Rolleston, *Clin. Journ.*, xix, 403. ⁷ Johnston, *Ann. Surg.*, 1908, xlviii, 50. ⁸ Rodmand and Willard, *Ann. Surg.*, 1913, lvi, 601. ⁹ Boyd, *Clin. Journ.*, April, 1915. ¹⁰ Banti, *Fol. Haematol.*, 1910, x, 33. ¹¹ Otto, *Wien. klin. Woch.*, 1910, 54. ¹² Brill and Mandelbaum, *Amer. Journ. Med. Sci.*, 1913, cxlvi, 863. ¹³ Roth and Bernstein, *Arch. of Fed.*, 1914, xxxi, 340. ¹⁴ Chaffard, *Presse méd.*, 1907, xv, 345. ¹⁵ Thurfield, *Proc. Roy. Soc. Med.*, 1914, vii, Clin. Sec., 84. ¹⁶ Muhsam, *Deutsch. med. Woch.*, 1914, 377. ¹⁷ Ziegler, *Deutsch. med. Woch.*, 1910, ii, 2410. ¹⁸ Beehisch, *Sem. méd.*, 1914, 35. ¹⁹ Weber, *Quart. Journ. Med. Sci.*, 1908, iii, 85. ²⁰ Kidd, *Proc. Roy. Soc. Med.*, 1913, vi, Surg. Sec., 231.

THE PRINCIPLES OF TREATMENT AND THEIR APPLICATION TO WOUNDS.

BY

CHARLES F. M. SAINT, M.D., M.S., F.R.C.S.,

CAPTAIN, R.A.M.C.(T.); SURGICAL SPECIALIST, CASUALTY CLEARING STATION, ON ACTIVE SERVICE; ASSISTANT SURGEON, HOSPITAL FOR SICK CHILDREN, AND SURGICAL REGISTRAR, ROYAL VICTORIA INFIRMARY, NEWCASTLE-ON-TYNE.

A WOUND is the local effect produced by an irritant on the tissues, and the consideration of irritation should include (1) its cause, (2) its effects, (3) the reaction to it, and (4) its complications.

1. *The cause of irritation* is described as an irritant. Irritants may be classified as (a) non-infective, and (b) infective; in the former class are included mechanical, chemical, electrical, and thermal agents, α rays, etc.; the infective are micro-organisms.

2. *The effects of irritation* are essentially destructive in nature, and they are general (shock) and local (tissue destruction). Whereas one has been accustomed to regard a wound as entailing a breach of surface, ordinarily produced by a mechanical agent, it is more in accordance with reality to include under the term all destruction of tissue, of whatever degree, in whatever situation, and by whatever variety of irritant brought about—for example, contusions, ruptures of viscera, fractures, burns, and injuries of all kinds.

3. *The reaction of the tissues to irritation* consists of vascular changes and cell proliferation (Rutherford Morison), vascular changes predominating in the acute and cell proliferation in the chronic form.

4. *The complications of irritation* result from (a) extension of the process of irritation; (b) superadded irritation; or (c) healing.

PRINCIPLES OF TREATMENT.

The principles of treatment are: (1) Remove the cause; (2) combat the effects; (3) assist the reaction; (4) prevent complications, or deal with them if they have arisen.

1. Removal of the Cause.

A sterile metallic body gives rise to a minimum of irritation sufficient for the production of a fibrous capsule, whereby the body is completely isolated. In a large proportion of cases missiles have come to be regarded as

sterile, particularly rifle bullets presenting a small wound of entry. Under special circumstances, even where the bullet is apparently sterile, it may require removal—for example, when from its position it gives rise to irritation of nerves, interferes with the movements of a joint, etc. Operative measures for the removal of metallic bodies ought to be restricted where α rays are not available. It is unjustifiable, then, to do any extensive dissection, and difficult operations should be postponed till the base is reached. The commonest and most important indication for the removal of bullets, etc., is sepsis in the track. Should operative measures be determined upon, it is essential to bear in mind that too small an incision increases shock from the excessive retraction demanded, and the longer time necessary for the operation.

2. Combating the Effects.

There is general agreement that in the present campaign the degree of shock is greater than might have been anticipated from the nature of the injury, and there seems to be little doubt that it is due especially to excessive mental and nervous strain; in prolonged engagements, also, insufficient food, arising from the difficulty of its transfer, contributes in no small measure. Rough transport following the receipt of the wound, especially in motor ambulances over paved roads, is responsible for a considerable increase in the degree of its severity.

The requirements of the milder cases are met by a good meal, with some tea or cocoa, immediately followed by quiet and sleep. In the more severe cases, rest, with the foot of the stretcher elevated, is essential. Should pain or restlessness be present, morphine must be administered hypodermically. It is remarkable what tolerance to the drug these patients exhibit, half a grain being a regular and not infrequently inadequate dose; it is of advantage as a prophylactic before transporting the patient from one place to another. Stimulants, whether by the mouth or hypodermically, must be given with caution, the rule being "repeated small doses." For example, one tenth of a grain of strychnine will increase the shock (Orile), while one-fifth of that amount given perhaps each hour will benefit the condition. Should the temperature, as is usual, be subnormal, no time must be lost in raising it by the careful application of heat, internally and externally. Lastly, in the worst cases, the chief stand-by is transfusion in one or other of its various forms. The use of saline is the commonest method, and it may be given per rectum, subcutaneously, or intravenously. Of these, the first two are preferable for ordinary use, since absorption takes place according to demand, while the rectal method has this commendation—that sepsis is almost impossible. With most people the intermittent administration of saline per rectum is more successful than the continuous, and it should be given, according to the tolerance of the individual, six to ten ounces every three or four hours. Half an ounce of brandy may be added to the injections, making an average of three ounces for an adult male in twenty-four hours. Auto-transfusion, though useful, is much less in vogue; rectal injection of one pint of hot coffee and half an ounce of sugar is an excellent substitute.

In the treatment of the local condition wounded blood vessels must be dealt with first, as haemorrhage predisposes to both shock and sepsis. Temporarily any of the first aid means may be utilized, while for permanent arrest the method must be chosen according to the case—for example, pad and pressure, forcipressure, ligature, suture or vessel suture, the last being reserved for vessels of some size. The effects of haemorrhage are counteracted ideally by blood transfusion, but, more commonly, saline transfusion, in one or other way already mentioned, is the means resorted to.

The importance of ascertaining that no tourniquet is left on a limb too long (anything above two hours is dangerous) cannot be too strongly emphasized.

3. Assisting the Reaction.

The reaction of the tissues, consisting of vascular changes and cell proliferation, is usually directed against both cause and effects. When dealing with the cause it is called "inflammation," and when dealing with the effects, "repair," but it is essentially similar.

Where open wounds are aseptic the first essential is to close them, but in war wounds do not often fulfil the

necessary conditions, and such treatment is frequently contraindicated by the presence of sepsis.

4. Complications.

Irritation may extend by continuity, contiguity, lymphatics, or blood stream. The mechanical irritants under consideration only produce further mischief by continuity or contiguity, and by the time the patient comes for treatment all the damage likely to occur has been done. Treatment, then, resolves itself into dealing with those complications which have arisen—for example, injuries to vessels, nerves, bones, joints, or viscera, such as brain, lung, liver, gut, etc.

Superadded irritation must be either non-infective or infective, though in warfare they are usually found together. This is especially so in shell wounds, into which portions of clothing, soil, etc., are commonly driven, and these are necessarily infected, calling for early antiseptic dressing of the wounds; as a prophylactic antitetanic serum, 1,500 units administered as soon as possible, has established a well-merited reputation. Antisepsis vaccine, given much less frequently, is likely also to be of value, when the problems of vaccine administration are more completely worked out.

All war wounds must be regarded as septic in greater or lesser degree, and a large number of them contain additional non-infective material as well which must be removed.

Removal of the Irritants.—Keeping in mind the limitations imposed by an absence of *x* rays, three types of mechanical removal are at the surgeon's disposal, the wound being well laid open (1) by forceps or some such other instrument, (2) by irrigation, and (3) by the introduction of hydrogen peroxide, the mechanical agent being the oxygen liberated. No extensive search, especially in the dark, should be made. An extension of this method is advocated by many surgeons—namely, excision of the whole wound, whereby it is hoped to remove all irritants in the tissues forming the walls of the wound. The telephone probe and *x* rays, as accessory to one or other of these methods in the case of metallic irritants, require no comment. Should a mechanical irritant not be removed by one of these methods, it is usually necessary to leave it *in situ* and allow the tissues to deal with it themselves, in which case it is either encapsulated or attempts are made to extrude it, usually through an abscess. The other type of irritant present is infective, the commonest being the ordinary pyogenic cocci, though others are often present, including the *B. coli* and several varieties of anaerobes. These may be removed by the means above described, but, short of excision of the wound surfaces, it is not likely that they will. After the lapse of a few hours excision of the wound is no guarantee that they have been entirely removed, and if all are not removed the opening up of large new surfaces to infection may lead to serious complications. Seeing that these methods are not likely to meet with success in the removal of micro-organisms from wounds, strong antiseptics should be employed as the lesser of two evils. These, in varying degree, act on the organisms present in the tissues of the wound-wall, and hence the method is used as an alternative to that of excision. Pure carbolic acid, from its penetrating antiseptic power, is still the best of these chemical agents, though numerous others are in common use. Hypochlorous acid is at present on trial, and so far results are exceedingly good. The actual canter is an efficient though destructive germicide, and is no longer in vogue.

Assisting the Reaction.—Acute active inflammation is always the reaction to infection with micro-organisms, and its chief function is to deal with the irritant itself. The redness and heat, and in part the swelling and the pain, are due to the increased vascularity present, the chief part of the swelling and pain being due to fluid exudation with increased tension in the part, while the impaired or arrested function is controlled by the pain. The increased metabolism in inflammatory fever is associated with the production of bodies antagonistic to the organisms and their products, while the general impairment of body function, by enforcing rest, provides for a minimal expenditure of energy. Locally the increased vascularity and fluid exudation combat the organisms and their products both chemically and physically, while the impaired function, governed by the pain, produces the rest necessary for a maximal beneficial effect.

Thus we assist the increased metabolism and avoid the evil effects of impaired body function, by keeping the patient in the recumbent posture, keeping up the body strength by easily assimilable liquid nourishment (the thirst indicates the need for fluids), and regulating the excretory action of the lungs by fresh air, the skin by hot bathing, bowels with saline, and kidneys with abundant fluids. Locally, rest and elevation of the part, the application of moist heat, and Bier's bandage or suction glasses, all favour increased blood flow, while hypertonic saline dressings, if they can be borne, assist in marked degree the increased flow of lymph. On the other hand, the avoidance of ill effects of the local reaction is mainly confined to the relief of tension in the tissues by timely incision, and also the provision of efficient drainage, whereby infective material is removed. This includes the evacuation of abscesses, and the careful emptying of all pockets where discharges may be retained.

Incomplete healing may be due to imperfect reaction either to the cause or to its effects, but the commonest cause is superadded infection inadequately combated. Where healing is complete complications are due to the formation of fibrous tissue in the soft parts, with its subsequent contraction, or callus where bony tissues are involved. Treatment is chiefly preventive either by accelerating healing and so diminishing the formation of fibrous tissue, or controlling deformity by careful attention to position, splinting, skin grafting, etc. Should the complications have arisen they must be dealt with according to their nature—for example, adhesions separated, contractures divided, callus removed, etc. The preventive treatment alone is of immediate importance.

TREATMENT OF HEAD INJURIES.

In a clearing hospital it is not possible to watch results unless exceptionally, as the cases are sent out as soon as they can be safely removed. Though I have treated all wounds that have come under my care by the same method, I have only been able to watch throughout their course some of the skull injuries, which have been detained on account of their serious nature. They were treated as follows:

1. The wound was dressed, the lotion used for the removal of the old dressing being 1 in 20 carbolic. Mercury perchloride was contraindicated because iodine had invariably been used lavishly, often producing blistering. If further investigation proved to be necessary, the wound was packed with spirit gauze wrung out of 1 in 3,000 mercury biniodide.
2. An anaesthetic was administered.
3. The head was washed with 1 in 20 carbolic lotion, and the hair shaved off whilst the carbolic was dripped on, following the razor.
4. The bruised edges of the wound were trimmed with mouse-toothed forceps, knife, and scissors, and the wound dried and swabbed throughout (including exposed brain) with pure carbolic acid. In more extensive wounds the excess of carbolic was neutralized by methylated spirit, otherwise it was mopped away.
5. A large flap was reflected, usually with the wound in its centre.
6. The skull was trephined, all loose depressed bone removed, and projecting edges nibbled away. No extensive search was made for distant pieces of bone or foreign body. Bleeding was arrested by fine suture, muscle tissue, or packing.
7. Exposed brain and dura mater were covered with spirit gauze wrung out of 1 in 3,000 mercury biniodide, the free end being pulled through the original wound. A tube was or was not introduced.
8. The operation wound was sutured with silkworm gut.
9. Three days later the gauze was removed; the tube might or might not be removed; if left it was removed at next dressing.
10. Where the original wound resembled an incised wound secondary sutures were inserted on the fifth or sixth day. In punctures this was not necessary, and in extensive laceration and destruction it was not possible.

The number of skull wounds operated upon was 14. Flaps were always sutured up at the time of the operation, and in three cases secondary suture of the original wound

was possible, each time with success. In no case was the wound dressed in less than forty-eight hours. In only one case did sterilization of the track of the projectile as far as the dura mater fail; in this case the sepsis was mild, and was limited to the track, the flap uniting by first intention. There was one death, from meningitis and cerebral abscess, one week after operation; outside the cranial cavity there was no sepsis in this case. In only one patient was there any suggestion of a hernia cerebri. This was in a case with most extensive injury, a large lacerated scalp wound, with marked comminution and depression of skull and extensive laceration and discharge of brain substance. There was also considerable intracranial haemorrhage with pressure symptoms and paralysis of the left arm and face. A large clot was removed at the time of the operation, and subsequently a small protrusion of brain occurred. The protrusion gradually diminished and the face and arm steadily improved. No untoward symptom developed.

NOTES ON WAR SURGERY.

BY

A. MACKENZIE FORBES, MAJOR C.A.M.C.,
A SURGEON TO A GENERAL HOSPITAL IN FRANCE.

ALTHOUGH I cannot speak with any great authority on the subject of the treatment of wounds seen in this war, because the contingent of which I am a member remained on Salisbury Plain until early in 1915, and their medical units were the last to be established in France, yet five months of active surgical service in that country has enabled me to make certain observations which will, I trust, be at least suggestive to some who, like the writer, are placed on "the lines of communication," where atypical rather than typical methods of treatment are necessitated.

In dealing with wounds in hospitals on the lines of communication, the first aim of the surgeon is to save the soldier's life, and the second aim is to save the part affected, the two greatest dangers to both being infection and secondary haemorrhage.

In considering the first it must be realized that the great majority of wounds seen in the hospitals of the lines of communication are infected. Of these infections one sees principally three varieties, which should be considered in order of their ordinary seriousness.

I. Infection by Tetanus.

This fortunately is rare because of the faithful use of antitetanic serum at the front, yet because prophylactic treatment is efficacious, whilst treatment of the incident infection is more rarely so, it is wiser to assume that all our wounded have been infected by tetanus, and that all have not been treated with a prophylactic dose of serum at the front. It may be argued that those who have received antitetanic serum are usually tagged, with an inscription giving the dose administered, when they are received at the hospitals of the lines of communication, but the importance of the wounded being protected against tetanus and the fact that the immunity conferred is probably only temporary makes it wise to consider the administration of a second dose in these hospitals. There is but one danger in this practice, namely, that of anaphylaxis, but this danger may be disregarded, and a dose of 1,500 units of antitetanic serum administered subcutaneously on admission, provided always that the patient has not been so treated at a date earlier than one week previously. In this latter case the antitetanic serum must be administered in a different manner; thus, the dose of this serum must be divided into two parts. The first part, containing 1 c.cm., should be given intravenously. The remaining part should be administered subcutaneously half an hour to an hour later.

Two weeks after this administration of antitetanic serum in the hospitals of the lines of communication the administration of another dose should be considered, and if found necessary it should be given in a divided dose, both intravenously and subcutaneously, as already directed.

II. Infection by Gas-producing Organisms.

These are of the anaerobic variety. Of these, the bacillus of malignant oedema is the most common. More rarely found is the *Bacillus aerogenes capsulatus* (Welch). Infections by these are characterized by their virulence. It is necessary, therefore, to recognize them early, because at first the infection is local, although usually of a deep wound, and practically always of the lower extremity.

A wound so infected is dirty in appearance. It contains pus, or pseudo-pus, with a faecal-like odour, which is similar to liquid faeces in colour and consistency. The parts about it are swollen and congested, but at this stage no characteristic crackling may be elicited by palpating the surrounding tissues; thus it may be difficult to differentiate it from an infection by the colon bacillus. Later there may be localized gangrene around the wound about which crackling can be elicited on careful palpation. In some cases this latter may be noticed without a suggestion of gangrene. The condition at first is really one of cellulitis. The patient's general condition, which is due to toxæmia, is often far worse than is suggested by the local lesion. In those cases where crackling is found on palpation there can be no doubt as to either diagnosis or treatment. In the earliest stages, where there is doubt as to the diagnosis, open freely and drain. Where crackling is found, treat at once as one would a fulminating cellulitis, when the freest incisions and drainage are indicated. At the same time hydrogen dioxide may be injected into the surrounding subcutaneous tissues in an attempt to limit the infection. The infected area must be kept under constant surveillance, always remembering that to save life amputation, in the case of a limb, may be necessitated at any time. When gangrene has appeared, amputation is necessary. This may be done through the emphysematous tissues if the open methods to be described later are employed.

In dealing with infections by gas-forming organisms it is necessary to keep in mind that the patient's life is endangered from the very beginning, and, although very free incisions may relieve the patient even at this date, in cases where we are dealing with a cellulitis alone, in a great number amputation with free drainage will have to be resorted to in the end, in order to save the patient's life.

III. Infections by Staphylococcus, Streptococcus, and Mixed Infections.

These are the more ordinary conditions met with—indeed, are seen in the majority of wounds. They are combated by drainage; often drainage of the most thorough character is necessary, consequently this subject will deserve special study.

It is generally known that, of all wounds, shell wounds require the greatest care. Where there is any possibility of portions of clothing being retained in the wound, cleansing and free drainage must be instituted. If these wounds are superficial, they may often be laid open with advantage. If the wound, on the other hand, is deep and filled with blood clot, this must be cleaned out and care must be taken to tie any bleeding point, but, if none is discovered, such wound will demand special care, as in such not only is secondary haemorrhage to be feared, but concealed haemorrhage may be followed by clot formation and infection. In dealing with all these wounds, primary suture must never be considered, but rather suture to maintain the patency of the wound is often of great advantage. The excision of superficial wounds is advised with the closing of new surfaces, but no wound in which suppuration can be expected is ever closed.

The method of laying open infected wounds by means of sutures, already suggested, is worthy of consideration. Suppose, for instance, a piece of shell is projected under the skin and, more or less, superficial tissues for a distance of some inches. Its track is probably infected, and its surfaces necrosed. It is often found to be wisest to lay such track open, thus converting a tunnel into an open gutter; further, the cleansing of the wound can be hastened by invaginating its edges and sewing them perhaps even several inches from the wound. If this be done it will be found easy to remove these stitches and to bring the edges together when the wound is clean. The same principle is made use of in amputations. In the hospitals of the lines of communication amputations are recommended usually

only when they are necessary to save lives threatened by infection. In the majority of such cases it is unsafe to perform the ordinary classical operations because flaps may harbour infective organisms. Indeed it seems impossible in the majority of cases to procure an aseptic field; thus, often it has seemed wisest to perform simply a circular amputation, cutting through skin, muscle and bone all at the same level, and to leave the wound entirely open. Patients on whom this procedure is adopted are sent to England as soon as possible, where a second operation for the preparation of flaps and the closing of the wound is performed.

These circular amputations are, however, too wasteful, and if it is possible to save flaps, even if they cannot be used at once, it is wisest to do so. Here, then, the method described as "the laying open by means of sutures" is employed. It is my custom to save every portion of skin, fascia, and muscle which it is safe to keep; with these I make flaps at a later date, but at the time of the operation, to save infection, we invaginate them in the same way as a child having torn into vertical strips part of the stem of a dandelion will invaginate these to form a rosette. When invaginated the soft parts are sewn back, as suggested in wounds of muscle and skin. In this way we make a cone-shaped stump instead of a crater-shaped stump, as it appears before invagination. The bone in this amputation should be left as long as possible, because as soon as our cut surfaces are clean we stretch by traction towards the sawn extremity of the bone by means of tape fastened into these soft parts and secured to the distal extremity of the bone. By means of this traction, begun after the flaps are clean, we prevent the contraction of the soft tissues at a time when it is not yet safe to perform the necessary secondary operation of sewing the flaps in their final position.

After the primary operation, when the flaps are sewn back there can be no concealed pockets of pus. In the second stage, whilst the flaps, after cleansing, are being stretched on the bony shaft as a fulcrum, the tissues are under perfect control. It is only in the third stage, when the tissues being clean enough, the soft parts stretched enough, and we attempt the final operation of sawing off the excess of bone and uniting the flaps, that we are called upon to exercise special care for the protection of the limb.

For severe infections of the extremities the bath, or "constant drip," seems the most efficient form of treatment after free incisions have been made.

In the cranium we may have difficulty with infections. Our rule is to excise all wounds perforating the soft parts and before uniting the cut edges to make a careful examination of the skull in order to get some idea of the extent of the injury. Further procedures are only considered in a most conservative way. In a few cases we have endeavoured to prevent infection of an exposed and uninfected dura by placing a thin layer of absorbent cotton over the exposed area and sealing the opening with Horsley's wax. In one patient sterilized paraffin was used. Either dressing may be changed daily.

The laying open of infected wounds has been spoken of not only as a means of preventing collections of pus but of allowing the cleansing of infected surfaces. This latter is often difficult, and yet of the greatest importance in order to minimize the toxin absorbing areas. Recent suggestions point to the use of hypertonic salt solutions in order to secure lymph lavage. Some surgeons still employ the old antiseptic solutions. Possibly the hypertonic solutions show the best results within the first twenty-four to forty-eight hours after operative procedures. The milder antiseptics may have their place in the later days. Undoubtedly, however, the mechanical cleaning of the parts is of greater importance than either. With scissors much can be cleaned. The cautery also is valuable. At the time of Ambroise Paré this was the most reputed surgical instrument. The lapse of time has not detracted from its efficiency. It is not only a decided mechanical antiseptic, but it also causes lymph lavage, without pain subsequent to the actual operation—a point decidedly in its favour.

The saving of limbs in which there are compound fractures with coincident infections demands not only the employment of the means suggested but the most careful immobilization by appliances of such character that it is

possible not only to dress the wounds, but, if necessary, to syringe or irrigate the infected channels. For such in many patients in my service plaster-of-Paris has been used. This dressing, when properly applied, is most satisfactory, especially if it be fenestrated, for drainage, lavage, and dressings. The windows for such purposes, cut in a plaster cast, are carefully swabbed with melted paraffin before each dressing. This is applied over absorbent cotton and fills the interstices between the plaster and skin as well as between the layers of plaster.

Besides all these methods for the treatment of infections, the local as well as the general effect of the sun's rays are often most marked. If it were possible to treat all infected wounds in the open air results would be better than at present, but, unfortunately, this principle, while recognized, has not yet been sufficiently recognized in military hospitals.

Local Treatment.

The local application of general principles is of sufficient importance to suggest the mention of some methods of local treatment which are used in this service.

Fractures about the Shoulder-joint and Upper Third of the Humerus.

For obvious reasons patients reaching a base hospital with compound fractures of these regions rarely show either wound of entrance or exit to be in the outer wall of the axilla, thus the axillary surface is usually most suitable for splinting when there is a fracture of the upper third of the bone. In these fractures, then, we have sometimes employed a triangular splint which can be fashioned in wood by a carpenter in fifteen minutes. One side of this triangle runs from the apex of the axilla to the great trochanter of the femur of the same side; the second side of the triangle supports the patient's extended arm in a position at right angles to the body; the third side simply unites the other two sides of the triangle. Any degree of traction can be used with this splint by the use of adhesive plaster ("stickers") if the supporting arm of the triangular splint has been made long enough. Most wounds can be dressed without disturbing the splint. The position of the third or uniting side of the triangular splint can be changed easily, thus allowing of adduction of the patient's arm when this assures better reposition of the fragments.

Compound Fractures of the Middle and Lower Thirds of the Humerus.

If we are dealing with compound fractures in these regions we often use a small Thomas knee brace, with extension by means of adhesive plaster, as now generally recommended in war surgery. In addition, in this service, we usually fix the fractured ends by means of a plaster-of-Paris collar applied close to the skin and fenestrated at the seat of the wound for dressings, as already described.

Compound Fractures about the Elbow.

These we usually treat in much the same way, because of the necessity of getting drainage, which is facilitated by extension and immobilization made possible by the knee splint combined with the plaster-of-Paris dressing. In very severe fractures about, and implicating, the elbow-joint, it is often safest to excise the whole joint, after which operation a fairly good arm may be expected.

If at all possible, all arms should be saved, no matter how mutilated they may seem at the time of the patient's entry into hospital. Orthopaedic surgery has so advanced in recent years that an arm whose function on the admission of a patient may seem to be irretrievably destroyed may, if saved, by judicious treatment be made into an instrument far superior to the best artificial arm available. The patient when examined may be unable to move his fingers; there may be no function at the wrist. Neither loss is sufficient to condemn the arm. If consistent with safety, we should persist in an endeavour to keep the injured member.

Compound Fractures of the Femur.

Compound fractures of the upper third of the femur are often most difficult to treat; indeed, past experience teaches that many femora so fractured have eventually to be amputated. With the abduction splint recommended by Mr. Robert Jones of Liverpool many of these may be most efficiently treated, yet there are some in whom it is

impossible to irrigate or even dress without moving the thigh if so treated. For these, because immobilization is as important in clearing up the infection as in securing bony union, greater security is demanded. The most difficult form of treatment is often, in this fracture, the most satisfactory in the end; thus the fenestrated plaster-of-Paris spica is recommended. Such a cast, if carefully applied during strong extension and abduction of the leg, if reaching from the nipple to the toes of the injured side, will assure perfect rest and ample opportunity for cleansing the wound by irrigation or the syringe. In such plaster splint the bed-pan may be used and the patient transported any distance in comparative comfort. Plaster-of-Paris will help to save both life and limb, but it must be properly applied by one who is willing to remove it if necessary, thus sacrificing hours of labour if there is any suggestion that some unknown change or affection is taking place underneath the plaster.

In treating fractures of the middle and lower third of the femur, whilst one may in certain cases prefer the use of plaster-of-Paris, the Thomas knee splint is usually a most efficient form of fixation. With this not only may extension and fixation be secured, but the latter may be rendered doubly sure by the coincident use of one of many forms of splints or splinting.

Compound Fractures Implicating and Injuries Penetrating the Knee-joint.

In dealing with injuries to the knee-joint it must be realized that they present one of the most serious problems of surgery. If this joint is penetrated by infective material, and especially if, added to this, there is an injury to either of the great bones forming the joint, life is endangered. Thus treatment of such wounds demands the greatest care. We should here, whilst endeavouring to save the joint, always bear in mind the fact that it is easier to save the limb than the joint. Nearly all serious injuries to the knee-joint are followed by limitation of movement if not by ankylosis. This latter causes the greatest inconvenience. We may well, then, consider whether it is worth while attempting to save a leg in which ankylosis at the knee is the best we can hope for when this attempt to save is made at the risk of the patient's life, and when we know that amputation in the lower third of the femur allows of the use of an artificial limb with a knee-joint far superior to a natural, though ankylosed, knee.

The danger of suppuration in the knee seems to lie mainly in two things—first, the difficulty of drainage, and secondly, the liability of the infection to spread into the synovial pouches and about the intermuscular septa both in the thigh and in the leg. From a mechanical point of view, then, the head of the bed should be elevated in all such cases, in order to minimize the possibility of the spreading of the infection into the thigh, which often means the loss of our means of retreat by amputation through the lower third of the femur in patients in whom our conservative position of watchful waiting has become plainly untenable.

Because of the anatomical conformation of the joint, surrounded as it is by muscle and tendon, and formed by the close apposition of two of the largest bony surfaces of the human frame, drainage depends on the position in which bony apposition is least marked and gravity counts most; thus the outer side of the joint is the position of choice for drainage, and the flexed and strongly abducted and everted position of the thigh and knee is the best attitude of this member during any attempt made to save an infected knee-joint. Other means there are of draining this joint, but my firm belief that an artificial leg, as already suggested, is often better than an ankylosed knee impels me to refrain from describing methods which are indicated only in cases of such gravity that an immovable knee is the best result possible.

Compound Comminuted Fractures below the Knee.

Such fractures can be treated with drainage and almost any form of splint; that used by Mr. Robert Jones of Liverpool—the thin sheet-iron splint covered with boiler-felt—is as good as any, but here again my personal predilection is for plaster-of-Paris.

Compound infected fractures of the ankle can be treated by a variety of splints of a right angle in form. If the astragalus is fractured it is best to excise it.

Compound fractures of the tarsal and metatarsal bones are treated in much the same way as similar conditions of the bones forming the ankle joint. Here conservative surgery again is the most profitable. The injury to a foot must be indeed severe before we are forced to amputate it, and it is only when our line of retreat—in this case a possible amputation through the lower third of the leg—is threatened that we are forced to consider the loss of the foot, provided always life itself is not threatened.

Wounds of the Thorax.

In attending patients with wounds of the thorax we should be willing to "wait and see," interfering only when called upon by the advent of untoward symptoms or conditions.

Wounds of the Abdomen.

For obvious reasons these rarely have to be dealt with on the lines of communication, but in these conservatism should be our motto. Of the few cases we have seen, those in which no operation was performed did best. The hospital nearest the front is the proper place for the treatment of these, and if patients suffering from abdominal injuries are carried there early enough, operations entirely inadvisable in our hospitals further from the firing line can be successfully performed.

In closing this memorandum, based principally on the work of my section in this hospital on the lines of communication, I would accentuate the fact that not only my experience but the experience of others has forged my credo of conservatism as the motto of war surgery.

WORK AT A BASE HOSPITAL.

IMPRESSIONS AFTER SIX MONTHS AS A SURGICAL SPECIALIST.

By W. RANKIN, M.A., M.B., Ch.B.,

SURGEON TO THE OUT-PATIENT DEPARTMENT, WESTERN INFIRMARY, GLASGOW; TO THE ROYAL HOSPITAL FOR SICK CHILDREN, GLASGOW (LATE TEMPORARY LIEUTENANT R.A.M.C., AND SPECIALIST IN OPERATIVE SURGERY AT A STATIONARY HOSPITAL).

Six months spent as a surgical specialist at a base hospital teach one many things—above all, patience. While the variety of cases is infinite in the way of injuries to particular structures, the curious sites from which shrapnel is removed, etc., yet the actual types of operations done are limited, and to one who has had a large experience of emergency work in a busy city such as Glasgow the class of work presents little new or difficult.

Far too little credit has been given to the astonishing healing powers of the fighting man, who, up to the moment of his wounding, is in a state of health much above that of the usual hospital patient, as the result of his open-air life and abundant diet. When this is properly appreciated less will be said about the results of wonderful new antiseptics, and of methods which make the antiseptic era a back number, and of vaccines, etc. Nearly all the cases are septic, and if the work is to be done efficiently, expeditiously, and at a moderate cost, I believe it can best be with a technique in which antiseptics play a large part. A rigorous aseptic technique is a farce in such a type of work, is needlessly expensive, and will not, in my opinion, stand the test of twenty serious operations, packed into twenty-four hours.

Most of my actual operating was done with the assistance of my theatre sister only, though when I required further help I always had willing and able assistants. The procedure in an ordinary case of shrapnel embedded in muscle was as follows: The dressing gowns and towels had been sterilized by steam. The gloves and instruments were boiled, the lotion basin and trays were boiled or flamed out. The gloves were used wet out of sterile water. I scrubbed my hands with soap and water, soaked them for a short time in 1 in 40 carbolic lotion, drew on a pair of gloves, redipped my hands in the lotion basin, and when I had my gown put on I was prepared to start whenever the anaesthetist signified that the patient was ready. I prepared the skin with iodine and fixed the necessary towels with clips. I used the best probe in the world, an index finger, which becomes marvellously educated in seeking out the track of a foreign body through the tissues. I located the piece of shrapnel and removed it with a pair of forceps. I then swabbed out the

track with methylated spirits, made whatever incisions I considered necessary for the relief of the cellulitis, and packed the wound with gauze wrung out of spirits. A dry dressing was then applied and kept in position by strapping or any form of bandage which suited the part best. After the operation I scrubbed the gloves in a special basin, took them off and put them in the sterilizer, where they were reboiled, as was every brush that had been in use. After they had been boiled and put into their proper basins, the instruments went into the sterilizer. I did not change my gown unless it was visibly soiled. I did not wear long-sleeved gowns. The hand-basins which held the carbolic lotion were swilled out, wiped clean of any blood stains, and refilled with lotion. By the time the next patient was under the anaesthetic I was again prepared to begin. This technique was simple: each step was well defined; a brush was boiled, placed in a dish, picked out and used; put after use into a second dish, from this was placed in the sterilizer, and then became ready again for use. Nothing but carelessness could produce a hitch, and it meant a minimum of work to the staff who had lots to do when the rush came. I only lost one case from cellulitis or gas gangrene; in it a piece of shrapnel had tunnelled its way from the thigh to the retroperitoneal space over the brim of the pelvis, and efficient drainage was established too late. It was not always possible to arrange the cases in the degree of their infectivity, but so far as I could judge no case became septic or more septic as the result of coming after a particularly foul case.

Excision of wounds and any perfectly clean case I had satisfied me that my simple routine was quite efficient and therefore, for the type of work, sufficient. The rapidity of healing and the good results made me very slow to change my methods, though there were a few cases in which a variation to some other antiseptic or dressing did benefit. For the most part, carbolic lotion, iodine, and methylated spirits gave most satisfactory results.

Where I failed to find the foreign body I availed myself of the help of x-ray plates. I did not then succeed in every case, but the proportion missed was small.

The incisions I made were always free and were packed with gauze. I did not often use drainage tubing, and never when a vessel of any size was near the track of the wound. In the cases which came from the front with tubing inserted, the track left after its removal was so foul that I avoided its further use. I had no case of secondary haemorrhage of any importance; in the one case which recurred it was easily controlled, and for this happy freedom from an awkward complication I give credit to the free incisions and the gauze packing.

I early recognized that a superficial bullet or shrapnel graze is of the nature of a burn, and that if these apparently trivial wounds are not completely excised, they will remain unhealed for many weeks or months. All such wounds, as well as many other large and small superficial wounds and gutter and tunnelling wounds, were excised without delay. In some cases of wounds of the thigh and the chest wall the wounds after excision were over 12 in. long and had involved muscle. All the big wounds and nearly all the small healed without a stitch abscess, and the excision saved many weeks of painful dressing. At first I used to wash the wounds and mop them with spirit; afterwards I used Colonel Gray's simpler technique—painting the wound and the skin around with a 10 per cent. solution of iodine in rectified spirit before the excision. The excisions which did worst were those over the shin bone.

The line of excision should be in the course of the superficial nerves, not across them. There should be no tension in the sutured wound. Excision should not be performed when there is clear evidence of acute cellulitis round the wound. Multiple punctures and dressing for a few days will allow this to subside, and then excision can safely be performed. Fomentations make the worst possible preliminary dressing, as they cause the area to be soaked in pus.

In every case of scalp wound which came to hospital the wound was excised and the skull beneath examined. The whole scalp should be shaved, since neglect to do this leads to delay and trouble in the theatre, for often it is the unexpected case that has the depressed fracture. No man can by means of a probe correctly diagnose the

extent and seriousness of the scalp wounds made in modern warfare; the wound must be excised, and the condition of the exposed bone examined with the finger and the eye. In this way one learns the number of cases which have fissured and depressed fractures and appreciates why such patients may have headache and other symptoms afterwards. To draft a man with a healed or healing scalp wound to the convalescent camp without having exposed the bone and examined it properly is to court a disaster sooner or later.

The elevation of depressed fractures, the trephining out of small discs where a fracture of the inner plate was suspected, and the evacuation of superficial brain abscesses were common operations; the results were good. Where there was a perforating brain lesion, deep penetration by shrapnel or a bullet, and hernia cerebri, the foreign body was removed when this could be done without danger to life; the further treatment was to apply compresses of alcohol to the exposed brain, but the majority of these patients died. I worked on two principles: (1) to make the skull opening no larger than was really necessary, and (2) to try and do at the first operation all I thought possible for the patient in the way of exploration.

Of the few amputations I did nearly all were partial amputations of hands and of fingers; one amputation only of the foot was done—after astragalectomy had failed to get rid of the infection. I had many cases of infected injuries, to the knee and elbow joints especially, and of compound fractures into these joints, which could have been saved a long convalescence by an early amputation, but free incisions, dressings under anaesthetics, and patience, both on my part and on that of the patients, enabled me to send them home with their limbs in a most satisfactory condition, some with the joints excised, and all glad that they had "stuck it" and happy in the possession of the limb. A run of cases may occur in which primary amputation is clearly indicated, but experience shows that by patience limbs can be saved which lack of judgement would have sacrificed. The surgeon should always consider the question from the point of view of the patient—say two years hence.

For fracture cases I followed the simple methods described in my handbook,¹ and with a good supply on hand of Gooch's splints, of Middeldorp's triangles, and a few long osteotomy and half box splints I was never at a loss to get a patient into a state of comfort. Middeldorp's triangle can be best fitted by means of short slings in place of ties and bandages; this plan was a boon in the cases of compound fractures when the splint required to be readjusted at the dressings. The use of these simple splints properly applied further up the line would save much distress during the train journey. Synovitis of the knee is very frequent, and I was at a loss at first to pick out the cases which would probably do well enough not to be sent home. Latterly I explored all with a fine needle on a good syringe, and in many cases, which gave no history of traumatism, I found the effusion to be blood-stained. These cases were transferred home, whilst the others, with clear effusion and no history suggestive of a loose cartilage or any other derangement, were treated by rest in bed, a Scott's dressing, and a posterior splint from the fold of the buttock to the heel. They usually made a good and rapid recovery, though I have no knowledge of their after-progress.

Many cases of painful and ingrowing toenail were sent to the base. The treatment was avulsion with, when necessary, a Mayo operation. The after-dressing is most important; it should be by a piece of gauze soaked in a 1 per cent. solution of picric acid, and applied moist over the raw surface. It was not removed for five or six days, and then the bed of the nail was invariably found to be healed and hard, so that the patient could be sent to the convalescent camp shortly afterwards.

Some apply wet dressing even after small operations, such as the extraction of a bullet lying superficially. By the time these cases arrived at the base the dressings were simply reeking pus poultices. Useful in a few selected cases no doubt, this form of dressing is absolutely unsuitable as a routine dressing.

The surgeon cannot detach himself from all responsibility for the anaesthetic, but he ought to be relieved as far as possible by being provided with a congenial colleague already an experienced anaesthetist. When a big rush of

work comes the anaesthetist is of more importance than the anaesthetic. Though open ether is my anaesthetic for choice, most of my colleagues had had the training in the giving of chloroform. To all of them I wish to express my thanks for help in many a long day's work. The use of nitrous oxide gas for short and painful dressings proved a great boon. Local anaesthetics and spinal anaesthetics were made use of in selected cases, but neither method is suitable when the staff is small and many cases waiting.

REFERENCE.

¹ *The Elements of Bandaging and the Treatment of Fractures and Dislocations.* London: H. Frowde, and Hodder and Stoughton. 1913.

ULCERO-MEMBRANOUS STOMATITIS AND GINGIVITIS AMONG TROOPS ON ACTIVE SERVICE.*

By F. B. BOWMAN, M.B. TORONTO,

CAPTAIN C.A.M.C.; PATHOLOGIST, MOORE BARRACKS CANADIAN MILITARY HOSPITAL, SHORNCLIFFE.

DURING the last few months my attention has been drawn to a freely communicable disease, which, while of a minor nature in so far as it rarely has a fatal issue, is nevertheless of serious import in that it very materially lowers the health and effectiveness of those attacked. I have found it widely prevalent among our troops, more particularly among men returned from the front. Without going into full details, I would here call attention to the symptomatology of the condition, its apparent causation, and what, in my hands, has proved a simple and rapid method of cure. I may state that these observations are based upon the study of more than 100 cases.

Symptoms.

Considerable attention has been given for some years past to pyorrhoea alveolaris, a condition in which small pockets of pus form between the tooth and the gum, so that pressure upon the gum just below where this abuts upon the tooth leads to the discharge of a drop of pus. American observers have shown that this condition is frequently associated with the presence in the pus infiltrating the tissues at the base of the pus pocket of amoebae, somewhat resembling those found in amoebic dysentery, and, like those organisms, acted on specifically by emetine, as demonstrated by Bass. Frequently pyorrhoea alveolaris can be cured by the exhibition of this drug; but not all cases of so-called pyorrhoea alveolaris show themselves equally affected by this treatment.

An examination of cases coming both from the front and from troops in the Shorncliffe area shows that in cases of this condition, both those presenting the amoebae and others in which they could not be found, the most striking feature revealed upon the examination of the smears made from the pus is the presence of what are known as Vincent's organisms in large, not to say preponderating, numbers.

Further study has shown that these same organisms are present in what appear to be excessive numbers in a spreading affection of the gums and the tonsils, which cannot be included under the term "pyorrhoea." Thus, upon the gums (particularly around the last molars), the tongue, mucous surface of the cheeks, and the tonsils (which are most frequently affected), ulcers are to be found. The ulcers tend to spread laterally, save in the tonsils, where they burrow deeply into the tissues. They are covered by a white, friable membrane easily removed, and then leaving a bleeding surface beneath. This membrane is different from that found in diphtheria, which is tough and easily comes away intact. The lesions may suggest syphilis, and indeed Vincent's angina† may be superimposed upon a syphilitic infection of the mouth and throat; but in uncomplicated cases of the condition the Wassermann reaction has always been found negative.

The condition of the mouth in advanced cases strongly suggests scurvy. The gums bleed easily, are injected, retracted from the teeth, and spongy-looking. The teeth

are apt to become loose, and are often tender when tapped by a metallic instrument. In many cases they have become so tender that none but the softest of food can be masticated, and for weeks the men are unable to take the ordinary rations; as a consequence they become seriously run down. The breath becomes extremely fetid, and the patients complain of a foul taste.

There is always more or less glandular enlargement, the submaxillary and sublingual glands being most often affected. Although several authorities speak of a rise of temperature to 105° or higher, in the cases thus far examined from the British troops the temperature has varied between the normal and 102° F. at the highest. Accompanying this constitutional disturbance is lassitude and lack of "go." The most serious constitutional symptom, and one always present when the teeth and gums are affected, is severe depression.

What may be regarded as the acute malignant form of this disease is seen in noma, in which the necrotic tissue shows a dense massing of these organisms of Vincent.

We thus have the following conditions found associated with the presence of masses of the organisms in question:

1. Some (complicated) cases of pyorrhoea alveolaris.
2. Membranous stomatitis and tonsillitis.
3. Noma.

The term "Vincent's angina," in England at least, is generally understood to refer to a particular form of tonsillitis. Ulcero-membranous stomatitis appears thus to be the more satisfactory designation, unless we speak of "Vincent's disease."

The condition is clearly communicable. In our series of cases several were traced to a dentist who had treated a severe gingivitis for pyorrhoea, and the same day also the mouths of three other men; all three had contracted the disease, and were shown by stained smears to be infected with Vincent's organisms. In another case, while the disease had been unknown in two successive battalions that had occupied certain quarters in France, a third battalion using these quarters exhibited no less than 50 cases of the condition. The close association of troops either in camp or in the trenches, and using the same utensils, appears to favour the spread of the condition.

Vincent's Organisms, *Bacillus fusiformis*, and *Spirochaetes*.

If in these cases, by means of a sterile swab, a small portion of membrane or exudate is removed from the mouth and rubbed up in a little warm 0.85 per cent. saline solution on a slide, an examination with a dark-ground illuminator shows in all instances the presence both of spirochaetes and of characteristic fusiform bacilli. Both forms are motile; the fusiform bacillus passes backwards and forwards with a tumbling motion, and not steadily as is the case with the flagellate bacilli, such as *B. typhosus* and *E. coli*. If smears be made and stained, the clearest picture of these organisms is given by Giemsa's stain. Successful results are obtained with plain methylene blue or Loeffler's solution, which show the fusiform bacillus and the spirochaetes distinctly. The bacilli are not stained evenly, but are usually barred, with an occasional granule deeply stained situated anywhere in the organism. The bacillary forms are from 12 to 15 μ long, and vary in width from 1 to 5 μ . The spirochaetes are very slender and delicate organisms. The number of convolutions varies from 5 to 12, the usual number is 9. No membrane can be seen. In stained smears these spirochaetes have no definite relation to the fusiform bacilli present in the same specimen; they are found sometimes in large bundles, sometimes singly.

This Vincent's spirochaete can usually be distinguished from *Spirochaeta dentium*, which has commonly no more than five convolutions, and from the *Treponema pallidum* of syphilis, which has between five and twenty-five, and also stains faintly and with difficulty. *Spirochaeta refringens* (a form not uncommon in the mouth) is much coarser and has broad sections.

The organism has been cultivated by Tunncliffe, who states that she was able to obtain distinct transition from the bacillary to the spirochaetal form. We have obtained cultures by taking some of the exudate upon a sterile swab and rubbing this up with hydrocele or ascitic fluid, and inoculating the emulsion into a deep tube of peptone broth,

* The fuller paper, of which this is an abstract, will appear in the Proceedings of the Royal Society of Medicine, Medical Section.

† So called after Vincent, the French bacteriologist, who clearly laid down (in 1898 and 1905) the relation between these organisms and ulcero-membranous tonsillitis and stomatitis.

into which has been dropped a small piece of sterile kidney or liver from a rabbit. The tube is closed by a sterile rubber stopper which has passing through it a capillary tube. The tube is filled quite full of the medium, and on pushing in the stopper this rises into the capillary, which is immediately sealed off, thus affording a strictly anaërobic culture medium. At 37° C. the growth appears in a few days as a faint cloud above the sterile tissue in the tube. Usually this affords a great preponderance of fusiform bacilli; a very foul odour is given off from the medium, closely resembling that exhaled from the mouths of those affected. Starch-ascitic fluid cultures, prepared according to Rosenow's method of deep tubes, are also successful. In fact any ordinary culture medium containing serum or ascitic fluid will afford growths of the organisms under anaërobic conditions.

Thus far inoculations into the lower animals have been wholly unsuccessful in reproducing the disease, and so not only is the question of the identity of the two organisms still undecided, but also, as Koch's postulates have not been fulfilled, we lack the crucial demonstration that these organisms are the essential cause of the conditions here described. This much, however, is to be noted—that they are present locally in enormous number in all the conditions here described, and that with the disappearance of these organisms the conditions undergo healing. This last fact alone may be taken as adequate proof that if they are not the only, they certainly are an essential factor in the causation of these states.

Treatment.

In pyorrhoea alveolaris, where the amoeba is demonstrable, local treatment with emetine, as already noted, frequently brings about cure, but emetine is of no value in the more widespread conditions of ulcero-membranous stomatitis and gingivitis and Vincent's angina. For these conditions many forms of treatment have been recommended. Trichloro-acetic acid, carbolic acid, silver nitrate, iodine, and hydrogen peroxide have all been used with some success. As a spirochaete is present, arsenic in some form, from its well-known effect upon spirochaetes, would appear to be the ideal application. Of all arsenical compounds salvarsan is the least toxic, and, as a matter of fact, salvarsan has a marked effect upon the condition, even if used merely as a mouth wash, and would thus seem to be indicated. Its use among troops, however, is prohibited, both from its cost and on account of the instability of its solutions. This close association between pyorrhoea, with its amoebae, and ulcero-membranous stomatitis, suggested a combination of ipecacuanha or its alkaloid and Fowler's solution. These are compatible, and the following treatment has been found to have remarkably rapid and favourable results.

Vinum ipecacuanhae...	...	...	...	3 ss
Glycerinum ...	...	...	...	5j
Liquor arsenicalis ...	...	...	...	ad 3j

M.; fiat mist. Sig.: To be used as a mouth wash; do not swallow. Label "Poison."

Where the gums only are affected the solution can be carefully applied to the gums and pockets around the teeth, after cleansing away the pus. A small applicator should be used. Where there is ulceration elsewhere in the mouth or throat, the ulcer should be thoroughly wiped out twice every day with the above solution. All patients, whether or not the gums be infected, are instructed to drop ten or fifteen drops of the mixture on to a tooth-brush twice a day and to brush the teeth and gums vigorously.

Employing this treatment the condition clears up with remarkable rapidity. Even in advanced cases, in my experience, the alteration in the state of the mouth is obvious in three days. The ulcers are seen to be healing; the foul odour of the breath disappears; the teeth cease to be tender. The general depression clears up, and within a week patients who before treatment could not masticate solid food, can eat such food without discomfort and with enjoyment. Swabs from the affected areas now no longer yield the fusiform bacilli and spirochaetes.

The diagnosis and treatment are both so simple and the results obtained thus far so satisfactory that I can confidently direct the attention of medical officers in charge of troops to the existence of this condition and to this

means of bringing about cure. I shall be grateful if they will give me information of each case under the following heads:

(1) Name. (2) Unit. (3) Regimental number. (4) Date (approximate) of onset of disease. (5) Date when first examined. (6) Location of trouble. (7) Symptoms, local and constitutional. (8) Results of treatment.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

TRENCH FOOT AT HOME.

"POOR MAN'S GOUT" and "podagra" are complaints the conditions of which might be reconsidered beside those of trench foot. Here is a man with a swollen and a painful foot who has had abundant colchicum in the last three weeks, with little or no advantage. His past inebriety he admits, and he has had rheumatic affections before. A scrutiny of his leg, however, reveals the cicatrix of an injury of forty years ago, when the leg was broken, and it is legitimate to infer that nervous and circulatory functions in the limb are still obnoxious to that old injury. What recent happenings have been brought to bear? The patient has the explanation: He had been working on concrete and in cold and wet; the men had asked for big boots to protect themselves, but none were provided. In the case of this patient his sound leg had withstood the exposure; his weaker leg and foot had suffered; hence the pain, the oedema, and the other symptoms, which we call gout.

Those who look narrowly into the ways of the workman will be able to find an excuse, here and there, for his alcoholic habits. Hugh Millar has said that his fellow masons washed down the dust of their trade with deep draughts of ale. The miner, who turns to drink when he has left the shaft, wants something to counter the mephitic effect of carbon monoxide; and in many another case the inebriety of the labourer may plead the unmitigated rigours of his toil. My particular desire at the moment is not an exacter pathology of gout, but a sympathetic interest in any of its determinants in industrial life. Wellington boots, indeed, and rubber boots in the trenches; and for those who are working at home a proper equipment, too. The tools of the workman have from of old been put beyond the clutches of the creditor (Deut. xxiv, 6), but a greater loss to the workman is the power to use them; and so far as arthritis, in any form, is an industrial disease, its prevention is required.

Bristol.

DAVID A. ALEXANDER, M.B., Ch.B.

THE CONTROL OF "DIPHTHERIA BACILLUS CARRYING."

RECENT papers in the BRITISH MEDICAL JOURNAL on diphtheria carriers prompts me to describe a simple method of ridding a carrier of the diphtheria bacillus.

I employed it in an outbreak of diphtheria which occurred recently at a military hospital in the Malta command. Eight carriers were discovered bacteriologically by Mr. Mitchell (sanitary officer of the hospital) and Captain Crofton (bacteriological specialist). The throats and noses were cleaned with gargles and douches of potassium permanganate. As the carriers did not seem to decrease, further measures were adopted.

In Peking I meet a good many cases of acute follicular tonsillitis, and, as the Chinese demand quick cures, I have been accustomed to paint the tonsils with 50 per cent. silver nitrate, whilst I have painted several of my colleagues' throats with 90 per cent. silver nitrate. One application of the latter and two of the former suffice to cure the tonsillitis clinically. I adopted this method in the diphtheria carriers. The pharynx, tonsils, and posterior nares were cocaineized with 20 per cent. cocaine hydrochloride, using a forehead mirror, and these parts were then painted with 50 per cent. silver nitrate. The nostrils were plugged with gauze, soaked in 1 in 10 ichthyol in glycerine, the latter being the dressing I have found useful in ozaena, which is not uncommon in China, and as a dressing after submucous resection of the septum, done in the presence of ethmoidal suppuration. Swabs were

taken from the nose and pharynx before and after this treatment by Mr. Mitchell and examined bacteriologically by Captain Crofton. The positive swabs proved to be negative after two applications of this treatment.

Extreme care should be adopted in the application of the silver nitrate, otherwise severe spasm of the glottis is caused; the application must also be thoroughly done—that is, the posterior nares and tonsils and pharynx must be painted. By using this method the hospital was freed from the diphtheria carriers and reopened.

W. S. THACKER, B.A., M.D., F.R.C.S. Edin.,
Surgeon, Union Medical College, Peking, North China,
Temporary Lieutenant R.A.M.C.

British Medical Association.

CLINICAL AND SCIENTIFIC PROCEEDINGS.

STAFFORDSHIRE BRANCH.

The Heart in School Children.

At the second meeting of the session, held at Stafford on February 24th, 1916, the President, Dr. F. M. ROWLAND, was in the chair, and Mr. PRIESTLEY read a paper on heart disease in elementary school children, which was based on a study of Staffordshire children. Diagnosis of heart disease in elementary school children examined at school inspections was, he said, difficult, owing to the fact that in a large proportion of the cases neither the children nor their parents or teachers made any complaints of discomfort, or only the most trivial and ambiguous ones. Diagnosis had to be based on cardiac symptomatology almost entirely. When care was taken to note every deviation from the normal signs or sounds of the heart, it was found that at least 40 per cent. of all school children exhibited them. Most of them were obviously trivial, but 7 to 10 per cent. of all school children exhibited them in a degree worthy of a special note. The larger part of these well-marked cases were haemic or functional, and not, so far as could be ascertained, associated with any gross permanent lesions of the heart. When these functional cases were eliminated by a critical and conservative scrutiny, not passing as organic any case that might possibly be merely functional, there was left about 1 per cent. of all school children suffering from "organic valvular" disease. Among the functional cases were examples of dilatation unaccompanied by any signs of organic disease. Some of them were due apparently to cardiac atony, others probably to transient toxæmias. Something over $\frac{1}{2}$ per cent. of all school children showed functional dilatation. Of 676 cases of undoubted organic disease the various valves affected were: Mitral regurgitant 83.1 per cent., mitral stenotic 4 per cent., mitral regurgitant and stenotic 7.3 per cent., tricuspid 0.7 per cent., pulmonary 3.9 per cent., aortic 1 per cent. Of 622 children with organic heart disease observed over several years, 344 (55 per cent.) never at any time complained of any symptom that could be ascribed to the heart. The following analysis was given of the 278 (45 per cent.) who had discomfort at one time or another: Malaise only 145, cyanosis 57, dyspnoea 50, pain over heart 30, headache 20, fainting attacks 17, oedema 8, palpitation 4, sickness 3, sleeplessness 2, clubbed fingers 2, catarrh possibly due to venous stasis 2, heart failure and loss of compensation 2, epistaxis 1, cough on exertion 1, giddiness 1. There was a little overlapping in this classification, the same child in a few instances having more than one cause of complaint. In the non-complaining group there were examples of every sort of valvular lesion, congenital or acquired.

Some After-Histories.

Dr. COOKSON, in continuation of a paper read at the meeting held in February, 1913, on two cases of women of 28 recently operated on for carcinoma, gave an account of the further history of the cases.

1. Mrs. B., first operated on on January 22nd, 1913, for intestinal obstruction of unknown origin. Median incision; carcinoma of sigmoid found; colotomy performed. On January 27th sigmoid removed and end-to-end anastomosis performed. Six months pregnant at time; miscarried on

February 1st. Went home very well on February 19th, 1913. She remained very well until beginning of November, 1913, but only saw her doctor on November 19th, who asked me to see her on 20th. No trouble with bowels, but had a hard nodulated mass in left iliac region. November 28th, 1913, operation. Nodule of growth found in abdominal wall, fluid in pelvis, and mass a large secondary growth in left ovary. Growth in abdominal wall removed and left ovary. The anastomosis site could only be defined by the scar in the meso-sigmoid, but there was a small plaque-like growth in the wall where the ovary touched bowel, and a small growth in the uterus. Owing to increasing pain I operated again on December 29th. Everything was so matted together then that I could only do a colotomy. During succeeding months pain became gradually worse, and at one time she took as much as 12 grains of morphine in pill a day, but still did her housework and even bicycled up to October, 1914. In November she took to her bed; vomiting frequent, face and legs swelled, growth involved the colotomy opening. She had haemorrhage from rectum. Practically took nothing but water and had complete obstruction for a month, dying on December 25th, 1914.

2. Mrs. R., cauliflower growth of cervix uteri. After some preliminary treatment, Wertheim's operation performed on January 6th, 1913. Wound broke down and had suppuration in pelvis, but recovered satisfactorily, and went home very well on February 19th, 1913. Heard occasionally that she was keeping very well, but on December 21st her doctor asked me to see her, and I found her dying. It was not possible to examine her satisfactorily, but there was no growth to be felt from the remains of the vagina. She was very distended and evidently dying of general peritonitis. The history was that she had had a temperature for a fortnight up to 103° at night, normal or subnormal in morning; that there had been a lump in the right iliac region, which had softened; and that the vomiting and distension had followed. It seems probable that this was a septic condition, and not due to recurrence.

Dr. Cookson also mentioned two other cases of early carcinoma, one because the patient was the same age as these two, the other because of the extremely early age for carcinoma of rectum.

Mrs. P., aged 28. A lump in left breast doubtful in nature removed first; pathological report, carcinoma. Radical operation performed August 31st, 1911; patient still free of recurrence.

Mr. H., aged 16, seen in consultation on January 26th, 1916; 6 ft. 1 in. in height, complaining of gradually increasing weakness, loss of appetite and flesh. Always from a small child subject to looseness of bowels, but for some eleven weeks the stools had been tarry, and he had had attacks of vomiting. Through the abdomen masses of faeces could be felt along the greater part of the course of the large intestine, and per rectum some 3 or 4 in. from the anus a growth, nodular, bleeding readily, affecting the whole circumference of the bowel and fixed to the sacrum and other parts. I did a colotomy, but he died eight days later unrelieved.

Reports of Societies.

DISCUSSION ON WAR INJURIES OF JAWS AND FACE.

At the meeting of the Odontological Section of the Royal Society of Medicine on February 28th, the President, Mr. H. BALDWIN, in introducing this discussion, referred to the admirable organization of special dental treatment which he and some English colleagues had seen when visiting France lately. He thanked most sincerely the French and American dentists for their contributions to the exhibition and discussion. He urged the establishment of special hospitals in each command of the United Kingdom to deal with injuries of the jaws, and of a competent officer on the staff of the Director-General to advise on dental matters. Two fellows of the section were now serving as lieutenant-colonels in the R.A.M.C., and were fit men for such a post. Skilled dental aid should be called in at the earliest possible moment. The details of the making and adjustment of the necessary splints were obviously outside the sphere of the general surgeon, and could only be dealt with by the trained dental surgeon.

Mr. LEWIN PAYNE showed a series of slides and models illustrating his personal experiences. His conclusions were: (1) That nearly all jaw injuries require dental aid. (2) That dental treatment should be commenced early. (3) That the dental surgeon employed should be one already familiar with the details of treatment. (4) That these cases should be segregated.

Dr. HAYES, of the American Dental Ambulance in France, said there were twenty-nine centres of special dental aid in France. Cases were, however, often left too long in a general hospital. Cases at the special dental centres were often rightly allowed to remain in France on account of the very specialized nature of the treatment. The dental surgeon at the front should be equipped to make splints for immediate fixation. He emphasized the point of early dental treatment. They had treated 380 cases, of which 30 were shown by photographs in the exhibition.

Dr. HOTZ, of Paris, also dwelt on the evil following delay in calling in dental aid. In some of his cases there was practically no access to the mouth when he first saw the patient. Often only an intra-oral splint was needed, but only a dentist could make it. He made all his splints in vulcanite.

Mr. J. F. COLYER spoke of his experience at the Croydon Military Hospital, where there were 200 beds for jaw injuries and at present 130 cases. In dealing with ununited fracture of the mandible he had obtained excellent results by extracting the tooth on either side of the line of fracture; some of the cases were six to twelve months o.d. Where there was only a small loss of bone he had obtained bony union by extracting the molars of the smaller posterior fragment, and if necessary their opponents, thus allowing the posterior fragment to be tilted up by muscular action and come into contact corner-wise with the anterior fragment. He preferred good bony union in such cases to exact dental occlusion. Before fixing a splint he removed all sources of sepsis. An outside splint gave comfort by resting the part. He had instituted a dietetic course, beginning with fluids and gradually hardening, to teach the patients to eat. Bringing together those similarly afflicted had been a source of great comfort to many who had found life intolerable when alone in their misery.

Sir FREDERIC EVE had used phosphor-bronze wire to stay the fragments apart in a case of resection for fibrosarcoma. Some twelve years later they were embedded in fibrous tissue. He had used bone grafts taken from the rib in two cases and these seemed to be successful. The periosteum was stripped off. He did not think plating advisable in cases of gunshot wounds. Wiring or splints were better.

The discussion was resumed on March 6th, when Mr. W. HERN showed slides and models of cases under his care. He had found simple wire splints most useful. He spoke of the good results of drawing the centre fragment forward and fixing it to the maxilla in cases of double fracture of the mandible. In these cases the centre fragment was displaced backwards and downwards.

Mr. HOPSON said that he had seen salivation follow the use of ungilded German silver splints. He showed a case of bone-grafting described below.

Mr. S. P. MUMFERY thought that in cases in which loss of bone did not exceed $\frac{1}{2}$ in. in the mandible, the fracture might be put up in good occlusion with a reasonable hope of bony union. Where contraction and approximation of fragments had already occurred slow separation might be followed by stretching of the osteogenetic tissue.

Mr. NORTHCROFT had used intermaxillary traction to remedy displacement when teeth were absent in one fragment of the mandible. He showed a useful "open" metal splint designed to allow of easy inspection of the teeth when replacing the fragments.

Mr. NORMAN BENNETT said that he used no fixed caps or splints. He found he could not fix them on account of the cement getting washed out before it set. He used gradual methods and, where there was not much loss of bone, allowed the parts to consolidate a little before separating them.

Mr. W. W. JAMES recommended rubber tubing tied by its ends into a bow and placed inside the lips to distend cicatricial parts. Great relief might thus be given to dribbling.

Mr. PEARCE did not like Mr. Colyer's idea of extracting in cases of delayed union. He thought patience would preserve the teeth. He spoke of the wonderful reception given by French dentists to those British dentists who had visited France.

Mr. J. G. TURNER suggested that in cases in which loss

of bone was not too extensive pieces of bone might be loosened from the patient's own mandible and turned into the gap while still retaining a vital periosteal connexion with the bone. Where there was small loss of bone the histories of several cases showed the possibility of regeneration of new bone if the parts were immobilized in a position such as to preserve the gap. X rays showed that this was effected by fragments of osteogenetic tissue scattered in the wound. When the parts had fallen together he advocated waiting a little and then stretching slowly to stretch the new-forming bone.

Among cases shown were three of bone-grafting, one by the American Ambulance of a year's standing, and two of later date—one by Sir F. Eve and Mr. J. F. Colyer, and one by Sir A. Fripp and Mr. Hopson. All seemed to be successful. In Sir A. Fripp's case $2\frac{1}{2}$ in. of the rib had been inserted and a splint bridge was worn on the teeth; x rays showed bony union at one end at least. The exhibition was visited continuously during the two weeks it was on view. The splints alone demonstrate the need of special dental aid.

Dr. Pont's lucid type-written description of his cases was widely read. Members of the Odontological Section are unanimous in expressing their admiration of the work of their French and American colleagues, and their appreciation of the part they played in promoting a unique exhibition and discussion.

Reviews.

MORPHOLOGY AND ANTHROPOLOGY.

THE second edition of Dr. DUCKWORTH'S *Morphology and Anthropology*¹ is in course of publication in a new and greatly extended form. The first volume now before us corresponds to section A of the previous work. It deals with the anatomy of the mammals, especially of the primates, and we understand that other volumes dealing with embryology, craniometry, and palaeontology, will be published after the termination of the war. After a short introduction to the mammalia and the orders into which that group is divided by modern systematists, Dr. Duckworth passes to a full account of the primates, first reviewing the taxonomy of the group, though without referring to Dr. Elliot's rather revolutionary "Review of the Primates." He then deals at length with the external and internal anatomy of several of its members, especially a lemur, the tarsier, an old world monkey, and the gorilla. The crania and the teeth of the primates are described in the concluding chapters.

The book is written primarily for students of physical anthropology, and presumes the very special knowledge of anatomy which is only possessed by the few who have passed through the human anatomy schools. The book, in fact, is "advanced," and the ordinary zoologist will find himself once more cut off from understanding the thoughts of the anthropologist, which is to be regretted, because anthropology tends to isolation and specialization, even though it is so many-sided. All biologists will notice with pleasure Dr. Duckworth's insistence on the fact that specialized and simple types hardly exist in real life; he never lets us forget that extreme specialization in one organ is very often found in a creature which is in other respects simple, or even degenerate.

One of the most satisfactory parts of the book is that which deals with the dentition of the primates; it might interest equally a zoologist or a dentist. The origin of cusped teeth has always presented great difficulties to vertebrate morphologists, and Dr. Duckworth gives a summary, we believe the only one, of the theories which have been put forward from time to time by Cope and Osborne, Marett Tims, and others. It is very lucid, and also, we believe, very fair, but it is disappointing that more space could not have been spared for it; the author would have done well to give more definite indications as to which of all the views he himself supports, and to what extent any of them have been accepted by workers

¹ *Morphology and Anthropology*. By W. L. H. Duckworth, M.A., M.D., Sc.D. Second edition, vol. 1. Cambridge: The University Press, 1915. (Med 8vo, pp. 318; 208 figures. 10s. 6d. net.)

among the other mammalia. The array of facts is immense; they are arranged logically, and it is well to have them in this accessible form, but some will wish that the author had embodied among them a passing word of generalization, even though his summary has yet to appear.

The illustrations, many of them from the author's own line drawings, are very clear. The indexes are unfortunately quite inadequate.

CAUSES OF VIOLENT DEATH.

In his thesis for the degree of M.D. in State Medicine at the University of London, entitled *An Inquiry into the Statistics of Deaths from Violence and Unnatural Causes in the United Kingdom*,² Dr. W. A. BREND has examined the official statistics in twelve blue-books and reports issued by the Home Office, the Registrars-General for England, Scotland, and Ireland, the Local Government Board, the Board of Trade, and the London County Council. He shows that the present system of collecting and recording information concerning such deaths is far from satisfactory, and that this is in part due to inco-ordination and differences in the system of classification, nomenclature, area covered, and other particulars as adopted by the various authorities. Particular attention is drawn to the waste of the valuable source of information which might be afforded by the records of the various coroners; they are claimed as the private property of the coroners and are not made use of except for a brief summary of verdicts issued by the Home Office and a special report on deaths from starvation published by the Local Government Board. In criticizing the figures given under the heading "Murder," as returned by the Home Office and the Registrar-General, the author calculated that it would appear as though 60 per cent. of the murders committed in this country remain undetected, but concludes that this inference is not justified in the absence of knowledge as to how far the figures include cases which are not criminal at all, according to the decisions of the higher courts. It is not clear whether these figures include cases of infanticide in which a verdict of "murder against some person or persons unknown" is returned. The number of such cases is by no means negligible. In dealing with "deaths from overlying" Dr. Brend emphasizes, perhaps too much, the importance of having the body examined after death by expert pathologists to exclude natural causes of death, but the recognition of acute capillary bronchitis, gastric disturbances leading to convulsions, pyelitis and even bronchopneumonia is certainly not always easy. Attention is drawn to the marked seasonal variation in the number of deaths from overlying and to the difference in their number in rural as compared with urban districts, amounting to nearly 40 per cent. in favour of the former in spite of the fact that the difference in overcrowding is only 11 per cent. A possible explanation, which the author does not mention, may be found in the practice which working-class parents make, especially over the week end in large cities, of taking their infants out till late at night while they do their weekly shopping. This practice would expose infants to the risk of natural disease, especially in the winter months, and though coroners do not now notice an excess of these deaths on Saturday night it is possible that many are to be attributed directly or indirectly to this habit.

Dr. Brend's thesis covers a wide range, from "murder" to "deaths under anaesthetics." It is of considerable interest, and he has certainly made out a case "for believing that in certain forms of death from violent and unnatural causes we have a field for investigation and an opportunity for saving human life which has hitherto been relatively neglected."

MENTALLY DEFECTIVE CHILDREN.

At the present time, when as yet the powers and duties conferred on local authorities and education committees by the Mental Deficiency Act, 1913, are a matter of much consideration and the policy to be pursued of much un-

certainty, *Mentally Defective Children*,³ a translation of BINET and SIMON's little book, is very welcome. The names of the authors have become very familiar in connexion with the scheme of tests they devised for measuring the level of intelligence, but few are acquainted with the splendid work carried out by them, and recorded in the volumes of *L'Année psychologique* and in the present book, which led up to and formed the foundation of this scheme. In Dr. DRUMMOND's admirable translation the first origins are seen of the idea which was ultimately worked out with such thoroughness, and it was a happy idea to include as an appendix the actual tests to which the work ultimately led; the schedule of tests has been translated by Miss Margaret Drummond, who has added general directions regarding their application.

The book was specially intended as a guide to the admission of mentally deficient children to special schools or classes. The preliminary steps are to describe the mental and moral characteristics of such children, and form a theory as to their real nature. The problem is attacked partly by the method of questionnaire and partly by direct observation, and the theory on which their general conclusions are based is that the defective child does not resemble in any way a normal one whose development has been retarded or arrested, but that his specific characteristic is an unequal and imperfect development. It may surprise some of the critics, and even some of the admirers of the Scale of Intelligence Scheme, to learn, or to be reminded, that this was the view held by Binet; much that has been written about his scale has failed to recognize the purpose for which it was devised and the limited claims made by its authors. It was their dislike of empiricism and vague generalities and *a priori* conceptions that forced them to devise questions and tests, to analyse the result of their applications in different cases, and gradually to systematize their method and the information so obtained.

A chapter on the medical examination of defectives raises interesting questions, and answers them, perhaps, not quite in accordance with medical views in the past, and yet, it must be admitted, with good reasons adduced. A further chapter discusses the methods of education from the practical point of view that all instruction given to defectives should be subordinated to their mode of life. The spirit of the book and its value, whether to science or to the cause of educational and social reform, is well summed up in the concluding sentence: "The essential thing is for all the world to understand that empiricism has had its day, and that methods of scientific precision must be introduced into all educational work, to carry everywhere good sense and light."

THE AGE OF THE EARTH.

PROFESSOR JOLY's book, *The Birth-time of the World*,⁴ contains twelve essays written at various times during the last quarter of a century. Like Tyndall, the professor has been drawn to write about the Alps, and the many thoughts concerning the problems of life, time, and eternity raised in the mind of the traveller in Switzerland. As a geologist, Professor Joly sees in the Alps a writing-block for Time, and is prompted to attempt an estimate of the age of the earth from the geological data of subaerial denudation, comparing the result with other estimates based on astronomical data and the calculations of our experts in radium. The method is that employed many decades ago by proficients in other branches of physical science, notably by James Croll. Professor Joly has the advantage of fuller information, and makes a most interesting story of it all. As a mere visitor to the summer pastures of the Alps, he has been struck—as who has not?—by the richness of the flora there burgeoning, and he gives excellent photographs of his own taking to illustrate many of the points raised in these essays. Another subject that he deals with is skating, and he shows that the possibility of this method of progression depends on the lowering of the freezing point of

² *An Inquiry into the Statistics of Deaths from Violence and Unnatural Causes in the United Kingdom*. By W. A. Brend, M.A. Camb., M.D., B.Sc. Lond., of the Inner Temple, Barrister-at-Law. London: C. Griffin and Co., Ltd. 1915. (Demy 8vo, pp. 80. 3s. 6d. net.)

³ *Mentally Defective Children*. By A. Binet and Th. Simon, M.D. Authorized translation by W. B. Drummond, M.B., C.M., F.R.C.P. Edin. With an Appendix containing the Binet-Simon Tests of Intelligence by Margaret Drummond, M.A., and an Introduction by Professor A. Darroch. London: E. Arnold. 1914. (Cr. 8vo, pp. 189; 13 figures. 2s. 6d. net.)

⁴ *The Birth-time of the World, and other Scientific Essays*. By J. Joly, M.A., Sc.D., F.R.S. London: T. Fisher Unwin, Limited. 1915. (Med. 8vo, pp. 321; 38 plates. 10s. 6d. net.)

water by pressure; with the result that it may truly be said that the skater skates on water, not on ice. Other essays are entitled "Other Minds than Ours?" a discussion on the alleged inhabitation of Mars; "The Latent Image," an address to photographers; "Pleochroic Halos" and their connexion with radio-activity, a matter for crystallographers and mineralogists; "The Use of Radium in Medicine," a lecture to post-graduate students of medicine at the founding of the Dublin Radium Institute last year; the last essay in the book is "A Speculation as to a Prematerial Universe," a metaphysical exposition. Professor Joly writes in an interesting manner, and we may commend his volume to general readers with the assurance that they will find in it something to arrest their attention.

NOTES ON BOOKS.

Appleton's Medical Dictionary,⁵ a new work with an editor, an assistant editor, and seven special contributing editors, is designed for the use of medical men. It has an appendix with notes on the preparation of pathological specimens, diets, certificates of births and deaths, reciprocity among the North American States, and cases of poisoning. The book is clearly printed, but contains numerous misprints, particularly in the chemical formulae it gives. Certain terms of little utility are given, such as "Kupiology, the pathology of malignant ulcers," and "Hematoncus, a name for several varieties of angioma." Certain common terms are absent, such as "streptotrichosis," "emunctory," "proteid." The chemical term "aryl" is inserted, while "acyl," an equally common term, is omitted. "Pituitrin" is misspelled "pituitin." "Erlenmeyer" is set down on p. 894 as "Ehrlemeyer." Throughout the dictionary American spelling is employed. Medical men nowadays are already supplied with an abundance of excellent medical dictionaries, each with some special excellence in its own department. Gould's *Illustrated Dictionary of Medicine* is very large and complete, and his *Pocket Medical Dictionary* is small and complete. Dorland's two *Medical Dictionaries*—the larger illustrated, the smaller of pocket size—are both very compact and full. Hobblyn's *Dictionary of Terms used in Medicine* is familiar to medical men of many generations in this country. It would appear, therefore, that a new medical dictionary must force its way upon a rather crowded stage, and, unless of exceptional merit, can hardly expect to find a leading part unapportioned.

The eighth edition of DORLAND'S *Illustrated Medical Dictionary*⁶ follows two years after the appearance of the seventh edition. The text has increased by thirty pages; nine of these are occupied by new clinical and laboratory tests. So far as the point can be determined by a cursory examination, Dr. Dorland seems to have brought the dictionary well up to date, and to have done his work well. The book will be found very useful by students and practitioners of medicine. As is perhaps natural, the illustrations are the least satisfactory part of the book.

As a book of comfort for those whose relatives have fallen in the present war, Dr. C. WILLIAMS has written a little study⁷ in biblical eschatology in which the views of the primitive church on death and the hereafter are stoutly reaffirmed. Dr. Williams holds that after death the soul may go to Paradise, to Hades, or to Gehenna, according as it is good, indifferent, or bad. Dr. Williams looks forward with confidence to the coming of the millennium, and claims a real efficacy for prayers for the dead. His book may be recommended as a firm declaration of faith to those who find consolation in speculations on the unknown future that lies before the dying.

The *Minutes of the General Medical Council* and of its various committees for the year 1915, with nineteen appendices,⁸ has been published, and forms a volume of 521 pages. The *General Index to the Minutes of the General Medical Council for 1903-1915*⁸ has also been issued.

⁵ *Appleton's Medical Dictionary*. Edited by Smith Ely Jelliffe, A.M., M.D., Ph.D., assisted by C. W. Latimer, M.D., A.M. London and New York: D. Appleton and Co. 1916. (Demy 8vo, pp. 945, 15s. net.)

⁶ *The Illustrated Medical Dictionary*. By W. A. Newman Dorland, A.M., M.D., F.A.C.S.; eighth edition, revised and enlarged. London and Philadelphia: W. B. Saunders Co. 1915. (Med. 8vo, pp. 1137, illustrated. 19s. net; with thumb index, 21s. net.)

⁷ *Death and Hereafter*. By Dr. C. Williams. London: Jarrold and Sons. 1915. (Cr. 8vo, pp. 94. 1s. net.)

⁸ London: Constable and Co. 1916. Prices 12s. and 2s. 6d. respectively.

ROYAL MEDICAL BENEVOLENT FUND.

At the meeting of the Committee on January 11th twenty cases were considered, and £149 10s. voted to fifteen of the applicants. The following is a summary of the cases relieved:

Widow, aged 56, of M.D. Aberd. who practised at Balham and died in 1904. After husband's death went to South Africa with her son, and invested all her capital in a mine which was a failure. Applicant returned to England at the outbreak of war. Son joined the army in South Africa, and the little allowance he was able to make to his mother ceased. She has earned a little by nursing but not sufficient to keep her. Relieved once, £10. Voted £5 and referred to the Guild.

Widow, aged 42, of M.R.C.S.Eng. who practised in London. Has three young children. Has endeavoured to make a living by running a boarding house, but, owing to ill health and the children, has found it very difficult, and requires a little temporary help. Voted £10.

Wife, aged 39, of a professional man who had joined the army. Applicant's first husband was a medical man, and she had three daughters by him. She has developed tuberculosis, and had to go into a sanatorium, and wanted a little help to complete the education of her youngest daughter, aged 16. Another society has promised a little help; £2 10s. was granted to the Guild, who were also going to assist.

Daughter, aged 49, of M.D.Lond. who practised in London and died in 1900. Was left practically unprovided for, and is very delicate. Only income £19 per annum. For many years lived with a friend who has recently died. Relieved twice, £25. Voted £15 in twelve instalments.

Daughter, aged 63, of M.R.C.S.Eng. who practised in Watford and died in 1879. Applicant unable to work in consequence of impaired health. Only income a pension of £26 from another society. Relieved nine times, £108. Voted £9 in twelve instalments.

Daughter, aged 51, of M.R.C.S.Eng. who practised at St. Clears and died in 1878. Applicant has double curvature of the spine. Lives with her mother, who is an annuitant of the Fund. Relieved twice, £12. Voted £6 in twelve instalments.

Widow, aged 63, of M.R.C.S.Eng. who practised in London and Somerset and died in 1901. Applicant was left quite unprovided for at husband's death. Has managed to earn a little by dressmaking and letting rooms, but has been ill, and recently underwent an operation for uterine fibroids. Relieved twice, £24. Voted £12 in twelve instalments.

Widow, aged 65, of L.S.A.Lond. who practised in London and died in 1890. Applicant has no permanent income, but earns a little by needlework and taking in boarders. Her health is very precarious. Relieved three times, £36. Voted £12 in twelve instalments.

Widow, aged 59, of M.R.C.S.Eng. who acted as locum tenent and died in 1913. Applicant was practically supported by eldest son, who gave up a good position and joined the army, but has been missing since September last. Other son also in army, but only able to allow his mother the usual army allowance. Too old and health not good enough to enable applicant to work. Relieved twice, £20. Voted £12 in twelve instalments.

Widow, aged 51, of M.R.C.S.Eng. who practised in Leicestershire and died in 1902. Applicant was the Morgan annuitant of the Fund for some years. Owing to three sons having joined the army and navy, and not able to make the usual allowances towards the upkeep of the home, and one daughter very ill, applicant has got into temporary difficulties. Voted £5.

Wife, aged 49, of L.R.C.P.Irel. Separated from her husband owing to his habits. Left with three children, the youngest of whom is at Epsom College, and the others hope to be able to earn a little soon and help their mother. Applicant's eyes are bad, and she is quite unable to work. Relieved three times, £36. Voted £12 in twelve instalments.

Widow, aged 59, of L.R.C.P.Irel. who practised at Chester and died in 1907. Applicant was left quite unprovided for; only certain income a pension from another society of £25. Health very unsatisfactory. Has one daughter who is married and unable to help. Relieved eight times, £96. Voted £12 in twelve instalments.

Daughter, aged 61, of M.R.C.S.Eng. who practised at Hunts-pill and died in 1889. Applicant has tried to make a living by letting rooms, but not successfully, and all her capital has been lost in consequence. Only income now a little from needlework. Relieved five times, £60. Voted £12 in twelve instalments.

Daughter, aged 45, of M.D.Heid., L.R.C.P.Lond., who practised in London and died in 1890. Applicant's health is very unsatisfactory. She earns a little by painting, but this is very precarious, especially at present. Relieved once, £12. Voted £10 in two instalments.

Widow, aged 70, of M.R.C.S.Eng. who practised at Maidstone and died in 1910. Applicant was left totally unprovided for and has tried to earn a living by taking in paying guests, but recently has not been very successful, and is too old to try other work. Relieved five times, £42. Voted £12 in twelve instalments.

Subscriptions may be sent to the honorary treasurer, Dr. Samuel West, 11, Chandos Street, Cavendish Square, London, W.

The Royal Medical Benevolent Fund Guild appeals for

gifts of secondhand clothing, boots and shoes in good condition, also household linen. The gifts should be sent to the Secretary, Royal Medical Benevolent Fund Guild, 43, Bolsover Street, W.

MOTOR NOTES FOR MEDICAL MEN.

By H. MASSAC BUIST.

THE PETROL SITUATION.

THE petrol situation is becoming somewhat aggravated. The first hint received by the public was the circular of the Asiatic Petroleum Company referring to a possible shortage, which in turn brought forth a statement from the Anglo-American Oil Company that there was no shortage, but that such statements were likely to send up prices. The situation thus revealed remained an enigma to the public, particularly when, about a fortnight later, all the petrol companies save the Asiatic Petroleum Company (Shell and Crown brands), advanced the price of their fuels approximately 4d. a gallon. Then the Shell people issued a circular again insisting on the need of economy, also claiming that they were supplying four-fifths of the fuel required by the British forces, and concluding with the announcement that in consequence they would make it their best endeavour to supply the public with one-third of its normal peace time consumption of Shell and Crown spirits.

If pleasure motoring were the only thing to be considered, one-third of peace-time supplies would more than suffice for all the driving that is done nowadays. But altogether apart from the enormous demands for motor fuel for the navy and army, alike at home and overseas, our home consumption of petrol for civilian use is unprecedentedly high, primarily because the wholesale commandeering of horses for war service has compelled the community to take to the employment of utility motor vehicles to an extent that has never obtained before. As regards consumption as reflected by the shipping accommodation problem, for a given amount of work done the utility motor vehicle consumes appreciably less than half the tonnage it is necessary to import in the way of food-stuffs for horses doing the same amount of work, so there is a direct gain under that head.

RISE IN FUEL PRICES AND SHIPPING RATES IN AMERICA.

But against this the Government has had to take over approximately half the fleets of tank steamers possessed by the fuel companies, and may have to take more yet, so that there is a real shortage of shipping accommodation for the motor fuel supplies of the civilian community. In wide terms, the tank steamer building for the year will add approximately a third to the world's fleets; but that will barely keep pace with the growing demands under all heads for motor fuel before an allowance of any sort is made for possible losses of tank ships due to enemy enterprise. It therefore follows that in the present situation a very sharp look-out has to be kept on the activities of those oil refiners in various parts of the world who own tank steamers; the bidding for their services for a voyage is very high in consequence. As giving a notion of the extraordinary state in which the freight market is in this connexion I may point out that within the last month I have seen contracts placed ranging from £3 15s. to no less than £6 10s. a ton for petrol to be brought here from America. Both rates are, of course, quite abnormal. Yet the lower figure is the lowest at which business has been done.

Nor is this all; for when the use of a single steamer is secured to bring a cargo of oil here it is, of course, always a condition that the fuel shipped is purchased from the refiner owning the given steamer. For example, not all the petrol imported by the Anglo-American Oil Company comes through the Rockefeller groups. Supplies are purchased from about four separate and independent sources.

Despite the fact that in 1915 and in 1916 there will be added to the motor vehicles in use in the United States alone a total of two million machines—over 800,000 were added last year, and over a million will be added this year—it is a fact that all the petrol we need is obtainable in the world. Put in few words, the situation is simply

this: We can get all the fuel we need and are able to transport, but that fuel is worth just as much as it will fetch on the open market, and we must pay accordingly. In face of the figures I have given concerning the rate at which America is increasing her use of motor vehicles, naturally the oil refiners are not throwing their stocks on the market, but instead wait for bids. They know that they can dispose of all their stocks at home. On the other hand, they have such an enormous foreign demand that the price of home consumption has risen from 15 cents per American gallon in New York a year ago to 35½ cents to-day, and 40 and 50 cent petrol is being spoken of. We have to add one-fifth to every American gallon to make an English one of it, apart from which most of this 35½ cent petrol is equal to only about our third-grade spirit, therefore it has to be refined again when brought over here, which further reduces the quantity.

WHY TALES OF SHORTAGE DO HARM.

The importers claim that the rise of 4d. a gallon barely takes up the advance that has occurred during the last twelve months in the cost of the fuel in the primary markets where they purchase it, and makes no allowance whatever for the current abnormal shipping rates and for the heavier distribution costs in this country. Those costs embrace the two gallon tins in which the petrol is kept and of which there is a great shortage, owing, first, to the heavy demands and destruction in connexion with those supplied for war service in the early days of the campaign, and, secondly, to a section of the motoring community having laid up large fuel stores in two gallon tins, which are accordingly out of circulation for an unduly long time. The authorities solved their own tin problem by taking two steps. The first consisted of organizing adequate repair depôts so that the wholesale scrapping of tins was stopped, and the second was the taking over of the supplies of tin and the tin works, so that for some time past the Government has been making its own petrol cans. In consequence the petrol importers have had to import their tins, which is comparatively a very expensive process.

In face of all these points, therefore, the only marvel is that the civilian community has come thus far through the war without having to pay more than half a crown a gallon for its first-grade motor fuel, particularly as in France considerably more has had to be paid. It will be appreciated that nothing could more adversely influence this matter from our point of view than putting abroad stories concerning shortage of petrol, since the refiners in America are only waiting for such information to hold back their supplies until they can demand still more extortionate prices. In this connexion it must not be forgotten that in the United States they have very full knowledge of the manner in which munition producers there have coined money out of this war, some large orders having paid not only for the cost of production and materials, but also for the factory buildings in which and for the machinery with which they have been produced; and have, besides, left over a balance of 25 per cent. profit on a single order. With the example of successful plundering on such a scale it is not surprising that sundry oil refiners in the New World consider their present game not only absolutely legitimate, but also positively philanthropic by comparison.

"TIN GRABBERS" AGGRAVATE THE DIFFICULTY.

The "tin-grabbers," as the petrol trade describe those members of the community who have aggravated the position at home by laying in stores of petrol sufficient for anything from six to eighteen months and with a view to dodging increases of import duty, should become objects of special attention on the part of the authorities now that the motor fuel situation is having to be dealt with by the Ministry of Munitions. Such individuals have acted against the public interest; therefore their stocks should be seized, if only for the reason that every user of motor fuel should pay duty on it at whatever rate obtains for his given class at whatever time he uses that fuel. In Germany laying up stores of this kind, which are estimated by the Royal Automobile Club to total over a million cans, would be punishable by heavy fine, for with the total number of cans in the country enormously diminished by reason of the army's needs at the beginning

of the war, the having an additional million withdrawn from use by these undesirable tactics of comparatively a small section of motor users becomes a very serious thing to the community. Every additional can has to be imported into these islands, consequently each one should be made the vehicle of distributing two gallons of petrol as frequently as possible in place of containing the same two gallons of petrol for month after month. This is one of the first points that should be made by the medical profession when making a move, as it must do, to have its case specially considered by the authorities at the present juncture.

MEDICAL MEN MUST BE ASSURED OF SUPPLIES.

Next it should bring out the need for supplies of petrol being assured to medical men throughout these islands according to their several needs. The Commercial Motor Users' Association, which claims that more than 75 per cent. of the petrol used by the civilian community of these islands is required by the industrial and commercial motor vehicle users, has been invited by the Ministry of Munitions to submit a scheme to secure a more efficient distribution of petrol. The fact is overlooked that of the balance of less than 25 per cent. used by the civilian community at the moment by far the greatest proportion is needed for professional uses, foremost among which are doctors. Motors are besides needed by veterinary surgeons, surveyors, civil engineers, and all manner of other professional men, whose collective requirements nevertheless do not come within the scope of the Commercial Motor Users' Association's claims.

The Motor Trades' Association did well in advertising the limit which motorists ought to pay for their petrol supplies in England, Scotland, Wales, and Ireland at the present time. But the association is, of course, unable to compel local retailers who desire either to favour certain customers or to hold up supplies to release what stocks they may have in hand. To put the retailing of petrol into the hands of the Government by any sort of machinery that could be devised would only be adding expense to expense and creating a number of paid posts for officials, which form of national extravagance must be stopped at all costs, now we have gone thus far in the war and all realize that every penny must be looked at twice before it is spent.

Of course, the main causes of the, at present, admittedly unequal distribution of petrol are unavoidable. They arise from certain consignments intended for civilian use being diverted at the last moment to some point or other where the Government desires them to be placed for its own disposal for military purposes, whereby a month or two may pass before it is possible to arrange for another cargo to be brought to the given centre. This difficulty could be obviated as far as medical men are concerned, however, by arranging that each shall be allowed to accumulate anything from, say, two to four dozen tins, according to his situation, whereby it would be possible to carry on for a matter of weeks in the event of any temporary interruption in local distributing arrangements.

THE Chile Minister of Justice has appointed a Commission for the study of crime. A laboratory of experimental pathology is to be established at Santiago.

It appears from a report by the Medical Officer of Health of Vienna, Dr. Böhm, that during the first twelve months of the war the health of Vienna was in many respects better than might have been expected. The number of patients treated in public and private hospitals was 79,169, as compared with 119,935 for the preceding twelve months. Many men had left the town on active service, and the conditions of labour and pay were much improved for those who stayed at home. The death-rate was 14.5 per 1,000, as compared with 13.6 per 1,000 for the last twelve months of peace. Of the infectious diseases commonly associated with warfare, only small-pox assumed alarming proportions; and for this the lack of universal vaccination was to blame. In the first twelve months of the war 1,613 cases were notified in Vienna, 1,538 in the civilian population, 50 among soldiers, and 25 among civilians not domiciled in Vienna. There were 351 deaths, and the mortality was, therefore, 21.7 per cent. Only a few cases of cholera, typhus and dysentery occurred, and the incidence of typhoid fever among the civil population was nearly normal.

THE REPORT OF THE ROYAL COMMISSION ON VENEREAL DISEASES.*

(Continued from p. 346.)

II. PREVALENCE (continued).

Distribution of Venereal Disease.

THE crude death-rates from syphilis per million for the year 1910 are stated to be 46 for England and Wales, 42 for Scotland, and 22 for Ireland. Such consequential diseases as general paralysis, locomotor ataxia, and aneurysm follow syphilis closely in relative order of distribution, except that aneurysm stands highest in Scotland, and, together with general paralysis, is markedly low in Ireland. The table brings out the fact that syphilis is essentially a town disease. It is concluded that the excess of urban mortality from syphilis is due largely, but not altogether, to the high proportion of institutional deaths returned by them. For gonorrhoea no similar statistics are available, but the trend of the evidence is to show that, like syphilis, it is essentially a town disease.

The infantile mortality returns due to syphilis again show the striking immunity of the rural areas: it is one-half that in urban areas. The mortality of illegitimate infants is from 8 to 10 times as high as that of the legitimate.

A most striking table gives the recorded death-rate per million for syphilis and three consequential diseases in classified groups of the population above 15 years of age. The rate is heaviest for unskilled labour; next in heaviest incidence comes the upper and middle class which includes clerks and insurance agents; then follow in order skilled labour, textile workers, miners; and last, with the lightest incidence, agricultural labourers. "As the figures were standardized to allow for the varying age distribution among classes whose average duration of life differs, they may be accepted as correctly representing the relative incidence within the limits of accuracy permitted by the present system of registration. . . . Viewing these figures as a whole, we consider that there are good grounds for believing that the prevalence of syphilis is greatest amongst the highest and lowest of the social classes. . . . Incidentally the figures help to confirm and explain the geographical distribution with which we have dealt."

Defects in Registration.

The report comments on the bad system of death registration in the United Kingdom; not only does the publicity of the certificate reduce its possible value, but there is no uniform method, and no provision for collating and analysing the returns as a whole. In England and Wales the doctor gives the certificate to the friends of the deceased, in Scotland he is supposed to send it to the registrar, but it is not confidential and a copy may be got for a small fee. In 1893 a Select Committee of the House of Commons commented on this unsatisfactory state of affairs, and "recommended that medical practitioners should be required to send certificates of the causes of death to the registrar, instead of handing them to representatives of the deceased." No official action has been taken, and bills presented by private members made no progress. But none of these attempts laid stress on the necessity for the document being confidential. The report points out that under a proper system "this certificate would be confidential, and access to it would only be possible on the order of a court of justice. A number of witnesses gave evidence in favour of confidential certification of the cause of death, and we understand that a reform of this kind has for some years been advocated by the British Medical Association, and is generally supported by the medical societies." Strangely enough, the view of the life assurance societies, so far as it was expressed, was opposed to confidential registration. But the Commissioners state: "We are not convinced by the alleged objections, and we consider that any improvement in the accuracy of vital statistics must, in the long run, benefit the life insurance companies, who could adopt their methods to the system of confidential certification as in all other great European countries." The Commission recommends that the Notification of Births Act should be made universally operative, and this has been done. It

* Royal Commission on Venereal Diseases. Final Report of the Commissioners. [Cd. 8189.] Price 1s. 11d.

also recommends that stillbirths of an earlier period than the Act specifies should be notifiable.

Defects of Hospital Statistics.

Stringent comment is made on the lack of information furnished in response to the appeal to the voluntary hospitals; 285 were applied to and only 67 replies were received.

Although in a few cases much trouble was taken in filling up the forms, the figures obtained are, for various reasons, unsuitable for our purpose, and there can be little doubt that in a large number of hospitals adequate records for statistical purposes are not kept. It appears to us to be highly unsatisfactory that these institutions, which are maintained from funds of a semi-public nature, should be unable to furnish precise information respecting the diseases with which they deal, and we trust that this important question will receive the serious consideration of the managing bodies.

The next paragraph of the report deals with the response of the Poor Law unions, and it would appear that their returns were of even less use than those of the voluntary hospitals.

We are strongly of opinion that improved records of sickness in hospitals and Poor Law institutions are urgently needed, and we consider that the Local Government Board should devise a uniform system with the object of securing statistical information as regards the prevalence of disease among persons who receive institutional treatment.

III. EFFECTS OF VENEREAL DISEASE.

The section on the effects of venereal disease is an admirably written clinical essay. Syphilis and gonorrhoea are dealt with. The early and late effects of these diseases, arterial disease of syphilitic origin, syphilitic diseases of the nervous system, and the grave risks of blindness, and also the fact that syphilis predisposes to cancer of the tongue, are commented on, as is the importance of gonorrhoea in women, not only because of the suffering entailed, but since it is said to be the commonest cause both of absolute and relative sterility—"in women probably 50 per cent. of all causes." "Knowledge of these facts should, in our opinion, cause both the medical profession and the public to take a far more serious view of gonorrhoea than has hitherto been adopted." The effects of gonorrhoea on little girls are noted, both when the disease arises from accidental causes and by attempts at sexual intercourse, "sometimes attributable to the abominable superstition that intercourse with a virgin cures venereal disease in a man."

Effects of Venereal Disease on Offspring.

"We have received much evidence showing that both in the fetus and in the child after birth hereditary syphilis is an even more serious disease than the acquired form." It is a frequent cause of antenatal death, producing abortion, miscarriage, or stillbirth. "It will be seen that the figures furnished by one witness, which relate to 150 (syphilitic) families, show that out of 1,001 pregnancies 172 resulted in miscarriages or stillbirths."

The gravity of the diseases set up in the child in the earlier and later periods of its growing life by the virus are commented on. "Of 1,100 children in London blind schools, Mr. Bishop Harman states that 31.2 per cent. of cases were certainly, and in addition 2.8 per cent. probably, due to syphilis." Again, "Of 845 children suffering from some acquired deafness in London County Council deaf schools, 7.21 per cent. were adjudged to be congenital syphilitic." Ophthalmia neonatorum as a cause of blindness is nearly as grievous. The London blind schools figures showed that 24.35 per cent. of children were in the blind schools from this cause, and for a small group in the Bristol school 41 per cent.

As to the relation between alcohol and venereal disease, the Committee says that alcohol "renders a man liable to yield to temptation which he might otherwise resist, and aggravates the disease by diminishing the resistance of the individual." It makes latent disease active, and renders a case more refractory to treatment.

Economic Effects of Venereal Disease.

Fetal and infantile death and sterility in women and in men due to venereal disease are a heavy toll on the vitality of the nation. Disease renders the living of little economic

value. The London figures of the blind referred to show that—

The total percentage attributable to venereal disease was certainly 55.6, and may have been as large as 58.4. To the expenditure incurred in the treatment of these children must be added the additional cost of their education. . . . The figures published by the London County Council indicate that the total cost of educating a child in the day schools for the blind is about seven times the cost of the education of the ordinary child. . . . Dr. Kerr Love stated that the cost of educating a deaf child is ten times as great as in the case of a normal child.

To these add "imbecility, idiocy, and various . . . other diseases, . . . the total . . . cannot be estimated."

Among adults the loss of working power from the earlier effects of the disease is important. "The naval statistics for the year 1912 show for an average strength of 119,510 men a total number of 269,210 days lost as a result of venereal diseases; in the army at home during the same year . . . with a strength of 107,582 men . . . a loss of 216,445 days. . . . If corresponding figures from the civil population could be obtained they would be found to be extremely large," especially when the deficient provision for treatment is considered.

The loss due to late effects is equally grave. "The statistics of the London County Council asylums show that 8 per cent. of the total admissions, or 15 per cent. of the male and 3 per cent. of the female admissions, are due to cases of general paralysis of the insane." The cost of all the lunatics in these asylums is £600,000 a year. It is estimated the total cost of asylum treatment in England and Wales from syphilis alone is £150,000 a year; "it cannot be less, and may be much more."

IV. MEANS OF TREATING OR PREVENTING DISEASE.

This is the final and naturally the most important section of the report, for it contains the recommendations of the Commissioners.

Diagnosis.

At the outset they insist on the necessity for early and accurate diagnosis.

Early correct diagnosis is the basis of early satisfactory treatment, cure, and prevention of the disease. Much can be accomplished in the prevention of venereal disease by education, and by arousing the public conscience to the great dangers, both to the individual and the community, of the neglect of infected individuals to seek competent medical advice as early as possible; this is particularly important in cases in which the existence of infection is doubtful or where the symptoms and signs are liable to be disregarded on account of their mild character and the absence of pain or discomfort. Every inducement should be offered, and no social, economic or administrative disabilities should prevent any sufferer with a venereal disease, however slight, from obtaining an accurate diagnosis with a view to satisfactory treatment at as early a date as possible after infection.

Comment is made on the advantages to be derived from the extended use of laboratory methods of diagnosis and the necessity for uniformity in the methods adopted. "The general practitioner will not as a rule have facilities for carrying out these tests for himself. He can, however, readily collect the material necessary for examination by either method and send it by post to the pathological laboratory. The presence of the spirochaete in a discharge can be shown several days after collection."

Treatment of Syphilis.

With regard to the results of treatment of syphilis, the report contains the following passages:

The only certain proof of eradication is reinfection. Since the introduction of the modern diagnosis and treatment many cases of reinfection have been reported. Syphilis may therefore be regarded as a curable disease. It cannot be too widely proclaimed that no grave disease responds more readily to efficient medical treatment than syphilis, and there are good grounds for concluding that eradication of the spirochaete with complete cure, or a total absence of any subsequent signs or symptoms of the disease in the majority of cases, can be obtained by "intensive treatment" when commenced in the primary stage.

There follows an excellent summary of the results of mercurial treatment, the use of arsenical compounds, the preparation by an English firm of substitutes for salvarsan and their testing by the Medical Research Committee. The reports on kharsivan and novoarsenobenzol are excellent, and there is conclusive evidence that in these thoroughly reliable and efficient preparations have been obtained. Galyi is also well spoken of.

The combined arsenic and mercury treatment (intensive treatment) introduced by Neisser is most recommended for general adoption.

This consists of periodic intravenous injections of salvarsan, followed by a course of five intramuscular injections of an insoluble mercurial preparation (calomel cream or grey oil) or a course of 30 inunctions. This is recognized by most experienced authorities as by far the most satisfactory method of treatment, and if commenced in the primary or even early secondary stage and continued for a sufficient length of time it will, in the majority of cases, result in a complete absence of symptoms, with the permanent absence or disappearance of the Wassermann reaction.

The opinion is expressed that in all cases success must largely depend upon the intelligent and loyal co-operation of the patient, and no means to ensure early and adequate length of efficient treatment should be neglected. Ignorance regarding the infectivity of the disease is largely responsible for its spread among the poorer classes, and patients should be warned of the danger of infecting innocent persons, and especially women, by whom the disease may be transmitted to their offspring. This vitally important object may, the Commissioners consider, be secured by issuing to every patient suffering with syphilis a card of instructions in some such form as the following:

Instructions to Patients.

1. Syphilis is a contagious disease; it can be cured if promptly treated by a doctor.
2. Treatment by quacks, herbalists, or persons advertising so-called cures is likely to lead to disastrous results.
3. The infection may last several years. It can be conveyed to others by sexual intercourse, by kissing, or by using the same eating or drinking vessel, utensils, or tobacco pipes, etc.
4. Treatment should not be stopped until the doctor says this may safely be done.
5. Should signs or symptoms of the disease appear, such as a rash on the skin, sore throat, or symptoms of nervous disease, a doctor should be at once consulted.
6. A doctor should be consulted occasionally, even though there are no symptoms of a return of the disease.
7. Treatment need not as a rule interfere with work or necessitate stay in hospital.
8. No one who has, or has had, syphilis should marry without permission of the doctor; otherwise there is great danger of giving the disease to wife and children.
9. Teeth should be cleaned night and morning. The patient should dress warmly, live simply, and avoid wine, beer, spirits, and other intoxicants.

The Commissioners strongly express the opinion that "the moral obligation should be urged upon all doctors who treat the disease in institutions or privately, to hand these cards, which should be provided at the public expense, to their patients."

The Treatment of Gonorrhoea.

Early recognition and prompt measures to prevent the spread of the organism to the posterior parts of the infected urethra of the male is insisted upon. The use of suitable injections, for which several colloidal preparations of silver are mentioned, is a striking advance on the old-time palliative measures and internal medication. As in the case of syphilis, the Commissioners recommend that cards of instruction, to be handed to patients suffering from gonorrhoea, should be provided at the public expense, and suggest that these instructions should be in the following or similar form:

Instructions to Patients.

1. Gonorrhoea is a contagious disease contracted through sexual intercourse. Gonorrhoea may be attended by grave consequences, especially if treatment be neglected and the necessary precautions are not taken.
2. Treatment by quacks, herbalists, or advertisers is likely to lead to disastrous results.
3. Sexual intercourse must on no account be indulged in while there is any discharge, even though this may be only slight. If this rule be neglected the condition is made worse. Moreover, there is always danger of communicating the disease.
4. Gleet, a late form of gonorrhoea, associated with a slight chronic discharge, is very likely to communicate the disease to the wife, causing much suffering and sometimes leading to chronic invalidism and barrenness.
5. Care must be taken that the discharge is not conveyed to the eyes. Neglect on this point may lead to injury to eyesight or to blindness.
6. Large quantities of simple fluids should be drunk, but no wine, beer, spirits, or other intoxicants should be taken while the discharge continues and for some considerable time after it has stopped.

The particular necessity for prompt measures in the case of women is insisted upon, as is the difficulty of the

situation owing to the failure of patients to recognize the onset of disease from their confounding it with an ordinary leucorrhoea.

Existing Facilities for Diagnosis and Treatment and their Deficiencies.

In private practice facilities are increasing for diagnosis among the well-to-do and the knowledge of their advantages is spreading. Amongst the wage-earning and other less well-to-do classes the skilled pathologist is unavailable except for the scanty aid given by a few sanitary authorities and voluntary hospitals. "The lack of facilities for diagnosis undoubtedly accounts for the large amount of venereal disease, and particularly syphilis, which, not being recognized at an early stage, is inadequately treated or entirely neglected."

In Poor Law practice and that under the Insurance Acts "pathological aids to diagnosis have only been utilized to an inconsiderable extent." In voluntary hospitals the position is more advanced: "There is evidence that the provision of clinical laboratories available for aiding the diagnosis of gonorrhoea and syphilis has materially increased." Of public health authorities, it is written: "In the majority of sanitary areas in this country no official pathological facilities for the diagnosis of gonorrhoea and syphilis have hitherto been provided. . . . In the navy and army the facilities are better developed than in the rest of the community." In prisons "there are no adequate arrangements."

The facilities for treatment follow very much the same lines. "People of the middle and upper classes are treated almost exclusively by private practitioners or by consultants, except in the numerous instances in which, from shame or because they are misguided by advertisement or misleading recommendations, they consult chemists or unqualified persons." It is asserted that the training of medical students with regard to the diseases is insufficient, so that medical men do not always regard them with enough seriousness.

Under the Insurance Act, which covers roughly one-third of the total population of the United Kingdom, "an insured person suffering from gonorrhoea or syphilis is entitled to receive medical attendance and treatment, and to be supplied with the necessary medicine and appliances, exactly in the same way and to the same extent as for other diseases." But the patients are otherwise penalized. The model rule of the Insurance Commission is:

No members shall be qualified for sickness or disablement benefit in respect of injury or disease caused by his own misconduct; but no member may be suspended from benefit for a period exceeding twelve months.

The Commission reports that "The application of any such rule in the case of venereal diseases is likely to deter patients from seeking prompt and efficient treatment. It is therefore contrary to the interests both of public health and economy."

The possibility of the general use of salvarsan in private work is considered; the views of witnesses differed. The conclusion in the report is: "We are strongly of opinion that training in technique is necessary in the case of all medical practitioners who administer this drug, and the means will become available if our recommendations are adopted."

In voluntary hospitals the accommodation for treatment is altogether insufficient.

Patients apparently recognize that the treatment of venereal disease is not encouraged in general hospitals. . . . In some hospitals it is contrary to their statutes to admit venereal disease into the institution.

There is evidence that considerable objection to the treatment of venereal disease in the voluntary hospitals persists in the minds of some of the subscribers to these hospitals.

It appears that, although there is a certain amount of modern treatment available for venereal patients at special hospitals, the amount is limited, and that the workhouses and their infirmaries do not at present to any extent supply the lack. Special hospitals have done excellent work, but these are few in number.

Recommendations for Improving Facilities for Diagnosis.

Prior to the outbreak of the war the House of Commons voted £50,000 to assist in the provision of laboratory facilities "with a view to the prevention, diagnosis, and treatment of disease in general." This was intended to be

a grant in aid of the provision of pathological laboratories by the large public health authorities. "If these proposals are made effective much expenditure, which must otherwise be provided elsewhere for the treatment of venereal disease, will be saved." Where adequate facilities already exist in universities and large hospitals these should be made use of.

They "would form satisfactory centres for diagnosis; they would, moreover, have the advantage of being intimately associated with the clinic and treatment. Similarly, the services of the London Lock Hospital, which has done useful diagnostic work in the past, should be fully utilized." The recognition of the importance of a pathological laboratory to the efficiency of a hospital should receive every encouragement, and those borough and county hospitals which are of sufficient size and importance to equip and maintain a pathological laboratory with an efficient salaried pathologist should (after approval by the Local Government Board) be admitted as centres for a county or district.

Recommendations for Improving Facilities for Treatment.

Its review of the present conditions has made it clear to the Royal Commission that, except in the case of the navy and army, the existing facilities for the treatment of venereal diseases are extremely deficient.

The medical practitioners of this country are, from the nature of the case, to a large extent unfamiliar with the newer methods of diagnosis and treatment. . . . The institutional provision which has been made for the treatment of the diseases is . . . wholly inadequate.

It was the general opinion of the witnesses who appeared before us that no adequate system of treatment would be organized unless responsibility for the measures to be adopted were undertaken by the State. In these opinions we concur. We recognize that the medical practitioners of the country must form the first line of defence against these diseases, but the diseases are so widespread and their consequences are, as we have shown, so serious, not only to the individual but also to the race, that concerted action by a public authority is in our view essential.

The recommendation is that the councils of the larger local authorities should undertake definite schemes for the treatment of venereal diseases in their areas. The institutional treatment to be provided should be available for the whole community and should be so organized that persons affected by the disease will have no hesitation in taking advantage of the facilities for treatment which are offered. The Commissioners find that special centres are undesirable, and consider that "the most practicable method is the use of special wards in the general hospitals of the country, together with special arrangements, including evening clinics which are essential to the working classes, at these hospitals for the out-patient treatment of the disease," and continue:

"We are satisfied that the existing hospital facilities, with such extensions as may be found necessary, should suffice to meet the need for the prompt and satisfactory hospital treatment of most of the venereal disease in this country."

"The condition that the institutional treatment should be available for the whole community is one to which we attach cardinal importance . . . to ensure the application of patients for treatment at the outset of the disease, and to maintain continued attendance until the doctor certifies that the patient is free from infection." If a patient can afford to pay for treatment he should be referred to his own doctor, nevertheless "if the patient be unwilling, there should, in our opinion, be no refusal to treat him at the institution." "The treatment at a particular institution should not be confined to those living within a certain area."

"It is essential that medical students and practitioners should have access to the treatment of these diseases at any institution dealing with venereal diseases as part of a local authorities scheme. This is of the greatest importance from the educational point of view. It is also essential that the co-operation of the practitioners with the local authority and the hospital should be obtained. We consider that any scheme of administration for dealing with venereal diseases must be framed so as to develop the ability of the general practitioners in treating these diseases, and make them more efficient for their general functions as the first line of defence of the community."

It is pointed out that at present "the Local Government Board have power under the Public Health Act to authorize the supply of salvarsan or its substitutes free

to medical practitioners, and we consider that great advantage would result from the exercise of this power."

Notification of Venereal Disease.

On this head the report says that "in enforcing the notification of any disease the community has in view primarily the taking measures for the protection of all its members . . . in preventing the spread of infection . . . and in some cases the removal of patients to hospital . . . the patient himself may be subject to penalty if he do anything at the risk of spreading infectious disease." These provisions apply in practice almost exclusively to the acute infectious diseases, though in some cases the wording of the statute appears wide enough to cover other diseases. As regards venereal diseases, it is judged that "the adoption of notification would doubtless have an important effect in emphasizing the infectious character of these diseases, and in causing their dangerous nature to be widely known." It "has also been advocated as an aid to the removal of conditions favourable to their propagation, such as bad housing and overcrowding."

The Commissioners, however, sum up this part of the subject as follows:

We think it clear, however, that if a case for notification of venereal diseases is to be established it must be based upon the assistance which notification would afford to the treatment of the individual and the consequent protection of the community, and not on the ground that it would facilitate general preventive measures.

The essentials for their treatment and prevention are prompt diagnosis and prompt and continuous treatment. The majority of medical witnesses were of opinion that there would be reluctance on the part of practitioners to notify cases, and if compelled by law, the result would be an even greater resort to unqualified persons.

To compel unqualified persons to notify would be impossible owing to the difficulty of proving that they knew the nature of the case. After considering the *pros* and *cons* for notification the report concludes:

The main objection which has been urged against notification of venereal diseases is that it would actually do more harm by deterring people from seeking treatment and by driving them more than ever into the hands of unqualified persons.

It is possible that the situation may be modified when these facilities (for treatment) have been in operation for some time, and the question of notification should then be further considered. It is also possible that, when the general public becomes alive to the grave dangers arising from venereal disease, notification in some form will be demanded.

Anonymous notification for statistical purposes was considered, but the conclusion arrived at was that it would not be satisfactory. The necessity for careful taking of statistics of patients treated is urged, especially with regard to the administration of salvarsan.

Detention of Persons Suffering from Venereal Diseases.

The Commissioners consider that the provision of free treatment would be useless if the treatment were not carried out to its termination, and make the following observations:

A person may discontinue his treatment when, though he is still infectious, the immediate symptoms have disappeared, and he is thus able to spread the disease, and may afterwards return in as bad or a worse state to be treated again.

The application of compulsion to cases in which there is no sense of responsibility, where no restraint is thought of, and where contagion is in its most active and virulent form, can be defended on strong public grounds.

Apparently in Denmark the doctors have the power of detaining hospital patients until free from infection, but it appears the power is not rigidly enforced. Under the Poor Law Amendment Act, 1867, Section 22 gives this power to the workhouse authorities on the certificate of the medical officer, but "doubts have arisen whether this provision is applicable to the case of venereal diseases." The discharge of infectious patients from prisons calls for special attention, particularly as it appears that the figures for those on short sentences are by no means complete. It would seem desirable that any doubt on the power to make a Wassermann test or administer salvarsan "should be removed by the addition to the statutory power of the Prison Commissioners." After observing that "the case for the detention of prisoners suffering from venereal disease until they are no longer a danger to the public is a strong one, and in some countries action of this kind is already taken," the report points out that this would

cause hardship in the cases of short sentences, the detention would present a "harder penalty than that inflicted for a more heinous offence on one without manifest venereal disease." In the case of the services, though there is no power to detain men against their will whose period of service has expired, there is power to continue the treatment in hospital after discharge. It appears that this practice is usual in the army but needs reinforcing in the navy.

Treatment of Venereal Diseases by Unqualified Persons.

Fear of disgrace and desire for concealment foster self-treatment or resort to quacks. "This is true of all sections of the community, and we are informed that the upper classes resort to quacks as readily as the poor." The quack thrives on secrecy, credulity, and ignorance of the seriousness of the disease. He promises quick cure, no publicity, no inconvenience, and small cost. The following passages are quoted in full:

"Unqualified practice exists in several forms; many chemists prescribe for the diseases; in some parts of the country herbalists are largely resorted to, while attractive advertisements of remedies by persons who claim to be specialists in venereal diseases are common in certain newspapers and elsewhere."

"We have no hesitation in stating that the effects of unqualified practice in regard to venereal diseases are disastrous, and that in our opinion the continued existence of unqualified practice constitutes one of the principal hindrances to the eradication of those diseases."

"By the intervention of the unqualified person, the stage at which the permanent eradication of the disease is possible is lost . . . treatment is rendered more difficult, protracted, and expensive, and the risk of the disease being communicated to others is very largely increased."

Further, quacks by wrong diagnosis "in order to retain a patient, or from ignorance, are not infrequently responsible for causing much unnecessary suffering and acute mental depression, leading in exceptional cases to suicide."

"We were informed that, in some parts of the country, herbalists are largely resorted to, and we therefore took evidence of a representative of the National Association of Herbalists. This evidence speaks for itself, and in our opinion effectually disposes of the claims of herbalists to be regarded as competent to treat venereal diseases."

The hope is expressed that the education of the public in these matters, and the proposed provision of free treatment will tend to diminish unqualified practice. In the army, in Denmark, and in Italy, where some such conditions exist, this result is attained, and the Commissioners continue:

"We strongly endorse the recommendations of the Select Committee on Patent Medicines that all advertisements of remedies for venereal diseases should be prohibited."

"We should have advocated legal provisions making the treatment of venereal diseases by unqualified persons a penal offence, but we recognize the practical difficulties in securing the effective operation of such a law in present circumstances."

Marriage and Communication of Disease.

The misery and suffering caused by the marriage of an infected person, through communication of the disease to the healthy partner and to the children, was testified to by many witnesses, and the report contains the following observations on this point:

The question, therefore, arises what steps can be taken which may have the effect of preventing the marriage of persons while in an infectious condition from venereal disease. Various suggestions have been discussed in the course of the evidence as to the possibility of legislation preventing the marriage of such persons unless and until the intending husband or wife is certified by a competent authority to be in a condition to marry with safety. We are of opinion that all such suggestions are impracticable at present. . . .

The position of the medical practitioner who knows of intended marriage of an infected person is unenviable. He

may not be able to restrain the purpose of the infected person, and he dare not intervene to check the marriage. The Commissioners report:

"We think that a change in the law in this respect is much needed. We, therefore, recommend that such communication, when made bona fide to a parent, guardian, or other person directly interested in the welfare of the woman, or the man, and with the object of preventing or delaying a marriage with a person who is in an infectious state, should be deemed to be a privileged communication. This proposal is supported by the high authority of the President of the Probate Division."

The Commissioners also support the recommendation of the Royal Commission on Divorce and Matrimonial Causes that the marriage of an infected person should be ground for obtaining a decree of annulling the marriage by the injured party. They believe that this provision would strengthen the hands of the medical profession in checking or delaying dangerous marriages.

Education.

The medical evidence has led the Commission to the conclusion that the average education of medical men in the diagnosis and treatment of venereal diseases is insufficient. The overcrowded state of the medical curriculum, and the fact that syphilis must be studied in relation to disease of most of the organs, complicate the proposal for a special course. But the necessity for special teaching and the possibility of study in the proposed clinics is urged:

We consider that one of the most successful means to secure increased attention to the early and correct diagnosis of these diseases would be that questions relating to syphilis and gonorrhoea should be systematically set in medical examinations, so that the knowledge acquired in these diseases by examinees may be properly tested. The President of the General Medical Council stated that this was already done to a large extent.

The education of the public is a more difficult matter. Children under 14 are rarely fit for instruction in such subjects, and the Commission support the objection to "schematic instruction." They agree in the value of the growing practice "of head teachers to have private interview with pupils before they leave school to give moral instruction and to offer warnings against probable temptations." In public and secondary schools the need for teaching on these subjects is considered to be greater owing to the fuller age of the pupils.

We believe the subject is receiving increasing consideration on the part of the heads of such schools.

Much remains to be done in the universities by those who are responsible for the moral welfare of the undergraduates.

Books and pamphlets have been brought to our notice which are not only unsound from a medical point of view, but are calculated to be injurious by reason of the way in which the questions are treated. We consider that no such publications should be countenanced by educational authorities unless issued with the imprimatur of the National Council for Combating Venereal Disease.

The report adds:

We look to the various voluntary agencies which have been formed for promoting the welfare of the young of both sexes as important aids in carrying out the objects we have in view. Associations such as the White Cross League and the Alliance of Honour have already done valuable work, but much can be done also by properly managed boys' and girls' clubs, the Boy Scouts, the Boys' Brigades, and other similar agencies.

The fact that we recommend that free treatment should be provided for all sufferers makes it, in our opinion, all the more necessary that the young should be taught that to lead a chaste life is the only certain way to avoid infection.

The report concludes with an expression of hope that the publicity given to the matter by reason of this inquiry will lead to a public enlightenment of the dangers of the diseases, and the folly of doing anything to prevent their early diagnosis and treatment. "There can be little doubt," it says, "that a franker attitude towards these diseases would lead to less concealment, often involving recourse to quack remedies, which may retard cure or render it impossible, and would thus assist in checking one of the greatest evils that can afflict a community."

THE late Sir George Scott Robertson, K.C.S.I., M.P., Lieutenant-Colonel I.M.S. (retired), left estate valued at £59,411.

British Medical Journal.

SATURDAY, MARCH 11TH, 1916.

THE OBJECT AND PURPOSE OF ENROLMENT.

It may be advisable to state once again very briefly the purpose with which the Central Medical War Committee and the Scottish Medical Service Emergency Committee have established the system of enrolment, of which all medical men under the age of 45 next birthday are asked to take advantage. Its object is to supply the needs of the army, while safeguarding those of the civilian population and minimizing the loss and inconvenience to individual practitioners. Its purpose is to place in the hands of the professional bodies mentioned the names of all civilian medical men of military age—that is, under 45 next birthday—together with the particulars of the obligations, public and private, of each man. These medical bodies being fully informed of the position and difficulties of each man and each district will weigh them against those of other men in the same and other districts, so that those who can go with least detriment to their own interests and those of others may first be asked to fulfil the obligation under which enrolled men place themselves to accept a commission in the Royal Army Medical Corps. Not every man who enrolls will be wanted by the army, but the Committees, having all the facts before them, will be able to nominate, when called upon to do so by the War Office, the number required from among those who can at the time be spared most easily from their ordinary occupation. Ample notice will be given to each man when a call is likely to be made upon him, and, as will have been seen from the official statement published last week (p. 348) and the Army Council Instruction printed in the SUPPLEMENT to this issue (p. 43), the War Office recognizes enrolment as fulfilling the obligation of medical men who are attested, or who come under the Military Service Act.

At its meeting on March 1st the Central Medical War Committee had before it the War Office statement, and took action thereon. The Army Council Instruction in the SUPPLEMENT this week is very explicit, and we only desire now to call attention to two points. The first is that the present is in accordance with previous announcements: that doctors who have undertaken to accept a commission in the Royal Army Medical Corps, if offered one, will not be taken for general service; and the other, that doctors will not be called up, whether by reason of attestation or under the Military Service Act, until after March 31st, 1916. The Central Medical War Committee instructed its Executive Subcommittee to consider at once in what way the enrolment scheme can be pushed to the maximum success, and to take steps to ensure that result. The Executive Subcommittee met on March 3rd and resolved to send a communication at once to all unenrolled practitioners under 45 next birthday, and to make an immediate canvass of them. The Military Service Act applies only to single men under 41, but it is recognized to be important that all men under 45 should enrol so that the Committee and the War Office may have full information as to the number of medical men available. Two

special canvassing committees have been appointed, one for London and the other for the provinces, and both these committees met in London on March 8th. A circular to canvassers has been drawn up and is published in the SUPPLEMENT (p. 41).

The secretaries reported that the number of commissions posted from July 17th, 1915, to February 26th, 1916, was 1,501, an average of a little over 48 a week. The applications for commissions which had not yet been posted numbered 383. Between February 26th and March 3rd 435 certificates of enrolment had been issued. Local Medical War Committees, it was stated, had been formed in all districts with one exception—Dover.

THE REPORT OF THE ROYAL COMMISSION ON VENEREAL DISEASES.

DURING the South African war the army records showed a marked fall in the incidence of venereal disease, but with the return home of the troops the incidence increased. If any likeness may be expected between the conditions prevailing during and after that smaller war and those that may arise from this colossal struggle, then the report of the Royal Commission on Venereal Diseases is timely indeed.

We hope that the abstract of the report, the publication of which is concluded in this issue, will stimulate every reader to procure and study the original document, for it demands the thoughtful and critical consideration of medical men and women. It is certain that the nation at large will be profoundly moved by the picture it presents, and our profession must be prepared to give a balanced opinion on the practical recommendations that are based thereon.

The recommendations are of no dramatic character; rather they are essentially of a humdrum and everyday order. But they are none the less worthy of attention. They raise no thorny hedge of moral conflict to separate the best ethical instincts of humanity from the practical humanity of our profession. Details of procedure apart, there is no recommendation for the practical realization of which the sternest moralist and the medical practitioner cannot unite.

In the introduction to the report previous legislative enactments are cited, and of certain of these it is written: "Although the Commission are precluded by their terms of reference from considering the policy of the Contagious Diseases Acts, they wish to place on record their view that the evidence they have received, which includes that of several Continental experts, points to the conclusion that no advantage would accrue from a return to the system of those Acts. So far from this being the case, it is to be noted that the great improvement as regards venereal diseases in the navy and army has taken place since the repeal of the Acts."

The section dealing with the prevalence of venereal diseases is the least satisfactory part of the report, for the reason that, apart from the navy and army, no sufficient statistics exist. Many independent witnesses presented evidence of great value, but there was none for the country as a whole. Despite this lack, certain points are made clear. Venereal diseases are diseases of towns and cities, and not of the countryside. They are diseases of the highest and lowest of the social classes for which data is available. At the worst computation there is no ground for the alarmist reports of certain crude "social reformers" who have filled our ears with cries that in this people, "from the sole of the foot even unto the crown of the head there is no

soundness . . . but wounds and bruises and putrefying sores." But there is enough of the evil to demand radical treatment, more especially since the innocent suffer grievously in the punishment of the guilty.

The lack of statistics is a matter for caustic comment in the report. The unsatisfactory state of death certification is dealt with, and a strong recommendation made for confidential certification, a reform "for some years advocated by the British Medical Association." The voluntary hospitals are sharply taken to task for their failure to respond to the appeal of the Commission for figures of their patients. That criticism is not wholly justified. The appeal was made in such fashion as almost to ensure failure. It is otherwise with the navy and army medical services. It should be otherwise with the medical branches of the civil services; but the figures of the Poor Law institutions, police, and prisons are as poor as those of the voluntary hospitals. The failure of the Poor Law authorities is the more surprising seeing that reform in this matter was urged on the Local Government Board by an interdepartmental committee in 1904. For the future it is recommended that all institutions which undertake the treatment of venereal diseases with the assistance of Government grants should keep and render available accurate aggregate statistics regarding these diseases, and that in particular a record should be kept of the number of patients for whom salvarsan or its substitutes is provided at the public expense.

The recommendations that will receive most attention are those dealing with measures for checking the spread of the diseases. They fall into two groups: First is dealt with that part which falls to the lot of the physician; secondly, that which is the province of all who have to do with the training of youth and the forming of healthy public opinion.

The report insists on the necessity for prompt and accurate diagnosis, to be followed by efficient treatment. The evidence of many witnesses is embodied in the reiterated statement of the report that these diseases, when taken in hand at their onset by capable medical practitioners, are curable in almost all cases—curable in the sense that the specific germs can be eradicated from the infected human organism. The proof of this lies in the fact that reinfection may occur.

Widespread use of modern scientific measures of diagnosis in which doctor and bacteriologist unite their efforts is urged. Existing laboratories—whether those of universities, colleges, voluntary hospitals, or public health authorities—should be brought into line for this work, and, where necessary, new laboratories established. These should be subsidized by grants from imperial funds to the extent of 75 per cent., the balance being found out of the local rates. In line with this recommendation is that dealing with the treatment of infected persons. Existing institutions should be encouraged to make special provision for the treatment of venereal diseases by providing sufficient beds for the urgent cases and outdoor clinics for the others; and it is urged that evening clinics should be established to facilitate the attendance of the working classes. The Commission is against special clinics for the purpose, on the ground that a separation of the patients would militate against resort to the clinics; they should be attached to and form part of the ordinary hospital accommodation of the country, and in particular the voluntary hospitals. At present there are hospitals which refuse such cases; it is even found that the charters of some prohibit, and that subscribers to others are averse to, their admission. These anomalies, it is considered,

should be rectified. The State should pay for these facilities in the same way as for the laboratories. The clinics should be available for all persons, and the patient should be free to attend at any clinic he pleases, not necessarily that in the district in which he resides. It is advised that if he is unwilling to go to a private doctor he should, even if able to pay, still be admitted for treatment at the public clinics. The organization of these clinics, it is considered, should be in the hands of the county councils and county boroughs, subject to the approval of the Local Government Board, and if the local authority will not provide the necessary treatment, that Board should be empowered to treat directly with the hospitals.

The Commission bases its recommendation of free and ample facilities for treatment on the necessity for combating the evil of unqualified treatment at the hands of chemists, herbalists, and quack "specialists." The denunciation of the evils that attend the exploitation of the infected by unqualified persons is emphatic and based on irrefutable evidence. The Commission went to the length of inviting the representative of one large group to give evidence, and in the words of the report "this evidence speaks for itself, and in our opinion effectually disposes of the claims of herbalists to be regarded as competent to treat venereal diseases." For the same reason the report urges that the recommendations of the Select Committee on Patent Medicines regarding the prohibition of all advertisements of remedies for venereal diseases should be put in force.

Difficulties bristle around the recommendation that persons who are not in necessitous circumstances should be admitted for treatment at public clinics. Their admission must be subject to such reasonable regulations as will prevent any serious abuse. The clinics are to be more than treatment centres; they are to admit all medical students and qualified practitioners for educational purposes, and will therefore improve the opportunities for acquiring knowledge of how to diagnose and treat these diseases.

Notification of the diseases was considered, but rejected as likely to be ineffective and dangerous. Ineffective because medical men would hesitate to disclose confidential information; and dangerous because it would tend to drive the disease underground into the hands of the charlatans. It is, however, thought that later on spread of public knowledge of the seriousness of the diseases may give rise to a public demand for some form of notification.

The Commission recommends that statutory recognition should be given to the principle that infectious venereal disease constitutes an incapacity for marriage. The process should be made available for all persons, however poor. Also it is recommended that the law should be amended so as to protect a medical practitioner who should deem it his duty to interfere actively in case of a proposed marriage of an infected person. Such a communication should be regarded as privileged. This proposal is supported by the high authority of the President of the Probate Division.

For the prevention of these diseases better education of the medical profession and of the public, particularly of the youth of the country, is advised. It is averred that the profession generally do not regard these diseases in a sufficiently serious light; that lack is to be corrected by fuller teaching in the medical schools, the potent influence of examination papers, and the facilities provided for special study in the new clinics. The Commission thinks that the State should provide a card to be handed by the doctor to his patient, setting out the grave dangers of the disease. The youth of the

country is to be instructed in regard to moral conduct as bearing upon sexual relation. "Such instruction should be based on moral principles and spiritual considerations, and should not be based only on the physical consequences of immoral conduct." Class instruction in elementary schools is negatived, but personal warning by the head teacher to the elder children, especially on their leaving school, is commended. The direct influence of the teachers in various grades of schools, colleges, and the universities is accentuated, the work of various forms of social effort for the young is commended and its extension on the same lines advised. Only the work of ministers of religion finds no place for remark in this crusade for righteousness. It will be seen from the trend of these recommendations that the Commissioners desire that the main effort of prevention should be directed to a widespread cultivation of personal control and the insistence that through this means alone can there be any real advantage to the health of the race.

We have endeavoured to indicate the main points in the report, and can refer to only two others. The one is the question of cost. It will be large, but the cost of the most complete laboratories and clinics would be a mere fleabite compared with the cost to the nation in sterility, infant death, child blindness and idiocy, parental weakness and exhaustion, nerve diseases and madness, and premature senility and death, that are the present effects of these diseases. As a financial investment the cost of the scheme would lead to the reaping of a national fortune. The second point is the sad reflection that so many of the recommendations of the Commission are no more than those which have been urged on the State by committees and commissions, and indeed passed into law in enactments that are now feeble by reason of lack of usage. Let us hope that the latent period of inertia will be overcome by this summation of stimuli.

THE TREATMENT AND EDUCATION OF DISABLED MEN.

THE Naval and Military War Pensions Act, 1915, which received the Royal Assent on November 10th, 1915, is entitled "An Act to make better provision as to the pensions, grants, and allowances made in respect of the present war to officers and men in the Naval and Military Service of His Majesty and their dependants, and the care of officers and men disabled in consequence of the present war, and for purposes connected therewith."

The first clause directs that a Statutory Committee of twenty-seven members shall be set up, consisting of nineteen representatives of the Crown and Government departments, two of the Soldiers' and Sailors' Families Association, and six, of whom some are to be women, appointed by the general council of the Royal Patriotic Fund Corporation. The Committee has been set up and held its first meeting on January 17th. The Prince of Wales is its chairman, and Mr. Cyril Jackson its salaried vice-chairman.

The Act directs that the council of every county and county borough, and every borough or urban district having a population of not less than 50,000 which so desires, shall set up a local committee constituted according to a scheme framed by the council. The Statutory Committee has drafted and issued a model scheme, which, in accordance with the Act, provides for the division of a county into districts, each with its district committee. A borough or

urban district having a population of not less than 20,000 may have its own district committee, and the metropolitan boroughs are to be separate districts. The council of the county, county borough, or district will appoint at least a majority of the local or district committee, but the scheme must provide for a substantial representation on both orders of committees of persons who have been performing within the area, either as members of the Soldiers' and Sailors' Families Association, or the Soldiers' and Sailors' Help Society, or otherwise, duties similar to those to be performed by the committees under the Act. At present the work of looking after disabled men is being carried on by the voluntary organizations, which, as the Marquis of Crewe stated in the House of Lords the other day, are doing it very well, and the Statutory Committee will maintain permanent relations with them.

At the first meeting of the Statutory Committee three subcommittees were appointed from among its members—the organization and general purposes, the finance, and the pensions, grants, and allowances committees. As the Parliamentary Secretary of the Local Government Board is to be *ex officio* a member of all these subcommittees, it is assumed that the intention is that the general administration of the Act shall be controlled by that Board.

Schemes made by a local committee must have the approval of the Statutory Committee, but the Prince of Wales, speaking as chairman of the Statutory Committee on February 1st, said that Parliament did not intend that any hard and fast limitations of a uniform character should be imposed upon the various local authorities. Just as counties and boroughs and other populous areas differed in many essential particulars, so it was not expected that their schemes for this experimental work should conform to any one pattern, but should present a considerable variety of features; they could be remodelled in the light of a larger experience. In concluding his speech the Prince said that every effort ought to be made to compensate by the truest form of neighbourly kindness for the deprivations caused to soldiers and sailors by their willingness to sacrifice life, health, and happiness at the call of their country.

One of the functions of the Statutory Committee and of the local committees is "to make provision for the care of disabled officers and men after they have left the service, including provision for their health, training, and employment," and the local and district committees, as well as the Statutory Committee, are to appoint special subcommittees, including representatives of employers and of labour, to make this provision. The Statutory Committee has already appointed a subcommittee for this purpose, and its composition is given in our parliamentary notes. Until a disabled officer or man has left the service his treatment and training are under the control of the War Office, and in a very large proportion of cases his ultimate fate in regard to his power to earn his own living in whole or in part, and so again becoming a useful member of the community, will by that time have been decided. The committees set up under the Naval and Military War Pensions Act will have to deal with men who, in the opinion of the army medical authorities, cannot again be fit for military service. The main duty of the statutory and local committees in regard to such men will be to train them and find employment for them. According to the figures given by Lord Crewe on February 29th, out of a total of 23,000 men whose names were received by the Board

of Trade from the Admiralty and the War Office between June, 1915, and January, 1916, 13,000 had applied to the Labour Exchanges for help in finding employment. In round numbers employment had been found for 5,400; 1,400 were still on the register, but close on 6,000 had cancelled their applications, either because they were not fit for any serious employment or because they had found work otherwise.

In his speech on St. David's Day, which we briefly reported last week, Mr. Lynn Thomas said that he had received a letter from a well known surgeon of a neutral country, who, after visiting the lines of two of the belligerents—apparently the German and the French—had said that general surgery had had little to learn from the present war, except on two points: the one was the value of the prophylactic use of anti-tetanus serum, and the other the importance of orthopaedic treatment of wounded men. Some idea of the magnitude of the problem is afforded by the statement of the Prince of Wales on February 1st, when, in his speech to the Statutory Committee, he said that the total casualties of all ranks in the South African war were 44,876, while the total casualties of all ranks in the present war numbered at that time 549,467. A certain proportion of these will be incapacitated by the nature of their wounds from doing any useful labour; others will, at the best, be able to do very little; but the proportion of those who have suffered wounds of the limbs, and by early and adequate orthopaedic treatment can be put in a position to be useful workers, may, it is reasonable to hope, prove to be large. The treatment, however, must be instituted early, must be inspired by orthopaedic experience, and must be continuous. We have reason to believe that the army medical authorities are alive to the importance of early and thorough treatment, but the principle must be grasped by the public also, in order that the committees under the Pensions Act may be adequately provided with funds to ensure that the orthopaedic treatment and education of men discharged from the army or navy shall be both adequate and continuous. From this point of view alone there is a very useful field of work for the Statutory Committee and the local and district committees. The sooner it is taken in hand the better.

ANTISEPTIC ACTION OF THE CHLORAMINE GROUP.

At the meeting of the Royal Society on March 2nd a paper on the antiseptic action of substances of the chloramine group was presented by Professor J. B. Cohen, F.R.S., Dr. H. D. Dakin, M. Daufresne, and Dr. J. Kenyon. The probability that the formation from proteins of substances containing halogen was an intermediate stage in the germicidal action of hypochlorites was considered to make it desirable to investigate systematically a number of substances containing the (NCl) group. Among the substances investigated the most promising was the group of sulphochloramides as prepared by Chattaway. The main results of the investigation were stated to be as follows: (1) Almost all the substances examined containing the (NCl) group possessed very strong germicidal action. (2) The presence in the molecule of more than one (NCl) group did not confer any marked increase in germicidal power. (3) The germicidal action of many of these chloramine compounds was, molecule for molecule, greater than that of sodium hypochlorite. (4) Substitution in the nucleus of aromatic chloramines by Cl, Br, I, CH₃, C₂H₅, or NO₂ groups did not lead to any very great increase in germicidal activity. More commonly there was a moderate diminution. (5) The chloramine derivatives of naphthalene and other

dicyclic compounds of sulphochloramide type closely resembled simpler aromatic chloramines in germicidal action. (6) The few bromamines examined showed a slightly lower germicidal action than the corresponding chloramines, but sodium sulphobromamides were much more active than sodium hypobromite. (7) Derivatives of proteins prepared by the action of sodium hypochlorite and containing (NCl) groups were strongly germicidal. Blood serum inhibited their germicidal action to much the same extent as it did that of sodium hypochlorite or the aromatic chloramines. Among the above products para-toluene-sodium-sulphochloramide was selected as being on the whole most suitable for practical use. It was easily and cheaply made; it was relatively non-irritating to wounds; it was non-toxic and very soluble in water, and might be kept unchanged both in the solid state and in solution for a long period. A table was appended giving bacteriological results obtained from about fifty compounds of this class. A paper giving an account of the nature and practical uses of this substance, para-toluene-sodium-sulphochloramide, was published by Dr. Dakin, Professor Cohen, and Dr. Kenyon in the BRITISH MEDICAL JOURNAL of January 29th (p. 161), where its preparation, cost, and mode of action were also considered. Unfortunately, the anticipation that it could at the present time be cheaply produced does not seem to have been fulfilled. It is stated that, owing to the use of chloramine bodies in the making of explosives, materials ordinarily obtained as by-products have now to be made. The substance has been placed on the market under the name of "tolamine," because the word chloramine had already been appropriated by an American firm of druggists for a totally different kind of medicine.

PETROL FOR DOCTORS.

THE Medico-Political Committee of the British Medical Association has for some time been giving anxious consideration to the difficulties experienced, and likely to be increasingly experienced, by doctors in obtaining petrol for their cars or motor bicycles. Several representations have been made to the Board of Trade on the subject. A special meeting of the committee was held on March 8th to confer with representatives of certain Government departments concerned with the larger question of the supply of petrol for Government requirements generally and for the civil community. The conference, which was necessarily confidential, dealt with several matters of great importance. The Government representatives indicated the necessity of reliable information being rapidly forthcoming as to the quantity of petrol actually needed month by month by the medical profession in the different parts of the country if any effective action were to be possible to the Government for arranging, as was desired, that doctors should be secured their minimum requirements for fulfilling their duties to the civil community. Certain immediate steps were decided on with a view to obtaining that information forthwith. It was stated that the Government departments entrusted with the question were anxious that the needs of the medical profession should receive special attention in any scheme that might be evolved for the distribution of petrol under any new conditions that might be set up. The Committee, whilst realizing from the discussion the great practical difficulties that will have to be solved by any Government scheme for the community of the kind that seems to be contemplated, feels assured that the special case of the medical profession is being fully recognized in the responsible quarters, and the Committee will not cease to keep in close touch with any further developments. The steps above mentioned will probably include the issue of certain inquiries to medical practitioners throughout the country, and it is hoped that in the interests of each individual, and of the profession as a whole, these questions, when received, will be answered fully and without any delay.

WITH THE MONTENEGRIN ARMY IN THE FIRST
BALKAN WAR.

A MEMBER of the Austrian Red Cross, Dr. Hermann von Schroetter, has lately published a book giving an account of his experiences in the Montenegrin campaign against Turkey in the first Balkan war. Though certain passages in his book show that even at this date the political relations between Montenegro and Austria were somewhat strained, Dr. Schroetter gives a most sympathetic account of the valiant little Montenegrin army. It must indeed be strange for a man who shared the vicissitudes of the Montenegrins in their heroic battles with the Turks to find his own country only a few years later at war with Montenegro. The conditions under which the Montenegrins fought and suffered in the first Balkan war were, no doubt, very similar to those obtaining in the present war, and Dr. Schroetter depicts the heroic atmosphere of Montenegro in stern but sympathetic colours. Not only was every male from 15 to 70 a soldier, but the women took part in the fighting, following their men even into action, as well as trudging day by day under heavy burdens of food and ammunition. In the battle of Kiri many women were wounded, and seven were admitted to Dr. Schroetter's field hospital. They were cared for in the same ward as the wounded men, and helped to keep up their courage, vying with them in bearing pain with fortitude. Again and again does Dr. Schroetter speak of the hardihood of these mountaineers, with whom it was a point of honour not to break down by so much as a moan, were their pain, hunger, and thirst never so great. But it was not altogether easy to treat them. They did not cry out for anaesthetics for operations big and small, but they often stoutly resisted amputations—not for fear of pain, but of the resulting mutilation, which was regarded as a disgrace by the patient's relatives as well as by himself. One of the wounded, a girl of 18, acquired the nickname of "the wild cat," for she would not at first allow her three wounds to be dressed. Naturally Dr. Schroetter found only the most elementary surgical equipment of use. Stumbling in the dark among heaps of wounded lying in a single room, he found he had left behind the most necessary adjunct to first aid—a pocket electric torch. His account of the wounds he observed tallies more with the experiences of the South African war than with those of the present war, probably because the fighting with the Turks soon assumed the character of guerilla warfare, the majority of the wounds being inflicted at long range by rifle bullets.

INJURIES AND DISEASES OF AVIATION.

FROM the medical point of view the Flying Service is not quite like any other, owing to the special demands it makes on those who take it up, and the special lesions to which it may give rise. Staff Surgeon H. V. Wells, R.N., has drawn attention¹ to these peculiarities, quoting a number of examples to illustrate them. These accidents of aviation are mainly those due to sudden stoppage of the aeroplane, when, owing to some accident, it falls headlong to the ground, or by some loss of control lands at too sharp an angle. Here the aviator is thrown violently forwards as the machine hits the ground: he is usually strapped firmly to his seat, and so his head and neck are jerked forwards, with the danger of his striking some portion of the structure in front of him and injuring his forehead, or of straining the muscles of his neck, or even of fracturing a vertebra without displacement. It is thought that an abdominal belt should always be used to hold the aviator in his seat; the belt should have a quick release apparatus, and be fixed to the aeroplane rather than to the seat itself. In some instances the aviator has succumbed to profound shock without any obvious grave injuries after a fall; Staff Surgeon Wells suspects that there are numerous minor internal haemorrhages in these cases,

¹ *Journal of the Royal Naval Medical Service*, London, 1915, i, 55, and 1916, ii, 65.

but it would be interesting to know whether fat-embolism is not the actual cause of death here, whether bones are broken or not. It is known that mere concussion of the bones of experimental animals can produce fat-embolism. In a few instances eye injuries have resulted from the working loose of some nut or bolt in a tractor aeroplane, and the blowing of the piece of metal backwards, in the draught of the screw, into the aviator's face. Frost-bite of the face has occurred after aviation at high altitudes; partial anaesthetization by the vapour of escaping petrol used to be common, before a tap was fitted enabling the petrol supply to be controlled from the aviator's seat. The exhaust gases from the motor have been known to reach the pilot in quantities large enough to cause headache and sleepiness. So far as the selection of candidates for aviation is concerned, several interesting points have been brought to light by recent experience. Some pupils are found on trial to have no genius for aviation; they are not lacking in nerve, but cannot acquire the involuntary spontaneous co-ordination of hand and eye that is indispensable for the aviator, and are never comfortable when flying. The name suggested for this condition of mind is "aerosthenia," surely a misprint for "aerasthenia." It is an immediate disqualification for aviation. So far as age is concerned, it is now found that boys of 18 or 19 are not too young to learn to fly; the age of 30 is the limit at which pupils should be taken, except in rare instances. Pupils who have to wear glasses should be rejected; an interesting case quoted is that of a pupil with full vision in each eye separately and with both eyes together, who could only land with difficulty and with one eye closed. He was found to have "a concomitant squint," preventing him from judging his landings. It is essential, too, that the aviator should have free movements in his knee and ankle joints, otherwise he will lack delicacy in his control of the rudder bar, a matter of supreme importance. During 1912 and 1913 researches were made into the effects of flying on the pulse-rate and blood pressure of the aviator. The results were inconclusive; nearly all the cigarette smokers seemed to have rapid pulses, as was, perhaps, to have been expected. Quite recently this question has been gone into again by Dr. G. Ferry,² who finds that his own pulse becomes small and rapid in proportion as he ascends, becoming slower with the descent. So far as the arterial blood pressure is concerned, the maximum pressure varies during ascent, generally falling a little, the minimum pressure falling 10 or 20 millimetres of mercury. During the descent the maximum arterial pressure usually falls and the minimum pressure increases. Speaking generally, the arterial pressure is lowered after a flight. Dr. Ferry concludes that aviators should be chosen from those who have no disease of the circulatory system.

MALARIA ON SHIPBOARD.

STAFF SURGEON LESLIE M. MORRIS has described in an interesting paper published in the *Journal of the Royal Naval Medical Service* (January, 1916), the experiences of the *Hermione* and the *Bristol*, when employed in the river off Tampico during the Mexican revolution, from December, 1913, to July, 1914. There are lagoons and marshes on both sides of the river, and the district is very malarious from May to January. The crews of both ships were attacked by malaria in spite of the precautions taken. The *Hermione*, which had a complement of 325, suffered two outbreaks; the first cases, beginning twelve days after arrival, were contracted on the first night in the river; when *Anopheles* swarmed on board and the precautions which could be taken were inadequate. It produced 51 cases; the second, which began after the first rains in May, produced 55. The type of infection was tertian benign, and subtertian or malignant in a ratio of 4 to 1. The treatment adopted was to give at the onset 15 grains of

² *La Presse médicale*, Paris, February 14th, 1916, p. 65.

quinine by the mouth with 3 grains of calomel; then 10 grains of quinine thrice a day for five days, and then 10 grains twice a day for another five days. This was followed by a course of 5 grains thrice a day for three weeks, and afterwards a weekly dose of 10 grains every Sunday for three months. If a case did not react satisfactorily, if gastro-intestinal symptoms were troublesome, or if the temperature was over 103° the quinine was given by intramuscular injection; 1 gram of the bihydrochloride in 1 c.cm. of sterile water. The main prophylactic measure was the use of mosquito-proof brass wire gauze netting, as used in Panama, over the ports and doors, while muslin was used to close a number of other openings. The *Bristol*, which arrived at Tampico on June 9th, 1914, was provided with a supply of mosquito-proof copper wire fittings made and adapted at Portsmouth, and there was a quantity of wide mesh muslin in store. The men received a dose of 10 grains of quinine on alternate evenings, and all were required to be between decks and behind screens by 6 p.m. Watch-keepers and signalmen on deck were supplied with helmets having muslin veils, wore gloves, and had their feet and ankles protected, and no lights were permitted on the upper deck at night. Nevertheless, on the thirteenth day cases of malaria began to occur, at first among the ward-room domestics and cooks from the upper deck galleys; next followed the younger members of the ship's company from the after-part of the ship. The *Bristol* left Tampico on June 29th, and the number of fresh cases decreased rapidly after she had been away for two weeks. Altogether, there were 95 cases out of a ship's company of 375. When war was declared the ship was free from malaria, but relapses occurred in September, due, it was thought, to the hard work entailed by constant steaming and coaling off the coast of Brazil in extreme heat. Another series of relapses occurred when the ship was employed for four months in the Magellan Straits searching for the *Dresden*. They were attributed to the cold weather and extremes of temperature experienced. None occurred after the ship proceeded to Gibraltar in May, 1915. Staff Surgeon Morris says that the efficient screening of a ship presents difficulties which can only be overcome with the intelligent help of all officers and men, and that to gain the help of the ship's company lectures are necessary. He advises that ships proceeding to known malarial localities should be previously fitted with gauze-covered doors and frames for hatches, scuttles, and air supply inlets. Coverings for other openings can be quickly improvised if reserve supplies of gauze and open-mesh muslin are available. He has no doubt as to the value of the regular administration of quinine as a prophylactic. He states that in the German ships, in a Dutch ship, and in some of the American ships 1 gram was given every fourth day. Another plan which he considers good was to give 10 grains for three consecutive evenings, followed by two days without quinine. Only one officer of the two ships contracted malaria, and he attributes their immunity to the fact that nets were carefully used and quinine regularly taken. He also considers that a moderate amount of alcohol taken after sunset is beneficial in aiding to ward off malarial infection, and suggests that it would be a good plan to issue the rum ration after evening quarters in malarial localities when men are taking quinine.

SHORTAGE OF DRUGS IN AUSTRIA.

Last autumn the representatives of the Pharmacological and Pharmacognostical Institute of the University of Vienna issued a warning notice as to the shortage of certain drugs. It appears that *Digitalis purpurea* was mainly obtained from Germany, which had prohibited its export. It was urged that other varieties of digitalis and strophanthus should be used instead. The supply of camphor was so short that it was necessary to confine its

prescription to internal use. The supply of ipecacuanha and senega had been cut off, and it was therefore advisable to use quillaia bark and saponaria root as expectorants. There was a great shortage of purgatives, as rhubarb root, senna, cascara, aloes, and jalap were all imported drugs, and castor oil, which had been imported from France and Italy, could no longer be obtained in Austria. The best native alternatives for these purgatives were said to be the phenolphthalein preparations and frangula, which grows plentifully in Austria, and is reputed to be as effective as cascara. As the Austrian rhubarb root contains only half the amount of active principle found in the Chinese, the dose must be increased proportionally. The supply of atropine, scopolamine, apomorphine, physostigmine, and hydrastis were all short; in the case of the last named the synthetic hydrastis might be substituted. The antipyretics, pyramidon, antipyrin, phenacetin, and antifebrin, were all prepared outside Austria, and were prevented from reaching the country by the prohibition of exports (presumably from Germany). The same was the case with aspirin and other salicyl preparations. Owing to the shortage of quinine it was necessary to confine its use to malaria. The importation of sulphur and iodine was no longer feasible; substitutes recommended as disinfectants were a solution of bromine in chloroform or benzene, and a 5 per cent. alcoholic solution of tannic acid. Very little balsam of Peru was left, and its place had, therefore, largely to be taken by ichthyol preparations.

THE ENROLMENT FORM A CERTIFICATE OF ELIGIBILITY FOR HOME MILITARY POSTS.

We are able to publish in the SUPPLEMENT this week, page 42, an Army Council instruction (24/Gen. No./4749, A.M.D. 1) which will be read with much interest by many members of the profession who are anxious to serve the country at this time but have not yet been employed. The notice issued by the Medical Department of the War Office on September 3rd, 1915 (SUPPLEMENT, September 18th, 1915, p. 130), advanced the age of medical men for general service at home and abroad to 45, but made it plain that no man under the age of 45 years would be employed in home military service. Recently the Central Medical War Committee represented to the War Office that it was desirable that there should be exceptions to this rule; it was, for instance, pointed out that a man under 45 years of age who had enrolled with the Committee for general service in the medical sense—that is, for work at home or abroad—might be employed at home on temporary duty pending the time when he may be required for full service. The Army Council instruction dated March 2nd accepts this position, and definitely states that medical officers who have enrolled with the Central Medical War Committee, or the Scottish Medical Service Emergency Committee, for service with the army and are in possession of a certificate may be considered eligible for army duty irrespective of their age. This means that a man under 45 who is enrolled with the Committee will be eligible for service in such posts as civil medical practitioner or medical officer examining recruits whilst he still remains at home in private practice.

Most of the members of the Royal Commission on Venereal Diseases have accepted an invitation to join the National Council for Combating Venereal Diseases. There is little doubt, from past experience, that unless there is some independent society capable of stimulating the powers that be, and repeating that stimulus, the most ably drafted report and the most excellent recommendations of a Royal Commission will most probably not be carried out. It is therefore to be hoped that influential members of the profession will join the National Council and help Sir Thomas Barlow and those who are associated with him in its work.

Medical Notes in Parliament.

Retrenchment.—The Chancellor of the Exchequer stated on March 7th that early effect would be given to the recommendations in the report of the Retrenchment Committee as far as it was found possible to adopt them. The Treasury was considering the terms of the necessary communications to the public departments on the various questions raised.

Tuberculosis Order.—The Parliamentary Secretary to the Board of Agriculture stated on March 7th that the Board has decided to maintain the suspension of the Tuberculosis Order, 1914, until after the war. The question of modifying the Order had been considered, but it did not lend itself to modification within the lines of the policy laid down in the manner suggested by the City Council.

Cocaine in India.—On March 2nd the Secretary of State for India stated, in reply to Sir J. D. Rees, that cocaine had in the past been smuggled into India by Austrian and German and also by other steamship lines. The cocaine habit, in a more or less furtive form, existed in Indian seaport towns, and in a less degree in the largest inland cities; but, so far as information went, it appeared to be unconnected with the opium habit or with measures taken to suppress the latter.

War.

Disablement Subcommittee of Statutory Pensions Committee.—The Naval and Military War Pensions Act, Section 3, Subsection (3) directs the Statutory Committee appointed under the Act to appoint a special subcommittee, including representatives of employers and labour, for the purpose of making provision for the care of disabled officers and men. The Parliamentary Secretary to the Local Government Board stated, in reply to Mr. Butcher on March 2nd, that the committee as then constituted was as follows, but a few members whose consent had not been obtained might be added:

Ex-officio members: H.R.H. the Prince of Wales, as chairman of the Statutory Committee; Mr. Cyril Jackson, as vice-chairman of the Statutory Committee; Right Hon. W. Hayes Fisher, M.P.
Soldiers' and Sailors' Help Society: Lord Chylesmore.
Officers' Families Association: Lady Roberts.
Admiralty: Admiral Sir Wilmot H. Fawkes, G.C.B., K.C.V.O.
Army Council: Mr. B. B. Cubitt, C.B.
National Insurance Joint Committee: Mr. D. J. Shackleton.
Labour Exchanges Dept. (Board of Trade): Mr. J. S. Nicholson.
Local Government Board: Mr. A. V. Symonds.
Board of Agriculture: Mr. F. L. C. Ploud.
Representatives of Labour: Right Hon. G. N. Barnes, M.P., Mr. Harry Gosling, Mr. Will Thorne, M.P., Mr. Herbert Smith, Mr. W. Mullins, Mr. J. E. Williams.
Representing the Co-operative Interest: Mr. Lander, Mr. Harry May.

Lieutenant-Colonel (R.A.M.C.) Sir Alfred Pearce Gould, K.C.V.O., Sir John Cowan, Sir Archibald McLunes Shaw, Mr. Patrick O'Brien, M.P., The Right Hon. R. Thompson, M.P., Mr. L. A. Martin, Mr. Harris Spencer, Dr. William Garnett (Educational Adviser, L.C.C.).

Mr. Hayes Fisher added, in reply to Mr. Hogge, that one of the first questions for the consideration of the Committee would be whether separate committees should be set up for the various nationalities of the United Kingdom.

Medical Students.—In reply to Mr. Pringle, on March 2nd, Mr. Tennant restated the position with regard to medical students as follows:

Medical students in their fourth or fifth years of study and those in their third year of study whose examination takes place during the winter session must either attest under the group system or become liable to the Military Service Act. The fourth and fifth year students will not be called up, and if the third year students pass their examination they also will not be called up, but if they fail they will be called up. Students who have not attested under the group system, and who in consequence become liable to the Military Service Act, must appeal to the local tribunal if they desire exemption.

Total Casualties.—The Prime Minister stated on March 1st that it was not advisable to make public the totals of casualties at regular intervals; figures would be given from time to time as the military situation might permit.

Wounded Prisoners in Switzerland.—On March 7th Mr. Malcolm asked the Prime Minister whether there were at the present time about 1,600 French and about 850

German prisoners of war suffering from specified diseases interned in sanatoriums in Switzerland, and whether the Swiss Government had offered to receive British prisoners similarly afflicted. The Prime Minister in his answer confirmed the statistics. Though the British Government had received no official invitation from the Swiss Government to send wounded prisoners to Switzerland in the event of an agreement being arrived at with the German Government, it was understood that such a course would be agreeable to the Swiss Government. The British Government was favourable to the proposal, and action was being taken in the matter.

Tuberculous Soldiers.—Mr. Tennant has informed Mr. Astor that the total number of soldiers invalidated for tuberculosis dealt with by the Chelsea Boards in 1915 was 2,770. Cases of pulmonary tuberculosis were not separately recorded. Pensions were awarded in 1,641 cases and the claims were not accepted in 1,129.

Hospital Stoppages.—Mr. Forster (Financial Secretary to the War Office) stated on March 7th that a hospital stoppage of 7d. a day, or such less sum as the soldier's commanding officer might determine, was deducted when men were in hospital in circumstances which in the discretion of the commanding officer were held to justify the deduction. This discretion should prevent any case of real hardship.

Cerebro-spinal Meningitis.—In reply to a question on March 7th as to the number of cases of cerebro-spinal meningitis among soldiers in the district of the Portsmouth Command, Mr. Tennant said:

The figure for the Portsmouth District Medical Administrative Area, which includes the Portsmouth Garrison, Isle of Wight, Winchester Area, Dorsetshire Area, and Portland Defences, including Weymouth, is 31. The number of deaths has been 8. Special measures are carried out, under an organization set up fifteen months ago, to guard against spread of the disease. These consist of isolation of the patient, disinfection of the patient's clothing, etc., segregation and special medical treatment of contacts and carriers.

Colonial Allowances.—Mr. Forster (Financial Secretary, War Office) stated on March 1st, in reply to Mr. Swift MacNeill, that colonial allowance is a special allowance designed to meet the extra expense thrown upon officers of the British army by service in Egypt and certain other places under peace conditions. The question of its discontinuance during war in places in which it was drawn in peace presented difficulties, but was under consideration. He regretted that it could not be extended to officers serving at Salonika.

Non-Poisonous Dope.—In reply to Mr. Rowlands, Mr. Brace said on March 7th that the main difficulty in the way of the adoption of non-poisonous dope for aircraft was that one of the essential ingredients was not produced commercially in this country at present. The conference between the War Office and the Admiralty considered the methods by which the supply of the ingredient could be increased, and efforts were being made to arrange for this. The Admiralty was continuing its experiments.

Military Service Act.—Many questions have been asked with regard to recruiting and the Medical Service Act.

Not a few have dealt with the constitution and procedure of local tribunals, some of them raising points relating to individuals. In reply to one question, the President of the Local Government Board said on March 7th that the tribunals had a difficult and ungrateful task; their duty was to administer the Act and the regulations to the best of their ability, and he believed that they were generally fulfilling that duty faithfully and honestly. If they came to a decision thought to be improper, the aggrieved party had the right to appeal.

On March 7th Mr. Watt asked whether men who had been declared medically unfit since August 14th, 1915, and had been again summoned, could have the matter tried in the civil courts. Mr. Tennant, in reply, said that he thought it might be assumed that it was the desire of all eligible persons to assist the administration of the Military Service Act and not to hamper it. A man who had a certificate of rejection in proper form, signed by the proper authority, was excepted from the provisions of the Act. Men who had not so offered themselves and been rejected since August 14th would be held to serve under the terms of the Act.

Mr. Tennant stated on March 7th that exactly the same standard was observed in respect of all classes of men coming before the army medical authorities for examination, whether they reported themselves for service under the Military Service Act or came forward voluntarily. Recruits were now, and had for some time past been, graded in different categories according to their suitability for various forms of military service. Otherwise the standard was exactly the same as three months ago.

THE WAR.

THIGH CASES.

(From a Correspondent in Northern France.)

COMPOUND fracture of the femur, from the point of view of the evacuation of such cases, was the subject chosen for discussion at the periodical meeting at the Australian Hospital on January 22nd, and its staff secured the representation not only of base hospitals but of all units dealing with these cases, between the time of their occurrence and the moment they are landed at a British port. The other visitors included Mr. Robert Jones of Liverpool and Mr. Lynn Thomas, C.B., of Cardiff, who were introduced to the meeting by Surgeon-General Sawyer.

The first speaker, a battalion M.O., said that all medical work in the fire trenches had to be done under the most adverse conditions. The liquid mud was sometimes so deep that if a wounded man fell into it he was liable to be suffocated. In his own area, moreover, the fire trenches were so battered that only after dark could he get into them. He had therefore commonly to leave first-aid work to be done by his orderlies, whom he distributed at intervals along the section of the trench occupied by his battalion. His instructions to them in regard to thigh cases were to aim at combating shock by administering a dose of morphine, making the patient comfortable by means of sandbags, and covering him with an overcoat and a waterproof sheet. The fracture was treated by bandaging the patient to one of the footboards running along the bottom of the trench and then placing this and the patient on the fire step or elsewhere so as to be as much as possible out of the way of the fighting men in order to avoid accidental disturbance. It was not easy, for the front trenches were necessarily very narrow. To keep the patient above water level it was sometimes necessary to drive in piles. As soon as darkness arrived four stretcher-bearers advanced, lifted the patient on his board out of the trench over the top of the parapet, and carried him to a wheeled stretcher-carrier, though when the intervening ground was very rough and muddy it was found best to carry the stretcher on the shoulder. Arrived at the regimental aid post a Liston splint was substituted for the footboard, and the patient sent on to the advanced dressing stations in the bottom berth of an ambulance.

The next speaker (a field ambulance M.O.) said that cases usually reached them between 10 p.m. and 3 a.m., and with their clothes caked in mud. The first aim was to try to get the patient warm by changing his clothes—putting him on a dry stretcher, and keeping the room heated. The chief trouble about a thigh case was the damage to the soft tissues; it extended far beyond what superficial appearances suggested. Limbs which seemed about normal when they first arrived were often found enormously swollen by the morning. He found the first Page splints satisfactory to use because they allowed free access to the wound without disturbing the patient, and nowhere constricted the limb. A modified form recently supplied tended to buckle, and was otherwise less satisfactory. If the fracture were very high he preferred an interrupted Liston. To clean the wound he poured in hydrogen peroxide solution, which brought to the surface foreign bodies such as clothing. He removed bits of bone only if quite loose. Anaesthetics he rarely found necessary. Compound fracture of the thigh seemed to result in a kind of numbness, and if the patient had had a dose of morphine he generally slept through the dressing. If necessary he enlarged the wound sufficiently to allow the easy insertion of a drainage tube. The avoidance of constriction above the wound was a point of primary importance.

A motor ambulance convoy officer said he always chose the lower tier for thigh cases; they were thus subjected to less jolting and were within easier reach of the orderly. A Page splint was satisfactory provided it were fastened to the stretcher.

A casualty clearing station officer said that thigh cases arrived at his unit splinted in a variety of ways; sometimes, for instance, by a rifle, sometimes by a Liston splint. In default of some definite reason for immediate interference, such as haemorrhage, the usual practice was

to leave the patient undisturbed for some hours, except that he was put on a dry stretcher and blankets. The speaker preferred to give an anaesthetic when cleaning up the wound, but now used stovaine anaesthesia, as he found that open ether was generally followed by chest trouble. To secure free drainage he made an incision between two and three inches long, and drenched the wound with normal saline. All free material was carefully removed, but nothing that seemed firmly attached to bone. In the way of splints he preferred a modified Thomas knee splint unless the fracture was high up; if so he used a McIntyre. Cases in which the main vessels were injured or gas gangrene was already present should, he thought, be submitted to immediate amputation. In his unit thigh cases were usually kept a week before they were sent to the base; meantime the wound was cleaned three times daily with normal saline and hydrogen peroxide. The mortality in these cases was between 10 and 12 per cent.

A second casualty clearing station M.O. said that they too generally left a thigh case alone for twelve hours or so before undertaking any surgical cleansing, for the shock was generally considerable. If operative measures were undertaken an anaesthetic was invariably given. Their idea, however, was that it was at the base hospital that the real work should be done; patients were therefore got away as early as possible. Generally, a modified Thomas knee-splint was used, unless the fracture was very high up. He had seen plaster-of-Paris used, but thought casualty clearing stations were not places for its employment.

At this point Surgeon-General Sawyer interposed a remark to the effect that the French, who attach great importance to immobilization in these cases, depended largely on plaster-of-Paris at their hospital at Châlons, and thought the English did not make sufficient use of it.

A train M.O. said that with the ambulance trains now in use it was possible to avoid taking a thigh case off the stretcher. The condition in which the patients generally reached the train reflected great credit on medical officers in the field. Sometimes, however, the labels did not state whether the patient had received morphine, and this created difficulties. Generally the cases required very little treatment in the train, and the splints and dressings need not be touched. But the work could not be expected to be always equally perfect. During heavy fighting, such as that round Loos, cases sometimes reached the trains inadequately splinted. In train work the use of sandbags was very helpful. There had been some curious cases in which patients who seemed to be doing very well died suddenly on the journey without apparent cause.

Another train M.O. said he would like to have more notes sent with the cases. It was essential, for instance, to know if the patient had recently received morphine. The sending down of the more serious cases should be deferred as long as possible. Provided the splint kept the fracture at rest it could hardly, from a train point of view, be too simple in construction.

A base hospital M.O. thought that all thigh cases should be incised and drained before dispatch. He generally used a Balkan suspension apparatus, but a Thomas splint was equally good. If the fracture was very high up he used vertical extension. When the patient was fit to be sent home he placed the limb in a Boulogne box splint. Hydrogen peroxide he found decidedly useful. There was a tendency to overlook the fact that sepsis was the principal source of danger in these cases.

A second base hospital M.O. said the cases were always put on a Bradford frame, which had been introduced at his hospital by some Harvard medical officers. It facilitated all nursing and allied work, and the patient did not from first to last require to be removed from it.

A third base hospital M.O. said the condition in which these cases arrived varied a great deal in respect of efficiency of treatment. At his hospital the practice was to have an x-ray picture taken forthwith and then make any necessary incisions. He made quite small incisions and covered the wounds with gauze.

Another officer from the same hospital said that all fractures in the upper third were now treated on a Bryan bed, and those in the lower two-thirds on a Thomas knee splint, furnished with a perforated zinc instead of a

bandage gutter. It was desirable that the patient should be able to move himself freely. This was impossible if a plaster-of-Paris splint were used.

An embarkation M.O. said that when cases were fitted with wide abduction splints it was difficult to get them from the ambulance on to the ship. For shipping purposes the Bradford frame was excellent. Full labelling of patients was very necessary.

A battalion M.O. here interposed a suggestion that the labels used should be so large that notes could be made upon them at every stage from the trenches to a home hospital.

A hospital ship M.O. said that the Bradford frame was excellent from his point of view. Cases sometimes arrived fitted with splints so large that they had to be kept on deck instead of placed in a cot. As a patient might be on board for as long as sixty hours it was necessary that they should be well and comfortably splinted, as also well dressed before embarkation. The staff of a hospital ship was necessarily limited and could not readily undertake the redressing of many cases. The cases were landed by lowering them on to a raft and thence raising them to the quay by a crane. This was a further reason for preferring simple splints, for if the splints were very large and complicated, prompt unloading was difficult.

A base consultant surgeon expressed a belief that the Thomas knee splint in ordinary cases and the Thomas abduction frame in high-up cases were greatly preferable to all others. If freedom of movement were desired it could be secured by suspending the end of the splint from the ceiling. But in the early stages, at any rate, all movement was undesirable, the constitutional shock in these cases being very great. Cases in which large incisions had been made did b st.

Major ROBERT JONES said that those who, like himself, did their war work at home hospitals, did not, perhaps, fully appreciate the difficulties with which M.O.'s at the front had to contend. In the circumstances the results obtained seemed to him splendid. Some years ago, when the Manchester Ship Canal was being constructed, he had often had to deal with injuries which closely resembled shell wounds and found it a great advantage to dispense with the use of anaesthetics. They were not so essential in such cases as was sometimes thought, for sufferers from serious injuries did not feel a great deal of pain. When amputation had to be performed the modified circular incision should be preferred and the skin drawn back as far as it possibly could be, in order to secure a stump to which an artificial limb could easily be fitted. In fractures of the upper third, abduction of the limb was essential; unless the thigh were kept well out the result could not be satisfactory. During transport the abduction could be temporarily disused. Most of the splints he had so far seen were modifications of the Thomas.

The proceedings then concluded after a few observations from Mr. LYNN THOMAS and other visitors and the adoption of a vote of thanks to the officers of the Australian Hospital, on the proposal of Surgeon-General SAWYER.

NEUROLOGICAL NOTES.

In a paper written at the request of the Medical Society of Berlin,¹ Hermann Oppenheim stated that he hardly ever saw a quite recent lesion of the nervous system incurred in the fighting line.

Brain.

He was greatly surprised by the rarity of late abscess after lesions of the brain, and he disagreed with Marburg's statement that abscess was an inevitable sequel to a wound of the brain in which the bullet remained. The following features of brain lesions were of special interest: (1) In many cases the severity of the wound was seemingly out of all proportion to the insignificance of the symptoms, notably the local symptoms. (2) On the other hand, in certain cases in which the bullet had injured a number of centres and paths of conduction in its course through the brain, the number and variety of the local symptoms were most striking. (3) Cortical symptoms were most prominent when the wounds of the head were tangential and superficial. (4) The number of cases in which the symptoms were bilateral was very great. One of the most

striking phenomena was cerebral cortical paraplegia. While the motor symptoms seemed to follow definite laws, the behaviour of the sensory symptoms was apparently erratic. (5) The complex variations in the visual symptoms could be traced to the great number of points in the brain at which the optical connexions and centres could be wounded. Among the rare forms of central optical disturbances was hemianopsia inferior, which he had not seen before. (6) Many cases presented cerebral and labyrinthine symptoms, which pointed to a lesion far from the site of the bullet wound. In many instances this paradox could be explained by the presence of extensive fissures of the skull. There seemed to be a form of nystagmus independent of any lesion of the cerebellum and its connexions. (7) The proportion of recoveries was extraordinarily high, and many a patient had been sent back to the front. (8) In not a small proportion of cases organic lesions were combined with functional disturbances.

Cord.

The most common sequel to bullet wound of the cord was localized necrosis, which was much more frequent than haemorrhage into the cord. A by no means rare condition, though it had scarcely been previously observed as a sequel to injury to the cord in war, was Brown-Séquard's paralysis with homolateral anaesthesia. This condition was probably due to a bullet having struck chiefly the motor fibres on one side of the cord and the sensory fibres on the other. Most of the lesions of the cord were transverse, but in a few the projectile passed longitudinally, wounding the cord for a considerable distance. Lesions in the cervical region were often combined with injury to the plexus, which greatly diminished the prospects of successful operation. In a few cases the injury to the cord was so slight that the only evidence of its involvement was Babinski's sign, paraesthesia of the area supplied by the ulnar nerve, or disappearance of the tendon reflexes of one leg. The prognosis was often excellent when the division of the cord was only partial.

Peripheral Nerves.

Not infrequently the only sequel to a bullet wound of a peripheral nerve, such as the median, was a combination of sensory with vasomotor and secretory disturbances. In some wounds of the sciatic nerve only the sensory fibres had been cut, and in other cases only the motor. All the muscles supplied by an injured nerve were not invariably paralysed to an equal degree. Thus, the extensor communis digitorum was the muscle to suffer most when the radial nerve was injured, the flexors of the index finger when the median nerve was injured, and the deltoid when the plexus was injured. It had also been noticed that the nerve supply of muscles was subject to great variations. Thus the muscles of the ball of the thumb were found to be more often supplied by twigs from the ulnar nerve than had hitherto been realized. It was also found that the pronator teres was not invariably supplied by the median nerve. Many new observations were also made in connexion with traumatic neuritis, especially with reference to the dependence of pain on a variety of stimuli. Thus every sound, every sudden optical stimulus, or every psychic insult might be enough to provoke an attack of pain. Among the trophic disturbances closely studied for the first time was traumatic hypertrichosis. The experiences of the war had done much to discredit Charcot's teaching as to the psychogenetic origin of the symptoms to which the term traumatic hysteria had been given. To assume that non-organic paralyses and sensory disturbances were due to the imagination was erroneous; and though it could not be denied that psychic insults could produce serious non-organic changes in the central nervous system, yet it was a mistake to regard the symptoms as hysterical; they were due to mental strain. The war had shown that mechanical insults were largely responsible for non-organic nervous lesions, and that psychic and physical shock acted in the same manner on the central nervous system. In the case of shell explosions, these two factors were inextricably combined.

Traumatic Neurasthenia.

A common accompaniment to traumatic neurasthenia was a slight rise of temperature. Symptoms of hyperthyroidism were also frequently observed, and not a few

¹ *Berl. klin. Woch.*, November 24th, 1915.

patients suffered from tachycardia, hyperidrosis, and tremor, and presented Graefe's and Chvostek's signs. Many cases of akinesia amnestica and of reflex paralysis, which had been wrongly labelled as "local traumatic hysteria," were observed. The relatively low vitality of the right hemisphere of the brain was shown by the enormous excess of left-sided over right-sided symptoms. In attempting to distinguish genuine paralysis from psychogenic or simulated paralysis it had been customary to divert the patient's attention, and to place the limb in a position in which it could only be maintained by muscular action. When the limb did not collapse instantly the genuineness of the paralysis was discredited; this was quite wrong. It had been repeatedly found that, though the patient could not bring his limb into a certain position without help, he could keep it there. Thus, in a case of genuine radial palsy, the patient could not extend his hand, but when it had been passively extended he could keep it in that position. When he attempted active extension, the antagonistic muscles were thrown into action.

CASUALTIES IN THE MEDICAL SERVICES.

Died on Service.

BREVET COLONEL ARTHUR HENRY MOORHEAD, Bengal Medical Service, died at Kyrle, Batheaston, on March 1st, aged 43. He was born on July 20th, 1872, the third son of Brigade Surgeon G. A. Moorhead, R.A.M.C., and educated at Edinburgh University, where he took the M.B., C.M. in 1893. Entering the I.M.S. as surgeon-lieutenant on July 28th, 1894, he became surgeon-captain on July 28th, 1897, major on July 28th, 1906, and lieutenant-colonel on July 28th, 1914, and was promoted to brevet colonel for services in the present war on February 18th, 1915. He had served in three campaigns on the North-West frontier of India: Waziristan, 1894-95, medal and clasp; Chitral, 1895, in the relief of Chitral, medal with clasp; and in the Tochi Valley in 1897-98, clasp; also in the third China war of 1900, in the relief of Peking, medal with clasp. Since 1901 he had been medical officer of the 16th Indian Cavalry. He went to France with the second cavalry division of the Indian contingent, in command of a field ambulance, was mentioned in dispatches, promoted to brevet colonel, and made an assistant director of medical services. He was invalided home last December. In 1908 he represented the Indian Government at the Plague Conference in America, where he read a paper. His eldest brother, Lieutenant-Colonel G. O. Moorhead, is commanding officer of the Nyasaland contingent of the Union Expeditionary Force, East Africa.

Captain Harry John Rutherford Jones, R.A.M.C., died at 139, Oakwood Court, Kensington, on February 26th, aged 41. He was educated at the London Hospital, and took the M.R.C.S. and L.R.C.P.Lond. in 1892. After acting as house-surgeon to the Poplar Hospital for Accidents, he went into practice in Kensington. He took a temporary commission as lieutenant in the R.A.M.C. on August 15th, 1914, and was promoted to captain on completion of a year's service.

Captain William Howard Nicholls, R.A.M.C., died of an accidental gunshot wound in India on February 22nd, aged 24. He was the son of Howard Nicholls, of Bramber Lodge, West Worthing, was educated at Guy's, and took the M.R.C.S. and L.R.C.P.Lond. in 1914. He joined the Special Reserve of the R.A.M.C. as lieutenant on October 19th, 1914, and was promoted to captain after a year's service.

Lieutenant William Williamson Kerr Duncan, R.A.M.C., died at Willow Bank, Grantown-on-Spey, on February 29th, aged 37. He was the son of the late Rev. Henry Duncan, of Crichon. He took the Scottish triple qualification in 1914, and had only recently taken a temporary commission in the R.A.M.C.

Miss Christina Murdoch Wilson, Queen Alexandra's Imperial Military Nursing Service, Reserve, daughter of the late Thomas Wilson of Glasgow, died of pneumonia at No. 14 General Hospital, Wimereux, France, on March 1st.

Miss A. B. Corfield, Staff Nurse, Q.A.I.M.N.S. Reserve, is reported in the casualty list published on March 4th as having died in Egypt.

Wounded.

Captain H. Shield, R.A.M.C.(T.F.), France.
Captain C. E. C. Cole, Canadian A.M.C., France.
Lieutenant H. O. Gough, R.A.M.C. (temporary), France.
Assistant Surgeon E. J. Fisher, I.S.M.D., Mesopotamia.

LOST AT SEA.

The P. and O. ss. *Maloja*, 12,431 tons, Captain Irving, R.N.R., which left London for the East on Saturday, February 26th, was struck by a mine or torpedo off Dover on the morning of Sunday the 27th, and sank in half an hour with the loss of over 150 lives. She was the largest, but not the newest, of the P. and O. boats. Of 456 persons on board 155 appear to have been lost—namely, passengers, 72 saved, 49 lost, total 121; European staff, 92 saved, 20 lost, total 112; Lascar crew, 137 saved, 86 lost, total 223. The ship's surgeon, Dr. Edgar Kennington (Bart's), was among those saved. Two medical men were among the passengers, Dr. W. K. Miley and Assistant Surgeon W. J. S. Maine; both were lost.

Dr. William Kildare Miley was educated in the school of the Royal College of Surgeons in Ireland, Dublin, and took the diplomas of L.R.C.S.I. and L.R.C.P.I. in 1877, also taking the M.R.C.P.I. in 1880. He then joined the colonial emigration service, in which he had risen to be the senior medical officer, and was on his way to Calcutta to take medical charge of a shipload of emigrants for the colonies. He was a brother of Colonel Miley of the Indian army, resided at Monkstown, co. Dublin, and was 63 years of age.

Assistant Surgeon William John Samuel Maine, of the Indian Subordinate Medical Department (Bombay), was born on December 12th, 1864, attained warrant rank on September 14th, 1887, and became first class assistant surgeon on September 15th, 1906. He had recently been serving with the Indian troops in Europe, and received the Military Cross for his services on January 14th, 1916.

DEATHS AMONG SONS OF MEDICAL MEN.

Christie, Dugald R., Second Lieutenant Royal Field Artillery, son of Dr. Dugald Christie, C.M.G., Principal of the Moukden Medical College, Manchuria, killed in action in Mesopotamia, on February 24th, aged 19. He got his commission as second lieutenant in the R.F.A. on March 24th, 1915.

Jalland, Stephen, Lieutenant 6th East Yorks Regiment, now reported killed in action on August 9th, 1915, at Chocolate Hill, Gallipoli, was the youngest son of Mr. and Mrs. Jalland, of York. He was educated at Bilton Grange, Uppingham, and Lincoln College, Oxford, and graduated in honours in the Natural Science Schools, and eventually took the degree of M.A. Soon after war was declared he obtained a commission in the 6th East Yorks Regiment, having previously been in the Oxford O.T.C.

Ramsay, Derrick Winson, Lieutenant 10th Battalion Sherwood Foresters, eldest son of Dr. F. Winson Ramsay, of Jesmond Dene, Bournemouth, killed in France on February 14th. He was educated at Sherborne, and was studying engineering at Durham University College of Science, Newcastle, when the war began. He got a commission as second lieutenant on September 17th, 1914, and was promoted to lieutenant a year later.

Robinson, Arthur Limnel, Second Lieutenant Royal Engineers, eldest son of the late Surgeon-Major Mark Robinson, I.M.S., died in France on February 26th of wounds received on February 17th, aged 34. He was born at Mercara, Coorg, Southern India, on July 18th, 1881, educated at Dover College and the Royal School of Mines, and subsequently held appointments in Siberia, the Malay States, and Northern Nigeria. He was invalided from Africa in March, 1915, and on recovery got a commission in the Northamptonshire Regiment. After training at St. Albans and Colchester, he went to the front on November 1st, 1915, and was posted to the 173rd Tunnelling Company, R.E. He had only recently been home on leave.

Wood, Eric A. W., Second Lieutenant 9th Battalion Duke of Wellington's Regiment, eldest son of Dr. Arthur Wood, of Woodroyst, Southport, and of Halifax, killed in France on February 25th, aged 20. He was educated at Haileybury, and was about to go to Oxford when the war began. His commission was dated January 7th, 1915.

MEDICAL STUDENT.

Layman, Douglas Arthur Campbell, Second Lieutenant 17th Battalion Lancashire Fusiliers, elder son of Arthur Layman, of 4, Dulwich Wood Park, Upper Norwood, died of wounds in France on February 22nd, aged 22. He was a grandson of Dr. William Papineau, was educated at Dulwich College, where he was in the O.T.C., and then joined St. Thomas's Hospital. From October, 1914, he served as a dresser on the Indian hospital ship *Glengorm Castle* till August, 1915, and got his commission in September, 1915.

NOTES.

HONOURS.

SENIOR SUB-ASSISTANT-SURGEON T. N. SWAMI NADHA NAIDU, of the Indian Subordinate Medical Department, now serving at Rushmore, has been awarded the Distinguished Service Medal for conspicuous courage and gallantry in action in Mesopotamia. Previous to the war he was in submedical charge of the 86th Carnatic Infantry at St. Thomas's Mount, Madras.

The *London Gazette* of March 3rd announces that the King has been pleased to confer the Order of the Royal Red Cross, second class, upon the following ladies, for services under the Belgian Red Cross in Flanders, between August and November, 1914: Miss C. E. A. Thorpe, matron; the Hon. Angela Manners, sister (organiser of the "Manners Ambulance.")

MEDICAL OFFICERS WANTED.

21st South Midland Mounted Brigade.

Three medical officers are wanted to complete Brigade at present on East Coast. Applications to Major D. M. Spring, S.M.O., R.A.M.C. (T.), Head Quarters, Hempton, Fakenham, Norfolk.

Ireland.

It was reported at the annual meeting of the St. Patrick's Home for Supplying Trained Nurses to the Sick Poor in Dublin that, owing to the decreased poverty, due mainly to the separation allowances, the health of the poor had been good, and the number of cases nursed had decreased during the year 1915. The nurses, however, had visited 34,640 cases. Much good work was done in giving mothers instruction in the care and management of children.

A hospital ship arrived at Dublin on February 27th with 620 wounded and sick soldiers, of whom 290 were cot cases. The proportion of medical cases, such as acute rheumatism, pleurisy and pneumonia, and trench nephritis was large. Two ambulance trains, each conveying 150 men, were sent to Cork and Belfast respectively. The remainder were distributed among the Dublin hospitals. The St. John Ambulance Brigade furnished 160 men for the stretcher work at the North Wall Extension and at the hospitals; 56 motor owners lent, and in many cases drove their cars, while the Irish Automobile Club provided 20 ambulances, and traders 7 vans temporarily converted. The ambulances of the Dublin Corporation and the Pembroke Council were also at work, and the transfer of all the soldiers was accomplished in about three hours.

Reference was made recently to cases in which two boards of guardians had cancelled appointments made by them of locumtenents nominated by their medical officers when joining the Royal Army Medical Corps. One of these has now been adjusted—the guardians of Delvin, co. Westmeath, having agreed, after considering letters from the medical officer concerned and Dr. M. R. J. Hayes, secretary of the Irish Medical War Committee, to re-elect the locumtenent nominated by the absent doctor. In the other case the Local Government Board has addressed a letter to the guardians of the Lisnaskea Union, stating that it is not prepared without the concurrence of the absent doctor to entertain the proposal of the guardians under which an essential part of the arrangement made with the absent doctor, to whom the guardians had granted leave of absence for twelve months, would be upset by the displacement of the locumtenent nominated by him. The consideration of the communication from the Local Government Board was postponed for a larger meeting of the guardians.

INDUSTRIAL TRAINING OF WOUNDED SOLDIERS.

The large dépôt for wounded soldiers from various Irish regiments at Tipperary is affording instruction to men discharged from hospital. About 1,500 have already been admitted, and 2,000 more will be sent there in time. All men who are fit undergo a course of physical exercise and military training, and it is hoped that a good proportion of them will shortly be ready to return to full or partial duty. Manual instruction classes in boot repairing, French polishing, motor driving and repairing, in stationary oil and gas engines used for farm or other work, and shorthand and typewriting have already been established. It

is also proposed to give classes in the management and fixing of telephones, painting, ironwork, etc. Gymnastic exercises, massage, radiant heat baths, and Swedish drill greatly assist in accelerating recovery. Members of the Almeric Paget Massage Corps are on duty under the direction of the medical officer in charge. All this work is the result of purely voluntary effort. The army authorities lent it their approval and take an interest in its success, but it is entirely financed by voluntary subscriptions and managed by a lay committee, of which the Commandant Colonel Gordon, C.I.E., and medical officer in charge Lieutenant-Colonel Sims Woodhead, R.A.M.C., are *ex officio* members.

THE RESEARCH DEFENCE SOCIETY.

The Dublin branch of the Research Defence Society, which has been in existence for seven years, held its annual meeting last week at the house of the Royal Dublin Society. The report stated that the subscriptions by the branch had decreased, partly by reason of the war, with its many claims, but for the most part because members and the public considered that the battle for truth was already won. But although members could congratulate themselves on a great victory, the fruits of which were seen in the many thousands of soldiers saved from death by the results of medical research, no victory was eternally won unless it was eternally fought for. It was suggested that all members should subscribe for the quarterly report, which contained information as to the general affairs of the society and its many branches and as to current medical research. The branch had made a contribution to the parent society and had a small balance in hand. Sir Frederick W. Moore, who presided, said that the society had been assailed by all sorts of calumnies, and in particular it had been alleged that its one object was the torture of animals. There was not in the society a single member who would countenance the infliction of the slightest unnecessary suffering on any animal, or any experiment not likely to help to alleviate the suffering man was heir to.

Dr. A. D. Waller, F.R.S., Director of the Physiological Laboratory of the University of London, then delivered an address on fat consumption during war. He pointed out that a dominant factor in the German economic situation was the amount of fat available for food and for explosives. A hundred tons of fat yielded about ten tons of glycerine, which could be nitrated to yield twenty tons of nitroglycerine. Germany has hitherto consumed fat at the rate of 106 grams per head—that is, in round numbers, 2½ million tons per annum. For industrial purposes Germany has used half a million tons, of which 100,000 tons went to nitroglycerine. Half has been grown at home, half has been imported. During the first year of the war Germany had required for food at least half her previous allowance—that was to say, at least one and a quarter million tons of fat, and, say, 350,000 tons for war explosives; she had not been able to produce this amount at home. She had imported it partly from or through neutral countries, and partly from occupied territory. Germany had taken fat from the food account for the explosives account, and was therefore starving her women. There was no excuse, he said, for allowing fat, oils and substances which went to the formation of nitroglycerine to enter Germany.

Scotland.

At a meeting of the curators of the University of Edinburgh on March 3rd a resolution of sympathy with the members of the family of Sir William Turner was adopted. After a discussion it was decided to adjourn the question of the appointment to the vacant principalship for a few weeks.

The directors of the Royal Blind Asylum and School, Edinburgh, have secured Newington House in Blakely Avenue, with several acres of ground, for the purpose of carrying out the institution's scheme for sailors and soldiers blinded in the war. The Scottish Education Department have agreed to recognize the institution as a centre for the training of blind junior students.

CRIPPLED AND MAIMED SOLDIERS AND SAILORS.

A conference of representatives of municipal and other bodies interested in working the Naval and Military

Pensions Act, 1915, was held in the City Chambers, Glasgow, on February 28th, to consider the model scheme drawn up by the Statutory Committee established under the Act for the constitution of the local committees. A meeting has also been held in Edinburgh. Meanwhile a scheme for the establishment in the West of Scotland of a hospital for limbless sailors and soldiers is making progress. At present the only hospital of the kind is Queen Mary's Auxiliary Hospital at Roehampton. A deputation, headed by the Lord Provost of Glasgow and Sir William Macewen, had interviews on March 3rd with the Director-General of the Army Medical Service at the War Office, and at the Admiralty with the Committee of the Roehampton Hospital, with Major-General Sir Francis Lloyd in the chair. Sir Alfred Keogh gave the deputation the assurance that the hospital proposed to be established in Scotland would enjoy the same privileges with regard to grants, etc., and receive the same recognition from the military authorities as the hospital at Roehampton, and added that there was all the more need for the establishment of a hospital in the West of Scotland in that the accommodation at Roehampton was overtaxed; something like 1,600 were awaiting admission. Similar assurances were received at the meeting at the Admiralty. The deputation afterwards visited the hospital at Roehampton. It is stated that the Provisional Committee, of which the Lord Provost of Glasgow is chairman, will now take practical steps to carry out the scheme.

England and Wales.

At the annual meeting of the Ancoats Hospital, Manchester, on February 27th, the chairman, Sir F. Cawley, M.P., said that, in common with other institutions, its expenditure had increased. A larger income was necessary, but it was a remarkable fact that the annual subscriptions were only about £12 less than previously, showing that the public recognized the great value of the hospital. As all the members of the honorary staff had accepted commissions in the army and six out of nine Sisters had taken up military duties, the work of the hospital had been carried out under great difficulties. The number of in-patients had been 1,816, out-patients 7,026, home patients 445, and accident cases 18,156. Up to the end of December last 165 wounded and sick soldiers had been admitted to the hospital and 325 received at the convalescent home at Warford, where there were 37 beds. At the end of the meeting those present had the opportunity of inspecting the wards and the extensions, which include new out-patient consulting-rooms.

THE MANCHESTER CHILD WELFARE SCHEME.

The Manchester City Council has taken an important step in the direction of extending the municipal scheme for child welfare. Owing to the war the Slade Lane Babies' Hospital, which belongs to the committee of the Manchester School for Mothers, has suffered financially to a serious extent, and there was some danger that it might be closed if it had to depend altogether on voluntary effort. The committee therefore offered to the corporation 18 beds in its hospital for babies, and while the Sanitary Committee would have accepted the offer, opposition came from the Finance Committee, which resolved to recommend the Council not to accept it. It appears that the proposal involved that the corporation should be responsible for one-half of the cost of upkeep of the beds; and though under the child welfare scheme the Local Government Board would in all probability have provided half, the cost to the corporation would be at least £350 a year. When the question came before the Council the chairman of the Sanitary Committee pointed out that the objection of the Finance Committee was really that there was already sufficient provision for these cases made by other Manchester hospitals, and, though he partly admitted this, the provision was rather for cases requiring only short periods of treatment, the average stay in the other hospitals being only about three weeks, whereas many of the children under consideration required upwards of twelve months' treatment in order that cure might be effected. Sir Charles Behrens said that at the Manchester Infirmary there were now 580 persons awaiting admission, and there were no cots

available for babies. Several members of the Council opposed the proposal, which was represented as being a beginning of the municipalization of the hospitals, and it was argued that other hospitals had an equal or even better claim to rate aid. The Council, however, accepted the offer of the School for Mothers by a large majority. The medical side of the school has already been taken over by the corporation.

Correspondence.

THE EFFECT OF POSITION IN AUSCULTATION OF THE HEART.

SIR,—I was very glad to read Lieutenant-Colonel Rudolf's letter in the JOURNAL of March 4th, pp. 361-2. His results are the same as those to which I have drawn attention in teaching now for some years; and in the same issue of the JOURNAL, on p. 359, in a brief record of the transactions of the Ulster Medical Society, mention is made of a short paper I read on this subject. The phenomena, however, are frequently observed; a patient with some infection—too much alcohol and tobacco are sufficient—develops both apical and basic murmurs; the patient is put to bed and the cause removed, and in time, short or long, days or weeks, the murmurs disappear. The explanation is obvious. But also the following is found: A man is examined for life assurance, and no murmur, or one very faint, scarcely detectable, is found; he is put on his back, and a distinct systolic murmur promptly appears, generally in the fourth space, but sometimes at apex or at base. The explanation here is not so easy. I saw a certificate in regard to an officer home from India from the late Sir William Broadbent, in which it was stated as his opinion that the murmur was not organic but functional, and that probably the phenomenon was due to want of muscle tone, so that the heart in the supine position slightly flattened itself against the vertebral column in the supine position, like an india-rubber ball that had lost its elasticity. For my own practice and guidance I have looked upon its presence as indicating want of tone, and not sufficient to reject a life under average circumstances or to debar from the services, but as an indication for stopping sudden sharp strains of the heart, as in that involved by a sedentary clerk joining the colours without some preliminary training and observation. Colonel Rudolf's advice to examine the patient in both positions and after exercise is sound.—I am, etc.,

Belfast, March 4th.

WILLIAM CALWELL, M.D.

THE SOLDIER'S HEART AND THE STRAINED HEART.

SIR,—I see that Dr. J. S. Manson (January 29th, p. 184) ascribes some of the cases of irritable heart to tobacco smoking. A piece of experience which came my way supports his view.

On the hospital ship *Asturias* were always a number of invalid hearts variously described as irritable valvular disease of the heart and deranged action, all of them having their fingers stained a deep mahogany brown from cigarette smoking. Colonel Hardy, R.A.M.C., examined and tabulated these cases, and wrote a report on them which was sent to the Director-General at G.H.Q., and was thought to be of sufficient importance to call for a report from his office, which amounted to a warning against the excessive use of cigarettes then prevailing in the army.

This question of cigarette smoking will probably be seriously considered one of these days because of the number of men who will be invalidated with tobacco hearts, called possibly by other names, all of whom will claim pensions as having been injured by war service. There is, I believe, no place where an attempt is being made to-day to separate the truly irritable heart from the heart which is merely irritable for the time being.

I have also a piece of evidence in favour of Sir James Goodhart's view that the irritable heart is, at any rate in many cases, our old friend the overdone heart masquerading under another name. During the past eighteen years it has been my custom at Cambridge to ask every patient whether and when he had had any trouble with

his heart, and who was his doctor. The evidence thus obtained showed that a large percentage of these irritable ineffective hearts dated back to the fourteenth to sixteenth year, when as boys at school they were in an athletic team struggling for pre-eminence—a struggle which the patient still looks on as being one of the toughest jobs he had ever had a hand in. The history, with the doctor's description, showed that the onset was gradual, although the realization of it by the patient was sudden. The irritable heart of the young man was the hypertrophied overdone heart of the boy.

We have still to find out whether the irritable hearts are all included in the classes roughly sketched in this letter, or whether the irritable heart of the soldier on active service is starting in him although he is nearer to his full development than these patients usually are. Then we shall have to find out what the truly irritable heart is.—I am, etc.,

ROBERT MICHELL,
Captain (temporary) R.A.M.C.

March 8th.

FERGUS(S)ON'S SPECULUM.

SIR,—Although the four men to whom this instrument has been ascribed were all contemporaries of many doctors still living, several correspondents who have read "Gynaecologist's" query in the *JOURNAL* of January 8th admit that the question remains unsettled.

"Fergus(s)on's vaginal speculum" means a tubular glass instrument, silvered and coated with rubber. The four men for whom it has been claimed are: (1) Dr. Robert Ferguson (1799–1865), Physician-Accoucheur to Queen Victoria, and the first professor of obstetric medicine and diseases of women and children to King's College. Several living contemporaries are under the impression that he was the inventor, but he makes no mention of the instrument in his *Essays on the Most Important Diseases of Women*, nor in his edition of Gooch's works. (2) Ferguson, a dealer whose shop close to the entrance to St. Bartholomew's Hospital was well known in the middle of the last century. His claim, as will be shown, is strong. (3) Sir William Fergusson, Bt. (1808–1877), who makes no mention of the speculum in his *System of Practical Surgery*, nor, I understand, in any of his other writings. He received his baronetcy in January, 1866—a point of some importance in this controversy. (4) Dr. W. E. Laing Fergusson, M.R.C.S. Eng. 1846, M.D. Glasg. 1854, who died in 1880.¹ I understood from Dr. Greenhalgh, under whom I studied in 1869–70 at St. Bartholomew's Hospital, that this Dr. Fergusson, who had just settled in Claremont Square, originally suggested this instrument.

The evidence from contemporary textbooks is conflicting. In the first edition (1835) of Churchill's *Diseases of Women* the instrument is not mentioned, but in the third edition (1850) it is described in a paragraph beginning "Dr. Fergusson (*sic*) has greatly improved . . ." whilst in the fourth (1857) the same paragraph reads: "Mr. Ferguson has greatly improved . . ." We may conclude that the spelling was corrected in the later edition. No Dr. Fergusson was known to obstetricians in 1850, and in 1857 the future baronet was Mr. Fergusson. In Mitchell's *Practical Remarks on the Use of the Speculum* (Dublin, 1849) and in Robert Lee's *Treatise on the Employment of the Speculum* (1858) there is no mention of a Ferguson's speculum, but Mitchell mentions a plain glass conical speculum covered with caoutchouc.

The evidence of makers, dealers, and catalogues must be taken into account. Messrs. Maw, Son and Sons have kindly informed me that they have listed "Fergusson's speculum" in their catalogues since 1851, and were always under the impression that Sir William was its inventor, but add that "we note that in an 1851 catalogue we spell the name with only one s." Mr. Barry Hopkins of Messrs. Arnold and Sons, a veteran in the trade, states that Dr. Ferguson of King's College was believed by many dealers to be the inventor, but, like Messrs. Maw, he notes that all concerned with the speculum when it was new—glass-blowers, silverers, and india-rubber workers included—have passed away and left no record.

I find, however, evidence of real weight in the *Catalogue of Obstetrical and other Instruments exhibited at the Conversazione of the Obstetrical Society of London, held by*

Permission at the Royal College of Physicians, March 28th, 1866, a valuable descriptive work on which is founded the catalogue of the loan collection of obstetrical and gynaecological instruments in the Museum of the College of Surgeons. At page 200 the speculum is thus described:

Ferguson's glass speculum coated over with a thin layer of india-rubber. This instrument is a very useful one, possessing great reflecting power, and capable of always being kept perfectly clean and bright for ordinary use; Dr. Churchill has found this speculum (of different sizes) the most useful.

This catalogue was published early in 1867, the editor dating his preface December, 1866. Sir W. Fergusson received his baronetcy in January, 1866, and the conversazione was held in the following March. In the notes on specula in the *Catalogue* "Dr." is placed before the names of all well-known medical inventors, Dr. Henry Bennet's, Dr. Marion Sims's, Dr. Tanner's, and other specula being fully described. Turning to dealers, I find at p. 202 "Hilliard's exhibited by Ferguson" (Hilliard being a Glasgow firm), "A speculum was exhibited by Durroch," then a dealer in St. Thomas's Street, S.E. It is true that it is stated that "Mr. Ferguson exhibited two vaginal retractors"—though the exhibitor must have been the dealer, not the baronet. Dr. Robert Ferguson had died in 1865, and was spoken of as "Dr." in Sir T. Watson's address at the Royal College of Physicians,² delivered three days before the conversazione. Sir W. Fergusson's newly acquired title could not have been overlooked, while Dr. Laing Fergusson had not come to London, indeed his name is not to be found in the *Medical Directory* for 1866, though he had qualified twenty years earlier, and it was not until 1870 that his address was given as Claremont Square, N. Thus the evidence of this descriptive catalogue must lead us to believe that Ferguson the dealer was the inventor. Perhaps, however, some reader of the *JOURNAL* may possess further evidence about the speculum and its inventor.—I am, etc.,

London, W., Feb. 2nd.

ALBAN DORAN.

VISUAL NEUROSES OF MINERS.

SIR,—Dr. C. F. Harford (*JOURNAL*, March 4th, p. 340) writes: "The name (miner's nystagmus) seems to be unfortunate."

I agree with him, but I doubt if it is going to help us to call it a "neurosis." In 200 consecutive cases of nystagmus collected in a coal-mining area only 12 per cent. were miners. If we call the 12 per cent. neuroses of miners, what are we to call the others when the manifestations in all the cases are practically identical?

In Dr. Harford's series of miners ametropia is the rule, but the same is true of non-miners. "Nystagmus occurring in a miner" is probably a better term than neuroses of miners.—I am, etc.,

Warrington, Mar. 7th.

J. A. WILSON.

TRENCH NEPHRITIS.

SIR,—Your annotation on this subject suggests that the theory of an infective origin for trench nephritis has only just been put forward. Claims for priority are seldom edifying, and it is with some reluctance that I venture to point out that this view was definitely advanced by me in the July issue of the *Journal of the Royal Army Medical Corps* (which was not published till September). I advocated the view as the result of work undertaken at the request of the Medical Research Committee, with the co-operation of Mr. Mackenzie Wallis and Mr. J. W. Trevan. I enclose a copy of my interim report, in which you will find practically all the points referred to in your annotation, such as the association of dyspnoea with the oedema, and the immunity of the Indian troops from the disease, as well as the extensive chemical and bacteriological investigations on which we based the infective theory.—I am, etc.,

London, W., March 4th.

W. LANGDON BROWN.

* * * The annotation mentioned by our correspondent begins with a reference to the discussion at the meeting of the Sections of Medicine, and Pharmacology and Therapeutics of the Royal Society of Medicine on February 19th. In opening that discussion Dr. Langdon Brown, as was reported at p. 273, indicated reasons for believing that the disorder was due to an infection.

¹ BRITISH MEDICAL JOURNAL, vol. i, 1880, p. 679.

² BRITISH MEDICAL JOURNAL, vol. i, 1866, p. 338.

Obituary.

R. D. MAXWELL, M.D., F.R.C.S.,

ASSISTANT OBSTETRIC PHYSICIAN, LONDON HOSPITAL.

WE regret to have to record the death, on March 6th, after an abdominal operation, of Dr. R. Drummond Maxwell. He was the son of Mr. Richard Maxwell, of Oxford Gardens, W., and received his professional education at the London Hospital; he graduated M.B.Lond. in 1897 and M.D. (in Gynaecology and Obstetrics) in 1904; he became F.R.C.S.Eng. in 1907. He took part in the Boer war as civil surgeon in the South African Field Force. He was for a time resident medical officer in Queen Charlotte's Lying-in Hospital, to which he was afterwards elected physician. Dr. Maxwell afterwards joined the staff of the Samaritan Hospital, where, as physician to out-patients, with some beds at his disposal, he distinguished himself greatly both for sound clinical knowledge and skilful operating. After a few years he was elected assistant obstetric physician and lecturer on midwifery to nurses at his old hospital. Dr. Maxwell communicated to medical societies and journals many excellent original memoirs, and when the late Dr. Herman was nearing the end of his career, that distinguished authority handed over his deservedly popular *Diseases of Women* to his younger colleague for the preparation of a new edition.

A Colleague at the London Hospital writes:

Of Maxwell's ability there is little need to speak; his academic distinctions, the position he had already attained in his profession, the success which had already come to him are surely sufficient testimony. Great though his professional attributes were, it is for other and still rarer gifts that those who knew him will continue to mourn for him and to dwell upon his memory. A wide and generous sympathy for all suffering, a detestation of cant and a passionate love of justice were mingled in his character with a natural geniality and a deep appreciation of the drama, poetry, and humour of life. The quiet courage with which during the last few years he had faced two serious abdominal operations was not lost on his friends. Maxwell, I believe, was never known to complain. Another striking feature was the interest he always evinced in military matters, a fact perhaps to be explained by his descent from a Scottish Border family. He had seen active service in the South African war, and for the last twelve months he was in command of the London Hospital Section of the University Officers' Training Corps. Nothing, however, compensated for the disappointment which he felt that owing to various substantial reasons he could not join our Expeditionary Force in France, for, like many of his countrymen, he had a strong sentimental regard for Scotland's ancient ally, and was strangely familiar with some of the more romantic chapters in her history. Such a man could not fail to be popular with both colleagues and students, and the widespread grief with which the news of his death was received bore remarkable testimony to the respect and affection in which he was held.

SAMUEL MACVIE, M.B., C.M.EDIN., J.P.,

CHIRNSIDE, BERWICKSHIRE

THE death, on March 2nd, of Dr. Samuel Macvie, at his residence of Herbertknowe, Chirnside, has removed a successful doctor and an outstanding and most interesting personality from the Border district of Scotland. He was in his 68th year. He was a native of Irvine, in Ayrshire. His circumstances in his early years in a coal mining district in the West of Scotland made it no easy task for him to enter the medical profession, and he used to tell with pardonable pride how he was set upon obtaining nothing less than a university degree and how he in consequence went back for a time to his work until he had made sufficient to carry him through the classes in Glasgow and Edinburgh. He graduated in Edinburgh (M.B., C.M.) in 1874, and for forty years (since 1876) he practised in Chirnside with a reputation extending far beyond Berwickshire. He was elected a Fellow of the Edinburgh Obstetrical Society in 1881 and of the Medico-Chirurgical Society in 1897. From time to time he exhibited specimens at the

meetings of the former society and took part, often with great acumen mixed with sly humour, in the discussions on obstetrical matters; and it was no surprise to those who knew him best when the fellows made him a vice-president in the years 1900-01. His paper entitled "*Mother versus child*," was an extremely clever and carefully worked out comparison and contrast between the value of the life of the mother and that of her unborn child, in which he came to the conclusion that, whilst the mother has realized the potentialities of life, the unborn infant has a potential value which is equal to its extra-uterine life-expectancy, and which may never be realized. Dr. Macvie felt that he had reached an *impasse* in his reasoning and smilingly was ready to admit that there was probably a fallacy somewhere. He had many original ideas upon many medical and especially obstetrical subjects, and his revolutionary notions on diet he put to the test in his own person, with no disastrous results but with apparent benefit, to the no small surprise of some who feared other consequences. He was greatly interested in art, and nothing pleased him better, on one of his rare visits to Edinburgh, than to spend half an hour or an hour in contemplation of a great religious painting. He was also delighted with his discovery of a local poetess in the person of the authoress of *Whinblossom*. He was medical officer for three parishes in Berwickshire and J.P. for the county. He was awarded the Volunteer Decoration as surgeon-major of the 1st Volunteer Battalion King's Own Scottish Borderers. He was for many years president of the Berwickshire Liberal Committee, and he also served as chairman of the Chirnside Parish Council and School Board. He had a fresh and original mind on all subjects of interest, and no man could place an apparently illogical statement before his hearers in a more convincing manner. His humour can only be described by the expressive Scots word "*pawky*." He will long be remembered in the Border Counties for his kindness of heart and his thorough grasp of medicine in all its parts. His wife predeceased him several years ago.

DR. ARCHIBALD THOMSON CAMPBELL, whose death on February 22nd was briefly noticed in the JOURNAL of last week, was an active and energetic member of the British Medical Association, having been chairman of the Division, president of the Branch, a representative at Representative Meetings, and a member of the Organization Committee. After graduating in 1886 he made one or two voyages to the East as ship surgeon. He settled in the north-western district of Glasgow, where he speedily built up an extensive practice. He took a great interest in the Insurance Act, and his constant endeavour was to make its working as satisfactory as possible from the medical point of view. He was unanimously elected chairman of the Glasgow Panel Committee, a position he filled with much acceptance to all concerned. He was attached to the Home Hospital Reserve, was mobilized at the beginning of August, 1914, and was appointed to the military hospital at the garrison, Maryhill, with the rank of captain, and carried on the arduous work required by both his civil and military duties till he was stricken down about five months ago by his last illness. Of a bright and happy disposition, with a marked sense of humour, he was very popular with the members of the profession in Glasgow and the West of Scotland, and to all who knew him his death has caused a feeling of irreparable loss. He was largely instrumental in forming the Glasgow Medical Golf Club. He leaves a widow and three children of school age, for whom the greatest sympathy is felt. He was buried with military honours at the Western Necropolis, Glasgow.

DR. EDWARD BERDOE, who died on March 2nd, was born in London on March 7th, 1836, and was therefore within a few days of the completion of his 80th year. He was educated at Regent's Park College, and began the study of medicine at a comparatively late period of life. After going through the curriculum at the London Hospital he was admitted L.R.C.P. Edin. and L.S.A. in 1876; in the following year he obtained the diploma of M.R.C.S. He worked as a general practitioner in Hackney for forty years. He was an ardent student of Browning, and was one of the founders of the society bearing the name of the poet: he was a member of its committee till its dissolution

in 1894. He was the author of *Browning's Message to His Time* (1890), *The Browning Cyclopaedia* (1891), *Biographical and Historical Notes to Browning's Complete Works* (1894), *Browning and the Christian Faith* (1896), and a *Browning Primer* (1904), and editor of *Browning Studies* (1895). Dr. Berdoe was a strenuous opponent of the germ theory of disease and of the experimental method in research, and he preached his doctrine with considerable ingenuity of argument. His outlook, however, was coloured by prejudice, as is shown by his books, *St. Bernard's: The Romance of a Medical Student*, and the key to it, *Dying Scientifically*, both published under the pseudonym of "Aesculapius Scalpel" in 1883. In the preface to *Dying Scientifically* he declared that he loved his old hospital, in which he had passed some of the happiest years of his life, and was grateful for all the advantages it had given him; the bitterness with which he denounced it and all other hospitals, and the medical profession as a body, may therefore be charitably attributed to the proverbial frankness of the candid friend. He displayed the same spirit in the *Zoophilist*, of which he was editor. He assisted Miss Frances Power Cobbe in the compilation of her notorious *Nine Circles*, and when the suppressions and misrepresentations of that work were exposed he had to bear his share of the responsibility for them. There is no reason to doubt his sincerity, but this makes it all the more lamentable that a man of his unquestionable ability and high character should have allowed himself to be so carried away by fanaticism. Dr. Berdoe was the author of a popular work on the history of medicine, entitled *The Origin and Growth of the Healing Art*, which, though made untrustworthy here and there by his dislike of experiment, is a readable introduction to the subject.

DR. FREDERICK WILLIAM WRIGHT, who died at Haddenham, Bucks, on January 31st, in his 78th year, received his medical education at the University of Edinburgh. After taking the diplomas of M.R.C.S. and L.S.A. in 1862 he joined his cousin, Mr. S. W. Fearn, surgeon to the Derby General Infirmary. In 1877, in conjunction with several medical friends, and with the support of Mr. M. T. Bass, M.P., Mr. H. H. Bemrose, then Mayor of Derby, and others, he founded the Derbyshire Children's Hospital, which has grown steadily to its present high state of efficiency. Dr. Wright was a generous benefactor to the building fund, and in September, 1915, his portrait was presented to the hospital board. He was also the originator of the Derby Nomadic Club, a debating society which has continued in active life since 1868. Dr. Wright gave up practice in Derby in 1889 and went to Colorado, where, although he did not engage in professional work, he received the honorary degree of M.D. from the University of Denver. After returning to England he practised for some years at S. Godstone, Surrey. When he finally retired from practice he occupied himself with research in London and Liverpool. His unselfish character made him beloved and trusted by all with whom he was brought in contact, and his professional skill and kindness of disposition made him very successful as a practitioner. Dr. Wright leaves one son, a surgeon in the Royal Navy.

DR. GEORGE VALENTINE, M.B., C.M.Glas., well known in Ayrshire as medical officer to the lighthouse-keepers on Ailsa Crag, died, aged 68, on February 15th in his home in Girvan, where he had been parochial medical officer for no less than forty-three years.

ALFRED BESWICK DARLING, M.B., Ch.B.Edin., D.P.H., died on February 20th in Edinburgh, where he had settled in practice after having held junior appointments in that city, and in Sheffield and Darlington. He graduated in 1906.

DR. GEORGE HENRY CHARLESWORTH, J.P., who died on February 8th, in Putney, aged 56, was the eldest son of Mr. Charlesworth of Syston, Leicestershire. He was educated at King's College and at Charing Cross Hospital. He was for many years district medical officer to the London County Council, and he was also honorary medical officer to the Actors' and Music Hall Artists' Associations. Dr. Charlesworth died deeply lamented by a large circle of friends, many of whom honoured his memory by attendance at his funeral at Syston on February 14th.

LIEUTENANT-COLONEL THOMAS HENRY WHITE, R.A.M.C. (ret.), died at Coolgardie, Caversham, on January 27th, aged 78. He took the degree of M.D. in the Royal University, Ireland, in 1858, and the diploma of L.R.C.S.I. in 1859, and entered the army as assistant surgeon on January 19th, 1860, becoming surgeon on January 19th, 1872, and surgeon-major on March 1st, 1875; he retired as brigade-surgeon on February 5th, 1890. The *Army List* assigns him no war service.

LIEUTENANT-COLONEL GEORGE FREDERICK WILLIAM BRAIDE, Bengal Medical Service, died suddenly at Lahore on January 6th. He was born on November 5th, 1862, educated at Owens College, Manchester, and in 1886 graduated M.B.Vict. Univ., and took the diploma of M.R.C.S. He entered the I.M.S. as surgeon on March 31st, 1887, became major on March 31st, 1899, and lieutenant-colonel on March 31st, 1907, and was placed on the selected list for promotion on August 25th, 1912. For the last nine years he had been Inspector-General of Prisons in the Punjab. The *Army List* assigns him no war service.

DEATHS IN THE PROFESSION ABROAD.—Among the members of the medical profession in foreign countries who have recently died are Dr. Isaac Ott, professor of physiology in the University of Pennsylvania, a former president of the American Neurological Society, and the author of several well-known textbooks on nerve diseases, aged 68; Dr. John O. Roe, of Rochester, New York, one of the leading laryngologists in the United States and a former president of the American Laryngological Association, aged 75; Dr. George P. Shears, clinical professor of obstetrics in the New York Polyclinic Medical School, aged 53; Dr. A. Alexander Smith, professor of the principles and practice of medicine and clinical medicine at the University and Bellevue Hospital Medical College, aged 69; Dr. W. P. Spratling, from 1894 to 1908 medical superintendent of the Craig Colony for Epileptics, Sonyea, New York, and later professor of physiology and nervous diseases in the College of Physicians and Surgeons, Baltimore, aged 52; Dr. Thuilié, formerly president of the Paris Municipal Council and vice-president of the Superior Council or the Assistance Publique, aged 84; and Dr. Vaillant, one of the members for Paris.

The Services.

EXCHANGE DESIRED.

CAPTAIN (November, 1914) in 2nd line Territorial Field Ambulance, at present stationed in Scotland, wishes to exchange with officer in Field Ambulance in France.—Address No. 1050, BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C.

Universities and Colleges.

NATIONAL UNIVERSITY OF IRELAND.

Special Medical Examinations.

THE Senate of the National University of Ireland has directed that the special examination for medical degrees to be held in June next shall be open only to candidates who, if qualified as a result of that examination, undertake to apply at once for commissions in the Indian Medical Service, the Royal Army Medical Corps, or the Naval Medical Service.

ROYAL COLLEGE OF PHYSICIANS OF LONDON.

A COMMITTEE was held on March 7th, Dr. Frederick Taylor, the President, being in the chair.

A letter was received from the Council of the Royal Society with reference to the establishment of a Conjoint Board of Scientific Societies for the purpose of promoting the co-operation of those interested in pure or applied science, and asking the College to nominate two representatives to meet the Council of the Royal Society at a conference to be called at an early date. The President was asked to nominate two Fellows to act as representatives.

The greater part of the time was occupied with the discussion of a subject which was declared to be "secreta Collegii."

APOTHECARIES' HALL OF IRELAND.

THE Court of Directors has adopted a resolution placing on record its regret at the death in action of Captain Seymour Sritch, an ex governor, as announced in the BRITISH MEDICAL JOURNAL of February 19th, p. 288, and expressing its sympathy with his widow and relatives.

Medical News.

At the meeting of the Royal Microscopical Society on Wednesday next, at 8 p.m., Professor J. Arthur Thomson will speak on original factors in evolution, and Sir E. Ray Lankester on the supposed exhibition of purpose and intelligence by the foraminifera.

At the meeting of the Medical Society of London on March 20th, at 8.30 p.m., a discussion on gunshot wounds of the spine will be introduced by Captain James Collier and Lieutenant-Colonel Donald Amour, F.R.C.S., who will deal respectively with the medical and surgical aspects of the subject.

THE Italian Government has decided to grant official recognition to the national factory of artificial limbs for men who have been maimed in the war, recently established at Milan with a capital of £8,000 collected by a committee for the purpose of supply orthopaedic apparatus at cost price.

It is announced that Harvard University proposes to establish a course of military medicine in its graduate medical school. It is to be under the charge of Major Weston P. Chamberlain of the United States Army.

At the annual meeting of the governors of Queen Charlotte's Hospital it was reported that since the outbreak of war over 1,600 wives of soldiers and sailors had been admitted to the wards of the hospital or attended and nursed in their own homes at a cost to the hospital of nearly £3,000.

THE Bureau of the American Census, in a report recently issued, states that the number of suicides recorded in the United States in 1914 was 10,933, or 16 per 100,000 of population. In 3,286 cases death was caused by shooting, in 3,000 by poisoning, in 1,552 by hanging or strangulation, in 1,419 by asphyxia, in 658 by the use of knives or other cutting or piercing instruments, in 619 by drowning, in 225 by jumping from high places, in 89 by crushing, and in 85 by other methods.

DR. W. W. KLEN, of Philadelphia, Emeritus Professor of Surgery in Jefferson Medical College, has been re-elected President of the American Philosophical Society for 1916.

THE supply of vehicles has run so short in Vienna that the work of medical men, particularly by night, has been greatly embarrassed. The Viennese doctors, with the help of the police, clubbed together and secured one motor car, to be kept ready all night at the disposal of the medical profession in a central garage. But even this modest provision appears to have proved very costly.

THE Cavendish Electrical Company (105, Great Portland Street, London, W.) has issued a pamphlet on the equipment of the electrical department of a military hospital or convalescent camp, a matter on which the company has had considerable experience. The pamphlet contains illustrated accounts of a large variety of apparatus.

ON March 1st a goodly company assembled at Dr. Williams's Library, University Hall, W.C., for the annual meeting of the Mental After-Care Association. After a few opening remarks from the Dean of Westminster (Bishop Ryle), who presided, the report for 1915 was read and proposed for adoption by Dr. Henry Kayner, the chairman of Council. It showed that in spite of the war the work of the association had been actively carried on; 379 cases had applied for assistance, which was afforded, to all found suitable, in the way of supplying temporary homes on leaving asylum care, grants of clothing and of tools, as well as attention to health, and finding situations for which they were fitted. The strongest evidence of the utility of the charity was, however, afforded by the prevention of relapses. The resignation, through ill health, of Mr. Thornhill Roxby, after twenty-eight years' strenuous and sympathetic work as secretary, was regretfully alluded to. Miss E. D. Vickers, who has had long experience as assistant and acting secretary, has been appointed in his place. The receipts from all sources during 1915 amounted to £1,370 6s. 8d., and, though subscriptions had only slightly fallen off during the war, there was need for fresh efforts to meet adequately the calls on the association. The trustees of the Queen Adelaide Fund had arranged to secure the co-operation of the association in investigating the conditions of patients discharged from the London County Council asylums in view of a grant from that fund, and this will eventually mean a largely increased scope of work. The adoption of the report was seconded by Dr. Percy Smith, supported by Mr. Goodrich, L.C.C., and carried, as was the financial statement.

Letters, Notes, and Answers.

THE telegraphic addresses of the British Medical Association and JOURNAL are: (1) EDITOR of the BRITISH MEDICAL JOURNAL, *Atiology, Westrand, London*; telephone, 2631, Gerrard. (2) FINANCIAL SECRETARY AND BUSINESS MANAGER (advertisements, etc.), *Articulate, Westrand, London*; telephone, 2630, Gerrard. (3) MEDICAL SECRETARY, *Medisera, Westrand, London*; telephone, 2634, Gerrard. The address of the Irish office of the British Medical Association is 16, South Frederick Street, Dublin.

Queries, answers, and communications relating to subjects to which special departments of the BRITISH MEDICAL JOURNAL are devoted will be found under their respective headings.

LETTERS, NOTES, ETC.

EPSOM COLLEGE.

ON October 16th, 1909, Dr. John Herbert Wells, of the Inoculation Department of St. Mary's Hospital, died after eighteen months of suffering from glanders contracted in the laboratory in the course of a research on the treatment of that disease. He was only 30 at the time of his death, and left a widow and two young children almost totally unprovided for. His son, John Clayworth Spencer Wells, aged 8, is a candidate for a foundation scholarship at Epsom College at the 1916 election. The case seems to us an exceptionally deserving one in view of the fact that the boy's father died a martyr to science. We may add that it is strongly supported by Lord Moulton, Lord Ribblesdale, Mr. Arthur Balfour, Sir Almoth Wright, and Sir W. Arbuthnot Lane.

TRENCH NEPHRITIS.

DR. J. C. MCWALTER (Dublin) writes: There is some reason to think, I submit, that epidemic nephritis or trench nephritis is a renal manifestation of a paratyphoid affection. None of the British experts seem to favor this view, but it has lately been advocated by observers in Vienna. What are the known facts? An inflammatory affection of the kidneys is suddenly found to attack a large number of previously healthy men under 40. They present two characteristics differentiating them from other men of the same class: they live in trenches, and they have all been inoculated against enteric fever. In former campaigns, as in Africa, men, mostly not inoculated, developed enteric under like conditions. Typhoid is comparatively rare in the present campaign, but there are various paratyphoid conditions prevalent. Osler states that there is a renal form of typhoid. I have found bacilluria present in epidemic nephritis long after the original attack.

MAGNESIUM SULPHATE LOTION IN CELLULITIS.

LIEUTENANT S. A. B. PAYMASTER, I.M.S., Cameroons Expeditionary Force, writes that from the beginning of the war he has used a lotion of supersaturated solution of magnesium sulphate (35 grains to an ounce of cold water) with remarkable results in lymphangitis, cellulitis, erysipelas (especially of cellulocutaneous type), orchitis, epididymitis, and all other vague oedemas and swellings. The lotion is applied frequently. The pain, tenderness, and swelling markedly decrease from the first day and disappear in a few days.

ANA OBSTETRICA FOR THE CURIOUS.

TIRESIAS writes: At a distant farm in the weald of Kent the other day I learnt that the father of my patient was one of a family of twenty-two children, most of whom survive. On the way home my chauffeur (a native of the part) told me of an old lady in the town near that used to say she had had twice two and twenty children, explaining the riddle by the remark that she had had twenty-two straight on; one died and then she had another, thus having twenty-two twice over. More than forty years ago, in a town in the West Riding, an old lady I met at a confinement also told me she had had twice two and twenty children. Her solution was different—twins twice and twenty after had been the order of the arrows in her quiverful, but she added that very few of them were at that time alive. At a maternity case the other day the mother assured me that she was one out of nineteen, fifteen of whom still survive.

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

	2 s. d.
Seven lines and under	0 5 0
Each additional line	0 0 8
A whole column	3 10 0
A page	10 0 0

An average line contains six words.

All remittances by Post Office Orders must be made payable to the British Medical Association at the General Post Office, London. No responsibility will be accepted for any such remittance not so safeguarded.

Advertisements should be delivered, addressed to the Manager, 429, Strand, London, not later than the first post on Wednesday morning preceding publication, and, if not paid for at the time, should be accompanied by a reference.

NOTE.—It is against the rules of the Post Office to receive *postes restantes* letters addressed either in initials or numbers.

A Clinical Lecture

ON

THE IMPORTANCE OF GENERAL PRINCIPLES IN MILITARY SURGERY.

DELIVERED AT THE ROYAL VICTORIA INFIRMARY,
NEWCASTLE-UPON-TYNE.

By G. GREY TURNER, MAJOR R.A.M.C.(T.F.),
FIRST NORTHERN GENERAL HOSPITAL.

I HAVE chosen this subject because many of you will before long enter the service of your country as military surgeons, and because the application of principles to practice is a most useful lesson for us all.

The military hospital with which I am associated is situated in a district in which there has always been a big garrison, and much of my work has been concerned with the ordinary surgical ailments arising among any large body of men, and some special troubles connected with the training of the soldier. The latter is a matter which will repay review, and with which I hope to deal at another time. To-day we are only concerned with the wounded returned from Flanders or the Dardanelles—the "overseas cases," as they have come to be known.

To many of us the work of this campaign has been our only experience of military surgery, and at first we were mainly impressed by its novelty. One was led to adopt this attitude by the fact that military surgery is commonly spoken of as apart from everyday surgery. Books are specially written on military surgery; colleges are set apart for its study, and in the old days at our own school there was a professor of military surgery. However, it was not long before I learnt that the principles which underlie surgical practice in general are exactly the same as those which govern the injuries met with as the result of modern firearms. In nearly all the reports from the seat of war the need of guidance by general principles is being recognized.

The peculiarities which undoubtedly exist are due to the nature of the weapons and to the conditions under which the wounds are received, and in which the injured man has to exist for some time afterwards. In other words, it is a question of environment rather than any inherent peculiarity in the wounds themselves.

The Treatment of Wounds in War.

It has been said that antiseptics in war surgery are of no value, and some have gone so far as to infer that antiseptics are therefore useless in general. Many things have been learnt and much excellent work has been done, but nothing that has upset the principles laid down by Lister with regard to the treatment of wounds. It is true that when the men reach the base or a hospital in England the greater proportion of the wounds are infected, but this is largely a question of environment. Owing to the ghastly nature of modern warfare the wounded may have to lie for many hours—men have spoken to me of lying for days—before they can receive any attention whatever, and the range of modern artillery is so great that the attention they then receive is only of the nature of first aid, for it is impossible at the dressing stations to do more; and it may be only after he has reached the clearing station, situated eight or ten miles behind the firing line, that his wounds can have anything like adequate attention. Even in these latter hospitals, after a big action, when large numbers of wounded pass through, it is only very few that can be dealt with as adequately as the principles of wound treatment demand.

Then again the wounds are often inflicted under filthy conditions, for the clothing may have been worn for many days or even weeks, and is nearly always soiled with earth which has been richly manured and highly cultivated for years, and which is found to be teeming with organisms. In these circumstances the possibilities of sepsis are infinite. Further, the nature of the wounds themselves renders proper antiseptic treatment difficult, for they are often irregular, with numerous pockets and side channels, and frequently contain foreign bodies which in their turn carry into the depths parts of the clothing or equipment. I know, as the result of the experience of men from our

own school, that when war wounds come under observation before the organisms have actually begun to multiply in the tissues, that is to say, within six or in some cases even twelve hours, then such wounds can be so treated with antiseptics that they do not become grossly infected, and heal much as wounds so treated would heal at home.*

The nature of many of the wounds, especially those produced by shells, makes them exceedingly difficult to cleanse even under the best possible circumstances, and to deal thoroughly with some such would be quite a major operation taking a considerable time. I am afraid that unless the body can be protected against sepsis by some means without local interference, then we must always be unwelcome witnesses to the septic infection of a certain proportion of wounds sustained in warfare. Lister always admitted that the antiseptic treatment of wounds was of more prophylactic than therapeutic value. What is now wanted is some plan to deal with infection when once started, and along these lines much useful work is being done.

Practically all the wounds that have reached us have been septic, and nothing has given me more satisfaction than the way they have healed when treated by the ordinary antiseptic plan as carried out in this hospital. For wounds already infected we largely rely on boracic fomentations, gauze wrung out of 1 in 1,000, mercury perchloride and used moist, or a solution of the same strength made with methylated spirit, and at times irrigation with solutions of hydrogen peroxide, or iodine water. One or two cases have been disappointing, but the great majority have done splendidly so far as wound healing is concerned. In the process of healing there are many stages, and the plan may have to be altered from time to time during the progress of the case, and other adjuncts to recovery must be employed.

Drainage.

All who have had to deal with the wounded are insistent on the importance of drainage, and when one considers the undermining of the tissues, the masses of broken-down material that must be cast off by a suppurative process, and the pockets and side channels which so frequently occur, it is easy to understand the necessity of providing a free outlet for discharges.

The method of drainage is important, and though tubes are undoubtedly the best means, there are abuses and dangers associated with them which we have learnt in the surgery of civil life to avoid. Tubes ought not to be too big. They should be removed the moment they have served their purpose, and it is especially important that they should not be placed in the neighbourhood of blood vessels, for in the presence of sepsis tubes are capable of producing erosion of the latter leading to very serious hæmorrhage.

Counter openings are very useful, and cannot always be superseded by the use of tubes.

Quite recently I had to deal with a case in which a subcutaneous laceration had been produced extending down the whole of the length of the outer part of the thigh. The torn muscles were infected and sloughing, and the patient was exceedingly ill. From a point near the trochanter a large tube, nearly a foot long, had been introduced throughout the whole length of the wound, but it was for the most part merely acting as a foreign body. The necessary requirements for the exit of discharges were met by making a series of counter openings through which much shorter tubes were introduced, and thus efficient drainage provided.

This is an extreme instance, but the necessity of providing counter openings should always be borne in mind. I would also draw attention to the importance of position as an aid to drainage, and I was especially impressed by this in the following cases:

A lad had been wounded through the leg and foot. The bullet entered about the middle of the inner aspect of the tibia and found an exit through the middle of the sole, "blowing out" quite a large focus from the bones which had been traversed. In consequence there was a large funnel-shaped wound, with the apex in the tibia and the base in the sole. The condition was grossly infected, and there was a copious discharge of pus. In spite of free drainage, frequent dressings, passive congestion, and the use of sedatives, he was constantly in severe pain as he lay with his foot propped up on a pillow.

* Since this was written, the value of antiseptics in "wounds in war" has been endorsed by Sir Anthony Bowlby in his recent Bradshaw Lecture (see BRITISH MEDICAL JOURNAL, December 25th, 1915).

At this stage the case was seen by my friend, the Rev. Robert Stirling (now a lieutenant in the Royal Army Medical Corps), whose experience of gunshot wounds sustained in the civil life of the Holy Land makes his advice especially valuable at the present time. He suggested that the pillow should be removed and the head end of the bed raised so that the discharge could constantly run out of the wound. The effect was very striking, for pain immediately ceased and recovery was greatly aided.

A similar condition occurred in the humerus in a case in which the wound of exit lay over the head of that bone. This man kept developing secondary abscesses halfway down the arm in spite of a tube introduced right into the medullary cavity. When the foot of the bed was kept raised so that gravity aided the escape of pus, this trouble was got over and recovery was much hastened. In this case a counter-opening about the middle of the arm might have served the same purpose had not the simpler plan succeeded.

Another principle which we have relearnt during the last few years is the importance of fresh air in combating infections. This was well known to our forefathers, and in his delightful account of Alanson of Liverpool my friend, R. W. Murray, shows how that surgeon insisted upon it one hundred and thirty-six years ago. Though employed principally in connexion with tubercle, its usefulness is not limited to the ravages of any particular organism. My septic cases have improved enormously when kept on the balcony or in open tents both day and night, and I believe that no single factor has been of more benefit to patients poisoned with sepsis than the free use of the open air. An illustrative story will suggest to you what happens in these circumstances. Two practitioner friends met in the street. In response to an inquiry Dr. P. said he was sorry to confess that he had a case of puerperal sepsis. Dr. M. inquired how the case was getting on, and was interested to hear that it was progressing favourably towards recovery. Curiosity being stimulated, Dr. M. next asked how the patient was being treated, and was informed that she was having antistreptococcic serum. He remarked on the great expense of the treatment, to which Dr. P. replied that it was costing nothing, for the patient was manufacturing the serum herself!

There is a wealth of meaning in this story, for there can be no doubt that if by fresh air, good food, etc., you can help the patients to make their own antitoxins, they will do it more surely and much more safely than you can possibly do it for them. But it must not be thought that I do not believe in the use of artificially prepared antitoxins, etc. I have to regret three instances of death from septicaemia in both its acute and chronic forms, which I cannot help feeling might have been cured by some form of antitoxin or vaccine had we been sufficiently informed to know exactly what strain was required. Antitoxins and vaccines for the cure of surgical sepsis undoubtedly occupy an important place, but at present it is far behind the other measures which we can employ.

Fig. 1 shows some large sequestra I removed recently from the ilium. The patient was a soldier, aged 39, who was wounded

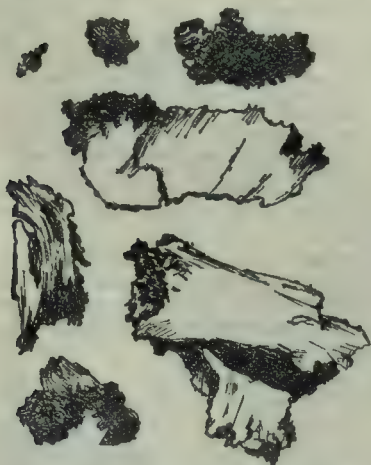


FIG. 1.—Separated and necrose¹ fragments from a case of gunshot wound of the pelvis.

generally felt ill and miserable. There was a large sinus over the centre of the ilium, in the position of the exit wound, from which flowed a copious discharge of offensive pus, and at the bottom bare bone could be felt. Here, then, was a man presenting all the signs of a chronic intoxication from

sepsis. He had been carefully treated in hospitals in France and at home, but absorption still continued. With careful dressing and feeding he certainly improved a little, but not much; at the end of a fortnight he was much as before, and with a not very hopeful outlook on life. As about six months had elapsed since the infliction of the injury I judged that there would be good formation of new bone, and that the sequestra might safely be removed. The fragments shown were extracted under anaesthesia and the cavity left, which was almost big enough to hold the fist, was packed with gauze soaked in turpentine. The improvement was immediate and remarkable, for his whole temperament appeared to change, and he became bright and cheerful, and has made a splendid recovery.

I quote this case to show the importance of removing a septic focus. It is a principle in surgery which is apt to be forgotten that all the gross sources of sepsis ought first to be dealt with before falling back on vaccines, etc. It is largely a question of proportion or perspective, and the great thing is to remember first to remove the cause as far as possible, and then to adopt the other measures in the order in which they may be expected to do the most good.

When we come to the question of serum-therapy in prophylaxis we are on very hopeful ground. Last session I spoke on this matter in connexion with the prevention of tetanus,¹ and now I am glad to say that for many months past we have scarcely had a single case, due to the fact that the wounded men are all getting a prophylactic dose of antitetanic serum. The importance of this measure was very well illustrated by the experience of my colleague, Captain Heslop. In one batch of 32 wounded admitted to his wards only one man had not had a dose of antitetanic serum, and he developed acute tetanus on the twelfth day. It proved fatal in thirty-six hours.

Latent Sepsis and the Recrudescence of Sepsis in Healed Wounds.

That septic organisms often lie dormant in war wounds has frequently been illustrated, and has been remarked by most surgeons. One often sees cases of gunshot wounds in which the patient goes on perfectly well for two or three weeks, and then without any demonstrable cause there is an outburst of sepsis. It may take the form of local inflammation only, but there is often cellulitis, lymphangitis, and grave constitutional disturbance due to absorption (sæpæmia), or to the presence of the actual organisms in the circulating blood (septicaemia). The condition is not always a relapse, for the manifestation may be much worse than any primary septic trouble, and it is not necessarily due to the introduction of fresh infection because it can occur with healed wounds and without any breach of the surface. I have frequently noticed it after the amputation of fingers shattered by gun fire, and it may occur as the result of massage or the movement of previously infected joints. Sometimes tetanus has been lighted up in this way, though I have not myself seen it. As bearing on this problem, it is well to remember that the organisms of tetanus and gas gangrene have been found in gunshot wounds without either of these diseases resulting. It is, then, reasonable to suppose that they may get locked up in the tissues only to give rise to their specific infections when conditions for their development are more favourable. That organisms or their spores may survive for long periods is proved by the case of a Belgian who was under my care in October, 1914, with multiple shrapnel wounds of the arm. Six weeks after the casualty he developed symptoms suggestive of tetanus, but they were very mild, and I always doubted the diagnosis. Exactly twelve months afterwards he developed typical tetanus and passed through a long illness with dangerous exacerbations. The most serious instance I have come across is the following:

A corporal was admitted to the military hospital on July 30th with numerous small wounds on both legs, the result of a bursting shell. The wounds were not looked upon as serious, and there was only a little irregular pyrexia, the temperature never rising above 100° F., nor was the pulse ever above 80. The wounds soon became healthy granulating sores, and the patient was getting on so satisfactorily that he was up and walking about. On August 27th he went out without his great-coat, staying out of doors for a considerable time. He felt cold and poorly at night, and next day had a rigor. The right leg became swollen and painful, presenting the signs of severe cellulitis with lymphangitis and enlarged groin glands. Symptoms of severe general infection rapidly developed, with a temperature of 103° F., rising to 104°, and on the day of his death—a week after the onset—reaching 106°. Post-mortem examination showed evidences of death from general septicaemia without any other cause than the wounds on the legs.

These conditions are certainly very striking, though not peculiar to war surgery, and there must be some general principle involved. Many years ago, when on a voyage from the Gulf of Bothnia, I sustained a scratch over the right elbow in the course of my efforts to help the crew to right a cargo of iron ore in anticipation of the severe weather which followed. I thought nothing of it at the time, but, on arrival at home about a week later, developed severe cellulitis; it was very painful, made me feel quite ill, and had to be incised. In the course of two or three weeks everything seemed all right again, and I had no further trouble until exactly twelve months later, when, without any reason which I could assign, the cellulitis recurred, and was sufficiently bad to require a further incision just by the side of the old one. The following is a brief note of a case occurring in a soldier, which illustrates the same thing:

A man was wounded on April 25th, 1915, a small fragment of shrapnel lodging in the neighbourhood of the knuckle of the ring finger of the left hand. It was only a very slight wound, and, after removal of the fragment, it healed in three days. He thought nothing of it, although occasionally the place ached a little.

Some time after this a high-explosive shell burst close to him, and he was invalided home with shell concussion. August and September were spent in the country, and on September 25th, when in splendid general health, the injured finger suddenly swelled up and became very painful, while the pain went up his arm and the glands in the axilla became enlarged. There was a little local infection, a small abscess bursting and discharging. There was no sign of any foreign body. After a few days the whole thing cleared up, and he was all right again.

The Reopening of Healed Wounds.

Another trouble which is sometimes spoken of as if peculiar to war wounds is the breaking down of a scar apparently completely consolidated, but in these cases there is often a definite and tangible cause.

A soldier was wounded on May 16th as the result of the bursting of a hand grenade. He sustained a shattered fracture of the lower end of the ulna, and some portions of shrapnel were removed. On May 25th he was admitted to the 1st Northern General Hospital with a healthy granulating wound which was apparently soundly healed at the end of a month. He was sent to a convalescent home, but he had not been there long before the wound broke down and discharged. It again healed and was apparently all right when the same trouble recurred and delayed his return to duty. At the end of eight weeks the wound was apparently perfectly sound, and after inspection by an experienced surgeon he was marked for sick furlough and return to duty, but on the day on which he was to leave the home the wound again commenced to discharge, and he was readmitted to the 1st Northern General Hospital. An x-ray photograph showed there was still some necrosis, and under an anaesthetic I found a small cavity which contained the sequestra shown in Fig. 2. After their removal the wound healed from the bottom and gave us no further concern.

Another similar case was due to a metallic foreign body:

A young private was wounded in May by the bursting of a hand grenade. The right knee, left leg, and left foot were each injured, and in France portions of casing were removed from all the wounds. They all healed soundly except that on the foot, which healed and broke down many times. After being in hospital four months, he was discharged with the wound healed, but ten days later it again reopened, and he was admitted to the 1st Northern General Hospital. He then presented a scar on the outer part of the dorsum of the left foot, with a small unhealed area at one end. No foreign body could be felt, but x-ray examination showed a metallic fragment imbedded in the os calcis. At the operation for its removal the foreign body was found imbedded in granulation tissue which was directly connected with the under surface of the scar.

Sinuses.

It is an established principle that a sinus is to be looked upon as a symptom and not a disease, and before any consideration of treatment it is necessary to diagnose its cause. It is common to see men wounded at the war who for some considerable time afterwards, when in perfect

general health, present a sinus, discharging more or less pus, and a local rather than a general inconvenience.

Sometimes a gross foreign body, such as a portion of projectile, is still *in situ*, but these are the simple cases not likely to be missed.

An example is that of a man who was wounded at the battle of the Aisne on September 13th, 1914. The bullet entered the upper part of the right thigh just above the trochanter. He was treated at various hospitals, and was finally given sick furlough for a month. During all this time the wound never completely healed, and on December 9th he was admitted to the 1st Northern General Hospital with a small sinus just above the trochanter on the right side. The x-ray photograph demonstrated a shrapnel bullet, and under an anaesthetic this could be easily felt, and was removed together with a portion of garment. The sinus promptly healed, and the patient was soon able to be discharged cured.

I have recently had the following case under my care:

A man of 22 was wounded in the right thigh by the bursting of a bomb on July 16th, 1915. A piece of casing was removed from the back of the thigh by a separate incision on July 24th. The wound made for the latter purpose healed almost at once, but the original wound continued to discharge, and he was admitted to the 1st Northern General Hospital on July 30th. The original wound was quite small, and was represented by a sinus which passed right across the thigh to the inner side. Nothing could be felt with the probe, and x-ray examination was entirely negative. The patient himself was perfectly well, but every now and then there was a considerable discharge of pus from his wound, which never completely healed. Rest with irrigations and suitable dressings certainly caused a diminution of the discharge but did nothing to obliterate the track, and on September 18th, under an anaesthetic, I explored, and after enlarging the external aperture removed a piece of clothing about an inch square, evidently a portion of the man's trouser. After this the sinus rapidly closed, and he had no further trouble.

Another frequent cause is the formation of a sequestrum; the number of sinuses due to this is very remarkable. In military surgery a very considerable injury to the deeper tissues may result with a very small wound of the superficial parts. Fig. 3 is drawn from an x-ray photograph of the femur, and Fig. 4 shows the sequestra subsequently removed, in the case of a man whose thigh was traversed by a bullet from front to back. The



FIG. 3.—Showing comminution and necrosis of the femur, the result of a bullet wound.

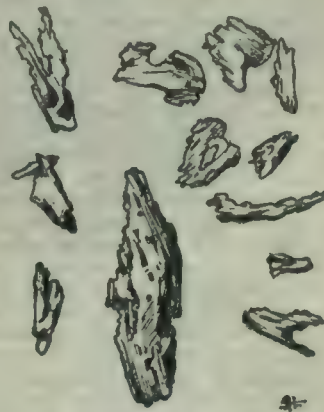


FIG. 4.—Sequestra removed from the same case as the preceding figure.

casualty happened on May 15th, and he came under my care on June 20th with a sinus leading down to the femur. On September 26th the sequestra (Fig. 4) were removed, after which the sinus began to heal.

Secondary Haemorrhage.

In connexion with this subject well-established surgical principles are constantly being exemplified, and it is interesting to know that these principles were first formulated as the result of the experiences of a great military surgeon—George James Guthrie—who gained his knowledge in the Peninsular wars, chiefly between 1808 and 1815, when he operated on many of the wounded from Waterloo. His *Commentaries on Surgery* will well repay

study at the present time. Guthrie showed conclusively that in cases of secondary haemorrhage the bleeding very often came from the distal end of the injured artery, and that it is therefore necessary to expose the artery at the site of the wound, and to tie both ends rather than adopt the plan of the proximal ligature which was the favourite method up to his time.

A very striking illustration of this principle was furnished by the following case:

A man was wounded by a bursting shell which ploughed up the tissues over Scarpa's triangle. The femoral had to be tied just below Poupart's ligament, and the patient was admitted under my care some days afterwards with gangrene of the leg and a deplorably septic wound all over the front of the thigh. I had scarcely left the hospital after seeing the case when I was hurried back on account of alarming haemorrhage. The patient was exceedingly ill, and had lost so much blood that I thought the ligature applied to the cut end of the femoral artery must have given way. As a matter of fact the bleeding was from the end of the profunda femoris, which was lying exposed in the wound, the parent trunk having sloughed away. This, then, was an excellent instance of secondary haemorrhage from the distal end, or rather a distal branch of a severed artery. Had the ordinary principles been neglected, and the external iliac artery ligatured, the haemorrhage would probably not have been arrested, or would have recurred owing to the freedom of the collateral circulation. Though the patient was exceedingly ill he rallied sufficiently to allow me to amputate the thigh a day or two later, and ultimately made a complete recovery.

On the Removal of Foreign Bodies and the Use of the Roentgen Rays.

You cannot see much of military surgery without being confronted with the problems connected with the removal of foreign bodies, nor will you be long without appreciating the enormous value of the *x* rays. Let me state very clearly the conclusions at which I have arrived as to the removal of foreign bodies from patients arriving at a base hospital at home.

I think that in the great majority of cases it is a wise thing to remove a foreign body if this can be done without running any grave risk so far as the life of the patient or the function of the affected part are concerned. We are constantly getting patients admitted to hospital whose wounds are healed and who have returned to duty, but who do not feel happy in their minds because of the knowledge of the presence of some extraneous foreign body in their anatomy. I find that it makes all the difference in the world to a man whether his foreign body is in his chest wall or his waistcoat pocket. It is, after all, a psychological matter in many cases, and if such a gross mechanical performance as a surgical operation can lift a permanent load from the patient's mind, then strong reasons are required before you should desist from your efforts. Certain principles must always be kept in mind. First, you must clearly recognize that if you cannot do good you have no business to run the risk of doing serious harm. Secondly, no one should undertake the removal of a foreign body without very careful consideration as to its exact position and relation to surrounding structures. An operation for its removal should never be carried out without an *x*-ray examination, because so often there are multiple foreign bodies or there are concomitant injuries to bones which can be dealt with at the same time. No attempt should be made to remove foreign bodies without careful localization unless they can be certainly felt near the surface. As the foreign body is always potentially a source of infection, the area from which it has been removed should always be drained.

I would also plead for the routine use of the *x* rays even in cases in which the foreign body can be felt, or in which the lesion, whatever it may be, is apparently perfectly obvious. It is wonderful how many revelations one gets, and often in cases in which the injuries have been apparently trivial. Let me tell you of the case represented in the diagram (Fig. 5) which I have made from an *x*-ray photograph.

This man was injured by shrapnel in the lower part of the right thigh. There was a small sinus on the outer side leading to a piece of metal, apparently quite close to the surface. A skiagram of the immediate vicinity only showed a foreign body lying just inside the cancellous tissue of the bone. The problem seemed very simple, and it looked as though the case was almost a trivial one, but on examination I discovered a large hard swelling in the upper part of the inner aspect of the thigh. It was smooth, hard, and scarcely tender, but there was a little increased heat. Had there been no question of injury it would

certainly at first give rise to the suspicion of a sarcoma, or it might have been an enormous gumma. However, an *x*-ray picture of the whole femur showed a crack extending from the point at which the foreign body was impacted half way up the shaft and then across the inner aspect of the bone, the mass being represented by a large amount of callus thrown out about the latter, and probably due to the fact that the patient had not had adequate rest, no serious injury to the bone being anticipated.

Instances of this kind are very common. I would only mention one.

An officer accidentally shot himself with his revolver. The bullet entered over the front of the tibia, 4 in. above the ankle-joint, and a very tender point just in front of the ankle-joint, and apparently not far under the skin, suggested the position of the missile; *x*-ray examination showed that the bullet had really traversed the tibia from just below the wound of entrance to its lower end, producing an amount of injury which would never have been suspected either from the symptoms or from any physical signs.

With regard to the actual removal of missiles I think we have retrogressed a little. In the old days when Nélaton's probe was invented the efforts of the surgeon were almost entirely limited to the removal of foreign bodies by way of the wound of entrance, and this is a method which is still sometimes exceedingly useful. If a foreign body can be easily felt with the probe, and if an *x*-ray examination confirms the position and the fact that it is single, then to remove it through the original track is often a simple matter, and I have several times been successful, especially with the round shrapnel bullets which were so frequent in the early days of the war. It is, of course, sometimes necessary to enlarge the wound of entrance and the aperture in the deep fascia, but nowadays we have the aid of anaesthesia which our forefathers lacked, and this greatly increases the scope of the measures with which they had to be content. If the wound of entrance and the track have healed, then it is often expedient to remove the foreign body by some shorter route, cutting on to it directly.

With deeply situated foreign bodies, and foreign bodies in inaccessible parts you cannot have too much information, and I would urge you never to attempt the removal of foreign bodies without an *x*-ray plate or plates as a guide. Very frequently the radiographer marks the site of the foreign body exactly, and gives an indication of its depth, but without the plate some important point may be missed which may have a great bearing on the success of the operation.

In a case in which a rifle bullet was embedded in a rib, the wound of entrance was on the surface of the back, and close to the point at which the bullet was seen to be lying by the screen. It was accurately localized, and I foolishly attempted to remove it without having seen a plate. To my great disappointment I failed to find the bullet, but at a second operation the knowledge that it was actually embedded in the rib made its removal quite easy.

In our *x*-ray department some simple devices have been found most useful. For instance, it has been observed that when a foreign body is near the surface it can easily be made to move by pressing over its site during a screen examination. We have also found a screwdriver used as a pointer very useful, and wires have been found of value in the localization of bullets in the chest and in the head.

Always beware of making ill-considered attempts to remove small foreign bodies embedded in muscular parts, and indeed they are of minor importance, because they are scarcely likely to give rise to much trouble in such situations.

At the beginning of the war and for some time afterwards foreign bodies in the chest were supposed to be in sacred ground, and patients were universally advised to have them left alone. Being impressed with the amount

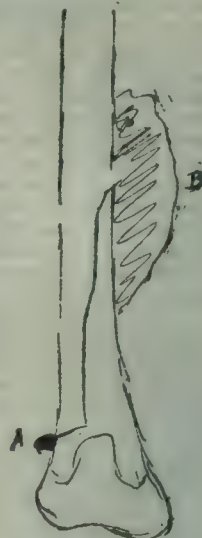


FIG. 5.—A diagram made from an *x*-ray photograph. A fragment of shrapnel was lodged at the point A, and there was a large mass of callus at B. The longitudinal fissure was only disclosed on *x*-ray examination, the injury having originally been looked upon as trivial.

of mental anguish which some of these men appeared to endure because of the knowledge that they had a foreign body in their lungs, I have now on four occasions deliberately opened the chest and removed bullets or shell casing, and in each case with complete recovery.

The Need of Ordinary Methods of Examination.

Nowadays, with so many special methods of examination at our disposal, we are all apt to forget the routine plans which have stood us in such good stead for so many years. I have indicated the extreme value I attach to *x* rays, but they should not be used to the exclusion of other and simpler methods of examination. These points were well illustrated in the following cases:

A man who had been wounded in the left side of the back complained of persistent pain on defaecation. There was no wound of exit, and a fruitless search had been made for the foreign body, the whole of the left side of the back and pelvis and all down the left thigh being *x*-rayed. When he came under my observation, in the course of routine examination I palpated the rectum, and found what I took to be the foreign body lying on the right side and within easy reach of the finger. The presence of a shrapnel bullet in this situation was confirmed by the *x* rays, and it was subsequently removed by an incision to the side of the coccyx, with complete relief to the symptoms.

In another case a rifle bullet which entered above the right hip was followed by some paresis of the limbs with retention of urine and incontinence of faeces. It was thought that the bullet had lodged somewhere in the spinal canal, but on careful examination with the screen it was disclosed on the outer side of the left thigh in a position in which it could easily be felt had we examined him systematically with a knowledge of the vagaries of bullet injuries in our minds.

In a similar case the bullet had entered in the middle of the left buttock, and could easily be felt lying just under the skin in the middle of the front of the right thigh.

In traversing wounds of the limbs it is remarkable how blood vessels and nerves can be missed, but it is most important never to assume that these structures have escaped, and to be constantly on the look-out for evidence of injury of nerve or blood vessel.

In civil practice it is unfortunately quite common to see paralysis of important nerves after wounds of the limbs have been dealt with and have healed satisfactorily, and it is well always to make it a rule to examine all the nerves that might possibly be injured. A dropped wrist or foot are usually very obvious, but a lesion of some other nerve with less characteristic symptoms may be overlooked. The same thing applies to the blood vessels, and in the case of a man who was wounded through the calf as well as in the head and knee it was only many weeks after the injury that a systematic examination disclosed a slight swelling of the limb together with a widespread purring hum, which was the only evidence of an arterio-venous aneurysm involving both the posterior tibial and peroneal arteries.

In dealing with possible blood vessel injuries it is also very necessary to re-examine the patients from time to time.

In one case a traumatic aneurysm gave no evidence of its presence until twenty-six days after the casualty. In another a man who was peppered with shrapnel on May 15th was sent to a convalescent home on June 12th, apparently making an excellent recovery from what was considered to be a trivial injury; on June 25th he suddenly developed a large pulsating swelling behind the knee, which proved to be a traumatic aneurysm of the popliteal artery.

The same need of careful examination is exemplified by injuries to the chest. These are commonly thought to be beyond the scope of surgery, and to merit very little attention, but they are all worthy of very careful examination from time to time, and for long intervals afterwards. This is well illustrated by the following case:

The man was shot on May 8th, 1915. The bullet entered in the centre of the sternum, just below the manubrium, but there was no wound of exit. He suffered from shortness of breath and pain in the chest, and for a time had a high temperature. These symptoms gradually improved, and in three weeks he was sent to England. On June 24th he was allowed to go home on sick furlough, and at the expiration of this time rejoined and started work at recruiting. He managed fairly well for a week, and then had to give up on account of shortness of breath. When admitted to the 1st Northern General Hospital careful examination showed very definite signs of an empyema at the left base, from which I removed the bullet; complete recovery followed.

In ordinary surgical practice the best diagnoses are made when time is taken to go carefully into the history, and the same rule applies to military surgery. This was borne out by the following case:

A man was admitted to the hospital because he was supposed to have a bullet in his lung. He had certainly been shot from behind, and had spat blood, but on going carefully into his history he volunteered the information that immediately after the injury he saw the end of the bullet sticking out of the front of the chest like a nipple, though the swelling which followed almost at once pushed the skin away, thus obscuring the protruding missile. In this case the bullet was found lying on an intercostal space just in the position described by the man, and from which it was removed with the greatest ease.

Gunshot Fractures.

In fractures due to injuries by firearms some special points ought always to be borne in mind. The injury to the bone very often bears no sort of relation to the size of the superficial wound, the extent of damage to the underlying muscles, or to the shock of the casualty. For instance, an injury due to a bullet may present only tiny wounds of entrance and exit, and yet the bone may be extensively comminuted; whereas in certain types of shell wounds all the soft tissues may be torn away, leaving the bones bare but uninjured.

Cracks and fissures* are exceedingly common and are frequently very extensive, the whole of the shaft being sometimes involved. With such injuries there may be no deformity, abnormal mobility, or want of alignment, and men may even walk or use the affected limb, and it may not be until there is an excessive amount of unexpected callus that the fracture becomes evident. These considerations make routine *x*-ray examination essential in estimating the amount of damage sustained by the bone. Such examinations are worthless, or nearly worthless, unless photographs are made in two planes.

Extensive comminution is the most characteristic feature of gunshot injuries of bone and may exist both with and without separation of the fragments. A bullet may pass through a bone making a regular trephine opening with or without complete fracture or comminution; or the foreign body may be lodged in the bone or in the neighbouring soft parts. When fragments are driven into the soft tissues they may produce very extensive wounds at the point of exit, and it is these cases which commonly give rise to the stories about the use of "dum-dum" bullets. Sometimes quite a mass of bone may be shot clean away, leaving a gap in the shaft. Splaying out of bone fragments about the track of the bullet is another common feature. The only safe rule is to suspect every case and to make routine use of the *x* rays. In the leg and forearm it is fortunately common to get a gunshot fracture of one bone only so that the other acts as a very good support.

The surgeon must always be on the look-out for concomitant injuries to vessels and especially nerves.

So far as the wounds are concerned, the same principles ought to guide us as in the treatment of compound fractures sustained in civil life. A most important point is to resist the temptation to remove loose fragments (Fig. 6), for there is abundant evidence in surgery to show that bone is the best stimulus to the formation of bone. It is impossible to say how much bone will live or die; that question can only be settled by Nature, and in almost every instance she spares more than one would expect (Figs. 3 and 4).

There is a great temptation to use plates and screws,

* A crack is a cleft whose sides are very near together and can hardly be seen; a fissure is a visible cleft, whose sides are widely separated.—DEFORME.

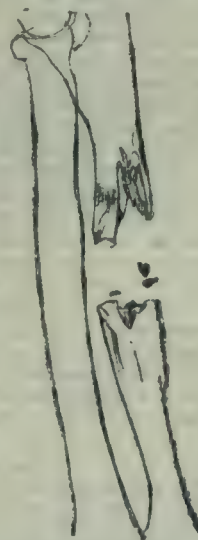


FIG. 6.—A gunshot fracture in which the comminuted fragments were removed. There was no sign of regeneration six months after the casualty. The gap was subsequently bridged by a bone graft.

but for my own part I have not yet made up my mind that this is good practice in compound fractures; and it will take a good deal of evidence to show that internal splinting is to be accepted as a principle in the treatment of gunshot injuries.

[In speaking of disabilities which might result, Major Grey Turner instanced the following cases:

A man was shot through both bones of the forearm; the fragments united in such a way that he was unable fully to supinate the hand, doubtless because more attention was paid to the wounds than to the position of the bones.

A man had a similar fracture at the junction of about the middle with the lower third of the radius (Fig. 7). In that case the same disability existed, but in an exaggerated degree.]



FIG. 7.—A gunshot fracture of the radius which had been allowed to unite with the hand in the prone position.

It does not much matter how the arm is put up to secure this full supination. It is not a question of some special splint or piece of apparatus but of a principle which must be borne in mind. Personally, I prefer to use two straight splints made of gooching and extending from just below the shoulder to the extremity of the metacarpus. The fixation of the splint to the upper arm secures complete supination of the forearm.

The same thing applies in the case of those fractures at the lower end of the femur in which there is backward displacement, as in the supracondyloid fracture of civil life. The displacement must be met by flexion of the knee; neglect of this precaution, though it may not interfere with union, often gives rise to a very crippling amount of disability in the movement of the joint. Similarly, gunshot fractures of the upper end of the femur ought to be treated with the limb abducted if the best results are to be obtained.

In most cases the principle of extension must be employed, and this more so than in civil life, because so often there is great shattering of the bone or actual loss of substance. To carry this out in the lower limb often causes much trouble, and a great deal of ingenuity has been exercised in the manufacture of apparatus for this purpose. In the upper limb the problem is simpler, and for fractures the weight of the limb can usually be relied upon to secure the necessary amount of extension, and with excellent results. Most of my cases of gunshot fracture of the humerus are treated by suspending the wrist in a short sling, sometimes with the addition of pieces of gooching applied over the seat of fracture and fixed to the chest with a circular bandage.

Bones require rest and time for their repair, and this is especially important in military surgery, where the presence of sepsis so often delays union. Aching and tenderness at the site of the fracture are sure signs that repair is not yet complete and equally certain guides to the necessity of further rest.

Injuries to Joints.

The surprising way in which many of these injuries recover with a good range of movement has frequently been a matter for comment, but nevertheless all cases do not end so favourably. Since it is usually impossible to tell at an early stage of the case whether or not ankylosis will occur, it is very important to deal with these cases in such a way that should such an untoward result follow the limb will be in a useful position. This rule should always be followed whatever the cause of the joint injury, but it is especially exemplified by numbers of cases met with in military practice.

[Major Grey Turner instanced the case of a man who sustained a bullet wound through the elbow-joint, followed by severe sepsis; the arm was treated at a right angle, and, as ankylosis followed, the usefulness of the limb was much interfered with.]

Injuries of the elbow-joint should be treated in a position midway between a right angle and full flexion, for this is certainly the most useful should ankylosis occur. It is then easy to reach the mouth, to brush the hair, to get at the coat pockets, and so on. Such a condition may subsequently be treated by arthroplasty, but it may be that the patient will not submit to any interference or there may be some other reason why it should not be carried out, and therefore it is imperative to treat these joints in the most useful position at the outset. This applies equally to the wrist, for should it become ankylosed neither excision nor arthroplasty gives any certainty of a good result. Cases with shattered joints, such as that shown in Fig. 8, should be put up in the dorsiflexed position, for then the grasp is strong and the hand very useful. If ankylosis takes place with the wrist slightly flexed, as so often occurs, the grasp is very weak indeed. It is easy to test this matter for yourselves, and you will be surprised at the difference the position makes to the usefulness of the hand. If the shoulder is the joint affected the arm should be kept fully abducted, for this materially increases the range of movement obtained through the scapula, and also prevents the annoyance of the arm constantly rubbing against the side.



FIG. 8.—Shattering of the carpus and adjoining parts the result of a gunshot wound. A case to be treated in the dorsiflexed position.

The hip should be slightly flexed and abducted. When the knee is the joint affected it should be kept just a little flexed, while in cases of great destruction of that joint it is most important to prevent the outward and backward displacement which is so apt to occur. When the ankle is involved the foot should be slightly pointed, for this much diminishes the loss of elasticity which a fixed ankle-joint entails.

What has been said about the length of time necessary for recovery in fractures and about the significance of persistent tenderness especially applies in cases of joint injury. My experience has taught me that "more rest and less massage" is a very sound axiom in dealing with joints that have one time been infected. If John Hilton, the gifted author of *Rest and Pain*, could but revisit this globe, he would be delighted to find that the principles he so wisely upheld have stood the test of time.

Injuries to Nerves.

There is great need of care in the treatment of paralysed parts, especially to keep the muscles, whose nerve supply is cut off, in a state of relaxation, so that the recovering nerve will not find them so overstretched that much valuable time is wasted in "taking up the slack." This is best illustrated by a reference to musculo-spiral paralysis, where the dropped hand means harmful stretching of the extensor tendons, easily provided against by the wearing of a simple straight forearm splint during recovery.

The Psychological Factor in War Surgery.

The influence of mind over body is an important factor which is well recognized by all who have to deal with the sick, and it is especially so in our military work. Here we are dealing with men who are frequently a very long way from home and friends; who have suffered the fatigue of war and have often for the first time been introduced to many of the horrors that follow in its wake. These men are not normal in mind—there is often a temporary loss of balance, and it is a wonderful commentary on the amount of backbone possessed by our nation that the wounded are so constantly cheerful and bright in spite of their great trials. But it is most important to recognize this aspect of the matter, and it says much for the wisdom of the authorities that so far as possible they arrange for wounded men to be sent home to England as soon as they are fit to

travel. To be once again in their home-country and within reach of friends does much to help recovery in bad cases. Similarly, the bright surroundings of our hospitals are valuable therapeutic agents, and they ought to be aided by a cheery optimism which I think it will not be difficult for any of you to cultivate. Always remember that one of the most valuable and cheapest remedies we possess is hope.

REFERENCE.

¹ *Durham University College of Medicine Gazette*, December, 1914.

FURTHER NOTES ON PROTOZOAN INFECTIONS OCCURRING AT THE KING GEORGE HOSPITAL.

BY

H. M. WOODCOCK, AND W. J. PENFOLD,

D.Sc.,

M.B., D.P.H.

(From the Bacteriological Department, the King George Hospital, Waterloo, S.E.)

DURING the last six months the faeces of altogether 384 different cases have been examined for protozoan parasites. The findings obtained are set out in the following table, from which it will be seen that 98 cases have shown one, sometimes more than one, of the protozoa tabulated; the proportion of positives is 25.5 per cent. of the whole. *Blastocystis* has been omitted; if this form had also been included, the total would have been considerably greater. We have omitted it, however, not because we do not consider it a protozoan, but because it occurs so generally that we have ceased to record it in the ledgers; in nearly all the stools, although no other parasite may be present, a few *Blastocystis* individuals can be found if particularly looked for. Certainly as a general rule this organism does not appear to have the slightest pathogenic effects. The only case in which it was apparently the cause of diarrhoea has been that referred to in a previous note;¹ from this patient no other pathogenic organism was recovered.

Table of Cases Examined, showing those Infected with Protozoa.
(Total Cases, 384.)

	No. of Cases.	Percentage of Total.	Percentage of Positives.
Infected with Protozoa ...	98	25.5	
FLAGELLATES:			
<i>Lamblia</i> ...	22	5.7	22.4
<i>Trichomonas</i> ...	14	3.6	14.3
<i>Macrostoma</i> ...	11	2.8	11.2
ENTAMOEBAE:			
<i>E. coli</i> ...	57	14.8	57.1
<i>E. histolytica</i> ..	1	1.0	1.3
Coccidia:			
<i>Isospora</i> ...	10	2.6	10.2

* This is inclusive of one case of liver abscess, in which the parasites were recovered only from the wall of the abscess.

Nearly all the cases have been examined, of course, two or three times, often more. With rare exceptions, the first examination has revealed the presence of the particular parasite (or parasites) occurring; in one or two cases of a very scanty *E. coli* infection the cysts have been noticed first at the second time of examination. Practically all the infections have occurred in men who had been at Alexandria (or elsewhere in Egypt) and Gallipoli; a *Lamblia* infection was found, however, in a patient who had been only on the French front; this man had in all probability contracted the infection from association either with French colonial troops or with Indian regiments. A case of relapse of amoebic dysentery, after a long interval, occurring in France is noted below. As has been pointed out recently by Ledingham and Penfold,² we have not obtained any definite indication of a relation between the occurrence of bacillary dysentery or typhoid disease and the presence of a protozoan infection in the intestine.

From the table it will be seen that *E. coli* has proved the commonest of the parasites enumerated, occurring in 14.8 per cent. of the total number of cases and in more than half of the total positives. *Lamblia* has been the next

most frequent, but this form has been found in only 5.7 per cent. of the total number of cases. The other flagellates have been less frequent. The view taken by one of us in a preceding note with regard to the coccidian found, in which it was considered to be probably an *Isospora*, has been fully confirmed by Wenyon.³ The coccidian of the genus *Coccidium* itself, which has since been found by Wenyon,⁴ has not been seen in any of our cases. (It may be pointed out that *Coccidium* differs from *Isospora* in forming 4 spores in the cyst (oocyst), instead of 2, as in *Isospora*; but, on the other hand, the former genus has only 2 sporozoites (germs) in each spore (or sporocyst), instead of 4, as in the latter.) In all the 10 cases in which *Isospora* has occurred the number of the parasites in the faeces has been scanty, and there has been no sign of pathogenicity in connexion with their presence.

AMOEBIC DYSENTERY (AND LIVER ABSCESS).

The *Entamoeba* of amoebic dysentery and liver abscess, generally regarded as *E. histolytica*, has been found, in one form or another, in 8 cases, all of these occurring since our first note was published. Certain of these cases are worthy of brief mention.

Convalescent Amoebic Dysentery.

Case 1.—The patient gave no agglutination reaction to Shiga's bacillus. On two occasions, in loose brown stools (after a saline purge), scanty, active *histolytica* forms, of typical character and with one or two containing red blood cells, were found. No cysts were seen and later examinations were entirely negative, both as regards active forms and cysts. This patient had received daily emetine injections for a week prior to the first observation of the amoebae.

Liver Abscess.

Case 2.—The patient had chronic diarrhoea and the stools were usually thin and clayey-yellow in colour. In the first stool examined numerous *Trichomonas* were present; these parasites were also found subsequently, but only once, for some reason or other, although the stools were well examined several times. On no occasion were *Entamoebae* found, whether *histolytica* or *coli*, either active or encysted. Nevertheless, from the wall of the abscess typical active forms of *histolytica* were obtained. It may be pointed out that the blood count of this patient showed no leucocytosis.

In the remaining cases cysts only have been found (up to the present).

No History of Dysentery.

Cases 4 and 8.—These cases are instructive because no history of true dysentery can be elicited. In Case 4 the patient gives a history of diarrhoea (four or five stools a day) for about a week while in Alexandria, at the beginning of September; but no blood or mucus was noticed. He did not report sick at the time, and is positive he had no emetine injections, then or later. He was sent to Gallipoli, whence he was almost immediately invalidated as suffering from enteric. Dr. J. D. Thomson, of the bacteriological department here, informs us that this patient gives no agglutination reaction either to typhoid, paratyphoid, or bacillary dysentery.

Case 8 also gives no history of blood and mucus, or even of marked diarrhoea. During August, while at Suvla Bay, he remembers occasionally having four or five stools a day; he never had any treatment. The patient subsequently developed jaundice, and later nephritis, on account of which he was sent home.

Both these cases were found on examination to be passing large numbers of *tetragena* (*histolytica*) cysts and no *E. coli* cysts.

Relapses of Old Amoebic Dysentery.

Case 6.—This patient had been in India for several years, during which period he had three attacks of dysentery (presumably amoebic). The last occurred at the end of 1909, just before his return to England; the patient states that he had on this occasion four injections (? of emetine). Last October, on the French front, he had dysentery, with blood and mucus for twelve days. He was invalidated to a base, where he received one injection of emetine. His condition improved, but diarrhoea continued intermittently, and he was sent home to a provincial convalescent hospital. While on leave in London he had a return of blood and slime on one occasion and reported sick at this hospital.

In this case, we have to deal, in all probability, with relapses of the old amoebic dysentery, after an interval of six years. This patient's serum also gives no indication of typhoid disease or bacillary dysentery.

The incidence of the cases of amoebic dysentery in this hospital up to the present has been most interesting in relation to the occurrence of cases of bacillary dysentery, and well illustrates the liability to error of random sampling on a small scale when attempting to obtain any idea of the general numerical ratio between the two types. Up to the middle of last December the first two cases referred to above were the only cases showing *E. histolytica* in any form which came into the hospital, while

during the same period, out of a sample of 103 cases examined by agglutination, 47.5 per cent. were found to be *B. dysenteriae* (Shiga) infections. Unfortunately we had no means of knowing whether any of the cases received into the hospital whose stools were negative in respect of cysts had had amoebic dysentery and completely lost the parasites—that is, had not become cyst carriers. In this connexion we can only point out that certainly four of our cases received emetine injections, two of them eight or nine doses, and were nevertheless not freed from the parasites and those who were not treated at all are very heavy cyst carriers, although two of them do not appear to have had well-marked dysentery.

The six cases of cyst carriers have all entered the hospital since the middle of December, most of them within a very short period of each other. Dr. Thomson has kindly done the agglutination tests of these six cases against the chief members of the dysenteric and typhoidal groups. He finds that in only one case (that described more fully below) is there a probable indication of an infection with *B. dysenteriae* (Shiga). The patient's serum agglutinated ++ at 1 in 50, definite trace at 1 in 100. In another case of amoebic dysentery, however, which was specially transferred on our account to this hospital, just before we had the above succession of cyst carriers, and which is not included in our own list, there is clear evidence of an infection with Shiga in addition to amoebic dysentery, this patient's serum agglutinating +++ at 1 in 50, ++ at 1 in 100, trace at 1 in 200. It is worth noting therefore that out of 59 known cases of either amoebic or bacillary dysentery, only in one or, at most, two cases can we say definitely that both types have occurred together.

Occurrence of *Entamoeba* "minuta."

In one of our cases of cyst carriers the cysts have been markedly different from the usual type of *E. histolytica* (*tetragena*) cyst. The patient had been in India for seven years, but states that he never had dysentery or malaria while there. He gives a history of dysentery occurring



FIG. A.—*Entamoeba minuta* (from stained preparations). 1, Form preparatory to encystment. 2-6, Cysts with varying number of nuclei.

last September, while at Gallipoli. He had diarrhoea for two days, then blood and mucus for four days, the diarrhoea continuing subsequently for nearly a month. He received eight injections of emetine, one daily. He considered this did good. On two successive examinations of the stools, towards the end of last December, the cysts mentioned were found. The patient then had four injections of emetine, after which no cysts were again found until January 19th, when a few were present in the stool.

The most striking character about the cysts is their uniformly small size. They are generally spherical, from $7\frac{1}{2}$ to 8μ in diameter, but occasionally are slightly ovoid, about 7 by 8μ ; we have never seen any cysts larger than 8μ at any examination of the stools. The cysts have a greenish, rather refractile appearance, and in the fresh condition no definite internal structure or nuclei can be made out. The cyst membrane is thin and does not show a double contour. After adding iodine solution one or two nuclei can usually be seen, and the chromidial blocks or

masses, when present, generally take up the stain also, but these masses do not stand out so conspicuously in these cysts as do the chromidial bars in typical *histolytica* cysts. In permanent preparations stained with iron-haematoxylin the cysts show nearly always one (Fig. A, 2) or two nuclei (Fig. A, 3-5); only in a single instance (Fig. A, 6) have we found a cyst with four nuclei, although the preparations have been well searched. (In the figures the chromidial blocks or masses are stained up intensely.) Fig. A, 1, shows an early stage in the encystment of this form. In addition to its smaller size, the nuclear character differs apparently from that of the nucleus of the cyst-producing, "*tetragena*" phase of *E. histolytica* in not showing a ring-like karyosome with a contained centriole-like body.

James, in a recently published excellent account of the *Entamoebae* of the Panama Canal zone,⁶ describes the occurrence of what is undoubtedly the same form, and his figures closely resemble ours. James thinks that this *Entamoeba* represents the *E. minuta* originally described by Elmassian. We do not feel at all certain as to this, because the dimensions given by Elmassian for the cysts agree with the usual size of *tetragena* cysts, and are distinctly larger than those found either by James or ourselves; but we retain, provisionally, the same *minuta*. James is inclined to consider this form as associated with a mild type of amoebic dysentery, and concludes that if *E. minuta* is a phase in the cycle of *tetragena* it is a very well defined and singularly distinct phase, and its inclusion in the *tetragena* (*histolytica*) species will necessitate the relinquishing of several criteria now in use for classification.

We ourselves think it is quite likely that this form is really distinct from *E. histolytica*+*tetragena*, and constitutes a third, independent form of *Entamoeba* occurring in man, either a distinct species or else a distinct variety. With one exception all our cyst carriers are well in the post-dysenteric stage of the disease; but they are all passing the typical *tetragena* cysts. We have never found a *tetragena* cyst less than $10\frac{1}{2}\mu$ in diameter, though slightly smaller ones are stated to occur occasionally. But when they do, they are always associated with cysts of the normal size. The vast majority of the cysts we have seen have not varied more than 1μ from 12μ in diameter. On the other hand, on no occasion have we found a *minuta* cyst larger than 8μ . We do not lay any stress on the rarity of the occurrence of cysts with 4 nuclei, because it occasionally happens that in preparations of *tetragena* cysts, the great majority found have only one or two nuclei. It may be, perhaps, more usual for the cysts of this *minuta* form to be passed in the earlier stages of development than it is in the case of *tetragena*. (The size of the cyst is the same, of course, in the 4-nuclear stage as it is in the 1 or 2 nuclear stage.)

In what relation this form stands to the production of amoebic dysentery—for example, whether it produces a mild type only—we are not able to say from the evidence so far available; because, as stated above, this particular case showing these cysts may have had bacillary dysentery as well. It may be pointed out, however, that, even if this is so, there is no reason to suppose that the characteristic small size of these cysts represents an abnormal phase—for example, due to the simultaneous occurrence of bacillary dysentery—since the special case, not included in our own series, where there is undoubted evidence of Shiga, is passing the typical *tetragena* cysts. It is probable that this *E. minuta* is also affected by emetine, because of the cessation of the appearance of the cysts in the stools for more than a fortnight after four doses had been given. We consider it is important to draw attention to these small cysts, in view of their possible further occurrence, since they are quite likely to be overlooked, or at all events regarded as having nothing to do with *E. tetragena* cysts, or with amoebic dysentery.

THE TREATMENT OF LAMBIA INFECTIONS.

There is no doubt that heavy *Lambdia* infections are often distinctly pathogenic, being the cause of marked diarrhoea. This may be intermittent, or cease for a period, but is very liable to recur owing to exposure, indiscretions in diet, and so on. A *Lambdia* infection is apparently more active, and the cause of greater intestinal derangement in warmer countries, for example, the Mediterranean

area. Men now in England with a heavy, persistent infection, even though no longer inconvenienced by diarrhoea, would be extremely likely to suffer from a return of the complaint on proceeding again to a warmer climate. Of the 22 cases in which *Lambia* has been present in the faeces, at least 6 have been very heavy infections. One instance has been already given in our previous note. Another case has been in the hospital for more than four months, and during this period every examination of the stools has shown enormous numbers of cysts, with, now and again, when the stool was very loose, many unencysted (active or inactive) forms in addition. Several efforts have been made to get rid of these troublesome parasites, but up to the present, unfortunately, we cannot say that a specific mode of treatment has been found. To certain of the resident medical officers, especially Drs. G. Dawson and F. J. McCarthy, who have been in charge of most of the cases concerned, we are greatly indebted for their cordial co-operation in these attempts.

Treatment.

The varying success obtained with different drugs may be briefly indicated.

The first case in which the parasites were found was also a case of bacillary dysentery. *Lambia* occurred in enormous numbers for a period of about a week. The patient was given beta-naphthol 15 grains, with bismuth salicylate 20 grains, thrice daily, for some days. By the end of three weeks from the time of the first observation not a single flagellate or cyst was any longer to be found. Owing to other causes, this patient has remained in the hospital for six months; during this time the stools have been examined on several occasions, the last examination having been made only a few days ago. No sign of a flagellate infection, whether of active forms or cysts, has been again found. We may regard this case, therefore, as having been probably cured by the mixture.

Two other cases were treated with turpentine (térébenthine), following the opinion of various French workers as to its value. The dose was 10 minims, three times a day, for four or five days. This was followed by guaiacol carbonate, recommended to us by Dr. Thomson, 5 grains thrice daily, for a day or two before the stools were examined, but probably not long enough to have much effect. When the examination was made, in one case no cysts were found; in the other, after much searching, a few dead looking cysts were seen. Four days later both stools were again examined, and in neither case were any cysts found. The patients were then sent out of the hospital. We cannot say, of course, definitely that no recurrence has taken place, but from our experience in the first case we consider this unlikely.

On the other hand, in two other cases, none of the remedies tried up to the present has produced any effect. Turpentine, guaiacol, thymol have all failed.

Beta-naphthol, together with bismuth salicylate, then, appeared to effect a complete cure in the only case in which we have been able, so far, to give the former drug. "Térébenthine," in small doses, for some days, was also apparently successful in two cases, but has failed in two others. We have not yet tried giving this drug in a single large dose.

MALARIA.

Altogether, 14 cases of malaria have occurred in the hospital up to the present. Of these, only two have been due to the pernicious parasite (*Laverania malariae vel praecox*), in which cases both small rings and crescents (gametocytes) were found. All the other cases have been due to the benign tertian parasite (*Plasmodium vivax*). We have had no instance of a mixed infection.

Postscript.—Since sending the above paper to press we have been able to treat another case of heavy chronic *Lambia* infection by the administration of beta-naphthol and bismuth salicylate. The case was that already referred to as having been in the hospital four months, and other drugs had not made any impression on the parasites. The stool was examined a few days ago, after three days' treatment as above. No *Lambia* cysts were found in the faeces. If their disappearance proves to be permanent, as in the first case, a good trial with the combined beta-naphthol and bismuth salicylate appears indicated in cases of heavy *Lambia* infections. We are inclined to think that the bismuth salicylate is at least as important a factor as the beta-naphthol.

REFERENCES.

¹ BRITISH MEDICAL JOURNAL, 1915, ii, p. 710. ² *Ibid.*, 1916, i, p. 47. ³ *Lancet*, 1915, ii, p. 1296. ⁴ *Loc. cit.*, p. 1404. ⁵ *Annals of Trop. Med. and Parasitol.*, 1914, viii, p. 133.

SPIROCHAETES AND THEIR GRANULE PHASE.

BY

H. B. FANTHAM, M.A. CANTAB., D.Sc. LOND.,

LECTURER ON PARASITOLOGY, LIVERPOOL SCHOOL OF TROPICAL MEDICINE.

SPIROCHAETES are thin, delicate, undulatory organisms which are widely distributed in Nature. Some of them are free-living and occur in stagnant water or in sea-water. Others live in the digestive tracts of animals, both vertebrate and invertebrate. In man *Spirochaeta buccalis* and *S. dentium* may be found in the mouth and *S. bronchialis* in the respiratory tract, while *S. eurygyrata* and *S. stenogyrata* may occur in human faeces. Also, *S. balbianii* is a well-known species found in the intestinal caecum and crystalline style of oysters and allied Lamellibranchs. Other spirochaetes occur in the tissues of vertebrates, and are often pathogenic. The causal agents of relapsing fever, such as *S. recurrentis* and *S. duttoni*, occur in the blood during the pyrexial periods. Another of these organisms—*S. schaudinni*—is found in tropical ulcers. Yet other spirochaetes, often placed in a separate genus *Treponema*, are the causal agents of syphilis and of yaws, and are known respectively as *Treponema pallidum* and *T. pertenue*.

Probably the longest spirochaetes are among those found free-living. Such an one is *S. plicatilis*, which may reach 200 μ in length. On the other hand, *S. leverani*, found in the blood of mice, is a very short form, and may be only 3 μ long. Spirochaetes may vary from 0.25 μ to 2 μ in width. The outline of the body of one of these Protista is corkscrew-like, and varies in appearance owing to its great flexibility. Quickly moving spirochaetes show many waves of small amplitude, while slowly moving forms present fewer, larger waves of greater amplitude. Hence it will be seen that it is hardly accurate to take as specific characters the number of undulations or coils found in fixed and stained specimens of spirochaetes. The number of turns or waves is, then, more an index of rate of motion—as well as of thickness, which is also a factor—than one of differentiation between various species. Further, owing to the processes of growth and division, the latter occurring by binary fission, there is much morphological variation among spirochaetes. This polymorphism results in differences in length and breadth within the same species, variations which tend to be overlooked unless a large number of specimens from a series of cases is examined and measured.

Internally, spirochaetes possess chromatin bars, rodlets, or granules distributed evenly along their body length. These chromatin granules are seen only with great difficulty in the smaller forms.

Spirochaetes of vertebrates may be transmitted from host to host directly by the contaminative method, or by the intermediation of an arthropod vector. Examples of the former are the causal organisms of syphilis and of yaws, while examples of the latter are the parasites of relapsing and African tick fevers. A consideration of the life-cycles of spirochaetes leads to a discussion of their granule phase, or capacity for "granule shedding," as it has been termed, a most interesting phenomenon around which a certain amount of controversy has centred. There is no doubt that spirochaetes produce such granules; it is only their significance, whether cyclical or degenerative, that is in question.

One of the spirochaetes best investigated with respect to granule formation is *S. duttoni*, which is transmitted from man to man by the tick *Ornithodoros moubata*. The life-cycle of this spirochaete was first outlined by Dutton and Todd in 1907, and was studied in detail by Leishman in 1909-10. Leishman's results essentially were that spirochaetes gave rise by multiple fission to granules or coccoid bodies inside the invertebrate host, and that these granules or coccoid bodies found their way more especially to the Malpighian tubules, gonads, and other organs of the tick. The granules themselves multiplied. The eggs of the female tick became infected with granules, and the progeny of infected females might be born infected. The observations of Leishman have been confirmed and extended by Balfour (1911), Fantham (1911), and Hindle (1911). The organisms investigated were *S. duttoni*, *S. recurrentis*, and *S. gallinarum*, or varieties of the last. The formation of

granules in *Treponema pallidum* and in *T. pertenuis* has been recorded by Balfour, by Ranken, and by Hoffman. It has also been observed in *Spirochaeta bronchialis* by Fantham in 1914-15. Similar multiple transverse fission has been seen in the larger molluscan spirochaetes—for example, *S. balbiani* and *S. anodontae*, by Bosanquet (1911), Fantham (1911), and Gross (1912). It may be mentioned that, even as early as 1882, Zopf recorded and figured the formation of micrococcoid and bacillary forms from spirochaetes of stagnant water and of the teeth, and stated that these forms stand in genetic relationship to one another.

The formation of coccoid bodies, as observed by me in various spirochaetes in fresh preparations, with or without the use of dark-ground illumination, is as follows:

The cytoplasm at first is very finely granular, in fact, almost homogeneous. The chromatin bars appear as minute refractile masses. A concentration of some of the cytoplasm occurs around each chromatin rodlet. These small concentrations gradually become oval, the outer cytoplasmic layer differentiates as a thin coat, and ultimately a series of coccoid bodies or granules is formed, lying usually transversely or slightly obliquely within the periplast sheath. Sometimes the coccoid bodies are set at liberty by a rupture appearing at one end of the spirochaete; at other times, several ruptures, or disintegration of the sheath, can be observed. Stained specimens show a series of darker, lozenge-like coccoid bodies alternating with relatively clear, pale-staining areas. Within the Malpighian or genital cells of a transmitting tick, and in certain mononuclear sputal cells penetrated by *S. bronchialis*, the coccoid bodies often seem to be liberated by the disintegration of the periplast. Groups of coccoid bodies still retaining the outline of the spirochaete from which they originated are of fairly frequent occurrence. When the coccoid bodies are released by a terminal rupture of the parent they tend to form irregular clumps. The progressive elongation of the granules, the assumption of the sinuous form, and the emergence of very small spirochaetes from the groups of granules have been observed in life. It is very probable that there is a definite period in the life of a spirochaete at which there is a marked differentiation of coccoid bodies. It must also be borne in mind that coccoid bodies may be present when spirochaetes as such cannot be detected. At the same time, the finding of chromatinic granules alone is not sufficient to justify the inference that spirochaetosis is indicated, as all such granules are not necessarily spirochaetal in origin. It is essential that motile spirochaetes should be found at some period of the disease, and the developmental stages leading to granules or coccoid bodies observed *in vivo*.

The coccoid bodies have been otherwise interpreted by Marchoux and Couvy (1912-13), Blanc (1911), and Wolbach (1914), who seem to consider these bodies either to be degenerative or to be unconnected with the life-cycle of spirochaetes. According to the first-named investigators, who worked on *S. gallinarum* in *Argas persicus*, the spirochaetes within an infected tick retain their spirochaetal facies, becoming at times so attenuated that they may cease to be visible, some having been observed already on the limits of visibility. Naturally, the question forces itself as to how it is possible to determine the spirochaetal facies if the organism has become invisible. Further, they state that granules occur in the Malpighian tubules, ova, and genital ducts of normal ticks and other arachnids, and that these have been mistaken by Leishman and his supporters for spirochaetal granules. However, it has not been denied that granules may occur in normal tick cells, nor was it asserted that all intracellular granules in infected ticks were spirochaetal in origin, for the granules seen in arachnid cells are not all of the same nature.

Regarding the development of *S. recurrentis* or its varieties in the louse, *Pediculus vestimenti*, Sergent and Foley (1914) state that the spirochaete in the louse assumes a very small form which is as virulent as the spirochaetiform stage. During eight days following a meal of infected blood the body of the louse does not contain any spirochaetes as such, though the spiral organisms reappear later, as was first observed by Nicolle, Blaizot, and Conseil in 1912. Very probably this minute form will be found to be of the nature of a Leishman granule or coccoid body. Also, Nicolle and Blanc (1914) find that the causal agents of relapsing fever are virulent or infective in the louse just before they reappear as spirochaetes. They think that

there is an invisible stage in the life-cycle, though they do not appear to have examined for a granule stage, which might easily be overlooked. Further, it should be noted that in experiments with the invertebrate transmitters of such spirochaetes as *S. duttoni*, *S. recurrentis*, and *S. gallinarum*, careful attention should be paid to the temperature, humidity, and other climatic conditions under which the investigations are conducted, since these factors undoubtedly influence the development of spirochaetes therein.

Granule stages have also been recorded from time to time in spirochaetes in the blood of vertebrates. Thus, Balfour, in 1908, found such bodies in the red blood corpuscles of Sudanese fowls suffering from spirochaetosis. Prowazek, in 1906, recorded intracorporeal stages of *S. gallinarum*. Breinl (1907) and others have observed encysted forms of *S. duttoni* in the spleen, which forms broke into granular bodies that gave rise to new generations of spirochaetes. Sergent and Foley (1914) also found that a minute but infective form occurred in the blood of patients suffering from relapsing fever during apyretic intervals when spirochaetes were absent. Personally, I have seen a very few of these spirochaetes on rare occasions breaking up into coccoid bodies in the blood of the vertebrate host. These minute bodies may appear to occur in or on the red blood corpuscles. They may be found at the crisis and may possibly explain the "after-phase," and may be connected with relapses in the vertebrate host. It is also interesting to note that Sir Patrick Manson, in his well-known book on tropical diseases, writes as follows regarding the etiology of relapsing fever: "Obermeier and von Jaksch describe certain refractile bodies present in the blood during the fever intermissions. The latter author says that he has observed the development of these bodies into short rods, from which the typical spirochaetes are eventually evolved."

Again, the passage of *S. bronchialis* from man to man is most probably by means of the coccoid bodies that leave the human host in the spray with expired air and by way of nasal secretions, as was shown by the present writer in 1914 and 1915. Linen soiled by such secretions, and indiscriminately packed with other soiled clothing, may also aid. Owing to the fragility and short life of *S. bronchialis* extracorporeally, the resistant coccoid bodies in air, dried sputum and dust, and possibly also on the bodies of flies and other insects, are probably instrumental in inducing attacks of bronchial spirochaetosis in human beings, especially those having a lowered bodily resistance, such as after a chill.

A historical interest attaches to the *Cytoryctes luis* of Siegel. These structures are probably explained by the granules shed by *Treponema pallidum* (*Spirochaeta pallida*).

Further evidence for the transition and growth of granules or coccoid bodies into spirochaetiform organisms may be briefly mentioned. Thus, Noguchi (1911), in his paper on the cultivation of *Treponema pallidum*, records in the explanation of one of his figures that "it is not rare to find a round body connected with one or two young *pallida*, as though the latter were just sprouting from the former." Balfour (1913) thinks that he seems to have succeeded in growing spirochaetes *in vitro* from infected tick eggs in which granules only could be demonstrated. Sir William Leishman (1913) repeated many of his former experiments with altered technique, employing dark-ground illumination instead of fixation and staining. He finds that "the granule clumps are not all alike, but that some of them show a much higher degree of refractility than others. Continuous observation of these refractile granules, with the microscope in a thermostat, has further shown me, in the case of two ticks, the definite extrusion of small and actively motile spirochaetes from these granule clumps. . . . After about ten days at a temperature of 28° C. to 30° C., and with a relatively high humidity, some of these clumps give rise to young spirochaetes, which become free, are actively motile, multiply by fission, and may persist in the tissues of the tick for many months."

In conclusion, the value of the recognition of the granule phase in the Spirochaetacea has been strikingly set forth by Noguchi, who, in an address given before the Royal Society of Medicine in London on October 20th, 1913, stated that he "was able to demonstrate . . . granules in the pure cultures of *Treponema pallidum*. This phenomenon, however insignificant it may appear in itself, was destined to furnish a key to one of the most

disputed problems of the past fifty years—namely, the problem of so-called parasymphylis, since it was this very idea that prompted me to undertake to search for *Treponema pallidum* in one form or another in the brains of general paralytics and in the spinal cord from cases of tabes dorsalis." And again, "I was led by the observation that *Treponema pallidum* sometimes assumes a granular form in cultures to re study sections of parietic brains stained for the *pallidum*."

REFERENCES.

- Balfour, A. (1908, 1911): Spirochaetosis of Sudanese Fowls. Third Report Wellcome Labs., Khartoum, pp. 38-58. Also Fourth Report, vol. A, pp. 76-107.
- Balfour, A. (1913-14): Notes on the Life-Cycle of the Sudan Fowl Spirochaete. *Trans. XVI Internat. Congress of Med.*, London, pt. ii, sect. XVI, pp. 275-278.
- Barton, J. B., and Todd, J. T. (1907): A Note on the Morphology of *Spirochaeta duttoni*. *Lancet*, November 30th, 1907, pp. 1523-1525.
- Pantham, H. B. (1911): Some Researches on the Life-Cycle of Spirochaetes. *Annals Trop. Med. and Parasitol.*, v, pp. 479-496.
- Pantham, H. B. (1914): The Granule Phase of Spirochaetes. *Annals Trop. Med. and Parasitol.*, viii, pp. 471-484.
- Pantham, H. B. (1915): *Spirochaeta bronchialis*, Castellani, 1907, together with Remarks on the Spirochaetes of the Human Mouth. *Annals Trop. Med. and Parasitol.*, ix, pp. 391-412.
- Huddle, E. (1912): On the Life-Cycle of *Spirochaeta gallinarum*. *Parasitology*, ix, pp. 463-477.
- Leishman, W. B. (1910): An Address on the Mechanism of Infection in Tick Fever, and on Hereditary Transmission of *Spirochaeta duttoni* in the Tick. *Lancet*, January 1st, pp. 11-14. Also *Trans. Soc. Trop. Med. and Hyg.*, iii, pp. 77-95.
- Leishman, W. B. (1913-14): Relapsing Fevers. *Trans. XVII Internat. Congress of Med.*, London, pt. ii, sect. xvi, p. 282.
- Marchoux, E., and Conry, I. (1913): Aras et Spirochètes. *Annales Inst. Pasteur*, xxvii, pp. 450-480 and 620-643.
- Nicoll, C., et Blanc, G. (1914): Les Spirilles de la fièvre récurrente sont ils virulents aux phases successives de leur évolution chez le pou? Démonstration de leur virulence à un stade invisible. *Compt. rend. Acad. Sci.*, clviii, pp. 1815-1817.
- Noguchi, H. (1913): On Some of the Recent Advances in the Field of Microbiology; with Demonstrations of the Pure Cultures of Various Spirochaetes, of the Viruses of Rabies and Poliomyelitis, and of *Treponema pallidum* in the Brains of General Paralytics. (Occasional Lectures. *Proc. Roy. Soc. Med.*, vii, pt. i, p. 3-30).
- Sergeant, E., et Foley, H. (1914): Des périodes de latence du Spirille chez le malade atteint de fièvre récurrente. *Compt. rend. Acad. Sci.*, clviii, pp. 1926-1928.
- Sergeant, E., et Foley, H. (1914): De la période de latence du Spirille chez le Pou infecté de fièvre récurrente. *Compt. rend. Acad. Sci.*, clx, pp. 119-122.
- Further references will be found at the ends of some of the papers cited.

ON THE RELATION BETWEEN THE TERMINAL-SPINED AND LATERAL-SPINED EGGS OF BILHARZIA.

BY LIEUT.-COL. R. T. LEIPER, D.Sc., M.B., R.A.M.C.,
WANDSWORTH RESEARCH SCHOLAR, LONDON SCHOOL OF TROPICAL
MEDICINE; READER IN HELMINTHOLOGY IN THE
UNIVERSITY OF LONDON.

THE final chapters of my report on the investigation into the mode of spread of bilharziosis in Egypt may not be issued for some time yet owing to my continued absence abroad. I have the kind permission of the editor of the *Journal of the Royal Army Medical Corps* to publish now a short summary of the results obtained in so far as they bear upon the etiological relation of vesical and intestinal bilharziosis and the explanation of the position of the spine in the eggs which give rise to these two distinct clinical manifestations of bilharzia infection. This question has been for years the subject of widespread discussion, but hitherto no finality has been reached.

The controversialists have arranged their arguments and facts around two principal theories.

(a) Looss's theory maintains that the terminal-spined eggs are the normal product of impregnated females of *Schistosoma haematobium*, while the lateral-spined eggs are those produced parthenogenetically where males have not developed.

(b) Manson's theory, based upon the constant and peculiar shape of lateral-spined eggs, their peculiarly limited geographical incidence, and their special selection for the intestinal tract, hypothesizes a zoological distinction in the adult parasites.

An examination of the fresh-water molluscs at El Marg during the spring and summer of 1915 showed that three species, *Bullinus contortus*, *Bullinus dybowskyi* (that is, the "*Physa alexandrina*" of Looss), and *Planorbis boissyi*, were infected with certain cercariae, which developed in mice under experimental conditions into bilharzia worms. These worms produced eggs of two kinds—namely, some with typical terminal spines and others with typical lateral spines.

By submitting individual mice, each on one occasion only, for a limited period to infection with the cercariae from single infected molluscs it has been possible to demonstrate that those developing in the *Bullinus* molluscs always produce bilharzia worms which give rise solely to terminal-spined eggs, while those which have developed in *Planorbis boissyi* always become worms which produce solely lateral-spined eggs. In all the experiments males developed and were more numerous than the females.

The cercariae found in *Bullinus*, although very similar to those found in *Planorbis*, showed differences in the suckers, in the relative length of tail, and in other minute points detailed in my final report. The adult worms experimentally reared also showed constant morphological differences. In the worms derived from *Bullinus* spp. the males have four or five large testes and the two lateral gut branches are late in uniting, so that even when mature the worms have a short intestinal caecum. In the female the ovary lies in the latter half of the body. The uterus is very long, voluminous, and contains many terminal-spined eggs, some of which lie in pairs. The yolk glands have a limited range in the posterior fourth of the body. These worms belong to the species *Schistosoma haematobium* (*sensu stricto*). In the worms derived from *Planorbis boissyi* the males are small, and have eight small round testes. The two lateral gut branches unite very early. In some of the smallest specimens found this union had already taken place. The intestinal caecum is correspondingly very long. The female has the ovary in the anterior half of the body. The uterus is very short, and almost invariably there is one egg only at a time in each specimen even when a number have already been laid. The yolk glands are extensive, ranging through the posterior two-thirds of the body along the whole length of the caecum. The eggs always have a lateral spine, the first laid is usually smaller than those succeeding, and the spine is then set almost at right angles to the long axis. Pending a consideration of the claims of other names to priority the specific name *Schistosoma mansoni* may be adopted rightly for these worms. They differ in their adult structure from *Schistosoma haematobium* (*sensu stricto*) more markedly than does *Schistosoma bovis*.

Vesical bilharziosis and Manson's intestinal bilharziosis are therefore etiologically properly regarded as entirely distinct diseases.

IODINE IN TETANUS.

BY
A. T. MACCONKEY, M.B., D.P.H.,

AND

S. S. ZILVA, Ph.D.

(FROM THE SERUM DEPARTMENT, LISTER INSTITUTE.)

WHILE the value of iodine as an antiseptic has recently been the subject of discussion, no reference has been made to the well-established facts that iodine possesses the power of rendering tetanus toxin non-toxic, and that such a modification of this toxin can produce active immunity.

An example of this effect is shown in the first table.

TABLE I.—Results of Injecting Subcutaneously into Guinea-pigs a Mixture, consisting of Equal Parts of Gram's Solution of Iodine and of Tetanus Toxin, some of which had been kept at 36° C. and some at Room Temperature for Different Periods before Injection.

Weight of Guinea-pig in Grams.	Quantity of Mixture Injected.	Time and Temperature.	Day after Inoculation.							
			1	2	3	4	6	10	14	
340	1 c.cm.	2 hrs. at 36° C.	—	—	—	—	—	—	—	—
380	1 c.cm.	2 hrs. at R.T.	—	—	—	—	—	t	—	—
340	1 c.cm.	1 hr. at 36° C.	—	—	—	—	—	—	—	—
365	1 c.cm.	1 hr. at R.T.	—	—	—	—	t	tt	tt	—
340	1 c.cm.	½ hr. at 36° C.	—	—	—	—	t	—	—	—
380	1 c.cm.	½ hr. at R.T.	—	—	—	—	tt	tt	t	—
375	1 c.cm.	½ hr. at 36° C.	—	—	—	—	t	—	—	—
350	1 c.cm.	½ hr. at R.T.	—	—	—	—	tt	t	—	—
355	1 c.cm.	At once	—	—	tt	ttt	+	—	—	—

R.T. = Room temperature.

Of this toxin, $\frac{1}{300}$ c.cm. killed a guinea-pig of about 350 grams weight in four to five days, and it is obvious that the iodine, when mixed with it, had an immediate effect, but not enough to prevent a fatal result. As the period of contact before injection increased, so did the effect of the iodine become more marked, until the mixture ceased to give rise to any symptoms of tetanus.

The immunizing effect of such a mixture is seen in Table II, which gives details of an experiment in which an iodine-toxin mixture was given in repeated doses.

TABLE II.—*Immunizing Effect of a Mixture of Equal Parts of Gram's Solution of Iodine and Tetanus Toxin. The Mixture was kept for Two Hours at 35° C. before Injection Subcutaneously.*

Date of 1st injection February 24th, 1913.

No.	Weight of Guinea-pig in Grams.	Quantity of Mixture Injected.	Date.			
			Mar. 1.	Mar. 6.	Mar. 11.	Mar. 17.
1	315	c.cm.	—	?	—	Each animal received 1 M.L.D. of toxin. All died within 8 days.
2	335	1	—	?	—	
3	360	1	?	?	—	
4	350	1	—	—	—	
5	320	1	—	—	—	
6	335	1	—	—	—	
7	375	1	—	—	—	
8	330	1	—	—	—	
9	325	1	?	?	—	
10	320	1	—	—	—	
11	315	1	—	?	—	Each animal received 2 c.cm. of iodine-toxin mixture.
12	335	1	?	?	—	
13	330	1	—	—	—	
14	340	1	—	—	—	
15	315	1	?	?	—	
16	330	1	?	?	—	
17	320	1	—	—	—	
18	330	1	—	?	—	
19	355	1	?	—	—	
20	360	1	—	—	—	
21	335	1	?	t	?	
22	315	1	?	?	—	

* No further injection; died April 16th. ** Died March 15th

On March 27th guinea-pigs No. 6-10 each received 1 M.L.D. of toxin; the remaining animals, which were quite well (Nos. 11, 13-17, and 19-22), each received 3 c.cm. of iodine-toxin mixture. All the animals remained quite well.

On April 16th ten animals (Nos. 6-11 and 13-16) each received 2 minimal lethal doses of toxin; the remainder (Nos. 17 and 19-22) each received 5 c.cm. of iodine-toxin mixture. All the animals remained quite well.

On May 1st the animals received the following minimum lethal doses: Nos. 6 and 7, 4 doses; Nos. 8 and 9, 6 doses; Nos. 10 and 11, 8 doses; Nos. 13 and 14, 10 doses; Nos. 15 and 16, 12 doses; and Nos. 17 and 19-22, 4 doses. All the animals remained quite well.

On May 17th the animals Nos. 6-14 each received 100 minimal lethal doses, and Nos. 15-22 each received 50 doses. All the animals remained quite well.

NOTE.—The M.L.D. was 0.00006 gram of a dry standard toxin, and was given beneath the skin of the abdomen. The ? refers to animals which, on palpation, seemed somewhat stiff about the shoulders, but showed no definite signs of tetanus. t = Tetanus. + = Death.

A consideration of the table shows that a single dose of the mixture does not produce enough immunity to protect against one minimal lethal dose (1 M.L.D.) of tetanus toxin. Confirmation of this is afforded by other experiments in which 29 guinea-pigs received subcutaneously doses of iodine-toxin mixture varying from $\frac{1}{3}$ c.cm. to 6 c.cm., and every one of them succumbed to 1 M.L.D. of tetanus toxin given from eleven to twenty-six days later. We see further that two doses of iodine-toxin mixture produced active immunity to 1 M.L.D., while three and four doses

protected against two and four M.L.D.'s respectively. It is possible that the immunity produced was greater, but we cannot say so definitely, as four M.L.D.'s was the highest test dose used.

Such observations naturally suggest the thought that iodine might prove of value as a curative agent in tetanus. Auregan (1915¹) published a series of cases in which he had given a 20 per cent. "ultra finely granular oleaginous suspension of electro-chemical 'colloidal' iodine" with beneficial results. He gave it intramuscularly, but does not mention the size of the doses.

As the treatment of declared tetanus cannot be said to be as yet very successful, it seemed desirable to test experimentally the claim made by Auregan for the use of iodine in tetanus. We therefore carried out a number of experiments on guinea-pigs with this object in view.

In these experiments four guinea-pigs were used for each series. The toxin employed was the same standard test toxin as was used in the previous tests, and each animal received 1 M.L.D. subcutaneously. Twenty-four hours after the injection of the toxin only very slight symptoms of tetanus, or none, were to be observed, and therefore it may be said that the incubation period was about one day. The doses of iodine given in each series were 0.2 c.cm., 0.3 c.cm., 0.4 c.cm., and 0.5 c.cm., except in Series 8, when they ran from 0.1 c.cm. to 0.4 c.cm. Each dose of serum contained 500 U.S.A. units of anti-toxin.

When the serum and iodine were inoculated at the same time, they were not mixed before injection, but were given simultaneously in separate places. When an animal received several doses of iodine or of serum, they were all of the same size.

TABLE III.—*Experiment to Ascertain the Curative Effect of a 2.5 per cent. "Colloidal" Iodine Preparation alone and in conjunction with Tetanus Antitoxin.*

Series.	Treatment.	No. of Recoveries, with Doses they Received.	Deaths.
1	Controls; no treatment	None	All within 4 days.
2	Iodine, 24, 43, and 48 hours after toxin	One. 0.4 c.cm. of iodine	3 within 3 days.
3	Iodine, 43 and 48 hours after toxin	One. 0.5 c.cm. of iodine	3 within 3 days.
4	One dose of iodine and of serum, 24 hours after toxin	One. 500 U.S.A. units of antitoxin and 0.5 c.cm. of iodine	3 within 5 days.
5	Serum and iodine, 24 hours, and iodine, 43, 48, 67, and 72 hours after toxin	None	3 within 4 days; 1 within 7 days.
6	Serum alone, 24, 43, 48, 67, and 72 hours after toxin	Three. 500 U.S.A. units of antitoxin	1 within 8 days.
7	Serum alone, 43 and 48 hours after toxin	None	4 within 4 days.
8	Serum and iodine, 24, 43, 48, 67, and 72 hours after toxin	Two. 0.2 c.cm. iodine and 500 U.S.A. units of antitoxin; 0.4 iodine and 500 U.S.A. units of antitoxin	2 within 4 days.
9	Serum and iodine, 43 and 48 hours after toxin	None	4 within 2 days.

A decidedly curative effect cannot be ascribed to this preparation of iodine, though some recoveries followed its administration, for the largest number (3) of animals that survived in any one series was in that which received repeated doses of serum alone; repeated doses of serum together with iodine gave two survivals, while iodine alone was followed by three deaths.

We then experimented with iodargol ("Iode colloïdal électro-chimique, pur et stable"), which is said to contain 25 cg. of iodine in 1 c.cm. All inoculations were made subcutaneously. The toxin was the same as before.

TABLE IV.—Effect of Iodargol. (Six Guinea-pigs, each weighing 340 grams.)

Toxin Injected.	Iodine Injection after 3 Hours.	Day 1 after Inoculation.		Day 2.	Day 3.	Day 4.
		9 a.m.	3 p.m.			
Oct. 27, 1915. 1 M.L.D. 2 15 p.m.	Control; no iodine	—	No iodine	t	+	
" " "	0.25 c.cm.	—	0.25 c.cm.	0.25 c.cm.	t	tt +
" " "	0.5 c.cm.	—	0.5 c.cm.	0.5 c.cm.	t	+
" " "	0.75 c.cm.	—	(H)			
Nov. 5, 1915. 1 M.L.D. 11 a.m.	1.0 c.cm.	—	1.0 c.cm.	1.0 c.cm.	t	+
	5.0 c.cm.	—	No iodine		tt	+

There is little doubt that iodargol had no favourable influence upon the course of the disease.

In other experiments injections of "colloidal" iodine were given before and three hours after the toxin without any beneficial results.

Further, we tested the effect of a preparation of iodine and soluble starch which neutralized tetanus toxin *in vitro*, but it proved quite ineffective as a curative agent. On one occasion the animals did survive, but this result seemed mostly accidental, for the injections were inadvertently made too close together, and the swelling caused by the injection of toxin joined to that due to the iodine, and thus the latter may have come into direct contact with the toxin before it was absorbed. When this experiment was repeated, care being taken to place the injections far enough apart to prevent direct mixing, the result was death of both the animals.

CONCLUSION.

We are forced to come to the disappointing conclusion that iodine injected subcutaneously has no effect upon tetanus toxin which has been also injected subcutaneously in a different place.

We cannot, therefore, hope to influence favourably the course of an attack of tetanus by injections of iodine alone, nor does iodine appear to have any effect in enhancing the power of serum.

It would seem, then, that iodine can only be of use when applied to the infected focus, so that it can come into direct contact with the toxin before absorption.

REFERENCE.

¹ *Lancet*, 1915, i, p. 450.

THREE CASES OF ABDOMINAL GROWTHS PRESENTING VERY UNUSUAL CHARACTERS.

By CHARLES A. MORTON, F.R.C.S.,

PROFESSOR OF SURGERY, UNIVERSITY OF BRISTOL; SENIOR SURGEON
TO THE GENERAL HOSPITAL, AND THE CHILDREN'S HOSPITAL.

CASE I.—*Tumour Composed of many Hydatid Cysts Growing within the Abdomen, and Protruding into an Umbilical Hernia so as to form a Large Pendulous Growth.*

A WOMAN, S. H., aged 39, was admitted to the General Hospital in April, 1914, with a very hard, heavy, lobulated



FIG. 1.

mass protruding at the umbilicus (Fig. 1). There were some round elastic nodules on its surface. The umbilicus

was lying on it, and it was sent to the hospital as an umbilical hernia. It measured 7 in. by 6 in. When the patient stood up it hung down (as shown in Fig. 2) so far that the upper surface came as low as the pubes. Because it was so heavy it dragged down the abdominal wall in a funnel-shaped form with it. She always had to support it when her bowels acted. A number of firm round nodules could be felt extending from it, up under the abdominal wall. It was clearly not a simple umbilical hernia, but some form of growth, perhaps extending into the sac of an umbilical hernia, but the nature of the growth was not suspected.



FIG. 2.

At the operation on April 14th I found there was an umbilical hernia, and that a very thick mass of omentum passed out of the abdomen into it. To the distal end of this, lying in the hernia, a large lobulated tumour was attached. The abdomen was full of cysts, some quite small and others the size of duck's eggs. They occupied every part from the pelvis to the diaphragm, some lying under the stomach. I was able to divide the omentum, connecting the colon and the cysts within the abdomen with the umbilical tumour, and then removed the tumour mass with the overlying skin, and brought the edges of the umbilical opening together by the overlapping method. The umbilical tumour weighed 3 lb. 8 oz., and was composed of a number of the same kind of cysts as those within the abdomen, fused together. I found they were typical hydatid cysts. The patient made a good recovery, and returned to South Wales. In answer to a letter of inquiry as to her present condition sent last July, the only information she supplied, with regard to her abdominal condition, is contained in these words: "I am getting on all right, and don't feel no ill effects in the stomach."

CASE II.—*Sarcoma of the Small Intestine causing Recurrent Attacks of Obstruction.*

A woman, R. S., aged 44, was sent to me at the General Hospital in October, 1914, by Dr. Graham, of Watchet, with recurrent attacks of abdominal pain. She had the first attack two years before I saw her, the second one year before. For some time before I saw her she had been getting the attacks every few days. In April she had a very severe one, lasting several days, and requiring hypodermic injections of morphine. All the attacks, even the one two years before I saw her, were of the same character; the pain was either just at the umbilicus or close to it, and was usually most severe at the umbilicus. It was of a gripping character, and after lasting some hours she generally vomited, and then the pain either diminished or ceased. She said she was generally distended when in pain. She suffered from habitual constipation, but for some time she had had no action of the bowels without aperients or enemata. The vomit was bile, and there was no history of either haematemesis or melaena. For a month before I saw her she had been on liquid diet only, with the exception of a small quantity of bread, but had had severe attacks every few days. When she had been taking ordinary diet the attack used to come on two or three hours after dinner.

On admission there was nothing abnormal to be made out in the abdomen, but when seen in an attack of pain I found considerable distension in the lower abdomen, and once I could make out a distended coil. I thought the attacks were due to intestinal obstruction, probably from adhesions. I operated on October 20th, and found the obstruction due to a growth in the small intestine. The coil containing the growth was lying quite free in the pelvis. It must have been about the middle of the small

intestine, for after tracing the gut in each direction from it I failed to arrive at either the caecum or the duodeno-jejunal junction. The bowel on the proximal side was greatly dilated and thickened. The growth was hard and at parts leucoplakic in appearance, and was spreading into the mesentery. It resembled a very large reel, for it was constricted in the centre and had a kind of rim where the bowel wall joined it, just such a rim as one makes on tying the rubber tube on a Paul's intestinal glass tube. It occupied $2\frac{1}{2}$ in. of the bowel and was 2 in. in thickness. There were no secondary growths in the liver, nor any glands in the pancreatic region, but there were a few quite small glands clustered together at the root of the mesentery corresponding to the growth, and a few in the mesentery between these and the growth. Those lying quite close to the growth were removed with it, but microscopic section, made at a later date, did not show any growth in them. I resected the growth, together with 3 in. of the intestine above and below it, and united the ends, and then brought the united bowel through the opening in the parietal peritoneum, the edges of which I united to it, so as to exclude it from the general peritoneal cavity in case of leakage. This, of course, prevented my uniting the deep abdominal wall in the part corresponding to the protrusion of the united bowel, and she will have to guard against extension of the ventral hernia thus produced, by a belt; but by fixing the united bowel in this way outside the peritoneal cavity the serious danger of the operation—that is, leakage from the junction—was avoided. I put a drainage tube by the side of the bowel. There was never any leakage, and she made a good recovery, but during the first few days after the operation she had attacks of abdominal pain, evidently due to obstructed passage of intestinal contents through the united portion of bowel.

The growth was semitranslucent, white and firm, and at its junction with bowel lumen protruded into it like the os uteri into the vagina. The lumen through the growth was so greatly narrowed that only a small pair of



FIG. 3.—This figure shows the interior of the bowel, which has been laid open by a longitudinal cut extending also through the growth, and is spread open. The difference in size of the bowel on the proximal and distal sides of the growth is well shown in the illustration.

artery forceps could be passed through it (see Fig. 3). Microscopical section of several parts of the growth showed round celled sarcoma.

CASE III.—*Malignant Growth of the Colon causing Obstruction, and Associated with Phthisis in a Young Man of 21.*

H. W. was sent to me on October 26th, 1914, at the General Hospital, by the late Dr. Eglington of Street. He had had pain in the left side of the lower abdomen and in the epigastrium for two months, and a small lump had been observed in the left lower abdomen. He had been in a sanatorium for some time, but a week before I saw him

his bowels had ceased to act and he began to vomit, and he was then sent home from the sanatorium to the care of Dr. Eglington at Street. He had had repeated enemata without effect, and the abdomen become distended, and during the twenty-four hours before admission the abdominal pain became very severe. On admission there was considerable abdominal distension, and a small hard lump about the size of a finger-tip could be felt in the left lower abdomen, just above the middle of Poupart's ligament. It was fixed, but fairly superficial. There was a distended coil in the right lower abdomen. No swelling could be made out on rectal examination. There were no physical signs of disease in the chest. The pain had ceased, and he did not vomit. He was fed on albumin water, and had several hot turpentine enemata, and as a result of these he passed a considerable amount of flatus, and the pain did not recur to any extent, nor did he vomit. The distension considerably diminished, and the lump in the left lower abdomen became more distinct. As, however, by the 30th no faecal action had been obtained, I felt obliged to operate. I expected to find—what had been diagnosed before admission—a tuberculous lesion causing the obstruction.

On October 30th I made an incision through the middle of the left rectus, low down. There was a little clear serum in the peritoneum. Two inches of the iliac colon were converted into a hard, smooth cylinder, with a white scar-like appearance of the peritoneum covering it. There were a few yellow nodules on it, and a thickening of the fatty tissue attached to it. It was movable on the floor of the iliac fossa, and the surrounding structures were not adherent to it. It was not at all like a constricting carcinoma. The yellow nodules on it were not like caseating tubercle; they were more of a golden colour, and may have been altered fat. I could not decide whether the lesion was tuberculous or new growth. I could easily have excised it, and should have done so but for the additional disease present. This consisted of hard nodules attached to the transverse colon, and the parietal peritoneum about the head of the caecum. I could not very well reach the liver, but felt no nodules on it, and there were no enlarged glands. I anastomosed the ileum to the pelvic colon. The descending colon was much thickened, but not greatly dilated. During his recovery from the operation he began to cough, and physical signs of effusion appeared at the right base, and an exploring syringe discovered pus there. During this time he had moderate evening pyrexia, and rapidly lost flesh. He had no recurrence of the intestinal obstruction, but had some incontinence of faeces. On November 22nd, having withdrawn an exploring syringe barrel of pus from the chest, I endeavoured to evacuate the pus, but opened into a small shut-off space in the pleura, and could not get the exploring syringe through this into any collection of pus. He died the next day. It was not obvious at the operation why I did not open into the empyema, from which I had just withdrawn the pus; but the necropsy showed that at the exploration the needle had passed through a space of unaffected pleura which had been shut off by localized adhesions and a thin layer of collapsed lung, and into this space I unfortunately opened at the operation, and failed to reach the pus again by the exploring needle passed from it in various directions.

The necropsy also showed that there was extensive breaking down tuberculous disease of the base of the lung, on the side of the empyema, and tubercles were scattered throughout both lungs. In the abdomen were some breaking down nodules on the mesocolon of the transverse colon, and many nodules in the omentum, but no general tuberculosis of the peritoneum, nor any peritonitis, except that old adhesions were present around the anastomosis; and there was not as much as an ounce of fluid in the peritoneal cavity, and this was clear serum. The lumen of the iliac colon was so reduced that I could not pass my little finger through it. The enlargement of this portion of the iliac colon seemed to be due to great thickening of the coats, and the edge was well defined. Both the muscle coat and the mucous membrane were each one-third of an inch in thickness. The thickened mucous membrane formed an irregular raised edge at its junction with the healthy bowel, and here the mucous membrane was puckered. The surface was not ulcerated but smooth, but not as smooth as healthy mucous membrane. There

were no enlarged glands. Professor Walker Hall investigated the nature of the lesion, and has been good enough to allow me to publish his report, which is as follows :

The mass consists of carcinomatous tissues.

The submucous, muscular, and subperitoneal tissues are invaded by glandular cells arranged atypically.

In places the infiltration is so marked that individual bundles of muscle fibres are separated by masses of cancer cells.

The cells themselves show colloid degeneration, and this process is general throughout the specimen.

There is evidence of spread by lymphatic vessels.

BLOODLESS OPERATION FOR HAEMORRHOIDS AND PROLAPSUS ANI.

By MAJOR F. MCKELVEY BELL, M.D.,

SURGEON TO — CANADIAN STATIONARY HOSPITAL, FRANCE, AND
ST. LUKE'S GENERAL HOSPITAL, OTTAWA, CANADA.

The operation here described is intended for cases in which four or more large piles occur or in the milder grades of prolapsus ani. In other words, it may be used in any case in which Whitehead's operation is indicated, but has the advantages of being almost bloodless and less liable to complications.

The usual preparation is given by mild laxatives and a light diet for two days previous to operation, *ol. ricini* 3 j and no supper the evening before, and two to three simple enemata—that is, sufficient to clean the colon—in the morning. The instruments required are one large slightly-curved clamp, two Hagedorn needles, one semi-curved needle, one pair of scissors curved on the flat, tissue forceps, thermo-cautery, and No. 4 silk for suture.

Operation.—After dilatation of the sphincter, a long silk suture is passed through at the junction of the skin and mucous membrane in the mid-perineal line (Fig. 1). This suture is to be left untied and used as a retractor (1), two similar sutures are inserted on either side of the anus (2 and 3), so that when traction is made upon all three

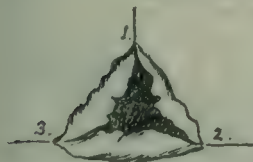


FIG. 1.

the extruded mucous membrane is converted into a triangle.

Each side of the triangle is to be dealt with individually. The portion between 1 and 2 is clamped in order to mark the area for excision. This area is limited externally by the junction of the skin and mucous membrane, and extends internally to within one-eighth inch of the required depth. On removal of the clamp a bluish furrow will be seen, the inner and outer borders of which mark the area for suture.

The two Hagedorn needles are now threaded at either end of a continuous silk suture. The first stitch, which

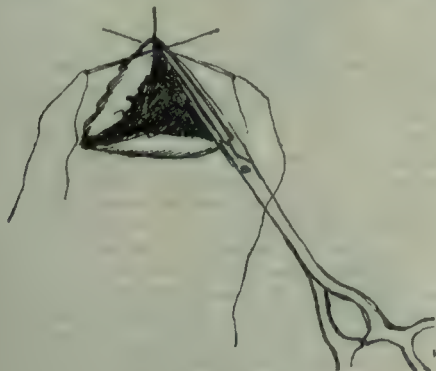


FIG. 2.

may be inserted before removal of the clamp, is placed at the apex of the triangle, and is tied at the centre of the thread. The clamp being removed the two needles are passed through from opposite sides at the same point—a cobbler's stitch (Fig. 2). Each stitch is pulled taut but not tied. The suture is continued in this manner at $\frac{1}{2}$ in.

intervals until the lower end of this side of the triangle is reached, where it is tied. With the scissors the redundant tissue is now clipped away at a distance of one-sixteenth of an inch from the line of suture (Fig. 3). The narrow ridge thus left is lightly touched with the thermo-cautery. The other two sides of the triangle are similarly treated, and the traction sutures are removed.



FIG. 3.

A suppository containing 1 grain ext. opii is inserted, and the usual rubber tube ($\frac{5}{8}$ by 3 in.), wound with iodoform gauze and well anointed with vaseline, is introduced (Fig. 4). This tube is left *in situ* until the morning of the fifth day after operation. The patient is kept on fluids for four days, and the bowels are constipated with pil. opii gr. 1 to 2 daily. At the beginning of the fifth day 1 oz. of castor oil is given by the mouth, and after four hours 6 oz. of warm olive oil is injected through the tube, which is then gently removed.



FIG. 4.

In a series of twenty-one cases this operation has given satisfactory results.

I am indebted to Sergt.-Major H. E. Law (W.O.), C.A.M.C., for the drawings illustrating this article.

Memoranda :

MEDICAL, SURGICAL, OBSTETRICAL.

A CASE OF PUERPERAL SEPTICAEMIA TREATED BY INTRAVENOUS INJECTION OF EUSOL.

To the perusal of the article, "On a case of septicaemia treated by intravenous injection of eusol," by Drs. Lorrain Smith, James Ritchie, and Theodore Rettle, which was published in this JOURNAL on November 13th, 1915, we feel indebted for the successful treatment of the following case:

Mrs. C. H., aged 19 years, a primipara, was delivered of a male child on January 21st, 1916. The labour was very difficult, and was terminated by forceps under chloroform. Owing to the large size of the child, which weighed 10 lb., there was considerable laceration of the vagina and perineum.

On the third day after confinement the temperature was found to be 101°, while the lochia were very offensive.

The stitches were removed, the raw surfaces painted with pure phenol, and the vagina and uterus were douched with mercury biniodide solution (1 in 2,000), and aspirin in 10-grain doses every three hours administered.

On the evening of the same day the patient had a very severe rigor, lasting for two hours. Next morning the temperature had risen to 103.4° and the pulse was 132. The same local treatment was carried out, and next morning 10 c.cm. of polyvalent serum were injected; this dose was repeated the following day. Notwithstanding this the patient's condition became steadily worse.

On January 27th 120 c.cm. of eusol in normal saline, warmed to 37° C., were injected into the right median basilic vein, under local anaesthesia (1 per cent. solution of quinine-urea hydrochloride). Mr. A. G. Francis, Surgeon to the Hull Royal Infirmary, performed the operation.

Several hours later the patient became very restless, and complained of great pain in the back. A hypodermic injection of morphine $\frac{1}{2}$ grain, with atropine $\frac{1}{16}$ grain, hyoscyne $\frac{1}{16}$ grain, and strychnine $\frac{1}{32}$ grain was accordingly given; sleep supervened in a few minutes and continued for several hours. Next morning the pain had entirely disappeared and the temperature had fallen 1.5°. Two days later it registered 99.4°, and reached normal on February 1st. The pulse, though still rapid (over 100), had greatly improved in quality. Previously of extremely low tension, it had now the character which an eminent French clinician so graphically described as *bien frappé*.

The local treatment adopted subsequent to that already described consisted in twice daily douching the vagina

with 1 per cent. solution of lysol and insufflating iodoform. Improvement was steadily maintained, the patient being able to leave her bed four weeks after the date of confinement.

A. T. BRAND, M.D.
J. R. KEITH, M.D.

Driffeld, East Yorks.

CRANIAL TUMOUR (? DERMOID BY IMPLANTATION.)

PRIVATE R. T., No. 9441, was stunned by the explosion of a shell on April 29th, 1915. A blunt body must have struck the skull, for the skin was slightly wounded; it healed in a few days, but a tumour rose up within five days, and early in May was about the size of a medium-sized orange. Though he had a sense of pressure inside his head, he does not think the tumour itself had pulsation in it at that time. About June a skiagram was taken, and a fracture of the skull was seen at the edge of the tumour. Operation was declined.

I saw the patient in October, 1915, and at first thought the swelling was a meningocele which had become shut off by healing of the fracture. It was round and fluctuating and free from pulsation or expansion on blowing efforts. It had previously been diagnosed as hernia cerebri by another surgeon. At this time I did not think it wise to operate.

The patient was sent to Colchester. A radiograph taken there plainly showed the old fracture of the skull at the edge of the tumour. Having concluded that the cyst must now be shut off from the brain I decided to operate, and on November 29th an incision was made and the whole cyst was shelled out clean. It had no brain connexion. It peeled off from the bare bone in the centre over the bregma. The fracture lay an inch away. It had upward raised edges, so that some diffused pressure must have been made elsewhere by the shell explosion, or the body which was driven by it against the skull. On opening the cyst, hair and sebaceous matter was seen, and on the wall were a few white projections but no teeth.

The question then arose whether the cyst was a mere coincidence, or whether skin had been driven in by the shell and caused a tumour by implantation.

The officer in charge of the laboratory at Colchester reported as follows:

Section shows a simple dermoid cyst lined by about three layers of squamous epithelium, on the surface of which is shown sebaceous secretion. There are large numbers of sebaceous glands. It is impossible to say from a section whether it is a traumatic inclusion dermoid or of congenital formation. The site, of course, would give you much information towards settling the point. If it was in the region of one of the sutures it would almost certainly be a congenital one.—WM. L. MACKARELL, Captain R.A.M.C., O.C. Laboratory.

As no tumour was noticed before the injury, and as the cyst was on a suture, it must be concluded that an embryo dermoid must have been incited to grow by the stimulus of the injury.

Up to date—January 20th, 1916—there is no sign of recurrence.

W. LEDINGHAM CHRISTIE, M.D., F.R.C.S. Eng.,
Temporary Lieutenant R.A.M.C.

Reports of Societies.

TREATMENT OF GUNSHOT WOUNDS.

In the discussion at the Harveian Society of London which followed the address by Sir BERKELEY MOYNIHAN, published in the JOURNAL of March 4th, several speakers spoke of the risk of relighting up infection by secondary operations. The opinion seemed to be that such operations should be deferred as long as possible. Mr. CLAYTON-GREENE said that he was not satisfied as to the proper treatment of a small wound discharging pus with a foreign body at the bottom of it. The danger of interference was that of opening up fresh avenues of infection. He thought exploration should be deferred until the streptococcus had been got rid of by prophylactic vaccines and by Bier's method of cupping. Mr. DONALD ARMOUR thought that the ill effects of reopening wounds were associated specially with bone, in connexion with which there was a real danger of reawakening old suppuration. He had been

much encouraged by the results following the use of magnesium sulphate and glycerine in infected cases. Mr. D'ARCY POWER, speaking of dense infiltrating scars the result of prolonged suppuration following extensive laceration of the soft tissues, expressed the opinion that graduated movements by the patient and massage rendered the tissue much more supple, and made excision of the scar undesirable—at least during the earlier periods.

Mr. DUNCAN FITZWILLIAMS and Mr. A. EDMUNDS spoke of the results witnessed in the Mediterranean among the wounded from Gallipoli. Mr. Fitzwilliams said that the hypertonic salt solution had been much used at Malta, but that antiseptics increased the rate of healing. Mr. Edmunds said that chloramine was one of the most valuable additions to the surgeon's kit, but as the supply was limited he had kept it for a difficult class of mouth cases—those in which the palate was badly damaged. He agreed as to the value of the hypochlorite solution if thoroughly applied to all parts of the wound.

Mr. ALEXANDER FLEMING said that when he went out to France he found the clinical appearance of the wounds totally different from anything he had seen in civil practice, and that bacteriologically the difference was just as marked. The wounds in general resembled the foul-smelling appendix abscesses of civil life. The infection was primarily faecal, and the microbes in the early stages were those normally found in the intestine of men and animals—namely, *B. aerogenes capsulatus*, *Streptococcus*, *B. proteus*, *B. coli*, and a number of spore-bearing putrefactive anaerobic bacilli (to which latter the foul smell was due); all of these were found in faeces. In order to trace the source of infection cultures were made from portions of the soldier's clothing, selecting parts remote from the wound in order to avoid contamination from the wound discharge. These were incubated aerobically and anaerobically, and samples showed out of twelve:

- 10 containing *B. aerogenes capsulatus*.
- 5 containing *Streptococcus*.
- 4 containing *B. tetani*.
- 2 containing *Staphylococcus albus*.

The examinations were carried out in November, 1914, when there was much tetanus among the wounded. These experiments showed that the soldier's clothing was the source of the wound infection. Wound infection might be divided into three stages: (1) A gross infection with anaerobic spore-bearing bacilli, producing a foul-smelling sanious discharge, due to the action of the bacilli on the blood clot in the wound; (2) the anaerobic bacilli disappear, and the discharge becomes more purulent, but not as yet like the so-called "laudable pus"; (3) infection with pyogenic cocci. In explanation of the importance of (3) he related the following experiment: Human faeces were planted in blood clot and incubated anaerobically for twenty-four hours. A loopful of this culture was transferred to a second tube of blood clot and incubated like the first, and so on for ten days, in this way reproducing to some extent the wound infection. He found that the early cultures, in addition to *streptococcus*, contained many *B. aerogenes capsulatus*, *B. coli* and putrefactive organisms, and that these became gradually fewer, until after ten days all had almost entirely disappeared except the *streptococcus* and some Gram-positive bacilli called "wisp bacilli," similar to those found in wounds; the tenth subculture had practically the same flora as an infected wound ten days old. While wounds may become serious in the early stages from infection with tetanus, gas gangrene, and septicaemia, the streptococcal infection of the later stages was by far the most serious, for all the septicaemias were due to it. He described two distinct types infecting these wounds: (1) the *Strep. faecalis*, relatively non-virulent, (2) *Strep. pyogenes*; in about one-third of the cases he had found a third—an anaerobic streptococcus—which had caused a rapidly fatal septicaemia in the patient from whose blood it had been isolated in pure culture. His observations on the use of pure carbolic acid, and iodine solution in alcohol, for the primary sterilization of wounds, led him to conclude that the results were no better than had the applications not been used. The later infections of war wounds he considered not essentially different from those seen in civil practice; in both, the streptococcus and staphylococcus played the most important part, the former being the more potent factor of the two. Since 1903 all forms of sepsis had been treated at St. Mary's Hospital with

vaccines, and in a very large number of cases the benefit seen had been obviously due to the vaccines. They increased the antibacterial substances, and he thought that inoculation with small doses of streptococcus vaccine or of "anti-sepsis" vaccine (a mixture of streptococcus and staphylococcus) would be beneficial in the later stages of the wounds, and that two or three inoculations preceding a secondary operation might prevent the recrudescence of the sepsis.

The President expressed his agreement with Sir Berkeley Moynihan's scepticism as to vaccines. He thought that their value when a patient was already suffering from a poison produced by organisms remained to be proved. Mr. CLAYTON-GREEN observed that it was difficult to form an opinion as to the real value of vaccines, because there were no controls. He had recently had two cases of streptococcal infection which recovered comparatively quickly after the use of vaccines; he did not think either of them would have recovered otherwise; but autogenous, not polyvalent, vaccines should be used.

Reviews.

MODERN BONESETTING FOR THE MEDICAL PROFESSION.

MR. ROMER has written an interesting little book of a very practical kind on a subject which should be of much interest to the medical profession. From time immemorial the bonesetter has flourished in our midst; he has scored his successes, and for many and obvious reasons his failures have not received adequate publicity. The failures are due often to the fact that the bonesetter is insufficiently trained to distinguish various forms of arthritis in their earlier stages from joints which are merely fixed by adhesions. The successes are equally the result of a want of experience on the part of the surgeon, which should enable him to distinguish the uncomplicated presence of adhesions. It is rather disappointing in studying Mr. Romer's book—which is entitled *Modern Bonesetting for the Medical Profession*¹—not to find emphasized the fundamental principles which should guide the surgeon in dealing with the doubtful case. Details are given as to how adhesions should be broken, but the value of the book would have been increased had we been told which is the type of joint to be broken down, what are its essential symptoms, which condition we should approach warily and which boldly.

The author describes very graphically the different movements to be employed in the various joints, and makes the interesting observation that in many instances it is not expedient to put an articulation through its full range of movement. This is not usually taught nor often practised, and in those cases in which symptoms recur an incomplete manipulation is generally blamed. The after-treatment by massage and passive movements is very wisely insisted on. Mr. Romer states that rapidity in execution of the movements gives rise to far less after-pain than if the adhesions are broken down by slow and deliberate stretching. An anaesthetic is recommended in order that complete muscular relaxation should be secured.

The book can be recommended as a very instructive and sane presentation of a subject which has a special interest at this time.

TROPICAL DISEASE.

Rural Sanitation in the Tropics,² by Dr. MALCOLM WATSON, will be read with interest by sanitarians everywhere. It is a record of what has been done to make the tropics healthy since mosquitos were incriminated in the spread of important diseases such as malaria and yellow fever. The work is dedicated to Sir Ronald Ross, who has laboured so vigorously in this branch of medicine, and whose original work in establishing the part played by the *Anopheles* in the transmission of malaria may be said to

be directly responsible for the pages under discussion now. After an introductory chapter, two chapters are devoted to British Malaya. Here the able work done by Dr. Watson himself is described—how he dealt with the flat land near the coast, and with the hilly land farther in. The importance of definitely recognizing the species of mosquito that is carrying the malaria of any given place is well brought out. This is essential if the measures are to be successful. Chapter IV deals with quinine prophylaxis in Italy; V with malaria in India; and VI with Hong Kong and the Philippines. Nine chapters are devoted to Panama, one to British Guiana, one to Barbados. There is an epilogue, and its opening sentence may be quoted, since it puts the matter in the proverbial nutshell. "The problem of sanitation in the tropics, like most problems in the tropics and elsewhere, is primarily one of ways and means." To translate this into other words: if plenty of money can be commanded it is possible to do anything, even to the moving of mountains. Granted, however, a plentiful supply of funds, there still remains the question of their proper application, and it is in the description of this that the book will prove so valuable to future workers. The gigantic experiments at Panama are well described. Here the money was ready, but even so the whole undertaking might have failed if Colonel Gorgas had not been given a free hand to expend the funds in the proper way. Dr. Watson brings this out clearly in his book. No engineering skill alone could have succeeded without the help of the sanitarian, and one may also say without a sanitarian of genius. But, after all, the health of rubber estates and small areas in the tropics is as important—at least to the directors and shareholders—as mammoth undertakings like the Panama Canal. How they may secure this by judicious expenditure will be found in the pages of Dr. Watson's work. There is only one word of warning needed, and that is that means which may be quite adequate for one place in the tropics may not equally apply to others, and a somewhat more prolonged visit than Dr. Watson paid to some of the parts he studied is requisite to get a proper understanding of the local conditions which prevail there throughout the year. The book is in many ways a personal record of what Dr. Watson saw—a journal, in fact—and it may confidently be predicted that all who read it will enjoy it as much as the reviewer did. It is a pioneer work, excellently written, and should prove of the greatest value to future sanitarians in all parts of the tropics. Dr. Watson's practical work in Malaya is well known, and his book will undoubtedly add to his reputation.

Part III (*Ixodidae*) of *Ticks: a Monograph of the Ixodoidea*³ appeared last October (1915). This deals with *Haemaphysalis*, and is by Professor G. H. F. NUTTALL and Mr. CECIL WARBURTON. It is concerned with 50 species and varieties of the genus. All the descriptions are original; they include three new species and three new varieties, aberrant forms and numerous hitherto undescribed stages of known species. The work is beautifully illustrated by black-and-white sketches, and by uncoloured and coloured plates. The value of this monograph has been already indicated in previous reviews, and all that is necessary to add now is that the present part maintains the high excellence of those that have gone before, and forms the standard work on the subject in the English language. A first bibliography was published in 1911, but as many papers have appeared dealing with ticks and their relation to disease since that date, a second had become necessary; this contains 462 titles, and should prove most useful to workers on the subject.

THE PLAGUE OF NOISE.

In a little book recently published Dr. DAN MCKENZIE has come forward as a prophet of the Silences, in a more practical sense than Carlyle.⁴ He is deeply impressed by the evils of noise, to which attention has frequently been called in the *BRITISH MEDICAL JOURNAL*, and he has written in the hope of abating a nuisance which may conceivably

¹ *Modern Bonesetting for the Medical Profession*. By F. Romer. M.B.C.S. Eng., J.R.C.P. Lond. London: W. Heinemann. 1915. (Demy 8vo, pp. 88; 20 figures. 5s. net.)

² *Rural Sanitation in the Tropics: Being Notes and Observations in the Malay Archipelago, Panama, and Other Lands*. By M. Watson, M.D., C.M., D.P.H. London: J. Murray. 1915. (Med. 8vo, pp. 556; 56 figures. 12s. net.)

³ *Ticks: a Monograph of the Ixodoidea*. By G. H. F. Nuttall F.R.S., and C. Warburton. Part III, *Ixodidae*. The genus *Haemaphysalis*, October, 1915. Cambridge: At the University Press. 1915. (Sup. roy. 8vo, pp. 349-550; 15 plates, 141 figures. 12s. net.)

⁴ *The City of Din, A Trudge against Noise*. By Dan McKenzie M.D. (Glasg.), Fellow of the Royal College of Surgeons, Edinburgh. London: Adlard and Son, Bartholomew Press. 1916.

grow into a danger to the higher development of human faculty. The world, like Prospero's isle, is full of noises, of which it certainly cannot be said that they give delight and hurt not. The din in which dwellers in large cities live would shatter the strongest nerves if a certain tolerance were not bred by habituation. Dr. McKenzie aptly defines noise as painful sound, and he gives a lucid and accurate description of its evil effects on the organ of hearing, and on the brain and the general system. We fear there is much truth in his pronouncement that as modern civilization progresses the noisier it tends to become, because the invention of machinery plays so large a part in the evolution of industrial enterprise. Dr. McKenzie has not so far been able to detect any signs indicative of damage to the ear itself from the noises of everyday life; but to an auditory apparatus made delicate by catarrh or other morbid condition the din of street traffic is distinctly harmful. He rightly holds the motor horn in special abhorrence, and he curses it with a wealth of invective that might satisfy even Sir Henry Morris. But, although we agree with him that the horn is greatly abused, we cannot admit that it is "quite unnecessary." It should, however, be used with something of the remorse and mitigation which Malvolio entreated Sir Toby Belch to apply to his voice, and its hootings might be tuned to a uniform standard of tone and pitch. As far back as in 1910 Mr. John Burns gave a sort of promise that this should be done, but, as far as we are aware, nothing more has been heard of the matter.

Another cause of suffering to sensitive persons is the railway whistle. At the annual meeting of the British Medical Association in Birmingham in 1890, Dr. Thomas Barr, of Glasgow, expressed the conviction that the ear was injuriously affected by the shrillness of these whistles, and a resolution was passed asking that something should be done to abate the evil. But the railway companies turned a conveniently deaf ear to the appeal. More recently Professor Vittorio Grassi of Pisa suggested that the sound of all whistles, bells, horns, and other instruments used for signalling purposes on railway lines and by all kinds of vehicles, works, and so forth, should be less loud and piercing; and that stringent regulations should be made by public authorities prohibiting or limiting unnecessary and untimely noises, especially those of high pitch, which are the most hurtful to the ear and brain. Dr. McKenzie condemns the railway whistle as wholeheartedly as he denounces the motor horn; "in these days of electric signalling," he says, "the locomotive whistle is nothing short of an anachronism." It is significant that the motorist now finds a groan more useful than a shriek.

Among the other noises contributing to the general din is the loud music which nowadays makes conversation in places of public resort impossible. Théophile Gautier described music as the most expensive of noises; had he lived at the present day he might have been tempted to say that it is also one of the most irritating to sensitive ears.

The very worst effects of noise are seen in the present war, in which

Bellona storms
With battering engines

with a violence she has never displayed before. Dr. McKenzie refers to the possibility of making guns silent, but he offers no solution of the problem. Indeed, we gather that for the present he is doubtful as to the expediency of mitigating the noises of war. Even if we discovered a way of saving our men from the effects of noise, it is not in the least likely that the Germans would dispense with the use of so potent an instrument of "frightfulness."

Dr. McKenzie hints at the possible development of a protective deafness in the men of the future; the result of which would be that their sensitive brains would be spared "the paralysing impacts upon them of the heavy blows of artificial sound." This is a somewhat dismal speculation, but we are encouraged by his admission that a good deal has been done in recent years in the way of abatement of the noise nuisance. Smooth road surfaces have deadened the crushing and jarring sounds of heavy traffic, and police regulations have reduced the volume and variety of street noises. The substitution of electricity and hydraulic power for steam has considerably lessened the deafening sounds of machinery. Much remains to be done, but Dr. McKenzie ends his homily on a strong note of hope of final victory

over noise; this will, he says, "come all the sooner if public opinion can be educated to regard noise as an evil to be condemned and reformed out of existence with all possible dispatch." His book, in which the lightness of the style makes the solid sense of the matter easy of digestion even to a casual reader, will be a powerful help in the furtherance of the cause which he has at heart.

TREATMENT OF TYPHOID FEVER BY DESSY'S VACCINE.

In his thesis on the treatment of enteric fever with the vaccine prepared by Dr. Silvio Dessy, Dr. MAGLIONE gives a brief account of previous work in this field.⁵ Dessy's vaccine was first used in 1903; it contains over forty strains of *Bacillus typhosus*, grown for forty-eight hours on alkaline agar, and emulsified in a small quantity of normal saline. The bacteria are precipitated from this by adding a small amount of agglutinating serum of high potency, from a patient with enteric fever, and keeping at 40° C. for twenty-four hours. The clear supernatant fluid is poured off, the agglutinated and precipitated bacteria are dried by rapid centrifugalization, and then suspended in physiological saline, weighed, and treated with an equal volume of 1 per cent. caustic soda solution to dissolve them while they are shaken for three hours. Treated thus the microbes swell up into a mucilaginous mass like white of egg. This mass is diluted with distilled water saturated with carbon dioxide, so that each cubic centimetre of it contains one milligram of the bacteria. For the most part the bodies of the bacteria have gone into solution in the vaccine thus prepared. This vaccine is sent out in bulbs containing 1 c.c.m.; before administration by subcutaneous or intravenous injection it is to be diluted with five volumes of normal saline. The dose for subcutaneous administration is not mentioned; for intravenous injection the first dose is one-fifth of a bulb, and later doses, given at intervals of twenty-four or forty-eight hours, may be increased by one-tenth of a c.c.m. of the undiluted vaccine. These intravenous injections are generally followed by a rigor fifteen or twenty minutes later, and subsequently by an enlargement of the spleen. Maglione states that the vaccine should not be employed in patients with intestinal haemorrhage or myocarditis, chronic alcoholism, or tuberculosis. He gives details of 131 patients with enteric fever treated in the Italian Hospital at Buenos Aires with Dessy's vaccine between 1913 and 1915. From one to eight injections were given in different cases, the average being about four. Eight of the patients died—a mortality of 6.1 per cent. In two-thirds of the cases the treatment lasted for from three to twelve days. A chart is given which shows in a striking way the tendency of this treatment to cut short the fever. Between 1905 and 1911 the classical methods of treatment were used in 1,050 cases of enteric, with 159 deaths (mortality 14.2 per cent.), and an average duration of thirty-one days. With Dessy's treatment the fever lasted as long as thirty days in only one instance, and averaged under a fortnight. Dr. Maglione strongly recommends the treatment of the disease by the intravenous injection of this vaccine, and notes that it generally causes the fever to end by crisis. Its employment does not exclude symptomatic treatment. Without doubt he makes out a good case for further trial of the vaccine.

NOTES ON BOOKS.

DR. ESPINE WARD'S *Beri-beri: Its Etiology, Symptoms, and Treatment*,⁶ represents the thesis he presented for the degree of M.D. of the Queen's University of Belfast. After a general survey of the disease, a detailed clinical account is given of 32 cases which occurred in the prisons at Freetown, Sierra Leone. This is followed by a synopsis of the cases. The very interesting fact is brought out that, of the prisoners who developed beri-beri in the gaols, all had been feeding on rice and rice alone, and not on the ordinary diet they were believed to be having, and to Dr. Ward is due the credit of having discovered this fact. The

⁵ *Tratamiento de la Fiebre Tifoidea por la Vacuna Dessy*. By Roberto Maglione. A Thesis for the M.D. Degree at the National University, Buenos Aires. Buenos Aires: "La Semana Medica," Imp. de Obras de E. Spinelli. 1915. (8. roy. 8vo, pp. 168.)

⁶ *Beri-beri: Its Etiology, Symptoms, and Treatment; with a Detailed Clinical Account of Thirty-two Cases occurring in Sierra Leone*. By Espine Ward, M.D., B.Ch. Belfast: Mayne, Boyd, and Son, Ltd., and Wm. Mullian and Son. 1915. (Demy 8vo, pp. 84.)

ordinary diet of the prisoners in those gaols is a full one, and it would certainly be difficult to see how beri-beri could break out when such a diet was being used. Careful observations, however, revealed the fact that an alteration had been introduced at the beri-beri prisoners' own request, these individuals having asked for rice alone. This fact may well explain many other outbreaks of this disease which have so far puzzled students of its epidemiology. The synopsis of the cases shows careful and accurate work, and the thesis well deserves the honour the university conferred upon it.

Professor A. G. WOODMAN's book on *Food Analysis*⁷ is the outcome of his experience as a teacher at the Massachusetts Institute of Technology. Certain typical foods are selected to illustrate the more important methods by which the special problems of analysis may be attacked; the book is therefore one for the student of analytical chemistry rather than for the practising chemist. Especial attention has been devoted to the chapters on the analysis of fats and oils, carbohydrates, and alcoholic beverages. The author writes with clearness and prolixity; he deals with many articles of food that are commoner in America than Great Britain. Naturally the text owes much to previous writers on the subject, and the author expresses a special debt of gratitude to the publications of the United States Bureau of Chemistry. Numerous references to the literature are given, and numerous statistical tables. The book appears to serve its purpose admirably, and may be recommended to the attention of those for whom it is designed.

A book on botany⁸ for students and teachers engaged in study for the Senior Cambridge Local Examinations in the upper forms of secondary schools has recently been written by Mr. THODAY. It assumes no previous knowledge of the subject, and is both lucidly written and well illustrated. It is meant to be used in conjunction with nature-study and work in the practical laboratory. The author clearly has had a considerable experience of the teaching of elementary botany, and his book may safely be placed in the hands of those for whom it has been designed.

MEDICINAL AND DIETETIC PREPARATIONS.

Esprit de Liège.

ALTHOUGH for many years much of the "Eau de Cologne" sold in this country has been manufactured here, and a formula for it under the name "Spiritus Coloniensis"—is given in the *British Pharmaceutical Codex*, the various brands actually made in Cologne continued to have a large sale before the war. The name "Eau de Cologne" has now ceased to be appropriate, and there appears also to be a strong objection on the part of many to naming a useful article for the toilet and sick-room after a German town. An excellent spirit of the same kind is now put forward under the name "Esprit de Liège," and a sample has recently been submitted to us by the manufacturers, the Peace Pillow Company (17, Manchester Avenue, London, E.C.); it is a perfume similar to that which it is intended to replace, but not identical with it, very sweet and refreshing, and leaving no trace of unpleasant residual odour when evaporated. It will be an excellent perfumed spirit for the sick-room, and will no doubt achieve popularity.

YELLOW FEVER.

A SERIES of reports on questions connected with the investigation of non-malarial fevers in West Africa, instituted by the Yellow Fever Commission¹ recently appointed by the Colonial Office, have been published as supplements of the Yellow Fever Bureau *Bulletin*. They form two bulky volumes, of which the first has 7 plates, 9 plans and maps, and 128 charts, the total number of pages being 352. Volume II has 12 plates, 1 map, 107 charts, and contains 400 pages. It is thus evident that an enormous mass of material has been collected, and Sir James Kingston Fowler in his preface states that "whilst accepting no responsibility for the views expressed in these reports, the Commission are of opinion that the results of these

researches, conducted, as many have been, in the face of very great difficulties, should be placed on record, not only to commemorate the painstaking efforts of the investigators concerned, but also because they may prove useful as a basis for criticism and discussion, and may thus assist in the solution of the problems which still confront those whose administrative duties bring them into contact with yellow fever."

The recent history of yellow fever in West Africa is interesting. The late Sir Rubert Boyce, it will be remembered, some years ago propounded the theory that yellow fever was universally endemic all over the West Coast of Africa. If he had said that it prevailed endemically in certain areas, probably no one would have seriously disagreed with him, but the assertion of its universality was severely criticized. In many ways, however, these present reports are a result of Boyce's views. They bring out the fact—a fact, however, not seriously disputed before—that epidemics of yellow fever do from time to time occur in West Africa, the origin of which cannot be traced to importation from other parts of the world. The disease can, then, be spoken of as being endemic in West Africa, or at least in parts of it.

Yet another point brought out is the difficulty of diagnosing yellow fever, not only clinically, but even in some instances pathologically after death. The parasite of yellow fever is still unknown; there is therefore no single definite test by which it can be established that any individual case is or is not one of yellow fever. Mild atypical cases are notoriously difficult of diagnosis, and as those who thus suffer do not die, it is not possible to be absolutely certain the attack was one of yellow fever. This is a point in connexion with which much work remains to be done. It is, of course, right to state that Seidelin, one of the Commissioners' investigators, claims that he has discovered the parasite of yellow fever, and the open-minded attitude the Commission takes is shown by the fact that papers for and against that view appear side by side in the second volume of these reports. The destructive criticism of Seidelin's views contained in a recent paper by Wenyon and Low finds support in papers by David Thomson and Lieutenant-Colonel Harvey, and it seems probable that the suggestion that the paraplasm is the parasite of yellow fever will not survive. In that case much of the matter in vol. II will have no permanent value, as, for instance, the chapters on experimental yellow fever in laboratory animals, reports on the transmission of *Paraplasm glaucigenum*, and the report on some histological lesions observed in laboratory animals infected with yellow fever. Apart from these criticisms, many of the other reports are very valuable, and show evidence of careful and painstaking work. Lieutenant-Colonel Statham's conclusions on page 386 should be carefully noted by future investigators of the disease in West Africa. The pendulum has swung to the other side, and, as he states, fever with transient albuminuria is now considered highly suspicious of yellow fever. Albuminuria, however, is common not only in some of the types of malaria, but also equally in many other conditions, so that too much stress must not be laid on the symptom. Dr. Wyler's and Dr. Leonard's reports give a good idea of the yellow fever cases observed in Lagos during 1913 and the beginning of 1914. No one who has seen yellow fever in the West Indies and South America can read these reports without being convinced of the correctness of the diagnosis. Some of the cases which showed malarial parasites in the blood—notably, for example, Case 26, p. 270—might be questioned, but about the majority there is not the slightest doubt. The only point lacking in the reports of the cases is the absence of careful blood counts per cubic millimetre and differentially. It is a pity that so good a chance was lost.

The volumes as a whole, then, form a valuable contribution to our knowledge of yellow fever, and they will no doubt give rise to criticism and discussion. One word of warning to those who administer the West Coast colonies—*Stegomyia fasciata*, the carrier of yellow fever, seems to be as prevalent as ever in many parts of the coast. Now is the time to act against it. To wait until another epidemic appears will be too late. To be forewarned is to be forearmed; remove the intermediary and there will be no further trouble with the disease it carries. The examples of Cuba, Panama, Colon, and Rio point the way.

⁷ *Food Analysis: Typical Methods and the Interpretation of Results.* By A. G. Woodman. New York: McGraw-Hill Book Co., Inc. London: Hill Publishing Co., Ltd. 1915. (Demy 8vo, pp. 520; 108 figures. 12s. 6d. net.)

⁸ *Botany: A Textbook for Senior Students.* By D. Thoday. M. A. Cantab. Cambridge: The University Press. 1915. (Demy 8vo, pp. 490; 205 figures. 5s. 6d. net.)

¹ Yellow Fever Bureau *Bulletin* (Liverpool School of Tropical Medicine). Supplement, volume I and volume II. Yellow Fever Commission (West Africa). Reports on Questions Connected with the Investigation of Non-malarial Fevers in West Africa. Liverpool: University Press. (Price, volumes I and II, 25s. net; for subscribers to the *Bulletin*, 21s. net.)

ROYAL MEDICAL BENEVOLENT FUND.

At the last meeting of the Committee, held on February 8th, twenty cases were considered, and £170 10s. voted to fifteen of the applicants. The following is a summary of the cases relieved:

Widow, aged 73, of M.D. Dubl. who practised in London and died in 1876. After her husband's death she settled in Brussels and took in paying guests, and did well and was able to save. At the outbreak of war her house and contents were taken over by the enemy, and all her savings were in Belgian stocks, which she cannot realize. Has been living with friends, but this cannot continue. Voted £9 in six monthly instalments.

Widow, aged 52, of M.R.C.S. Eng. who practised in Wolverton and died in 1912. Was left fairly well off, but brother-in-law, who had her affairs in hand, has disappeared and taken all with him. Has tried to earn a little by taking in boarders, but not successfully. One son, aged 17 years, who only earns 5s. a week. At present in great financial trouble. Voted £12.

Daughter, aged 72, of M.R.C.S. Eng. who practised in London and died in 1872. Applicant managed to earn a living as a governess until a few years ago, when she became totally deaf, and suffers with rheumatism. Only income a pension of £25 from the Governesses' Benevolent Institution. Voted £12 in twelve instalments.

Daughter, aged 32, of M.R.C.S. Eng. who practised at Wolverhampton and died in 1884. Applicant has had continuous bad health for years. Only able to work a few hours a day, and earns about 6s. per week by teaching typewriting and book-keeping. Relieved eight times, £58. Voted £12 in twelve instalments.

Widow, aged 35, of M.R.C.S. Eng. who practised at Swansea and Liverpool and died in 1914. Applicant is suffering from paralysis of the right side, and is quite unable to do anything. Has one child aged 7 years, whom the Guild are going to see if they can assist with respect to her education. Applicant lives with her mother, who is not well off. Relieved once, £12. Voted £12 in twelve instalments.

Daughter, aged 59, of M.R.C.S. Eng. who practised at Battle and died in 1873. Applicant suffers from chronic rheumatism and defective eyesight; she is quite unable to work, and is dependent on a sister. Relieved thirty-two times, £254. Voted £12 in twelve instalments.

Daughter, aged 59, of M.R.C.S. Eng. who practised at Box and died in 1894. Applicant lives with two sisters, and all have indifferent health. Receives a little help from friends and from another charity. Relieved eight times, £126. Voted £18 in twelve instalments.

Widow, aged 69, of M.R.C.S. Eng. who practised in London and died in 1893. Applicant's health is very bad, and she has recently had an accident which left her lame. Has a house which she lets, but cannot get the rent from the tenant, so is in temporary difficulties. Relieved once, £10. Voted £12 in twelve instalments.

Widow, aged 68, of M.D. St. Andrews who practised at Kidderminster and died in 1884. Before the war she managed fairly well by taking in lodgers, but lately has lost them all, as they have joined the army, and recently has been ill in bed. Relieved once, £10. Voted £12 in twelve instalments.

Daughter, aged 41, of M.R.C.S. Eng. who practised at Scarborough and died in 1879. Applicant makes a little by occasional nursing, but has not been successful of late. Relieved eleven times, £107. Voted £10 in two instalments.

Widow, aged 67, of M.D. Lond. who practised at Hoxton and died in 1897. Was left quite unprovided for at her husband's death, with one daughter, who worked as a milliner, but is now without a post. Makes a little by letting her house furnished in the summer, but not sufficient to enable her to manage. Relieved five times, £60. Voted £10 in two instalments.

Widow, aged 66, of M.R.C.S. Eng. who practised in various places and died in 1903. Applicant has two children, both married, and only able to help very little. She is too old to do anything herself in consequence of indifferent health. Relieved twelve times, £142. Voted £12 in twelve instalments.

Daughter, aged 54, of F.R.C.S. Eng. who practised in Bedfordshire and died in 1890. Applicant was left entirely unprovided for, and the state of her health prevents her from taking any permanent work. Relieved ten times, £76. Voted £12 in twelve instalments.

Widow, aged 58, of L.R.C.S. Edin. who practised at Fulham and died in 1910. Applicant endeavours to earn a living by taking boarders, but has not been very successful, and her health has been very indifferent of late. Relieved three times, £25. Voted £12 in twelve instalments.

Subscriptions may be sent to the honorary treasurer, Dr. Samuel West, 11, Chandos Street, Cavendish Square, London, W.

The Royal Medical Benevolent Fund Guild appeals for gifts of secondhand clothing, boots and shoes in good condition, also household linen. The gifts should be sent to the Secretary, Royal Medical Benevolent Fund Guild, 43, Bolsover Street, W.

A SCHEME for the establishment of a school of dental surgery, to be closely allied to the medical school of Columbia University, is under consideration.

GERMAN PRISON CAMPS.

Much has been heard of the brutality with which the Germans treat the prisoners of war, especially the British, who have fallen into their hands. The evidence as to this in the early days of the war, when the enemy thought he was carrying all before him and could do as he liked, is overwhelming. Things have changed to a certain extent now that chastened hopes have dictated prudence. Moreover, though the lot of the prisoner can never be a happy one, there have all along been differences in the conditions in the various camps, due partly to the personality of the officers in charge, partly to the difficulty of accommodating and providing for masses of men suddenly brought together and kept under guard in places unsuited for the purpose. It may be interesting, therefore, to give the experiences of some medical prisoners. They may be compared with those of Mr. L. J. Austin, Dr. A. R. Elliott, and Captains C. T. Edmunds and E. S. B. Hamilton, and Lieutenant W. S. Danks, R.A.M.C., published in the JOURNAL of January 23rd, 1915, p. 165. Readers may also be reminded of the interesting account of an outbreak of typhus fever in a German prison camp given in the BRITISH MEDICAL JOURNAL of November 20th, 1915, p. 737, by Major P. C. T. Davy, R.A.M.C., and Captain A. J. Brown, R.A.M.C. (S.R.). They were captured on August 26th and 27th, 1914, and were kept in various prisons with other British officers, without being employed in their medical capacity, till February 11th, 1915, when they were sent to Gardelegen.

Dr. Etienne Breton, a French army medical officer, who was taken prisoner at Maubeuge, was first sent to an officers' camp at Gutersloh; some time afterwards at his own request he was transferred to a soldiers' camp at Münster in Westphalia.¹ There he found that for nearly 12,000 men, comprising about 400 English, 500 Belgians, a score of Russians, and more than 10,000 French, there were only four doctors—a Russian, a Belgian, and two German. Two days after Breton's arrival the Russian and the Belgian were sent away, and the Germans being of little use, he asked for assistance, and was assigned two French doctors who remained with him till they were all liberated in July, 1915. The German doctors were replaced by two others who were very devoted and kind to the prisoners. Breton makes graceful acknowledgement of the help he received from "the thoroughly well instructed infirmarians of the R.A.M.C.," one of whom, Sergeant Walter Tindall, was for eight months the greatly appreciated dentist of the whole camp. The sick who were able to get up were paraded every morning. Cases of fever were sent to hospital. The other cases seen were chiefly bronchitis and laryngitis, neuralgia, stomach and bowel troubles, rheumatic pains due to insufficient bedding (often consisting of wood shavings or straw), cachectic oedema without albumin, skin diseases caused by vermin, urticaria, pruritus, boils due to bad pork, ham, and sausages, and the pies of liver and lung which formed the staple of their diet. Herpes zoster was very common, and the men, especially the Russians, suffered much from severe chilblains. There was a good deal of neurasthenia, especially among prisoners from the occupied regions who never received either letters or parcels from their families. After a time Breton was able to procure for this class some additions to their diet, and he organized a fund which further helped them. Although at first only a few stock medicines were served out almost at haphazard, later the doctors could order "at their discretion" aspirin, antipyrin, pyramidon, quinine, morphine, tincture of opium, calomel, rhubarb, ipecacuanha, Karlsbad salts, and other drugs. For the parasites they had camphorated oil and a pomade with a basis of powdered sulphur and balsam of tolu (10 per cent.), which was very effective. For the dressing of wounds sublimate was freely supplied, oxygenated water and tincture of iodine more sparingly. Antiseptic gauze was readily got, cotton-wool not so easily. There was a service of massage and movement cures carried out by a British orderly, which gave excellent results. There were special blocks for tuberculosis, for fever, and for wounded men, each accommodating 25 to 30 patients. In these blocks the mattresses, instead of being on the ground, were on wooden bedsteads, and the wards were better lighted and ventilated; they were also

¹ *Paris médical*, December 11th, 1915.

heated. Every ten days a batch of twelve patients with incipient tuberculosis was sent to a sanatorium with 400 to 500 beds, where they were better nourished and had better conditions generally than in the camps. All the prisoners were vaccinated against small-pox, typhoid, and cholera. For typhoid Pfeiffer's vaccine was used. For cholera a serum having no special name was employed. The German doctors could give no account of its composition, effects, or results.

In the *Journal of the Royal Army Medical Corps* for November, 1915, Captain W. K. Beaman relates his experiences. He was taken prisoner with several other medical officers at Landrecies on August 26th, 1914. A few days later they were sent to Germany. At various places on the way they were insulted and threatened, and they were kept very short of food. "The German Red Cross give no food to prisoners, wounded or otherwise. At times it is shown to them and then withdrawn, with kindly remarks that 'it's not fit for swine.'" On September 4th the party reached Torgau, where they found some sixty British and hundreds of French officers. They were housed in soldiers' barrack-rooms. Each had a bed consisting of a straw mattress on boards supported on an iron frame. The bedding consisted of two blankets, one sheet, pillow-slip, and blanket-bag, which served the purpose of a second sheet. Food was bad, but extras, such as jam, ham, and sausage, could be bought at the canteen. The latrines were very dirty and were cleaned out only when absolutely necessary. There was a good system of shower-baths with hot and cold water, and a daily bath could be got. For exercise there was at first only a small yard, but later an outer court was opened where football, rounders, and tennis could be played. In November all British officers were transferred to Burg. Equal numbers of Russians and English were placed in each room, and no two British officers were allowed to sleep side by side. They were lodged in converted gunsheds and stores; some rooms were fairly good, others very bad. Discipline was strict and oppressive. All the German officers were very hostile to the British, but much less so to the Russians and the few French who were there. The latrines were deep trenches, very dirty, and quite insufficient. Only one bath a week was allowed. The food was generally eatable, but the quantity was insufficient.

On December 6th Captain Beaman with thirty-six others left Burg for Halle. In the old factory in which they were placed dirt was the prevailing feature and lice were fairly plentiful. British, French, Belgian, and Russian officers were all lodged in large, ill-ventilated dormitories. The latrine was a deep trench, very dirty, insufficient, and cleaned out only as a last resource. The food was cheap but very bad. Some extras such as sausage, ham, jam, and margarine, could be bought at the canteen. A daily bath could be had. Discipline was not so strict as at Burg, and the German officers were quite agreeable and polite. During December and part of January, 1915, all foodstuffs were taken from the prisoners' parcels for the Red Cross, which gave no receipts. In February Captain Beaman was transferred to Quedlinburg, a soldiers' camp, where he was nominally in charge of the English prisoners. There were fourteen other medical officers—twelve French and two Russians, who were housed in small wooden huts. The 10,000 prisoners in the camp—Russian, French, and British—were housed in wooden huts which were not rain-proof. Two blankets a man and mattresses stuffed with shavings, four for six men, were issued. Food was scanty and unappetizing, at times uneatable. Without parcels from home the men would almost have starved. The feeding improved somewhat when the administration took over the messing from contractors. Medical arrangements were satisfactory. There were ample dressings, but occasionally a shortage of drugs. The old hospital left much to be desired, but the new one was good. An isolation hospital was ready in case of an epidemic. The general health of the camp was fairly good, though tuberculosis in every form was rife; pneumonia and bronchitis were common. All this was due to overcrowding and deficient food. No isolation of tuberculous patients was carried out. Practically no clothing was provided by the German administration, and it was very difficult to obtain clothes sent out from home for the British prisoners. Captain Beaman says that the British owe a great debt of gratitude

to the American Ambassador at Berlin, who, in the face of much obstruction and subterfuge, had done much to relieve the sufferings of the prisoners. "Much yet remains to be done, and it must always be remembered that an inspection of a camp is a set piece, much forethought being expended by the authorities as to the staging."

Dr. François Léonetti paints a darker picture of his captivity.² Taken prisoner at the battle of Macquigny (Aisne) on August 29th, 1914, he had a narrow escape from the revolver of a German officer, who said the inhabitants of a village occupied by the victorious troops had poisoned the wells. His life was saved by the intervention of a German doctor. After working in the Hôtel-Dieu at Guise till January, 1915, he was sent to Gastrow in Mecklenburg, a camp where there were 12,000 Russian, 4,000 French, 2,000 Belgians, and 1,000 British prisoners. All were in tents without sufficient protection from cold and wet, and were suffering from hunger and infested by vermin. The French soldiers had been allowed to keep their kit, but the Russians had been compelled to exchange their boots for bad wooden shoes, and cloaks and body linen had been taken from the British. The sanitary conditions were of the very worst kind and lice swarmed on clothes, blankets, and mattresses. No precautions were taken against disease. Accommodation for the sick was very inadequate, and the doctors had only morphine, aspirin, and tincture of iodine at their disposal. Typhus fever raged in the camp for five months. There were hundreds of wounded, who could not be treated owing to the want of dressings. Everything was lacking—linen, bedding, drugs, and suitable nourishment. The medical service at first consisted of two German students, but a few days after Léonetti's arrival there were seven French doctors, and some weeks later four others, two French and two British, were sent. Gradually things improved, and in March the only serious ground of complaint was the insufficient food. At that time parcels began to arrive more regularly from France and England, and the contents were distributed with admirable comradeship. The British, who had been more exposed to the cold as their clothes had been taken from them, suffered a good deal from nephritis, which, however, was of mild type. All the prisoners suffered much from frostbite. Antityphoid inoculation with Pfeiffer's serum was carried out, and as the men were vaccinated they were sent away to other places and put to agricultural or factory work. Léonetti estimates that 60,000 men passed through the hands of the doctors. He gives an amusing account of the care with which the camp was prepared for a visit from the Spanish Ambassador. His Excellency was taken round and invited to admire the cleanliness of the huts, the arrangements for disinfection, and so forth. The only thing that had been forgotten was to show samples of the food. One of the prisoners boldly placed himself before the ambassador, showed him the uneatable bread, and told him of the insufficiency of the diet. The German colonel said the bread had been tampered with. Red Cross visits and official inspections all had the same result. The Germans are, says Léonetti, past masters in this kind of stage management. At the beginning of April he was sent to Langensalza, a watering place in Thuringia, where an epidemic of typhus had been raging in the camp since January. Of fifteen doctors who had gone there in March, nine were already attacked. There was scarcely any accommodation for the patients, who in one week numbered 3,000, with only five doctors to attend them. There were no medicines. Men sickening with the disease lay on the floor in corridors during the day, and were sent back at night to their quarters where they mixed with their still healthy comrades. There was at first no attempt at disinfection, and the German doctors refused to admit to hospital cases of typhus in which there was no well-defined eruption. Even after stoves were set up, clothing was given back at haphazard and so imperfectly treated that it served as a means of distributing vermin. The German doctors never dared to go near the patients, and French doctors had to be appealed to. A specialist, Dr. Rheberg, was sent from Berlin, to whose courage and devotion a warm tribute is paid. The epidemic wore itself out after nearly 95 per cent. of the prisoners had been attacked; probably some mild cases

² Souvenirs de captivité, Thèse de Paris, 1915.

escaped observation. In the early part of May Léonetti was sent with six other doctors to Niederzwehren near Cassel in Westphalia, where an epidemic of typhus had been raging since February, but the deaths were put down to influenza, gastric troubles, and bronchitis. The authorities were indifferent, the general in command saying frankly that he was making war in his own way, and that a dead prisoner meant one ration less. When, however, the epidemic at the end of March spread to the German Guards, to the garrison of Cassel, and finally to the town, the gravity of the situation was recognized. Foreign doctors were sent for and by the end of June there were eighty-eight in the camp. The conditions were very bad. There was no hygienic installation, the stench was dreadful, nationalities were mixed up, and there was the usual want of food. Under the pretence of disinfection the wretched mattresses and blankets were taken away and the men had to lie on bare boards. On Léonetti's arrival there were 6,000 sick. He admits that praiseworthy efforts were then being made to supply appropriate shelter and drugs and milk in sufficient quantity. Isolation was provided, disinfecting stoves were set up, and means were adopted for destroying vermin. But as the result of what he calls the criminal carelessness shown at the outset there were up to July 14th 1,700 deaths among French, British, and Belgian prisoners, and 900 among the Russians, a total of 2,600. Not all these deaths, however, were due to typhus. Léonetti, who returned to France in July, says that few camps escaped typhus. At Erfurt, where the epidemic was promptly suppressed, there were only 600 cases in a population of 20,000. At Cassel and Langensalza thirty doctors were attacked by the epidemic, of whom nine died. Léonetti says that but for the Allied doctors the state of the prisoners in Germany would have been more deplorable. Thanks to the unceasing efforts of the committee of the Red Cross, improvements on certain points were made, but much still remained to be done.

There is a mass of corroborative evidence from various quarters as to the unhappy condition of prisoners of war in German camps, but we have chosen to limit our selection to medical witnesses. It is only fair to state that correspondence between our Foreign Office and Mr. Gerard, the United States Ambassador at Berlin, shows that there has been a great improvement in certain camps since May, 1915. Writing of Ruhleben on November 1st, Mr. Gerard says that a satisfactory system of drainage was completed in September, and more washhouses had been provided. Notwithstanding his repeated protests, however, the camp lazare had never been satisfactory, though decided efforts had been made during October to improve it, including the provision of hot and cold baths. He submits figures of winter clothing supplied, including overcoats and underclothing, showing that about 60 per cent. of the camp have been so accommodated, and also other statistics tending to prove that the canteens have been ably and economically administered. Mr. Gerard states that when he visited Ingoldstadt in Bavaria on January 15th, there were some 4,000 prisoners, among them 11 British, in the camp. Food was about the same as that often described. The midday meal on the day of his visit consisted of tripe and potatoes. The cooking was done by Frenchmen. The British all had sufficient clothes and two blankets each. Baths (hot and cold shower) were allowed practically whenever desired, and the men were allowed to get hot water for washing clothes from the bath-house or kitchen. The British prisoners had no particular complaints. The barrack where they slept was rather crowded, the double-deck system being in use. The barrack floors were dirt only, or rather mud, with a board strip. The commandant promised to see that the roofs, which leaked in places, were repaired. The British prisoners worked on the railway, etc., and also in the large military hospital. They stated they preferred work of this kind to doing nothing. They were allowed to play football. There was a camp library and a theatre where weekly performances were given. The relations between the camp officers and the prisoners seemed excellent. There was a well furnished canteen where reasonable prices were charged. The men received letters and parcels promptly, but were charged 5 pennings for each parcel. This charge was made, the commandant told Mr. Gerard, to create a fund for the prisoners who received neither gifts nor money.

We have had the opportunity of seeing a report by the Hon. Ella Scariett-Synge, M.D., of a visit she was allowed to make to camps at Wittenberg, Giessen, Göttingen, and Ruhleben. She formed the opinion that the sanitary and other conditions in these places was satisfactory. Complaints were few, and the prisoners were contented with their lot, except the English, who sometimes found fault—unreasonably, it is suggested—with the food; they grumbled at the state in which their parcels reached them—this, again, is said to be due to faulty packing—and, unlike other nationalities, would not work even for pay. Theatrical performances, musical performances, and other entertainments were given, and opportunities of education in languages, art, and other subjects were offered. With all these advantages, accompanied by every care for the needs of the body and also of the soul, it would seem to be a piece of good fortune for a young man to be a prisoner in Germany. But some doubt assails us that the picture is a trifle too rosy. We do not suggest that the lady is a victim of that antinational bias which is so curious a feature in the mentality of a certain section of our people. We are rather inclined to believe that she has been, at least in some degree, misled by the German skill in stage management, of which the other medical witnesses speak. She proposes that an English commission should be sent to Germany to report on all camps, while a corresponding German commission could come to this country with the same object. Frankly, we do not think the British public is prepared to accept the report of a commission of representatives of a people who meet charges of atrocities testified to by countless witnesses, and accepted as fully proved by British, French, and Belgian commissions of the greatest weight, by belated denial.

Typhus fever is a sure index of sanitary inefficiency and underfeeding, and the fact that outbreaks of the disease have occurred in most if not all German prison camps is not denied. Quite probably the sufferings of the prisoners are in many instances rather due to the breakdown of the German organization than to deliberate malice, and as has been said there is evidence that efforts are being made, in some camps at least, to improve matters. Reports by members of the staff of the American Embassy at Berlin, published early in March, indicate that conditions at the prisoners of war camps at Limburg, Giessen, Darmstadt, Mannheim, and Heidelberg are now satisfactory. The camp at Mannheim, where there are sixty British prisoners, is described as a "good example of the specially and scientifically constructed camps, and general conditions are of the best." Much of this improvement is due to the courage and persistency of the American Embassy, and, according to Mr. Ian Malcolm, there is now hope that even the Russian prisoners who have suffered so severely from typhus will be treated with more consideration. In a letter published in the *Times* a short time ago he stated that the Swedish Red Cross Society had called a conference in Stockholm last December of representatives of Russia, Germany, Austria, and Hungary. The delegates adopted unanimously a series of recommendations, which, it is hoped, the respective Governments will accept. The gross mismanagement of the prison camps in Germany during at least the first year of war will always remain as evidence of the inefficiency of German sanitary administration, and, we regret to add, a blot upon the competence and courage of the medical profession of that country.

PROFESSOR BEREZNEGOWSKY (*Wratsebnia Gazetta*, No. 22-23) relates some cases of gunshot wounds observed by him, which, in his opinion, could not be caused by any other but explosive bullets. The presence of a great number of loose fragments and particles of bones and metals, as seen by the x rays, the extension of the laceration to the soft parts, and the black edge around fresh wounds, all afforded evidence that the latter were not caused by an ordinary massive bullet producing a "humane wound," but by one which explodes within the body into a number of small fragments. If the claims of the officers are true, that some bullets explode while in the air, there ought to be cases in which small multiple fragments are found in the body without tracing any entrance or exit wound. Such a case has been observed by the author, in which the clinical picture corresponded with the history related by the injured. The observations made by the author were in the districts of the north-west front from Bzura to Mitawa at different times.

British Medical Journal.

SATURDAY, MARCH 18TH, 1916.

ENROLMENT: AN URGENT NATIONAL NEED.

THE Central Medical War Committee is organizing meetings at four centres in England and Wales, to be held in the course of next week. The centres chosen as likely to be most convenient to the largest number are Leeds (March 21st), London (March 22nd), Birmingham (March 23rd), and Bristol (March 24th). The purpose of the meetings is to ensure the success of the enrolment scheme, and two members from each local Medical War Committee will be invited to attend. It is essential that, in the interests of all, every medical man of military age throughout the country, whether fit or unfit; whether employed by a public authority or in private practice in any capacity whatever; whether he can be spared from the district in which he practises or not; whether his personal difficulties are great or small, should enrol—that is to say, should sign the form of application for a commission, whereby he expresses his willingness to serve his country if at any time in the future the need for his services should arise. His application will be retained by the Central Committee, and when the enrolment of every man is complete the selection of those who can most easily be spared to take commissions in the R.A.M.C. can be carried out with absolute fairness to the profession and to the community. Not all, probably not half, the men who have signed the enrolment form will be required for service; but, under the enrolment scheme, no man will be placed in the difficult position of deciding for himself when it is his duty to go.

It has been urged by many critics of the work of the Central Medical War Committee that the supply of medical men to the army has been ample; that occasional local shortages are due merely to bad organization, or to lack of regard to the economical use of officers already commissioned; and that further depletion of doctors in civil life may lead to serious danger to the community. To these arguments we reply that however ample the supply may have been in the past, wastage is always considerable and is certain to increase. How can it be otherwise when the country has armies in the field not only in northern France but in the Mediterranean and in Mesopotamia, where the troops have to encounter risks of tropical and subtropical diseases? We reply also that, under the present organization of the medical department, the number of medical officers employed is less than the recognized normal establishment for armies of the present size; that organization may be defective, but it has achieved remarkable success in Flanders and France, is constantly being improved as experience increases, and cannot be changed fundamentally at a moment's notice; that economies are already being effected and will increase as time goes on; and, finally, that no shortage of doctors in civil practice is visible at present comparable in the slightest degree to what appears to be the case with some of our armies abroad.

To those who still doubt the necessity for the

enrolment scheme of the Central Medical War Committee we recommend perusal of the report at p. 427 of the remarks made by several members, during the discussion in the House of Commons of the Army Estimates, with reference to the defects which persistent rumours assert have marked the arrangements for the treatment of the wounded in Mesopotamia. The extract Mr. Lambert read from a letter of a wounded officer as to the lot of the wounded during evacuation from the field to the base at Basra is disquieting, and the statement that two hundred wounded spent five or six days on a paddle steamer in the Tigris, "lying anyhow on the deck with only one medical officer and practically no medical equipment," is evidence of shortage. Mr. Long, who replied for the Government, admitted that the medical arrangements had been inadequate, that the Government of India had instituted a special inquiry on the spot, and that the War Office had found it necessary to send two Indian general hospitals complete, and the personnel of two more, a British stationary hospital of 400 beds, and a British general hospital of 1,040 beds, as well as during the last month 100 doctors to Mesopotamia. It is alleged in many letters received in this country that the scarcity of doctors in Mesopotamia is deplorable. We know that the Indian Medical Service has already lost heavily, and it seems certain that the War Office will require many more medical officers for Mesopotamia in addition to those who have already left, or are about to leave, this country. Supposing that the whole of the accusations of defective organization and lack of economy were true, do the critics suggest that this is a reason why "seriously wounded officers and men" should be "left for two or three days with no further attention to their injuries than the first field dressing"? Are lives to be lost while members of the medical profession are making up their minds whether their duty is here or abroad with the army? Is it right that Government departments and individuals should be trying to see how much of their medical services they can preserve to the civilian community rather than using the whole of their energies to see how much they can spare? Troubles such as are alleged to be occurring in Mesopotamia may happen at other points in the area of war. No man knows where the next difficulty may arise, or in what part of the globe it will be necessary to employ our military forces.

Without organization it is impossible for the medical profession to meet the call for officers. An integral part of that organization is that the national medical war committees of these islands shall be in a position to know exactly how many men are available and how they can be spared with the least disturbance of the interests of themselves and of the people at home. The letter from the chairman of the Barnet Local Medical War Committee shows the spirit in which the enrolment scheme should be accepted and how difficulties can be overcome by co-operation among the medical men of a district who are loyal to their country and each other. The haphazard methods of recruitment by individual offers can no longer be relied on; the men from whom further recruits must be drawn are the men whose difficulties are hard to overcome. To such men, who are at heart as anxious as others to serve their country in every way possible, the Central Medical War Committee, the Scottish Medical Service Emergency Committee, and the Irish Medical War Committee offer the only sound and fair method of meeting the exigencies of their position. And that method is Enrolment.

"SIGHT" FOR THE BLIND.

IN the columns of a well-known London daily there has appeared within the last few days an article of considerable length giving a rather elaborate account of certain experiments which seemed to promise the production of an apparatus of use as a "substitute for sight." Every one knows that the sun may be felt as well as seen, and probably not a few school-boys have experienced the torment of being subjected to the effects of the focussing of a "burning-glass" upon their skins. Yet this is made the basis of a lengthy disquisition on a substitute for sight. It is proposed with every appearance of seriousness that a burning-glass should be placed in such a relation to the breast of the blind subject that the light focussed by the lens should fall accurately upon the skin; means would be taken by the interposition of screens to prevent burning, and by a process of training the subject would learn to see by means of the feel of the warm picture on his chest. The educational process would be carried out by placing a series of stencils on the chest which would leave slits, circles, and later on letters and signs exposed to the heat rays, and the sense of heat perception would be increased by its cultivation. All this sounds very much like the yarn that a schoolboy might write a very long way after Jules Verne, and one would have thought that a newspaper of importance would have secured the criticism of some physiologist before publishing such a rigmarole. But we notice that the article is under the heading "From German Sources," and the intention of the publication may be playful rather than serious. The excerpt begins "An article on optics of more than merely technical interest appears in the *Deutsche optische Wochenschrift*, and is quoted at considerable length by the *Tägliche Rundschau*. The writer is Professor L. Zehender, the Berlin eye specialist, who records an experiment which appears to have given rise to considerable discussion in German scientific circles." If this be a fair sample of the much vaunted *Ersatz*, the German palate that is satiated by new substitution products must be truly in a bad way.

The publication in a popular newspaper of this so-called "substitute for sight" may not do any particular harm, because, as has been said, it is so crude that the youngest would be able to understand how much and how little advantage the blind may expect to draw from it. Nor perhaps did any great harm come from the wide publication a few years ago of a plan for transmuting sight into sound out of which the blind were bidden to hope that they were one day to hear what others saw. It was based on a well-known scientific fact, but its practical application on even the simplest scale for the benefit of the blind presented insuperable difficulties, and even its promoters did not pretend that anything would come of it at present. So here again, for another reason, no great harm was done.

But it is otherwise with some of the schemes which from time to time are published in newspapers without any attempt at criticism. We are quite sure that the directors of these newspapers do not realize the effect such statements produce upon the blind themselves and upon the parents of blind children. Some of the schemes are dangerous to the man or the child who it is feared is going blind, and others make a cruel call upon the slender purses of the blind. The poor blind are very open to exploitation. Wonder healers and the like suck them dry of their poor earnings. Such an one as these had his "cures" vaunted in a newspaper not many months ago, but the child he "cured" is still blind and in a

blind school; yet he has been allowed to trumpet abroad an offer of his services for the cure of soldiers blinded in the war. A few years ago a healer fleeced a maidservant of nearly fifteen pounds on the promise to grow her a new eye to fill the place of one she had lost; either he was less cunning than most of his kind or the girl more resolute than ordinary; by exception he got his deserts in a term of imprisonment. In the last few months we have known of two cases of children whose parents, refusing the care of the hospital physician, have resorted to quacks, with the result that these two children are now blind from the grossest effects of interstitial keratitis.

There is another evil, and that is the publication of garbled versions of genuine forms of medical treatment and operation. Recently an unfortunate man, whose sight was nearly lost from progressive disease, came from the other side of the world in search of a cure that he had heard of through an American newspaper. He brought with him a scrap of paper that he handled like a talisman of hope. It was a typical American "wonder paragraph," and the effect of its words, which he knew by heart, was too strong to allow him to depart as he came. He could not be brought to believe that the cure would be for him a danger. He must needs put his hope to the test. When seen again, as he was about to return to his distant home, he had lost his hope and had exchanged the remnant of his sight for two blind and painful eyes!

The Select Committee on Patent Medicines in its report expressed the conviction that "the proprietors of the better class of newspapers . . . would welcome a drastic suppression of suggestive or improper advertisements," but went on to say that this observation did not refer "to the advertisements of swindlers like Macaura, the 'eye quacks,' the 'deaf quacks,' the cancer-curers, the consumption-curers, the electric belt makers, the curers of rupture without operation, or 'fakirs' generally. As regards these classes, most newspaper proprietors do not regard it as incumbent upon them to test the good faith of secret remedy advertisers, any more than of advertisers of other goods, though a few of the leading papers exercise a very severe censorship upon advertisements of this kind also." If the need for such censorship is felt in regard to advertisements the need must be even greater in regard to the publication of editorial articles, for all but the most hopelessly unwary know that the statements in advertisements must commonly be taken with a grain of salt.

We may well ask the lay press to "Pity the poor blind."

SCHOOL BOOKS AND EYESIGHT.

A FURTHER report of the committee of the British Association for the Advancement of Science has been issued¹ giving an account of the investigations of the committee with the intent to obtain an objective measurement of the gloss of paper. Hitherto we have had to be content with a purely subjective test, and such a method had to be varied with each individual; a highly sensitive subject found the reflection of a very little gloss on the paper prevented comfortable reading and was trying to the eyes, while another of more lymphatic temperament found a gloss tolerable that would have driven the other crazy. The committee report that glossiness of paper depends mainly on specular reflection—that is, reflection as from polished metals; such reflection is apt to interfere with binocular vision. The ideal surface for books would

¹ London: British Association for the Advancement of Science 1915. (Price 3s.)

exhibit no specular reflection; all the reflected light would be scattered or diffuse reflection, equal in all directions and independent of the direction of the incident beam. In practice it is found that when the specular reflection does not exceed the diffuse reflection when the light is incident at 45 degrees, the paper is satisfactory; when the specular reaches 56 per cent. and the diffuse only 44 per cent., then there will be injurious glare, especially by artificial light. The apparatus devised by Mr. A. P. Trotter, one of the members of the committee, for the measurement of these qualities is ingenious in its simplicity. It is a clever adaptation of the principle underlying the photometer and the Wheatstone's bridge. A box about the size of an ordinary microscope case has a slot in the lid along which an electric lamp within the box can be slid. Just below the lamp is a screen which prevents the direct light of the lamp reaching the bottom of the box; at each end of the screen is a mirror set so as to reflect the light round the screen and illuminate one half of a hole cut in the bottom of the box. The paper to be tested is put beneath this hole. At the ends of the box, just clear of the mirrors, are two peep-holes fitted with double prisms; through these the hole in the bottom and the paper to be tested can be viewed. By shifting the lamp from end to end a balance of the specular and diffuse reflection from the paper can be obtained, and the relation read off by the position of the lamp in the slot. The reading from one peep-hole can be checked by that from the other; both should agree in their proportions. It would be of interest if the committee would put a series of papers to the test and issue a table of results. The earlier reports of this committee, which dealt particularly with the print of school books, are exerting their effects upon printers and publishers. The Cambridge University Press have recently issued a new *Textbook of Arithmetic*,² by the Head Master and Assistant Master of the Royal Naval College, Osborne. The publishers call attention to the large type used for this book, which conforms to the standards laid down in the typographical scale of the British Association report. They have further graded the type of the different parts of the book, using larger type for the earlier chapters which will be used by younger children than is necessary for the more advanced chapters for the use of the higher classes. There is, however, one defect in the get-up of the book: the paper is scarcely opaque enough to prevent the print of the reverse side of the page and also of the contiguous page from showing through to the page in use. This reduces the necessary contrast of print and paper, and renders the good type less legible. Also the surface of the paper is such that it will readily get dirty in the usage. We may commend the publishers for their attention to the typographical scale of the British Association, but the same report dealt with the density and surface of the paper. It is scarcely within our sphere to criticize the matter of a book on arithmetic, but we may call attention to a serious practical defect. A chapter is devoted to the subject of stocks and shares; it consists of two pages of explanation, two of examples, and two of set questions. The whole is inadequate, and if it be considered worth while to include a chapter on such a subject in a school-book—and we have no doubt it is—then it should be reasonably adequate. Maybe the inadequacy of this chapter is an indication of the general want of knowledge of professional classes on such matters, an ignorance which is to their serious disadvantage.

THE ADMINISTRATION OF ANAESTHETICS BY UNQUALIFIED PERSONS.

SOME undesirable procedures may be condoned by the exigencies of a great war; proof of the necessity must, however, be adduced before the profession can admit that the giving of anaesthetics should ever be committed to

unqualified persons. We have seen a report of a matron being entrusted with this duty at a hospital when routine operations were being performed. No experienced person will deny that giving an anaesthetic involves grave responsibility, and patients may well expect that all professional work which involves grave risk will be carried out by registered medical practitioners. Even in the hands of the best trained anaesthetist patients die from or under an anaesthetic. Initial signs of complications are commonly very slight and can be gauged only by an experienced person, who, recognizing them, adopts remedial measures promptly. It is simple enough to train a nurse to pursue a routine method of anaesthetizing, and she, after a thousand or two administrations, will have mastered the technique, while incidentally she will believe she knows all about anaesthetics. But a professional man is aware that mastery of the technique is the least part of the outfit of a competent anaesthetist. He realizes that although comparatively few operations *per se* involve a risk to life, yet every time an anaesthetic is given life may be endangered. The uncontrollable factor—the patient—cannot be allowed for by a nurse, since even the accumulated science of the medical man may often be at fault. Is it, then, justifiable to permit a nurse or matron to give anaesthetics except in a sudden emergency? It is often urged that an experienced nurse can carry out instructions and give anaesthetics as well as a medical man, but if this contention is true for anaesthetics it may be held to be true also in other branches of medicine and surgery, and in pharmacy. In this way the door will be opened to every kind of unqualified practice. Since the induction of anaesthesia has now become a science as well as an art, ought a surgeon to salve his conscience by the excuse that although he permits a nurse to give his anaesthetics he keeps a watchful eye on her procedures? No man can do two things properly at one and the same time.

DEATH FROM PARATYPHOID FEVER.

FATAL cases of paratyphoid fever are sufficiently uncommon to be worthy of record. Seventeen such cases have been studied at a stationary hospital across the Channel, and the results have recently been recorded by Sir Bertrand Dawson and Dr. T. H. Whittington.¹ They remark that the clinical picture in these severe cases conforms very closely with that of typhoid fever, so that the diagnosis must be based on the laboratory findings. In thirteen instances rose spots were present; abdominal distension and the toxic "typhoid state," so-called, were often absent in these severe cases of paratyphoid fever. In four out of the seventeen patients the respiratory manifestations were prominent features; bronchopneumonia was present in two of these, lobar pneumonia at both bases in the third, and massive pneumonia with cavity formation from necrosis in the fourth. It has been shown that lobar pneumonia can be caused by typhoid and paratyphoid bacilli alone, although probably the pneumococcus is more often associated with them. So far as the circulatory system is concerned, the authors observe that a pulse slow in proportion to the temperature is one of the most characteristic features of paratyphoid, usually lying between 70 and 90. In severe cases, however, the pulse is rapid, and there is no other single sign so significant and prophetic, so long as the temperature is above 100° F. The blood pressure varies and is generally lowered, while the apex beat is difficult to palpate, a feature in keeping with the pale and flabby condition of the cardiac muscle sometimes found; endocarditis was not recorded once. The spleen was found enlarged *post mortem* in eight of the patients; in one it was but half the normal size, and in two it contained abscesses the size of hen's or pigeon's eggs. The small intestine was ulcerated in both the cases of paratyphoid A and in twelve out of fourteen cases of paratyphoid B; the large intestine was involved much

² *Arithmetic*. By J. Godfrey, M.V.O., M.A., and E. A. Price, B.A. Cambridge: The University Press, 1915. (Post 8vo. pp. 480. 4s. net.)

¹ *Quarterly Journ. Med.*, Oxford, 1916, ix, 98.

more severely than is usual in typhoid fever, the lymphoid nodules and Peyer's patches being inflamed or ulcerated from the caecum to the pelvic colon in ten of the instances of paratyphoid B. The appendix was a focus of mischief causing peritonitis in three patients, one a case of paratyphoid A; in two it was perforated, in the third intensely inflamed. There were five cases of peritonitis in the series; laparotomy was performed in four instances, two with perforation of the appendix, two with perforation of the intestine. None of these patients recovered, although, as the authors point out, the cases were constantly under the eyes of skilled observers and received the most competent surgical attention. It is pointed out that it is the internal conditions that are so unfavourable here; for one ulcer that has perforated there may be several more that have nearly perforated, and the patient's reactive power, both local and general, is down to vanishing point. Two of the patients died from intestinal haemorrhage, three from haemorrhage and toxæmia; the seventeen deaths represent a death-rate of rather over 4 per cent. in paratyphoid B, and under 1 per cent. for paratyphoid A. The authors conclude that there seems to be a tendency to pus formation in these cases; abscesses occurred twice each in connexion with the spleen, appendix, and lung, and once in the liver, while one of the pulmonary abscesses gave rise to empyema.

SIR GILBERT BLANE.

SOME time ago Dr. H. D. Rolleston, who is now a surgeon-general, R.N. (temporary), contributed to the *Journal of the Royal Naval Medical Service*¹ an account of James Lind, to whom beyond any one else we owe the abolition of scurvy among sailors. He has followed this up with a sketch of the career of Sir Gilbert Blane, who was born in Ayrshire in 1749, studied at Edinburgh, and graduated M.D. at Glasgow in 1778. He became personal medical attendant to Lord Holderness, a favourite at Court, and in this way was brought acquainted with Sir George Rodney, whom he accompanied in H.M.S. *Sandwich*, the flagship of the fleet sent at the end of 1779 to raise the siege of Gibraltar. Blane had no official position; nevertheless, during several engagements he was employed by the Admiral, in the absence of executive officers, to carry orders to the guns, and was slightly wounded. This led to his official appointment as physician to the fleet. On his return to England in 1781 he submitted to the Board of Admiralty a memorial pointing out the neglect of cleanliness, ventilation, and dryness in the ships, the need for a supply of lemon-juice to prevent and cure scurvy, the prevalence of intemperance, the inadequate provision for the care of the sick on board ship, the absence of proper bedding, the want of soap, and the desirability of a gratuitous supply to naval surgeons of medicines and other necessities. Nothing, however, was done at the time. At the beginning of 1782 he again went to sea with Rodney, and from these experiences afloat he gathered the knowledge of naval medicine and hygiene which he embodied in his *Observations on the Diseases of Seamen* (1788). On his return to London in 1783 he was elected physician to St. Thomas's Hospital, an appointment which he held for twelve years. He had considerable success as a physician, but his reputation rests mainly on his work as a reformer of naval hygiene. From 1795 to 1802 he was a Commissioner of the Board of the Sick and Wounded Sailors, a position which gave him the opportunity and the power to enforce the reforms he had previously advocated. An Admiralty Order enjoining the use of lime-juice in the navy, which came into force in 1796, banished scurvy from the service. In the same year he induced the Admiralty to provide soap for the crews. In 1802, in association with Count Rumford, he recommended ventilation of the lower decks of convict ships by means of wind sails and air tubes, with the result

that the incidence of infectious disease was diminished. Blane's demand that medicines should be supplied free to naval surgeons was conceded in 1804. About this time, too, the sick bay was transferred from the ill-ventilated forepart of the lower gun-deck to a position under the forecabin. These various reforms were followed by a remarkable improvement in the health of the navy. Whereas in 1782, out of 100,000 seamen and marines, the proportion admitted to hospital for sickness was 1 in 3.3; in 1813, with a complement of 140,000, the proportion of sick fell to 1 in 10.75. In 1809 Blane was sent to inquire into the prevalence of malaria and other diseases, which incapacitated more than two-thirds of our army in the unfortunate Walcheren expedition; his report led to the abandonment of the island. In 1825, in a letter to the directors of the East India Company, he expressed the conviction that cholera was spread by human intercourse, not by aerial influence, and a year before the great epidemic of 1832 he issued *A Warning and Admonition to the British Public on the Subject of Indian Cholera*, which was circulated in the seaports. His most important contributions to therapeutics were on the uses of pure alkalis and lime water in disorders of the bladder, stomach, and skin, and on the effects of large doses of potassium carbonate in gravel. Blane was ever zealous in his efforts to improve the professional attainments and position of naval surgeons; as a means to that end he founded the two gold medals which bear his name. Many honours came to him. He was a Fellow of the Royal Societies of London, Edinburgh, and Göttingen, and a corresponding member of the Imperial Academy of St. Petersburg and of the Institute of France. He was made a baronet in 1812. He held a number of Court appointments, among them that of physician to George IV and to William IV. Blane spent the last ten or twelve years of his life in retirement, and died in 1834. Sir Alexander Armstrong, afterwards Director-General of the Medical Department of the Admiralty, said of him that he might "justly be termed the Father of Naval Medical Science."

COLERIDGIAN "AMENITIES OF DEBATE."

MR. STEPHEN COLERIDGE used to boast of his tender regard for the "amenities of debate," a regard which he has consistently shown by his studied insolence and offensiveness towards all who ventured to express disapproval of his methods of controversy. We had almost forgotten him and his campaign against experimental research, but it appears that, as Beatrice says of Benedick, he will still be talking, though nobody marks him. In the March number of the *Zoophilist*, the wilderness in which his voice cries desolately, he attacked Sir Edward Schäfer for a leaflet published by the Research Defence Society, in which the distinguished Edinburgh professor points out that progress in medicine and surgery cannot be made without the help of animal experiment, and shows the inconsistency of those who are opposed to the use of that method and yet do not object to the exploitation of animals for the needs and luxuries of mankind. From this clear, straightforward statement of fact Mr. Coleridge detaches two or three passages and comments on them in a manner which obscures the issue. When Sir Edward Schäfer invited him to publish the whole document, which is quite short, in the *Zoophilist* and there criticize it as freely as he liked, Mr. Coleridge at first replied that this was "quite unreasonable," but he has since undertaken to reproduce it; he may then accept the rest of Sir Edward Schäfer's invitation, but so far there is no argument, hardly even a meaning, in what he is pleased to call his "criticisms." He speaks of "the unhappy pamphlet," and "this unhappy professor," and says that Sir Edward Schäfer "would really be better employed in trundling a hoop than in writing this kind of pamphlet!" Heine in his cynical confessions says that in the rapture of his Hegelian dream he regarded all who did not acknowledge

¹ Vol. I, 1915. A note on this paper appeared in the *BRITISH MEDICAL JOURNAL* of May 29th, 1915, p. 938.

his self-made godship as "unhappy" unbelievers. Mr Coleridge's manner of writing arouses a suspicion that he has come to hold a similar idea of himself. And this, unlike the poet, in all seriousness, for among the many gifts bestowed upon him in the cradle his fairy godmother left out humour. With an assumption of pity for which we are sure Sir Edward Schäfer will be duly grateful Mr. Coleridge says: "These professors, heaven help them, seem all to be blessed with the immature brains of babes and sucklings." We suppose this kind of stuff is accepted as argument by supporters of the National Antivivisection Society, or it would not be offered for their edification by their director and treasurer. But what a mentality it reveals in them and in him! And what right has he to complain of being "subjected to raucous bellowings of personal abuse"?

X-RAY PROTECTION.

WHEN the discussion on *x*-ray protection was resumed at the Röntgen Society's meeting on March 7th Dr. W. Harwood Nutt said that he was inclined to believe that the tired feeling of which *x*-ray workers complained was due not to ionization but to ozone, which, according to some qualitative tests, was liberated by *x* rays. Dr. G. B. Batten laid stress upon the danger of associating work with chemical substances, especially alkaline materials, with *x*-ray manipulation. He had noticed a dermatitis supervene in a case of ringworm which previously had been treated with picric acid. Major Wilson, Canadian Medical Corps, said that the ideas of British manufacturers with regard to protection were certainly below the standard deemed necessary with the heavy transformer outfits obtained from the United States and Canada. In the Canadian military hospitals the most complete rubber protection was insisted upon, and a layer of 8lb. lead (if possible a double layer) was passed round the tube box. The president (Mr. J. H. Gardiner) announced that the authorities of the National Physical Laboratory had stated that they were prepared to examine any protective material submitted to them, and to give a certificate upon its absorption coefficient.

Medical Notes in Parliament.

A Year of War.

MR. TENNANT'S STATEMENT.

On the Army Estimates, which were taken in the House of Commons on March 14th, the Under Secretary of State for War made his annual statement on the work of the department during the closing financial year. He dealt chiefly with administrative questions; the sums in the estimates were token votes of £1,000 each, but Mr. Tennant said that the vote was for four million men, and that the navy, army, and munition departments were together costing just over three millions a day.

Recruiting: Medical Examination.

After the first rush to the colours the rival claims of the munitions department and the general labour market caused the intake of recruits gradually to dwindle. As it was evident that special steps were needed, Lord Derby undertook his scheme, and though men came forward slowly at first the intake grew larger until it culminated in the attestation of one million recruits in four days. During the early stages of the war many men who desired to enlist concealed physical defects, but later there was a change. Under the group system some men had persuaded the doctors that they suffered from disabilities which were fanciful or imaginary, and had consequently been rejected. It had been necessary to tighten up the machinery and to make the conditions in regard to armlets more stringent. At a second medical examination a number of men had been found fit for general service. The medical standard had never been reduced; the efficiency of medical examination had been materially improved and the standard was now more strictly enforced; some men previously accepted for military service by medical practitioners had been rejected

by the medical boards set up in each military area. The war was a war of attrition, especially of men, and it became evident that everything should be done by grading men and putting them into categories to save those medically fit from doing what might be called supplementary duties; the first-rate men were released for fighting, and the men put into the reserve were able to return to their homes and businesses.

Pensions.

In dealing with the subject of pensions Mr. Tennant denied the allegation that the army pensions authorities had given no pensions for tuberculosis, frost-bite, rheumatism, heart disease, and epilepsy. In 1,932 cases of tuberculous disease pensions had been granted, and in 1,208 cases pensions had been refused. Of cases of frost-bite, 306 had been admitted to pensions, and so far as was known none had been rejected. Of cases of rheumatism, 891 had been admitted to pensions at the full rate, of cases of heart disease 1,431, and of cases of epilepsy 210. Soldiers discharged for injuries or wounds, or sunstroke received in action or in performance of military duty, or for blindness caused by military service, or disease due directly or indirectly to war service either abroad or at home, were given pensions at the full rates. There remained the cases of men who were discharged on account of disease which had been aggravated by service. It would be improper to pension from public funds men whose illness was neither caused nor aggravated by service. It might be said that none of those men should have been in the army, but during the first rush of recruits to the colours it was not possible to ascertain in every case that there was no organic trouble. Men had concealed their ailments—some from the best motive because they wished to fight for their country, some from very different motives. Of sixty men who came before the Chelsea board on February 24th, having been discharged from the army after periods of service extending from seven months to more than a year, not one had undergone any military training or even drill. They were men who had determined to get into the army in order to obtain free hospital treatment. It had been the habit of the Chelsea board to grant pensions at rates ranging from 4s. 8d. to 7s. a week to disabled soldiers whose condition had been aggravated by military service. It had been decided to increase the grant to four-fifths of the full pension. Orders had been issued to the labour exchanges which it was hoped would result in providing employment for discharged soldiers and supplying in some degree the labour for which employers were crying out.

Prisoners.

Arrangements made among the hostile Governments were tending to render the conditions for combatant and civilian prisoners of war better. Arrangements for the transfer of sick and wounded to Switzerland had been made. The camps in the German empire and in Austria-Hungary were under the inspection of the United States Ambassador and Consular Service, but, though the conditions were distinctly better, the ration was still very stinted. Prisoners in the Balkans had been assembled in Philippopolis and American doctors put in medical charge, and negotiations were in progress for the exchange of British prisoners in Turkish hands.

The Army Medical Service.

Turning to the question of the health of the troops, Mr. Tennant read a message from the General Officer Commanding-in-Chief the British Expeditionary Force in France, in the course of which he said that the forces in France had been increased "from a couple of corps to a large army, but the provision made for their wellbeing, whether in sickness or health, has continued to be all that could be wished. The result of the strenuous labour devoted to increasing and maintaining this army is that all are in good health and in good heart, and confident of victory." The medical service had been almost perfected. The incidence of disease in France was low; there had been an entire absence of any epidemic, and thanks were owed to the many scientific men who, by their energy and action, particularly in the prevention of disease, had helped to bring this about; splendid work had been done by the Sanitary Committee, especially in Gallipoli, where tropical diseases had been counteracted and an outbreak of dysentery and diarrhoea,

had caused very great anxiety. There was now no anxiety in relation to the troops either in Salonika or Egypt. At home large convalescent hospitals had been established; in the military hospitals men were being replaced by women, of whom 1,400 had already asked for general service. For that thanks were due to the Red Cross Society, and thanks were due also to between 5,000 and 6,000 women who had organized under Voluntary Aid Detachments.

The Medical War Committees.

"In order to obtain medical officers under conditions least harmful to the needs of the civil population and the great civil institutions, we have," Mr. Tennant said, "established a representative body of medical men in conjunction with the National Insurance Commissioners and the Local Government Board. This had done very valuable work." The National Insurance Commissioners had taken up the question of the early treatment of cases of tuberculosis removed from the army. The medical profession in general had come forward in the most admirable way to meet the needs of the State. Most successful measures had been taken against gas attacks.

France.

The medical services, said Mr. Tennant, had done a very great work, and he read a letter from Sir Frederick Treves as follows:

Those who are familiar with the medical dispositions in the South African war will find in this campaign an advance in the medical services so great and so wide extending as to amount to an actual revolution. Not only has the sick and wounded soldier never been so well cared for in any campaign as in the present, but it is difficult to suggest in what way his welfare could be further promoted.

Sir Frederick takes a couple of illustrations. He says:

We should note in the first instance such an advanced dressing station as that at Les Brebis. The place is a mining village well within range of the enemy's fire. Indeed, some twenty shells had fallen into the area on the morning of our visit. The hospital is a building which was used by the miners as an entertainment hall. This hall makes an excellent ward, provided with every necessary detail. Attached is a small, carefully equipped operation room, where operations of an urgent nature—such as the arrest of haemorrhage—could be carried out. Here also wounds may be cleansed and redressed, fractures more comfortably adjusted, and injections of antitetanic serum given. Close at hand were two dug-outs into which patients could be taken if the shelling threatened the building. The whole station was simple, efficient, and exactly equipped for its limited purpose. There was nothing lacking and yet nothing superfluous, and the feature of extreme mobility was kept prominently in mind.

Reference is made to clearing stations, and he alludes to one at Baillieu:

From a surgical point of view, these clearing stations represent the most important items in the general scheme for the treatment of the sick and wounded. They are as near the front as they can be placed; they are readily accessible from the advanced dressing stations; while they are in direct touch with the base either by a line of rail or by a good main road. The tents are well warmed by stoves and well lit by electric light, while the operating theatre is as well found as any in a civil hospital of its size. The huts at Remy and the wards at Baillieu could compare with the wards of any good civil hospital in England.

To these clearing stations wounded men can be brought in a few hours, and it is needless to point out that in the severest gunshot wounds prompt attention is the main factor in the saving of life and limb. In many cases a man in need of a grave operation has found himself on the operating table within three or four hours of his being shot. We were told of instances in which operations upon the skull and the abdomen had been carried out within two and a half hours of the receipt of the wound. Such prompt attention could not be obtained by a wounded civilian in any rural district in England. The patient not only finds himself in an operating theatre equipped with the best and most recent appliances, but in the case of every one of these hospitals he finds himself in the hands of an operating surgeon of the first order. The value of such service cannot be exaggerated. At the same time the patient has the advantage of the regular and frequent visits of a consulting surgeon of European reputation. Moreover, the nursing in these stations is of the highest type, being carried out by the army nursing sisters.

It must be remembered that a great number (and often the greater number) of the patients arrive at night, and that, over and over again, operations are carried out the whole night through. It must be noted also that vast shell wounds require constant and elaborate dressing that absorbs much time and can only be carried out by the surgeon himself. At Lapugny, with its 376 beds, no less than 2,000 casualties were dealt with in one day. We found that at the clearing station at Baillieu the vast number of 61,000 sick and wounded had passed the

hospital since it was opened, while the number of major operations reached to over 1,000.

In the hospitals we visited we found on all sides evidence that the sick and wounded soldier has the advantages of the latest advances in surgical science, the most modern equipment, and the most recent developments in bacteriological work.

Mr. Tennant added that he had himself seen the clearing stations of which Sir Frederick Treves spoke most highly, and had watched the ambulances full of wounded coming to them until he could watch them no longer—he was so deeply moved. These were the men who had answered the call of King and country, and were risking their lives every day in the great cause. Could the country be content that these men who sprang forward to answer the call should die in France and Flanders while every effort failed to induce others to perform their duty and join their comrades at the front? Those who were too tender with the difficulties which these men put forward should consider what effect expressions of sympathy with them would have upon the waverers, and the cost to the army and the public. A terrible responsibility rested upon them, because to encourage the waverer at home was to dishearten and bewilder the soldier at the front.

DISCUSSION.

The discussion which followed turned partly upon air policy, partly upon the alleged mismanagement in Mesopotamia, and partly upon the question of pensions.

Mesopotamia.

Mr. Hobhouse, who followed, asked for more precise information, and complained that Mr. Tennant had not dealt with the Gallipoli campaign and the expedition to Mesopotamia. With regard to the latter, the news which had filtered through during the course of the last fortnight was calculated to cause very serious alarm as to the condition both of the besieged and the relieving forces on the Tigris, and nothing was known as to what was going on at Salonika. Colonel Lockwood also complained that there had been no reference to the Mesopotamia expedition, as to which the public mind was at present intensely anxious. Very disagreeable rumours had come home as regards the treatment and care of the wounded in that expedition. It was well known that the care and attention bestowed on the wounded in France was magnificent, but private information he had received was to the effect that there was want of care of the wounded in Mesopotamia. Admitting the difficulties of the shortage of doctors, of the climate, and other drawbacks, he believed that more might have been done, and that more foresight might have been shown for the care of the wounded there. The expedition was for some time under the charge of the Indian Government, but he believed that now both the expedition and the medical care were under the charge of the War Office. Mr. Tennant interposing said, "Not the medical care." Colonel Lockwood said that in that case he would not be in order in pursuing the subject, but he was desirous that it should be known that the public was anxious, and had good reason to be anxious, as to the way in which the wounded there were being looked after. Mr. G. Lambert also complained that the advance on Bagdad had not been carefully thought out, and read a letter from an officer, whom he described as one of the most gallant in the British army. He had been wounded on January 13th or 14th, and he wrote:

I must consider myself fortunate to have arrived at Basra, where some medical aid was available, without getting a septic wound. The lot of the badly wounded during the evacuation stage from the field to the base at Basra is anything but joy. The five or six days spent on the paddle steamer down the Tigris are not to be forgotten in a hurry—two hundred, or possibly more, lying anyhow on the deck, with only one medical officer and practically no medical equipment. However, I understand that proper hospital steamers are now being sent out there.

Mr. Tennant interposed with the remark that the matter was one for the Indian Government and not for the War Office, but Mr. Lambert retorted that the War Office or the Army Council had assented to the advance, and must therefore be held responsible for the deeds of the Indian Government. He asked that the country should know how the wounded were progressing to-day in Mesopotamia.

Pensions.

Mr. Jowett (Labour) moved that the State should accept the responsibility for the payment of pensions and allowances to all soldiers discharged from the army on account

of diseases contracted or developed during service with the colours, and, in the case of death, pensions and allowances to the dependants. He maintained that the concessions announced by Mr. Tennant were insufficient, and strongly urged that they should be made retrospective. The motion was seconded by Mr. Hodge and supported in all parts of the House.

The Financial Secretary to the War Office, in his reply, began by saying that with a system of universal service there would have been a more complete and more satisfactory medical examination. When a man had been taken into the army and passed out of it, the question arose, was he or was he not entitled to a pension under the regulations of the Royal Warrant? That warrant was the verbal expression of the pension policy of the Government; if that changed the warrant changed, and he hoped it would be changed. The Board of Chelsea Hospital had full and free discretion to interpret the Royal Warrant, and it rested with that Board to decide to what a man was entitled in any particular case. He hoped that arrangements in contemplation would enable some payments to be made to a man between the time at which he was discharged and that at which his pension first became due. The Chelsea Commissioners had been able to deal with cases of aggravation of disease under another article of a Royal Warrant which enabled a lower scale of pensions to be given. The number of cases of tubercle contracted abroad was 1,226; of these, 1,180 had been pensioned, and only 46 had been rejected. The supposed analogy of the Workmen's Compensation Act should not be pushed too far; compensation could not be given in all cases of injury incurred while the man was not on military duty; but no one could look on the halt, and the maimed, and the blind without resolving that, at whatever cost, the country should see that none of them ever felt want. They should be treated as heroes; but there were men who could not be treated in that way—men whose disease was due to their own fault could not be brought within the terms of the motion; but he agreed that the terms of the warrant were not wide enough, and it had been decided that where a man's disease had been aggravated by, though not wholly and directly due to service, an extended authority should be given to the Chelsea Commissioners to allow a pension up to 20s., and that concession would be retrospective, men whose claims had been rejected being authorized to re-submit them. The motion was negatived, but Mr. Tennant's appeal to go into committee was disregarded and the debate was resumed on the following day, when it was directed chiefly to the calling up of married men, which Lord Kitchener, in the House of Lords, had said would in any case have become necessary within a few weeks. The arrangements in Mesopotamia and the general organization of the Army Medical Service also came in for criticism.

Army Medical Organization.

Mr. R. McNeill thought that Sir Frederick Treves's opinion quoted by Mr. Tennant must have been formed after visiting a clearing station or hospital in a certain section of the line, where provision for surgery was particularly well up to date, otherwise he did not know how the conflict of testimony could be accounted for, for there were other authorities hardly less eminent than Sir Frederick who gave a very different view. After giving a short account of the reorganization of the Army Medical Service which followed the South African war, Mr. McNeill alleged serious defects in its present administration which he traced to the failure to make use of the Army Medical Advisory Board. He alleged that Surgeon-General Macpherson was responsible for a terrible breakdown of the medical arrangements at the battle of Festubert. He was removed from the first army in France to another army, where he was responsible for a still greater failure at Loos. He was then removed to Salonika, where Mr. McNeill believed he still occupied a responsible post. Mr. McNeill proceeded to criticize the arrangement by which there were now two Directors-General, one in London and the other in France. He believed that, in consequence, it was a matter of chance whether arrangements made in London were carried out across the Channel. He considered the present organization of the Army Medical Service unsound, because it was based upon the combatant division as its

unit. That system was suitable to a mobile army, but not to one fixed, as the British army had been in France. When a division was moved a short distance it was absurd to move all its medical equipment; it should be retained in the place to serve with the incoming division. He believed the divisional system to have been responsible for the scandalous failure in some respects at Gallipoli, and for that which, if information now coming to hand was correct, was nearly as bad in Mesopotamia. He said that the selection of Poperinghe as the clearing station for the first battle of Ypres was unfortunate, as there was only one available road to it: troops and supplies blocked that road, and there was consequently great delay in getting away the wounded. At Hooge doctors of one division whose troops were engaged were working for thirty, forty, and even fifty hours on end. They were overworked, but they had worked as doctors had always worked throughout the campaign—with a devotion and energy and an industry beyond all praise so far as individuals were concerned. At the same time there were numbers of doctors actually in the town doing nothing simply because they belonged to other divisions. He alleged that of 200 patients from Ypres 80 were forgotten and left for seven days without medical attendance, yet all through the battle, owing, as was said, to some dispute between the R.A.M.C. and the Red Cross, there were numbers of motor ambulances doing nothing at Calais and Boulogne. That was early in the war, but at Loos thousands of wounded men were left lying all night in the open because hospitals were overfull and the staffs overworked, yet within a few miles there were hundreds of doctors of other divisions doing nothing, who could easily have been brought up by motor car. It was not the fault of the doctors, who were anxious to go, but of the system. A telegram was sent to the base for more doctors, but they were not allowed to start for four days while they were waiting to get the necessary papers signed. When they did arrive the wounded who had been suffering for want of attendance had been removed. Some days before the attack at Loos some of the field ambulances, probably under the direction of zealous men of common sense, collected a large number of stretchers, but Surgeon-General Macpherson ordered them to be taken away, because they were above the regulation number. These examples showed not only that the system was unsuitable for the fighting of to-day, but that it was administered with a rigid adherence to formula and rule. Further, the best use had not been made of the medical talent at the disposal of the nation; men of high professional attainments were enlisted and placed in junior posts. Instead of employing these men, who were in the prime of life and of their scientific knowledge and skill, in positions of command, the War Office brought back old pensioners of the R.A.M.C. and put these "dug-outs" in command. Under the present system it was impossible to get the rapidity necessary between the infliction of the wound and the operation. Motor transport had revolutionized conditions, and had rendered the field hospitals close to the front useless. There ought to be, in their place, all the way along the front, a system of movable hospitals, combining the functions of the field hospitals and the clearing stations, and within easy access, by motor car, of the firing line. Each ought to be in charge of a first-rate surgeon, and thoroughly equipped for up-to-date surgery. They should be established off the main road, which must be kept clear for the transport of supplies and troops, and should have easy lateral communications between one part of the line and another. This would make it possible to do away with the field hospitals and field ambulances. He considered that Sir Frederick Treves's statement that operations could be performed within two or three hours of the casualty referred to quite exceptional circumstances. The opinions he had expressed were those held by a very large body of highly instructed medical opinion. He hoped that the Government would appoint three or four thoroughly competent persons—not necessarily doctors, but perhaps including one doctor—to go to France to visit the hospitals there, to examine practitioners who have been in those hospitals and at the front, and to report whether there had not been a very considerable and unavoidable breakdown. Major Astor, who followed, said that he had seen a good deal of the medical service unofficially, was

associated with a fairly big hospital and had seen the way in which the wounded were brought over from France and the way they were landed at Southampton, and had visited some of the hospitals. From this experience he did not think matters were as black and serious as Mr. McNeill had painted them. He paid a tribute to Sir Alfred Keogh, whom he had found singularly accessible, anxious to investigate any question, whether large or small, and particularly fresh in mind.

Mesopotamia.

Mr. Long, who, in the absence of the Premier and the Secretary of State for India owing to illness, replied for the Government, admitted that serious defects had been disclosed in Mesopotamia. The Viceroy and the Commander-in-Chief in India had some weeks ago decided to send Sir William Vincent, a distinguished Indian Civil servant, and General Bingley, an Indian officer, to Mesopotamia to conduct an inquiry into the medical arrangements, and to make good deficiencies. The War Office had already supplied two Indian general hospitals complete and the personnel of two more, a British stationary hospital with 400 beds, and a British general hospital with 1,040 beds. During the last month 100 doctors and 100 orderlies had been sent, and the War Office had offered to meet, and believed it was able to meet, any demands that could be made upon it. Whatever reason there might be to believe the stories that reached this country, no effort had been spared, or would be spared, to do everything that should be done and ought to be done in the circumstances.

The Speaker was got out of the chair after dinner and the House went into Committee on the Estimates.

War.

Medical Examination of Recruits.—In reply to a question by Mr. Anderson, on March 8th, the Financial Secretary to the War Office said that subject to certain limitations, the usual fee for medical examination was 2s. 6d. a man. If within three months the man was found to have been improperly passed the doctor was liable to refund the fee. In reply to further questions on the following day, Mr. Tennant stated that he was glad to have the opportunity of contradicting categorically the statement that recruiting medical officers were paid only for recruits they passed as sound. It was the examination that was paid for, and the pecuniary result to the examining medical officer was the same whether he accepted or rejected a recruit. This had already been stated on several occasions. A medical man holding a commission received no fees for the examination of recruits. Mr. Snowden, who asked one of the questions, alleged that recently men had been passed as fit for military service who had artificial legs; who were so mentally deficient that they were unable to understand or answer any question; or who had never done any work for years on account of daily attacks of epilepsy. Mr. Tennant, in his reply, said he could not accept such statements as being anything else than an incorrect representation of the results of the work of the examining medical officers. "I think," he said, "that instead of being held up to obloquy they deserve support and recognition in the heavy work they are patriotically doing on behalf of the country."

Medical Unfitness.—In a written reply to Mr. Crooks, who asked whether a man certified as medically unfit on Army Form B 2512A by an officer R.A.M.C. at a recruiting office since August 14th was entitled to an armet, Mr. Tennant stated that an armet was only given to men who had been rejected as medically unfit, if, on re-examination, they were found to be suffering from serious organic disease. If, on re-examination, they were not found to be so suffering, they were attested, and classified in their category in the reserve.

Lunacy Institutions.—In written replies to questions addressed to the Home Office, Mr. Brace has stated that the new Hampshire Asylum is to be used by the military authorities as a hospital for sick and wounded soldiers, and not for cases of nervous and mental affections. The whole of the Middlesex County Asylum at Napsbury was being handed over to the War Office, and the patients under treatment there were being distributed over other asylums as near as practicable to Middlesex. The asylum will be used for sick and wounded soldiers, but it is still intended to receive there a certain number of soldiers suffering from nervous and mental affections of the same type as those now under treatment in the detached part of the institution already adapted as a war hospital. In reply to other

questions with regard to lunatic asylums the President of the Local Government Board has stated that two of the Commissioners of the Board of Control had, at the request of the War Office, undertaken the continuous supervision of the scheme for the use of certain asylums as war hospitals, and had thus, to a large extent, been withdrawn from their ordinary functions. Another commissioner and one of the inspectors had been absent on military duty since the beginning of the war, and more than half the clerical staff had joined the forces. The work of the commissioners in connexion with lunacy had been increased rather than diminished by the handing over of lunatic asylums for use as war hospitals. The concentration of patients into a smaller number of asylums had not diminished their number, had demanded even closer supervision than formerly, and had involved difficult administrative and financial arrangements. The expenditure of the Board had been reduced in many directions, and the estimates for the coming year would show a large reduction.

Officers' Income Tax.—In reply to a question by Mr. Bennett-Goldney, on March 9th, Mr. McKenna said that the method of paying income tax by deduction from salary was applicable to all Government servants, and was not confined to naval and military officers. In reply to a suggestion in the question that he would so adjust the new income tax regulations that the pay of all officers amounting to and including £400 a year should be exempt from income tax, Mr. McKenna said that he was unable to anticipate his next financial statement.

THE WAR.

CASUALTIES IN THE MEDICAL SERVICES.

ROYAL NAVY.

In the list of casualties issued by the Admiralty on March 9th as occurring in consequence of the sinking of the mine sweeper H.M.S. *Arabis* on February 11th, is the name of Surgeon Probationer John Hughes, R.N.V.R., unofficially reported to have died as a prisoner. It has been stated in the press that Mr. Hughes died from exposure, and was buried in the naval garrison cemetery at Wilhelmshaven with military honours.

ARMY.

Wounded.

Captain S. S. Greaves, R.A.M.C.(T.F.), France.

DEATHS AMONG SONS OF MEDICAL MEN.

Beale, Clifford William, Lieutenant 7th Royal Sussex Regiment, who was killed on March 2nd, aged 23, was the only son of Dr. and Mrs. Clifford Beale, of Allon Down, Rotherfield, Sussex, and nephew of Sir W. Phipson Beale, Bt., K.C., M.P. He was educated at Warren Hill, Eastbourne, and at Harrow (Sir Arthur Horth's House), subsequently obtaining a scholarship at Gonville and Caius College, Cambridge. He shot for Harrow at Bisley, and was an active member of the O.T.C. both at school and college. He graduated in the Natural Sciences Tripos at Cambridge in 1914, and was captain of his college boat club and of the crew which won the Thames Cup at Henley in the same year. He enlisted as a private in the Public Schools and Universities Battalion, but subsequently obtained a commission in the 7th Royal Sussex Regiment, with which he had been serving abroad since last May. He was gazetted lieutenant in January, 1915, and had recently been appointed to a light mortar battery.

Bowhay, Eustace G., Captain 1/6th Battalion Devonshire Regiment (T.F.), killed in action in Mesopotamia on March 8th, was the second son of Dr. Bowhay, Gunnislake, Tavistock, and was 26 years of age. Educated at Skinners' School, Tunbridge Wells, he was gazetted to the 5th Duke of Cornwall's Light Infantry in 1909 and transferred to the Devon Regiment in 1913. He obtained his company shortly before proceeding to India in October, 1914. Captain Bowhay was in practice as a solicitor at Torrington, North Devon. He was clerk to the borough magistrates and steward of the town and alms land charities.

Johnston, H. A., Second Lieutenant Royal Flying Corps, son of Dr. Johnston of Stranorlar, County Donegal, killed in France on March 4th, aged 24. He was educated at Trinity College, Dublin, and before the war was a wireless installation expert in the firm of Siemens and Co. Enlisting early in the war, he got a commission a year later. He was killed by a shell while on leave for the day.

Mason, Arthur Edward Knight, Captain 7th, attached 8th, Battalion, Royal Fusiliers, only son of Dr. Arthur Mason, Oakwood, Walton-on-Thames, killed in France on March 2nd, aged 22. He was educated at Cheltenham and at Exeter College, Oxford, and got his first commission on August 15th, 1914, was promoted to lieutenant on February 2nd, 1915, and recently to captain. He had previously been wounded in April.

MEDICAL STUDENT.

Sangster, William Campbell, Lieutenant 4th Battalion Gordon Highlanders, reported missing on September 25th, 1915, was killed in action on that date. He was the son of Mr. William Sangster of Rubislaw, was a graduate in Arts of Aberdeen

University, had entered as a medical student, and when war broke out was commencing his second year. He received his commission as second lieutenant in the 24th Battalion on October 4th, 1914, was transferred to the 14th Battalion in June, 1915, and went to the front almost immediately.

NOTES.

LIEUTENANT-COLONEL W. H. WILLCOX, R.A.M.C., M.D., F.R.C.P., has been appointed consulting physician to the Mesopotamia Expeditionary Force, with rank of Colonel.

ANGLO-RUSSIAN HOSPITAL.

Dr. T. J. Horder, who was appointed physician to the Anglo-Russian Hospital, is serving as medical adviser in London to the hospital. Dr. Gould May is acting as physician to the hospital in Petrograd.

Lieutenant-Colonel T. E. Sandall, who was invested with the C.M.G. by the King on March 11th, had practised at Alford, Lincolnshire, down to the time when the Territorial Force was mobilized at the beginning of the war. He was then lieutenant-colonel commanding the 5th (Territorial Battalion) of the Lincolnshire Regiment, and had received the Territorial decoration. While commanding his battalion in France he was wounded, but is now convalescent. He graduated M.B., B.C. Cambridge in 1895.

HONOURS.

The list of officers commended for service in action, mentioned in dispatches from the Vice-Admiral Commanding the Eastern Mediterranean Squadron covering operations in the Gallipoli Peninsula, contains the names of Deputy-Surgeon General O. W. Andrews, M.B., R.N., and Fleet Surgeon John Menary, R.N. The list of commendations also contains the name of Midshipman H. D. Johnston, R.N., the son of Dr. R. McKenzie Johnston of Edinburgh, who has been awarded the D.S.O. He was assistant to Commander Swabey, Naval Observation Officer, Cape Helles, since July, 1915, and the distinction has been conferred upon him for having "shown great ability and resource in his most important duties."

MEDICAL OFFICERS WANTED.

3/1st Notts and Derby Mounted Brigade Field Ambulance, R.A.M.C.(T.F.).

A medical officer is required for this unit; promotion to temporary captain after six months' approved service. Applications to Officer Commanding, No. 9 Lines, Rugeley Camp, Staffs.

3/2nd South Midland Mounted Brigade Field Ambulance.

A medical officer is required for this unit. Full particulars on application to Captain A. G. Levy, Commanding 3/2nd South Midland Mounted Brigade Field Ambulance, 1, Ilfley Road, Oxford.

2/1st South Midland Mounted Brigade.

Three medical officers are wanted to complete Brigade at present on East Coast. Applications to Major D. M. Spring, S.M.O., R.A.M.C.(T.F.), Head Quarters, Hempton, Fakenham, Norfolk.

2/2nd South Midland Brigade Field Ambulance.

Medical officers are urgently required for this ambulance, stationed at King's Lynn. Must sign for foreign service. Applications to Major H. G. Magrath, O.C., London Road, King's Lynn.

Ireland.

THE committee in charge of the testimonial to Dr. Power of Ardinnan has decided not to close the fund until March 25th, and asks intending subscribers to send their subscriptions as soon as possible to Dr. J. H. Jellett (Treasurer), 11, Beresford Place, Waterford.

Last week Dr. John L. Power, dispensary medical officer, Castlemartyr, who has joined the R.A.M.C., was entertained to dinner at Mogeely, and a presentation was made to him on behalf of the people of the district.

The medical practitioners of the county Wexford presented a silver tea and coffee service to Dr. William W. Murphy, Coolgreany, in recognition of the able services he has rendered for twenty years, not alone to the local profession in county Wexford but to the entire profession in Ireland, with whom he is most popular.

At a meeting of county Wexford medical practitioners on March 1st the following resolution was unanimously passed:

That at this our first meeting since the settlement of the certification question, we, the county Wexford medical practitioners, wish to record our appreciation of the valuable services rendered to the whole profession in Ireland by our able, worthy, and tireless friend, Dr. Thomas Hennessy, and hereby tender him our very best thanks for his able and painstaking care of our interests, and congratulate him personally on the success of his tactics.

At the last meeting of the Swinford guardians a letter was read from the Local Government Board declining to sanction the appointment of Dr. Martin Sweeney permanently as medical officer for the Charlestown dispensary district. The Board considered that it would not be fair that in the absence of men who had volunteered for service in the army, young men should secure election to vacancies which may arise. Dr. Sweeney refused to act temporarily, and it was agreed to advertise for a temporary medical officer.

In the White Paper issued last week regarding the Civil Service Estimates for the coming financial year, the amount estimated to be required for hospitals and charities in Ireland is £16,778, a decrease of £75 on the present year. The grants to the various hospitals remain unchanged. The grants to public infirmaries are unchanged at £223.

A number of vaccination defaulters have been prosecuted recently in Queen's county. At Abbeyleix the magistrates allowed the charges to be withdrawn on the defendants undertaking to have the children vaccinated within a fortnight. At Maryborough fines of 10s. and costs were imposed in nineteen cases, nine others were adjourned, and in seventeen the summonses were withdrawn owing to defective service of notices.

THE DANGER OF SMALL-POX.

Sir Charles Cameron has written to the public press drawing attention to the fact that small-pox is spreading in England, and has visited Manchester, Salford, and Cardiff, towns with which Dublin is in daily communication. It is to be regretted, he says, that the belief in the efficacy of vaccination in the prevention of small-pox, and of its power to lessen the severity of its symptoms, has seriously declined of late years. This, he thinks, may be partly due to freedom from the disease for some years past. It is certain that there are many unvaccinated persons in Dublin, and the hope is expressed that boards of guardians will enforce the provisions of the Vaccination Act.

Scotland.

At the meeting of the Royal Society of Edinburgh, on Monday, March 6th, the following medical men were amongst the new Fellows elected: Percy Theodore Herring, M.D., F.R.C.P.Ed., Professor of Physiology, St. Andrews, and Robert Muir, M.A., M.D., Sc.D., F.R.S., Professor of Pathology, University of Glasgow.

A Scottish Red Cross hospital ship, the *St. Margaret of Scotland*, destined for service in Eastern waters, is now ready. She is a vessel of 2,300 tons, originally employed in the inter-colonial mail service in the West Indies. She has been converted into a hospital ship under the superintendence of an Admiralty representative. The cost has been defrayed out of the flag day of the Scottish branch of the Red Cross Society last October, by which the sum of £21,000 was realized. She has accommodation for ninety-two patients in seven wards, named Clyde, Forth, Tay, Tweed, Dee, Spey, and Doon; over eighty emergency hammocks can be slung. Sir George Beatson, speaking at an inspection of the boat on March 7th, said that she was the latest example of the equipment of a hospital ship.

At a meeting of the Glasgow School Board on March 9th a resolution was proposed by Mr. G. D. Hardie and seconded by Dr. Grant Andrew in favour of taking steps immediately to provide classes, as centrally situated as possible, for children of school age suffering from myopia and defective sight. The proposal was referred to the special schools and medical inspection committees for consideration.

Correspondence.

MEDICAL RECRUITING: ENROLMENT.

SIR,—The Secretaries of the Central Medical War Committee have been good enough to suggest that I should write to you and state what the medical men in my area have done in connexion with their appeal for enrolment.

We called a meeting, at which were present all the doctors in the district except those already holding commissions or working in hospitals in France, and, after due discussion, by the unanimous vote of all those of military age it was decided that every man should forthwith enrol.

This they have done. Needless to say, it is out of the question that they all can be spared or that they all feel their circumstances permit them to go; but they have enrolled, intending that their district should do its share, and trusting to the conditions laid down in the Committee's circular of February 17th to the effect that only those who can be spared with due regard to the needs of the community should be required to go, that the difficulties of those whose ties make leaving their practices a *serious* hardship shall be considered by the Local Medical War Committee, and that finally they should not be called up unless the response to the call for enrolment from men of military age throughout the country justifies it.

It should be a simple matter to call a meeting of medical men in each area to confer over the question of enrolment, as we have done. Our members are few in comparison with those in many districts, which simplified matters for us. But though unanimity is not to be expected everywhere, such meetings and discussions would be an immense help to the work of the Central Medical War Committee. As the Secretaries say in their letter to me, "All difficulties would disappear could we count on such loyalty and foresight in every area." Being personally well past military age, I may safely quote this remark.—I am, etc.,

F. CLAUDE EVILL,

Chairman, Barnet and District Local
Medical War Committee.

High Barnet, Mar. 15th.

GUNSHOT WOUNDS OF THE HEAD.

SIR,—The observations published by Colonel H. M. W. Gray in the *JOURNAL* of February 19th (p. 261) will be read with interest by a large number of surgeons who are now called upon, or may be called upon in the future, to deal with a very serious group of war injuries. I am not competent to criticize those observations bearing on such surgical methods of procedure as are best calculated to prevent sepsis, but there are some statements made and some advice given in Colonel Gray's paper which, from a neurological and pathological point of view, can hardly be accepted without hesitation. One of the principles enunciated at the beginning of the paper is couched in the following terms:

That we can prevent permanent disability in most cases by systematically removing foreign material or displaced bone from the surface or substance of the brain whenever these are accessible to legitimate surgery.

This is a remarkable statement as it stands, and still more remarkable when we realize that "permanent disability" must include various forms of paralysis, disorders of speech, disorders of the special senses, and traumatic epilepsy, as well as mental derangement, and that no evidence is offered as to the permanent condition of his cases after the "complete" operation he so strongly advocates. It is the permanent condition of these unfortunate victims of the war which chiefly interests us, and upon which claims for the superiority of any particular method of treatment must surely be based. Those of us who are watching and treating these patients after their removal from the base hospitals may form in the course of time some opinion as to the accuracy of Colonel Gray's claim. Meanwhile, I cannot help feeling that some of his principles are founded on the old fallacy that the presence of foreign material rather than the injury to brain substance is the origin of such disorders of function as paralysis and epilepsy.

Let me enunciate a few principles which can hardly be

contradicted, and which may be useful for surgeons to remember when dealing with head injuries.

When a foreign body penetrates the brain substance it either carries with it infection or it does not. In the former case there is reason to believe that those parts of the track through which the foreign body has passed lying nearest the surface are more infected than those lying at a greater depth, and the removal of the foreign body will not remove the infection, although it may sometimes favour the action of the surrounding healthy tissue in overcoming the raid of sepsis. Whether it is a source of infection or not the foreign body cannot be removed without additional destruction of the brain, the results of which are often permanent. At the present moment there must be hundreds of patients in England with pieces of metal in their brains which are not producing symptoms, and only future records and statistics can decide how far the presence of these foreign bodies is harmful. Who knows whether there may not be an advantage in the possession of a foreign body inaccessible to legitimate surgery? The amount of permanent paralysis, loss of speech, loss of vision, etc., must depend on the amount of destruction of brain tissue, whether produced by the missile, by pieces of bone, by the surgeon's finger and scoop, or by sepsis. In some cases sepsis is the most dangerous enemy, in others the surgeon's finger and scoop. Missile and bone will destroy brain tissue whether we desire it or not, but in most cases the track of destruction caused by the surgeon will be greater than that of other foreign bodies. From these data it is only fair to conclude that each case should be considered and dealt with on its own merits, and that the general advocacy of "complete operation"—with its somewhat sinister but vague meaning—is dangerous advice to offer on the plea of preventing permanent disability.

The next point of importance is the question of opening the intact dura on the supposition or chance that it covers injured brain tissue.

The pulped area—a mixture of useless brain matter and blood—is an immediate source of irritation to the surrounding brain, because it is virtually a foreign body. In the process of healing a great part of it is replaced by fibrous tissue—a scar—which forms a remote source of irritation.

This statement is bald and unconvincing when offered as a reason for opening the dura by a small crucial incision made by plunging the knife in for half an inch or so, with the result that pulped material or healthy brain matter wells out like grease from a collapsible tube. The following questions are pertinent in this connexion. What evidence of pulping of the brain can be obtained before opening the dura? How is the fact that the brain matter is useless recognized? What evidence is there that softened brain tissue is a source of irritation? Can the formation of a scar be prevented if the brain is really necrosed, and is not the scar much more likely to be "fibrous" when the damaged dura is involved than when that membrane is left intact?

In cases of cerebral haemorrhage, of cerebral softening, or of encephalitis no one would advocate the removal of useless brain matter and blood, and experience teaches us that the brain is quite capable of dealing with either by its own natural methods. If pressure must be relieved a lumbar puncture is the first remedy, and not one to be postponed until large masses of brain matter—much of which may be only temporarily injured—have been squeezed through a small opening, and encouraged to find a place in the sun by means of a pair of forceps.

The fear of epilepsy is very real, but no one has yet explained on what pathological basis this more remote complication depends; it certainly does not depend on the size of the scar. There is some reason to suppose that epilepsy is more likely to supervene when the scar involves the dura than when it does not. Probably it depends more on individual idiosyncrasy than on any other factor, and I am in the habit of prescribing many months of bromide treatment for all cases of brain laceration or bruising as a prophylactic measure.

There was prevalent some years ago, and it still lingers in some minds, an idea that traumatic epilepsy can be cured by operation if the surgeon can find a scar on the brain and remove it. For some reason or other the fact that another scar would replace the one excised was overlooked, and the temporary absence of fits over a period of some

months has often led to the premature belief that a cure has been achieved. I am sorry to say that I have never seen a case of traumatic epilepsy cured by such an operation, and that I have seen many patients the worse for the attempt. From this experience I conclude that it is wise to let the brain deal with its own necrosed tissue in its own way, and that the less the surgeon interferes the more "glial" and the less "fibrous" will be the resulting scar; for scar there must be.

Moreover, a careful neurological investigation of the patient will often reveal the fact that the brain has been injured, perhaps pulped, in parts quite remote from the site of the direct injury, and in order to be consistent those areas, if Colonel Gray's advice be followed, should be exposed by trephining and incision of the dura mater.

On page 262 Colonel Gray has a short paragraph on "Operations where wounds of the blood sinuses are present." It commences with the statement that these are done as a matter of course, because it is thought advisable to remove fragments of bone which cause obstruction to the return of blood from any part of the brain. I am tempted to inquire whether the removal of the depressed bone is attended by a return of the venous circulation or whether the surgeon is not forced in the course of his operation to promote further thrombosis in order to check the alarming hæmorrhage which may occur when the sinus is exposed. The only harm caused by the depressed bone may be interference with the circulation in the lacunae and cortical veins, and the remedy proposed is calculated to make this condition irremediable. Colonel Gray says that out of fourteen cases operated on only one died, but it is the permanent result which interests us, and I should like to show him the extraordinary recoveries which are made by some of these cases which have never been operated on. Nothing has impressed me more in connexion with the cranial surgery of the war than the success of the conservative methods adopted and advocated by many British and French surgeons, not only in these cases but in dealing with depressed bone and foreign bodies as a whole. In their practice surgical interference is considered from the point of view of the brain rather than that of the skull or of the foreign body.

The *post hoc propter hoc* method of reasoning is notoriously misleading, and the mere fact that a patient recovers from paralysis after an operation is not sufficient to credit the operation with the achievement. It is an almost daily medical experience of civil life to see paralysis clearing up in a few hours or a few days without any operation. On the other hand, it cannot be denied that the opening of an intact dura and the attempt to remove foreign bodies must often destroy more or less healthy brain tissue, with all the inevitable results which follow such destruction. For this reason it is difficult to urge too strongly that each case should be treated on its merits, and that no authoritative dictum in favour of complete operations should be allowed to bias the surgeon in his difficult task.—I am, etc.,

London, W., Mar. 13th.

E. FARQUHAR BUZZARD.

DELAYED TETANUS.

SIR,—Quite recently four cases of tetanus occurring in soldiers at apparently long intervals after being wounded have been reported, namely, one by Dr. Penhallow from the American hospital at Paignton,¹ three by Lieutenant-Colonel Gilbert Barling from Birmingham;² these cases are respectively stated, the first as "a case occurring two months after being wounded," and the other three as cases with "incubation" of fifty-one, fifty-three, and forty days respectively.

I venture to suggest that three at any rate of these cases are cases not of long incubation of tetanus but rather of prolonged presence in the wounds of anaerobic organisms—that is, they belong to the class of cases to which attention has been drawn by Colonel Bond of Leicester. In passing, I may say that I have seen a good number of cases in which there has been evidence of the prolonged presence of quiescent organisms; how long they may stay I know not. One case that came under my care suggests a very long time, and is worth referring to.

A man with a compound gunshot wound of the thigh inflicted on April 25th, 1915, was treated in an auxiliary hospital; operations were performed on May 3rd, June 13th, and July 16th, 1915. He was sent to Netley healed and sound on November 19th, 1915, 208 days after the original injury. A few days later he fell down and refractured his thigh, the temperature rose, the thigh became swollen, and the scar suddenly gave way with a severe hæmorrhage. A large gas-containing abscess was found in which the gangrenous femoral artery had given way. In my absence Captain Woods ligatured the common femoral at Poupert's ligament and the man has made an uninterrupted recovery.

This is the longest persistence of gas-forming organisms that I have come across.

Dr. Penhallow's case of tetanus was given other on December 4th to overcome some deformities. Pain in the masseters occurred a week later, and still five days later definite tetanus occurred. Is not this a case of Colonel Bond's residual germs with tetanus of twelve days' incubation? Similarly, in Colonel Barling's first case, an abscess was opened on September 24th, ten days before tetanus appeared; his second case had a sharp foreign body removed on November 13th, four days before the onset of tetanus. In Colonel Barling's last case the wound was healed on October 27th; tetanus appeared on November 3rd; there is no record of any fresh trauma after the infliction of the original wound, and if none such occurred this would seem to be a definite case of prolonged "incubation."

I now come to the point which has induced me to pen these lines: It is to draw attention to the grave danger of any trauma to a granulating surface where there is a possibility of the presence of tetanus organisms.

In a small series of cases of tetanus which I hope to publish later is one of a man, apparently otherwise doing well, who had a slight rise of temperature, which appeared to be due to insufficient drainage of his wounds, which were on either side of the leg and communicated fairly freely. With a threaded probe I passed a drainage tube through with perfect ease and without using the slightest force. There ensued a slight fall in temperature, but his tetanic symptoms rapidly became much worse, and the temperature shortly began to rise rapidly. The attack of tetanus assumed an exceedingly acute form, and death occurred in about eighteen hours with a temperature of 109°, and, on retaking for verification, of 109.4°.

Evidently the trifling act of slipping a drainage tube through this man's wound led to the absorption of a fatal dose of the tetanus poison present. I have since been careful not to interfere with wounds in tetanus patients, and "to let sleeping dogs lie."—I am, etc.,

RUSSELL COOMBE, Major R.A.M.C.(T.),

March 13th.

Operating Surgeon, Netley Hospital.

MURMURS IN THE RECRUIT'S HEART.

SIR,—I have followed with interest the discussion on Sir James Mackenzie's memorandum. The crux of the matter, so far as murmurs are concerned, lies in the words: "If the candidate's response to effort be normal and the heart normal in size the murmur is negligible." (Obviously systolic murmurs only are referred to.) This sentence admirably sums up the new teaching on the subject. Now the question is whether the new teaching is right.

My reasons for this letter are three. First, I know some examiners cannot make certain of the size of the heart. Secondly, I am seeing in men back from the front—and indeed in some who have never gone abroad—not hearts with negligible murmurs which have defied strain, but hearts with serious murmurs which ought never to have been passed—even aortic regurgitation (the lesion which the binaural stethoscope is so apt to miss) and mitral stenosis; one wonders how many remain abroad permanently. So that one questions the practical wisdom of any teaching which belittles the importance of murmurs. Thirdly, I do not admit that the knowledge gained during recent years has scrapped all that went before. To claim that is merely to repeat the cry of every new dogma. I do not think we can examine a heart almost without a stethoscope, as some appear to imagine. In the heart, as elsewhere, there must be the little rifts within the lute, and it does not seem common sense to widen them, although they cause no uneasiness in civil life, nor, as yet, any discoverable cardiac enlargement.

I would urge not only keenness for numbers, but caution in their selection. Any well-educated medical man knows of systolic murmurs which he can regard as unimportant—

¹ *Lancet*, February 26th, 1916, p. 464.

² *BRITISH MEDICAL JOURNAL*, March 4th, 1916, p. 337.

for example, one class to which Sir James Kingston Fowler has drawn attention, the so-called "respiratory murmurs." Where a murmur is reasonably in doubt, the recruit should be given the benefit of that doubt. It is not well to be rash with other people's risks.—I am, etc.,

Exeter, March 11th.

W. GORDON.

VISUAL NEUROSES OF MINERS.

SIR,—I do not desire to lay any stress on the mere title of my paper, "Visual neuroses of miners." My only reason for adopting it was that I felt strongly that too much stress had been laid on the presence of nystagmus in these cases, which at best is only a symptom, and which seemed to me to have prevented due attention being given to the disease by neurologists and physicians generally, who should undertake its treatment.

I should like, on the other hand, to emphasize the fact that I was describing the disease commonly known as "miner's nystagmus." I do not intend to suggest that a change of nomenclature should be made, as the malady has been too long known under this title to render an alteration convenient.

I must, however, express my surprise that Dr. J. A. Wilson should say in his letter (March 11th, p. 397) that "in 200 cases of nystagmus collected in a coal-mining area only 12 per cent. were miners." I must leave an answer to this statement to some of the many able men who have studied this subject in mining districts, as I have been unable to do. If Dr. Wilson's contention were really accurate—that the whole train of symptoms which Dr. Llewellyn has given as denoting miner's nystagmus can be found to be more prevalent in the general population than in miners—we shall have reached almost a *reductio ad absurdum*.—I am, etc.,

March 13th.

CHARLES F. HARFORD.

Obituary.

ARCHIBALD CARMICHAEL, M.D.,

BARROW.

DR. ARCHIBALD CARMICHAEL of Barrow-in-Furness, who died at Perth on February 22nd, graduated M.A. Aberd. in 1868, M.B. in 1871, and M.D. in 1873. He went to Barrow in 1871, and two years later joined the late Dr. Stark in partnership. He was appointed honorary surgeon to the North Lonsdale Hospital at Barrow, and was closely identified with that institution down to 1901, when he retired from the active staff, and was appointed consulting surgeon. He was certifying factory surgeon and medical referee under the Workmen's Compensation Act. In addition to a large practice, he had an extensive consulting connexion and was an enthusiastic member of the local clinical society. Although he never consented to accept any office in the British Medical Association, he was always deeply interested in its welfare. He was a strong opponent of the Insurance Act, and refused to join the panel. Some six months ago he was compelled by failing health to take a prolonged holiday. He hoped to return to Barrow to continue his consulting practice. Whilst walking near Perth, where he was staying with his sisters, he died suddenly by the roadside. By his death the profession in Barrow has lost a distinguished member and valued friend. The funeral took place at Perth on February 25th.

DR. SETTLE WRITES:

Being one who knew the late Dr. Carmichael perhaps longer and more closely than any one else in the profession, I have been asked by his friends here to speak of him as I knew him. His coming to Barrow was synchronous with mine about forty-five years ago. His success and reputation soon caused him to be appointed honorary surgeon to the North Lonsdale Hospital, where his care and skill as an operator combined with the merit of his private work to make him well known by the prospective sick of North Lonsdale, so that to his general work was soon added a wide and lucrative consulting practice. Dr. Carmichael's work was marked by carefulness, and, like many of exceptional merit, he was a modest man. His work was honest work, and, unlike the practice of

many of less merit, he refrained from the adventitious aid of reporting and pamphleteering. His modesty also prevented him taking up public positions. Even in our local clinical society, of which he was a devoted member, he seemed to enjoy most to be a simple member, although his ripe experience, exhibited when he joined the discussions, added greatly to their value. In politics he was Conservative. In religion I believe he belonged to an old Roman Catholic family, but I understand scientific reading had disturbed his allegiance to that Church. Many years ago I had occasion to see the late Sir Jonathan Hutchinson. Our business being finished, he spoke to me in high terms of admiration of Dr. Carmichael's merits. I believe Dr. Carmichael died as he expected and hoped he would die.

THE LATE DR. R. DRUMMOND MAXWELL.—Dr. H. R. Andrews writes: "I should like to add a few words to what was said in last week's number about my late colleague. After holding the appointments of house-physician, house-surgeon, and receiving-room officer at the London Hospital, Maxwell served as civil surgeon in South Africa. At the end of the war he became resident medical officer at Queen Charlotte's Hospital. He developed at this period of his life a solidity of character and a continuity of purpose which impressed those with whom he worked. From this time onwards he devoted himself to obstetrics and gynaecology. For some years he attended most regularly all the gynaecological operations at the London Hospital, though there was no prospect of a vacancy on the staff, and soon constituted himself as a sort of unofficial registrar, and a very useful one. In 1907 he was appointed obstetric registrar and tutor at the London Hospital. From that time until his death he worked with me almost continuously and always harmoniously. In 1912 he was appointed assistant obstetric physician. He was a loyal, cheery, and unselfish colleague, an able and popular teacher, and a skilful and successful operator. For the greater part of last year, during my illness, he bore the burden of the obstetrical and gynaecological department of the London Hospital with little assistance, working unselfishly and cheerfully, although he longed to go out to France. During the last few months he had taken up physical culture with much energy, and used to swim twelve lengths of a swimming bath every evening, and sprint afterwards, besides doing various exercises. He told me a few weeks ago that he had derived great benefit from this, and that his sense of bodily fitness had not been so great for some years. The end came with shocking suddenness. On Saturday, March 4th, he wrote to the hospital saying that he would operate as usual on the following Monday. On the morning of Sunday, March 5th, he was operated on, and he died twenty-four hours later. His loss will be long and deeply felt at the London Hospital, and is a very real one to me. He was an enthusiastic member of the Gynaecological Visiting Society, no meeting of which could be considered to be complete without his lively and stimulating presence." We may add that he was elected assistant surgeon to the Samaritan Hospital in 1908, resigning when he was appointed assistant physician to the London Hospital.

THE LATE LIEUTENANT BERNARD B. GOUGH, R.A.M.C.—Staff Surgeon W. Kenneth Wills, M.B., R.N.V.R., has sent the following appreciation:

To have known Gough for a period of nearly twenty years is to have had a twenty-years-long privilege. Few may have pierced his peculiar reserve, but to those who did there was a very different character beneath that which was suggested on the surface. He was at his best with children in the open. A lover of wild things he had the rare gift of opening the eyes of others to the beauty of the world around, and knew where Pan hid his treasures from the curious. But with adults he was peculiarly diffident, and one might have easily missed that kindness, of which many a poor patient will tell to-day with tears, and that sterling character of which his intimates had ever and anon fresh revelations. Gough, or "B. B." as he will ever be to his old Guy's friends, could never force himself forward, and when he volunteered for the war no one can gauge what it cost him. He was ever governed by high principles, and loyalty to the loftiest motives always found its response in his life and conduct. When he heard the call of duty he never wavered, but gave his all cheerfully. I was privileged to see him on his way through a south coast town to the front, and though he said nothing of his distaste for the employment of war, I could appreciate to some extent the sacrifice of himself it had been to offer for war service. The

sacrifice offered has been accepted to the full. The old days at Guy's and the more recent days in his country practice in the picturesque Mendip village of Compton Martin are over, and I feel that one of the beloved characters of Life's Book has gone out of the story and that much of the charm has gone too.

SURGEON-GENERAL CHARLES EDWIN McVITTIE, Madras Medical Service (retired), died at Exmouth on February 17th. He took the L.R.C.S.I. in 1865, and the Fellowship in 1874, and the L.R.C.P. Edin. in 1866. He entered the I.M.S. as assistant surgeon on March 31st, 1866, became surgeon on July 1st, 1873, surgeon-major on March 31st, 1878, deputy surgeon-general on March 7th, 1891, and surgeon-general on April 1st, 1895, retiring on April 1st, 1900. A good service pension was conferred upon him from May 17th, 1894, and on March 23rd, 1898, he was appointed honorary physician to the Queen. He served in Afghanistan in 1880, receiving the medal, and in Burma in 1886-7, when he was mentioned in dispatches, in G.G.O. No. 434 of 1887, and received the medal with two clasps.

DEPUTY SURGEON-GENERAL EUGENE FRANCIS O'LEARY, R.A.M.C. (retired), died at Sidmouth on February 20th, aged 80. He took the diploma of M.R.C.S. in 1856, and the degree of M.D.R.U.I. in 1870. He entered the army as assistant surgeon on February 9th, 1856, became surgeon on February 9th, 1868, and surgeon-major on March 1st, 1873, retiring as brigade surgeon, with the honorary rank of deputy surgeon-general, on December 12th, 1883. He served in the Egyptian war of 1882, and received the medal and the Khedive's bronze star.

BRIGADE SURGEON EDWARD ACTON GIBBON, of Sledagh, co. Wexford, High Sheriff of Wexford, died there on February 15th, aged 80. He was educated in Dublin, and took the diplomas of L.R.C.S.I. in 1858 and L.K.Q.C.P.I. in 1860. Entering the army as assistant surgeon on September 1st, 1858, he became surgeon on September 1st, 1870, and surgeon-major on March 1st, 1873, and retired with a step of honorary rank on March 12th, 1880.

LIEUTENANT-COLONEL ALFRED JOHN BELEMORE, R.A.M.C. (retired), died at Brighton on February 4th, aged 76. He was educated at St. Mary's, took the diplomas of M.R.C.S. and L.S.A. in 1861, and joined the army as assistant surgeon on April 16th, 1862, becoming surgeon on March 1st, 1873, and surgeon-major on April 16th, 1874, and retiring on March 22nd, 1888. The *Army List* assigns him no war service.

SURGEON-MAJOR ARTHUR SANDERSON, R.A.M.C. (retired), died at Joanville, Jersey, on January 23rd, aged 81. He took the diploma of M.R.C.S. in 1857, entered the army as assistant surgeon on January 12th, 1859, became surgeon on January 12th, 1871, and surgeon-major on March 1st, 1873, retiring on March 28th, 1890. The *Army List* assigns him no war service.

DEATHS IN THE PROFESSION ABROAD.—Among the members of the medical profession in foreign countries who have recently died are Dr. A. Morgan Vance, of Louisville, Kentucky, a well-known orthopaedic surgeon, aged 61; Dr. Pietro Da Venezia, for forty years physician-in-chief to the Ospedale Civile of Venice, aged 80; and Dr. R. A. Witthaus, for many years professor of chemistry at the Cornell Medical College, editor in conjunction with Becker of a treatise on medical jurisprudence, and author of numerous contributions on toxicology, on which he was a recognized authority, aged 69.

The Services.

TERRITORIAL FORCE.

MAJOR M. J. MAHONEY, M.D., attached to the King's (Liverpool Regiment), has been awarded the Territorial Decoration.

EXCHANGES DESIRED.

CAPTAIN T. CAMERON HOUTON, R.A.M.C. (T.), 21st Lowland Mounted Brigade Field Ambulance, Cupar, Fife, Scotland, gazetted Captain October 2nd, 1915, wishes to exchange with a medical officer on active service, in any capacity.

Northern Command.—M.O. wishes to exchange; preferably for Cannock Chase district.—Address No. 1150, BRITISH MEDICAL JOURNAL Office, 423, Strand, W.C.

Universities and Colleges.

UNIVERSITY OF OXFORD.

Radcliffe Travelling Fellowship.

The electors have elected George E. Beaumont, B.A., University College, to a Travelling Fellowship on the Foundation of Dr. John Radcliffe.

UNIVERSITY OF CAMBRIDGE.

At a congregation on March 10th a grace was approved to the effect that, notwithstanding the regulations prohibiting any degree other than an honorary degree being conferred out of term, the vice-chancellor should be authorized to admit candidates to degrees in medicine and surgery at a congregation during the long vacation. This arrangement was made because, owing to the late date at which medical examinations in the Easter term are held, it was not possible for the class lists to be issued before the last congregation in Easter term, and the successful candidates would be placed at a serious disadvantage if unable to proceed to their degrees until Michaelmas term.

UNIVERSITY OF LONDON.

MEETING OF THE SENATE.

A MEETING of the Senate was held on February 23rd.

Mr. Thomas Yeates was recognized as a teacher of anatomy at the Middlesex Hospital Medical School and his name added to the Board of Intermediate Medical Studies and of Studies in Human Anatomy and Morphology.

The subject of the essay for the Paul Philip Reitlinger prize in 1917 is "The comparative treatment of native races in the British Empire."

Special War Regulations for Medical Students.

—It was resolved:

That, from the present time until a date after the termination of the war to be fixed later by the Senate, Internal Students who have been debarred from presenting themselves for examinations for medical degrees by service under the War Office or Admiralty, or by hospital service in connexion with the war, or by other approved service in connexion with national defence, be (i) permitted to enter at the First Examination for Medical Degrees in either (a) inorganic chemistry and physics, or (b) general biology, provided that the authorities of the schools to which they are attached shall recommend that they be permitted so to enter; (ii) credited with any subject in which they pass at the First Examination for Medical Degrees or Second Examination for Medical Degrees, Part II; (iii) permitted, if they fail in Forensic Medicine only in Group I of the Third Examination for Medical Degrees, to present themselves for re-examination in that subject only in order to complete the examination in Group I; provided that they comply with the regulations in all other respects.

UNIVERSITY OF BRISTOL.

The following candidates have been approved at the examination indicated:

SECOND M.B., CH.B.—B. A. Astley-Weston, Elizabeth Casson, R. F. White.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

An ordinary council was held on March 9th, when Sir William Watson Cheyne, president, was in the chair.

Dental Surgery.

Diplomas in dental surgery were granted to twenty-eight candidates found qualified for the licence.

A report from the Board of Examiners in Dental Surgery was adopted by the council, and it was decided to inform the General Medical Council, with further reference to its letter of March 11th, 1915, that the council of the Royal College of Surgeons of England think that the present curriculum for dental students might be revised in accordance with the recommendations of the Board of Examiners in Dental Surgery without impairing the sufficiency of the guarantees for efficient practice contemplated by the Dentists Act.

General Medical Council.

Sir Henry Morris was re-elected the representative of the College in the General Medical Council.

Bradshaw Lecture.

Mr. Charters J. Symonds was elected Bradshaw lecturer for the ensuing collegiate year.

ON February 24th Mr. W. D. Spanton, consulting surgeon to the North Staffordshire Infirmary, presided at Stoke over the jubilee meeting of the North Staffordshire Field Club. It was founded in Mr. Spanton's rooms in the old North Staffordshire Infirmary at Etruria in April, 1865, and he was one of the first honorary secretaries. From his review of the fifty years' work of the club it appears that it has an archaeological section, with sketching and photographic sections which preserve records of buildings in the district, and sections on geology, entomology, zoology, botany, microscopy, and meteorology. It has a medal and a library founded in honour of past secretaries, and also a natural history museum, now under the aegis of the county borough authorities. A vote of thanks to Mr. Spanton, moved by two old members of the club, was cordially adopted.

Medical News.

DR. FRANCIS JOHN HARVEY BATEMAN, of Heath End, Blackheath, has been appointed a justice of the peace for the county of London.

A VIENNA manufacturer has given £20,000 for the foundation of an institute for the study of the proper food (*Volksernährung*) by correlating the results of research in organic chemistry, biology, and physiology.

DR. D. D. MAIN of the Church Missionary Society Hospital, Hankow, and Dr. Sidney G. Kirkby-Gomes, medical officer of the Peking-Mukden Railway, have received the King's permission to wear the decoration of the fourth and fifth class of the Order of the Excellent Crop, conferred upon them by the President of the Chinese Republic.

THE King has granted permission to the following members of the profession to wear the decorations of the class of the Order of the Nile indicated, conferred upon them by the Sultan of Egypt in recognition of valuable services rendered:—*Third Class*: Dr. J. B. Christopherson of the Sudan Civil Service. *Fourth Class*: Captain A. G. Cummins, M.B., R.A.M.C., and Dr. V. S. Hodson, M.V.O.

AT a recent massage examination held by the Incorporated Society of Trained Masseuses there were 201 candidates, of whom 131 passed, six with distinction. The list was headed by a blind student, Mr. P. L. Way. Among the other successful candidates were five blind students, one a surgeon, who were trained at the National Institute for the Blind, 246, Great Portland Street, London, W. In addition six blind soldiers passed the first part of the examination.

AT the annual meeting of the Cancer Hospital on March 10th, the chairman, Lord Northbrook, said that at the outbreak of the war an offer of the use of the hospitals, exceptionally well-equipped electrical and x-ray departments, and 50 beds had been accepted by the War Office. During the past year 57 soldiers had been admitted to the wards and 135 military patients had received treatment in the electrical and radio-therapeutic department; a large percentage of the cases treated were restored to health and to active service.

PROFESSOR ETTORRE MARCHIAFAVA has been appointed to the chair of clinical medicine left vacant by the death of Professor Guido Baccelli. His name is best known by his work on malaria, but he has also made valuable researches on tuberculous and syphilitic arteritis, glomerulo-nephritis, and epidemic cerebro-spinal meningitis. He is a Grand Officer of the Crown of Italy, a Senator of the Kingdom, and President of the Società Lancisiana degli Ospedali di Roma, and a member of the Superior Council of Public Instruction.

UNDER the title of "Prophylactic Institute" an association has been formed in Paris whose object is to conduct a campaign for the gradual extinction of syphilis. Besides the direct treatment of patients, it will undertake scientific researches, and bring continuous action to bear on the administrative authorities. Among the members are Dr. Roux, Director of the Pasteur Institute, Dr. Landouzy, Dean of the Paris Faculty of Medicine, M. Painlevé, Minister of Instruction and of Inventions affecting National Defence, M. Brioux, author of *Les Avariés*, and other well known men. Mr. F. Jay Gould has sent a cheque for 250,000 francs (£50,000) to the Foundation Committee of the new institute.

AT the annual meeting of the Association for Promoting the Training and Supply of Midwives, held on March 14th, an address was given by Dr. E. W. Hope, M.O.H. Liverpool, on the subject of midwives and their relations with public health bodies. The comparative poverty of industrial Liverpool, he said, was reflected in the fact that out of 23,000 births last year, 17,000 were attended by midwives. He regarded it as of great importance to the community, particularly in respect to the provision of antenatal care, that the sympathies of the midwives should be enlisted officially. In Liverpool the midwives had a local association, and the authorities were thus able readily to get into touch with them, and at the same time encourage post-graduate study, of which the midwives themselves arranged the courses, given at the University. The midwives were on friendly official relationships with the Health Committee, and were regarded almost as part of the sanitary staff. Dr. Hope suggested a more careful adjustment of functions as between midwives and district nurses, and also the inclusion of four months' midwifery training in the education of the ordinary nurse.

Letters, Notes, and Answers.

AUTHORS desiring reprints of their articles published in the BRITISH MEDICAL JOURNAL are requested to communicate with the Office, 429, Strand, W.C., on receipt of proof.

THE telegraphic addresses of the BRITISH MEDICAL ASSOCIATION and JOURNAL are: (1) EDITOR of the BRITISH MEDICAL JOURNAL, *Aitology, Westrand, London*; telephone, 2631, Gerrard. (2) FINANCIAL SECRETARY AND BUSINESS MANAGER (advertisements, etc.), *Articulate, Westrand, London*; telephone, 2630, Gerrard. (3) MEDICAL SECRETARY, *Mediscera, Westrand, London*; telephone, 2634, Gerrard. The address of the Irish office of the British Medical Association is 16, South Frederick Street, Dublin.

Queries, answers, and communications relating to subjects to which special departments of the BRITISH MEDICAL JOURNAL are devoted will be found under their respective headings.

LETTERS, NOTES, ETC.

NEED FOR RESIDENT SURGICAL OFFICERS AT HOSPITALS.

THE Central Medical War Committee invites applications from gentlemen of good hospital surgical experience, who, being over age or otherwise disqualified for service in the R.A.M.C., would yet be willing, if the necessity arose, to take appointments as resident surgical officers in hospitals. This appeal is not intended to interfere with the ordinary announcements of vacancies for such posts, but the Central Medical War Committee would like to have in reserve a supply of experienced surgeons who would, if necessary, be prepared to fill such appointments for a time. Applications should be sent to the Secretaries, Central Medical War Committee, 429, Strand, London, W.C.

CHEER FOR THE NERVE-SHAKEN.

DR. S. E. WHITE (London, W.) writes: In an address reported in the BRITISH MEDICAL JOURNAL of January 8th, 1916, Dr. Bedford Pierce, of York, dealing with the possible ways of aiding recovery from recent nerve disturbance or transient loss of balance, expressed the opinion that there is legal difficulty about treating these cases otherwise than by bringing them under lunacy control, and that, consequently, legislation will be necessary to do away with that section (315) of the Lunacy Act, which will not allow restraint to be exercised without the individual being certified and his case thoroughly investigated.

But is detention always required? Are there not a great many cases which, if taken early enough, would gladly go of their own accord to some home, hospital, or sanatorium for appropriate medical care and more hopeful and health-giving surroundings, were such attainable? Dr. Pierce himself points out—apparently unconscious of any inconsistency—how very successful have been the results obtained at the present time in two infirmary wards in Glasgow, and also in a branch of the Lady Chichester Hospital at Brighton. Both of these are on a voluntary footing, and carried on apart from lunacy. Sir T. Clouston's proposal for a Mental Ward in the Edinburgh Royal Infirmary was not frustrated by any legal difficulty, but only by a majority of one vote on the Infirmary Board.

That insanity is increasing is shown very clearly by the figures for the last eight years given in the BRITISH MEDICAL JOURNAL of January 15th, 1916, especially those relating to the increased frequency of first attacks. A diminished recovery-rate is also noted. The best hope for the future lies in a cheering atmosphere, such as will steady, quiet, and help the troubled mind and give it reassurance, rather than in condemning the nerve-shaken to seclusion and repression. A movement was on foot just before the war, supported by half the House of Commons, to provide such preventive hospitals under the councils. Were these hospitals in existence now, they would be a great boon for the care and cure of our soldiers invalided through nerve shock.

There are numbers of nerve-shaken soldiers among the wounded who get well in a short time in the base hospitals, thus proving that it is quite unnecessary to place the unwounded, when uncertain, in asylums. What they need is rest and sleep and encouragement, with ordinary medical care, interest, occupation, and recreation when convalescent. Everything that tends to remove depression and to quiet anxiety is a clear gain, and the men are very conscious of where they are and the prospect before them.

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

	£	s.	d.
Seven lines and under	0 5 0
Each additional line	0 0 8
A whole column	3 10 0
A page	10 0 0

An average line contains six words.

All remittances, by Post Office Orders must be made payable to the British Medical Association at the General Post Office, London. No responsibility will be accepted for any such remittance not so safeguarded.

Advertisements should be delivered, addressed to the Manager, 429, Strand, London, not later than the first post on Wednesday morning preceding publication, and, if not paid for at the time, should be accompanied by a reference.

NOTE.—It is against the rules of the Post Office to receive *poste restante* letters addressed either in initials or numbers.

A CASE OF BILATERAL MOTOR APRAXIA WITH DISTURBANCE OF VISUAL ORIENTATION.

BY

S. SMITH, M.B., B.S.LOND.,
CAPTAIN (TEMPORARY) R.A.M.C.,

AND

GORDON HOLMES, M.D., F.R.C.P.,
LIEUTENANT-COLONEL (TEMPORARY) R.A.M.C.

It has been only within the last few years that the motor disturbance known as "apraxia" has claimed much attention, or been fully investigated, and even yet very few well-marked instances of the condition have been described in English literature. In fact, it is mainly through the careful summary of the work of Continental authors, published seven years ago by Dr. S. A. K. Wilson, that apraxia is known to English readers.

Apraxia is a complicated condition, but in its simplest terms it consists in inability to combine simple movements into complete purposive acts; in other words, it is a condition in which a patient in whom the power of voluntary movement is intact, or at least not seriously affected by palsy, ataxia, or sensory loss, is yet unable to perform certain actions, or is incapable of employing objects—as a knife or a key—correctly, even though he is aware what is required of him, and though he recognizes the use and the nature of the object. Liepmann, to whom our knowledge of the condition is largely due, has defined motor apraxia as incapacity for subjectively purposive movements of the limbs, with conservation of the power of movement.

Apraxia may be of different degrees of severity, and may affect the limbs of only one or of both sides; its only manifestation may be the inability to protrude the tongue, to which Hughlings-Jackson originally drew attention in hemiplegic patients, or the patient may fail in most actions he is requested to attempt. Usually, however, he succeeds in some acts and fails in others—as a rule, in the most complicated and less familiar.

Many factors may contribute to this complex functional disturbance, especially mental impairment with affection of memory and attention, sensory loss, and agnosia or inability to recognize objects; but in the case described here the intellectual state was moderately good, there was no affection of sensation, and no form of agnosia. Vision, it is true, was affected, but its disturbance obviously stood in no causal relation to the apraxia.

The patient, Pte. M., aged 27, was admitted to a base hospital on November 2nd, 1914, with the history of having been wounded in the head by a shrapnel bullet some days previously. On admission he was in a dull and confused state; he was unable to remember his number or regiment, how he was wounded, and what happened to him during the several days that elapsed between the infliction of the wound and his arrival at the base. There was no paralysis, and the range and the power of the movements of all his limbs were normal; there was no obvious ataxia. The right knee-jerk was, however, brisker than the left, and the plantar response on this side was extensor. Tactile and painful stimuli were appreciated naturally and localized correctly everywhere, and there was apparently no loss in his sense of position. There was no optic neuritis.

The wound of entry was a small puncture 23 cm. behind the nasion (nasion toinion = 34 cm.) and 7 cm. to the right of the middle line; there was no exit wound, but a round shrapnel bullet could be felt under the scalp 4 cm. above and 4 cm. behind the upper margin of the attachment of the left pinna. An x-ray examination revealed a small gap in the skull under the wound of entry and several fragments of bone deep in the brain substance along a track leading from it. The bullet had apparently just broken through the skull in the left temporal region, and was removed, together with several fragments of bone, by Lieutenant Colonel Sargent a few days later. It was a spherical lead ball 12 mm. in diameter. It was dropped into sterile broth, but produced no growth. A clean circular opening, only slightly larger than the missile, was found in the squamous bone. The entrance

wound was not touched till several weeks later, when a few fragments of bone, which had probably been extruded from the brain, were removed from dense fibrous tissue at the bottom of a shallow sinus.

His condition improved rapidly after his admission to hospital; no weakness or paralysis developed, the reflexes became normal, and all forms of sensation remained unaffected. His hearing was also normal, but there was a complicated disturbance of vision which will be described in detail later. He rapidly regained almost the entire use of his intellectual faculties; he had been apparently an intelligent man, had been educated at a first-class school and trained as an engineer; before enlistment he was employed as a draughtsman. His memory for the past was evidently fair, but there was a blank, which gradually diminished, for events that occurred during a considerable period before the infliction of the wound. On the other hand, his retentiveness, especially to visual impressions, was much impaired. His general attention was always fair, though at first he tended to tire easily. At no time, however, during the three months he was under observation could his behaviour and conduct be described as normal: it rather resembled that of an intelligent child, and he was in fact always treated by his fellow patients and by the nurses as an interesting child would be. He was always too facile, laughed unnecessarily and often inappropriately; and on one occasion, when another patient near him died, he burst into tears and asked to be moved into another ward. He was always extremely good tempered and never moodish. One striking feature was the fact that he rarely showed any signs of irritation or natural annoyance when he failed to perform simple actions on request or spontaneously.

There was considerable disturbance of speech when he was first admitted, but it became gradually less; in the first place he stuttered, but according to his own statement he was subject to this in childhood, and, apart from this, he had no obvious difficulty in uttering words. He could understand speech and even complicated orders fully, or failed to do so only when his power of retaining the whole sentence was at fault. He always comprehended, for instance, and reacted intelligently to any joke made at his bedside. He had, however, some difficulty in calling up words, especially names, but even then succeeded in expressing himself fully by the substitution of a word or of an explanatory phrase. He never used wrong words.

He was from the first able to read and comprehend short sentences, but had great difficulty in following consecutive words and lines owing to his visual trouble; during the whole time he was under observation he had, however, considerable difficulty in reading individual letters aloud. He was quite unable to write even single letters, and on attempting it only made an unintelligible scrawl—most often a rough circle—but as he was equally incapable of drawing a line or any simple object, although he was a draughtsman by profession, this inability was obviously due to his apraxia rather than to a specific agraphia. Between two and three months after the infliction of the wound, when most of these observations were recorded, his speech defect was almost negligible.

In spite of the fact that there was no weakness, ataxia, or sensory disturbance in any of his limbs, he showed from the first day he was in hospital a peculiar motor disability, which consisted essentially in an inability to perform certain even simple purposive actions and to use objects and instruments which were quite familiar to him and which he recognized correctly. At first, for instance, he had even difficulty in feeding himself, in performing movements to order, and in using even the simplest tools, as a pencil or knife, but with time this inability gradually diminished, apparently largely owing to constant practice and steady application, for he certainly relearned first those actions of which he had most need, as lighting a cigarette.

The nature of this disability can be most easily conveyed by describing his attempts to execute actions of various kinds. Here, however, it is advisable to emphasize again that he always had a clear idea of what he was required to do, and that he never showed any signs of agnosia, or inability to recognize the use and nature of objects which he perceived either by vision or by touch. Further, he was never satisfied with the execution of a wrong action or with the misuse of an instrument, as a patient with

aphasia, agnosia, or "general mental impairment may be. On the other hand, he was always anxious to explain his mistakes and failures, generally saying, "I have forgotten how to do it," or "That is something like what you wanted me to do, but it is not quite right; I can't remember exactly."

An attempt to analyse his difficulties by further introspection yielded no reliable facts.

The motor disability was equally pronounced in his two hands, and involved the movements of his legs too; it was usually more prominent when the action required the use of two hands than in those which he could perform with one alone; when given, for instance, a knife and fork he always focussed his attention on and directed his efforts to the one first, and only after he was satisfied with the result attempted to grasp the other or use it appropriately. His disability could be excellently illustrated by handing him a pencil and asking him to draw a line, any simple object, or form a letter; at first he had great difficulty in taking hold of the pencil correctly, and when he suc-

ceeded, or after he had learnt to do so, he would bring its point slowly to the paper and then hesitate as though perplexed as to how to use it. If urged to complete the drawing or letter he would suddenly make an irregular scrawl, which frequently resembled an O or C, and if then asked what he had drawn, would smile and remark, "No, that's not what I wanted to do, that is like an O (or C)." The result was the same whether he was asked to write a letter or draw a straight line or a pipe, yet he always recognized these figures when drawn and shown to him; on one occasion, when he had formed a circle in his attempt to sketch a pipe, he pointed out that it was like the opening of the bowl of the pipe, but it was not what he intended to draw. He succeeded no better in his attempts to copy simple linear figures.

The following table illustrates his efforts to perform certain actions about two months after the infliction of the wound; the actions required of him are given in the left column, his attempts to execute them in the right.

1. Actions to Order.

A. Put out your tongue	...	...	Well performed (formerly unable to do this, showed teeth, and grinned when this order given).
B. Cough	...	...	Well performed.
C. Smell	...	...	No movement at first; succeeds when piece of soap put in front of him; when this is removed, fails.
D. Yawn	...	...	Opens mouth, makes whistling movements.
E. Whistle	...	...	Opens mouth, puts out tongue.
F. Put right hand on top of head	...	...	At first brings hand to chin; then to nose; then holds it in front of him, says, "This is my right hand," and slowly brings to top of head.
G. Put left hand on top of head	...	...	Identical with last.
H. Put right thumb into mouth	...	...	Identifies thumb, then puts forefinger into mouth; recognizes mistake. Says, "No, that's my thumb"—holding thumb with left hand; eventually puts left thumb into mouth.
I. Turn eyes to right	...	...	Looks straight in front of him, then looks to left, finally turns eyes to right.
J. "Eyes right" (uttered sharply as a military order).	...	...	Well and quickly performed (at first had no more success with this than last order).
K. "Salute"	...	...	Brings hand smartly to forehead giving correct military salute. (Has been able to perform this military act almost from the day of admission.)

2. Ability to Recognize and Use Various Objects when Shown Them.

A. Shown a key	...	...	Names correctly; describes use "to put in lock," fumbles with key for nearly a minute, holds in many attitudes, then, holding by ring at last makes correct movement with hand.
B. Use of knife and fork	...	...	Fails to get either knife or fork correctly into hand, grasps in various positions; first puts fork in left hand, knife in right, then changes about; even when they are placed correctly in hands fails to make correct movements.
C. Unbutton coat	...	...	Slow and clumsy, but succeeds; tendency to "tear out" button.
D. Button coat	...	...	Correct with right and left hands.
E. Shuffle a pack of cards	...	...	Takes hold of cards aimlessly, one or two at a time; makes no attempt to shuffle.
F. "Shoulder arms," when given piece of wood to represent rifle.	...	...	Takes "rifle" first in one hand, then in the other; holds against right shoulder, then to left, performing various movements, all incorrect, with unengaged hand; makes no intelligent attempt even when shown correct method by observer.
G. Given a book upside down; told to read from it.	...	...	Says, "Oh, this is upside down"; endeavours to rectify error, turns over pages, holds book on end, looks along it, fumbles with pages; says, "No; I can't do it." When book put right way up by observer and given him, says, "Yes; that's right," and proceeds to read.
H. Open matchbox and remove three matches.	...	...	This correctly performed after some fumbling and hesitation. (He was quite unable to do this for some days after admission, but, being an ardent smoker, has since had plenty of practice.)
I. Light cigarette in his own mouth with one of the matches.	...	...	Some difficulty in finding which is right portion of box to strike on; first strikes wrong end of match; commences by lighting cigarette at about its middle, then very nearly burns his moustache, finally succeeds, and puffs away contentedly.
J. Replace unlighted matches in box	...	...	Experiences much difficulty; first attempts to stuff them into unopened box, then opens box holding it upside down, at last finds interior of box and replaces matches in a very clumsy fashion.

3. Representation of Use of Objects Without Being Shown Them.

A. Movement of key in lock	...	...	Performs well, rotates hand correctly.
B. Shake hands	...	...	Holds right hand out, fingers extended, rotates arm (as in turning key in lock).
C. Given a bowl, make movement of eating from it with an imaginary spoon.	...	...	Quite unable to perform. (Succeeds if given a spoon with bowl.)
D. Make movement of brushing teeth.	...	...	Catches hold of chin, then says, "No; I had an idea, but I have lost it." Makes various incorrect attempts, and says, "No; it's no use."
E. Make movement of turning handle of a barrel organ.	...	...	Holds out right hand as in B, rotates (again as in turning key in lock).
F. Make movements of washing hands.	...	...	Succeeds only if a piece of soap and water in basin are given him.

4. Imitation of Certain Movements made by Observer.

A. Make a fist	...	...	Correct right and left hands.
B. Hold hands in prayer attitude	...	...	Brings right hand to right side of face, says, "No; that's wrong"; recognizes attitude when shown him by observer, says, "Yes; it's in the picture you see everywhere"; then performs it correctly.
B. Repeated	...	...	Caught hold of chin, then extended both hands in front of him, saying, "I thought I was going to do it."
C. Hold piece of wood horizontally with either hand.	...	...	Takes object, fumbles with it for a time, then places it vertically; unsatisfied with this position, and eventually gives up the attempt.
D. Catch nose with hands; first right, then left.	...	...	Correct.
E. Put right finger in ear	...	...	Hesitates; first puts hand on top of head, then correct.

5. Performance of Various Expressional Movements.

A. Smiling, looking cross, looking sad, surprised, etc.	Normally performed, both to order and also in reaction to surroundings.
---	-----	-----	---

6. *Conventional or Actions and Activities of Ordinary Life.*

- A. Throw a kiss Correct.
 B. Beckon Waves whole hand in an indefinite manner. Says, "No, that's wrong; I can't get it right."
 C. Dressing Fails completely to put on pyjama jacket. Likewise fails with trousers, putting both legs into one trouser leg, unable to extricate himself without assistance, although he makes violent efforts.

7. *Performance of Certain Reflexive Movements.*

- A. When ear is tickled with a feather, patient puts up hand to remove the stimulus automatically, though when ordered to put finger in ear is unable to do so.
 B. If a hair is pulled, or if he is pinched, he brings his other hand readily to the spot stimulated, and withdraws the part stimulated.

Lower Limbs.

When his lower limbs were investigated, a condition very similar to that which affected his arms was found—that is, he had difficulty in performing purposive actions to order, imitating those made by the observer, and in employing his legs in more complex acts, as in putting on his trousers. When told to bring his right heel to his left knee, for instance, he merely crossed his feet; and when asked to put on a sock, was unable to do so, not only because of the apraxia of his arms, but mainly because he failed to hold his foot in a proper position. Similarly, on one occasion when, after walking about the ward, he was told to sit on his bed, he placed his hands on it, then turned his back away from the bed, and, after some hesitation, began to sit down in this direction.

REMARKS.

These descriptions give an idea of his condition as it was about two months after the infliction of the wound. During the following month a certain amount of improvement occurred, especially in performance of actions in which he had had practice—as in getting his smoking materials together and lighting a cigarette. Further, it was found that he could be taught by daily practice to perform actions in which he could not at first succeed; he became able to turn a book which was given to him upside down into the correct position when he was made to do so several days in succession.

The tests recorded above show that there was no tendency to misuse or mistake objects, and no trace of agnosia; further, it was evident that he was never satisfied with his mistakes or with one action when another was required of him. Although he frequently explained his failures by saying, "I have forgotten how to do it," it was evident that they were not due to lack of attention or loss of memory, for his general attention was always fairly good, and, apart from a deficient retentiveness of visual impressions, his memory was not seriously impaired.

There was at no time any trace of tonic perseveration or that difficulty in relaxing muscles that he had contracted voluntarily, which has been often associated with apraxia; and it was only in the early stages of his illness that he showed any tendency to repeat actions which he had just performed when requested to do something else (clonic perseveration).

VISUAL DISTURBANCE.

When the patient first came under observation a disturbance of vision was noticed, but its nature could not be properly investigated till his general condition had improved. The most striking feature was his difficulty in looking straight at the observer's face or at any object held in front of him; when asked to do so, he generally stared open-eyed in a wrong direction and then moved his eyes about in an irregular manner, most commonly towards the ceiling, saying, "Sometimes I can see quite well, but often I cannot see what I want to look at." On the whole he seemed to see better the less effort he made. Further, even when he could see and recognize an object, he usually failed to take hold of it directly.

At present, three months after the infliction of the wound, these troubles persist, though they are less pronounced than they were. The optic discs are normal; his central vision is now $\frac{5}{6}$ in each eye, and he can recognize the movement of fingers in all parts of each half of his visual fields. Perimetric examination is not easy owing to his difficulty in keeping his eye directed on the fixation point; but repeated observations have shown he can recognize a white object 10 mm. square to the normal peripheral limits in both eyes. There is, however, some

amblyopia in both lower right quadrants, which reaches to within 10 degrees of the fixation point. In this amblyopic area he frequently says, "There is something moving, but it is not plain, and I don't know where it actually is." No defect in visual acuity can be discovered in the left halves of the visual fields, and the fields for red and green are normal in extent to both sides of the fixation point.

Although there was no ocular palsy, for several weeks after his injury he was frequently unable to move his eyes to order in any given direction, even though he understood fully what was required of him, and still he often makes mistakes or succeeds only after several attempts; when on one occasion he was asked to look upward toward the ceiling as he was sitting erect, he pointed correctly to it with his hand, but moved his eyes first to the right, then to the left, and finally downwards. His eyes are, however, always turned accurately towards an unexpected noise made to one side of him, and he generally succeeds in obeying the military command of "Eyes right" or "Eyes left" when either is suddenly given to him.

He is still unable to follow accurately with his eyes a finger or any other object moved in any direction; they generally remain for a moment directed towards the position in which he originally fixed it, and may either fail to follow it at all, or they may be later suddenly jerked towards the direction in which it was moved. Similarly he fails to keep his eyes fixed on a spot, as on the observer's eyes, when his head is passively rotated to either side.

The difficulty in fixing or bringing into central vision objects in front of him is passing off, but he frequently fails still to look directly into the observer's eyes or at any object when asked to do so; often he merely opens his eyes, stares in a wrong direction, and then swings his eyes irregularly about in search of it. Even when there can be no doubt that he knows the position of the object in space at which he should look, as his own hand, for instance, he often fails to bring his eyes directly to it. The tendency for his eyes to deviate from the object he has fixed is now less than it was.

Further, there is frequently no reflex blinking, withdrawal of the head or other general reaction when a hand or other object is suddenly swung towards his eyes, either from in front or from either side, or to any other threatening action on the part of the observer. And when a light is suddenly turned on to one side he does not, as a rule, turn his eyes to it with the accuracy and promptitude of a normal person.

He still does not succeed in taking hold of an object held in front of him and in his line of vision with precision and accuracy. This defect is more clearly seen when he is asked to touch a spot on which his eyes are directed; several records were taken by asking him to bring his finger to a black dot on a sheet of paper held in various planes of space in front of him, and it was found that the error was equally great in all directions. This defect cannot be attributed to ataxia of his limbs—that is, to disharmony in the range and time of the components of the movement, as there is no evidence of this as he handles or attempts to use objects; nor can it be wholly due to the motor disability described above, as he can bring his finger accurately to the tip of his nose, even when his eyes are closed. Further, there is no demonstrable loss in the sense of position or of passive movement to which "sensory ataxia" could be due. Despite the inaccuracy and awkwardness of his movements he can, however, always succeed in reaching any object which is at the moment in central vision. On one occasion, when he was not aware he was under observation, he wished to get a box of matches from his locker in order to light a cigarette; he sat up in bed, turned his head and eyes

towards the locker, stared vacantly at one spot for a moment, then slowly and deliberately moved his eyes into other directions, until, after several seconds, the matchbox came into his central vision; then he put his hand out to take hold of it, but did not succeed in doing so accurately on the first attempt.

He does not present any trace of visual agnosia—that is, an inability to recognize and distinguish by their visible characters objects he can see. From the first, too, he recognized ordinary symbols, as the plus, subtraction, and the multiplication signs, an arrow pointing direction, etc. That he can recognize letters and read has been already pointed out. Further, he recognized at once the well-known visual illusion of the truncated pyramid, saying, "That's a box; it changes according as your eyes catch it, sometimes I can see it open, sometimes the other way."

His visual memory, too, is at least not seriously affected; he can from memory describe the form of familiar objects—as a pipe; give a minute description of his father, and tell how he would reach his bedroom at home. He is evidently a strong visualist, and speaks of having "a good picture" of incidents which occurred while he was in the trenches, as of a German attack by fire. His colour memory is apparently also intact; he can remember the colours of the football shirts worn by a local team, and describes the sky as "blue as a rule, with clouds of different colour, and it is often red at sunset, especially in stormy weather."

On the other hand, his visual retentiveness is very defective; when he is shown in succession four objects which he can recognize and name, he is, as a rule, unable to name them again or describe them in correct order after an interval of thirty seconds; and after the same period he is unable to recollect the number or arrangement of four or five dots which he had seen on a sheet of paper. He is much more retentive to auditory impressions, as words or sentences repeated to him.

Another prominent symptom is his inability to localize, or at least recognize correctly, the relative positions of objects placed in front of him. He has always been much confused as to which is right or left, and even after daily testing he has remained uncertain which is his right and which his left hand, and his difficulty in describing whether one object is to the right or to the left of another is consequently not surprising; but it was found that when he looked at two objects he was uncertain whether two similar objects which were immediately uncovered were in the same relative positions, or if their positions had been changed when he closed his eyes for a moment. This held whether the test objects were side by side, one above the other, or one nearer to him. (These tests were carried out by silver and copper coins of the same size, and by squares of green and white paper.) The most remarkable errors were made when he was asked to say which of two objects was the nearer to him; even when they were separated by 10 to 15 cm., at a distance of half a metre from his eyes he made many mistakes; the explanation he offered spontaneously was, "I can only look at one at a time"; when his finger was moved from one to the other he could, however, recognize their relative positions at once.

Similarly, he often fails to distinguish the difference in length of two lines, even when it is considerable, and frequently calls the shorter the longer, or vice versa, though their lengths may be in the proportion of two to three. This is especially so when they are not drawn parallel and close to one another. An attempt was made to determine whether this failure is dependent on a defect in the execution of, or on a disturbance of the proprioceptive impulses initiated by, his ocular movements, by comparing his replies when he was allowed to look at the lines for some time and range his central vision over them, with those he gave when the lines were exposed for only a moment, but his difficulty in fixation made reliable conclusions impossible. But, though he is unable to estimate the relative lengths of two lines, he can always recognize accurately and without delay whether a rectangular quadrilateral figure is a square or not; this is apparently due to the fact that he sees the figure as a whole and recognizes its shape at once, as he can a drawing or an illustration, while to compare the lengths of two lines he must move his eyes from one to the other.

When an object is held up to one side of the point he is at the moment fixing, he always fails to take hold of it or even point in its direction if he does not look at it directly; if, for instance, the observer's arms are outstretched from his side, and the patient is asked to point to the moving fingers of one or other hand he usually only brings his own hand to the observer's face or shoulder. As there is neither ataxia or serious sensory disturbance in his arms, this failure can be due only to his inability to orientate and localize correctly objects in the extra-central portions of his fields of vision; in fact he states not infrequently that though he can see the object he is not sure where it is. This was clearly demonstrated during examination with the perimeter; he frequently said he was only aware that "something white was moving somewhere" as the test object was brought towards the fixation point, and frequently made gross errors when he attempted to point to or describe its position; on one occasion, for instance, he described it in the left lower quadrant when the object was in the right upper quadrant.

There is obviously, then, a loss of the local signature of visual impressions identical with that loss which as a result of cerebral lesions often leads to disturbance in the localization of tactile stimuli.

He frequently fails to recognize moving objects by extra-central vision, in portions of the visual fields in which he is certainly not blind, especially when two are presented simultaneously to him, one to each side of the fixation point, as the observer's fingers for instance. The proportion of such stimuli which he misses is variable, and increases as he tires or when his attention flags. A similar inability to recognize, with the constancy that a normal person can, the presence of objects outside central vision is occasionally seen as a one-sided phenomenon with lesions of the post-central portion of the opposite cerebral hemisphere.

That objects outside his central vision do not readily excite attention is seen in many other tests too. When asked to read, for instance, he was at first frequently satisfied to pick out a few individual words from a page, and he still has difficulty in following the lines in the normal manner. Now he occasionally takes up the daily paper, which he can read intelligently, though only slowly and with difficulty, due, he explains, to the fact, "I start to read a column, but soon skip some lines, or I may get on to another column." It is remarkable that even when only one of a row of letters which he was asked to read was exposed to him, he frequently failed to fix it, saying, "I'm not looking at it now, I have lost it"; and that immediately afterwards he read correctly and with scarcely any hesitation the following title, which contained words certainly unfamiliar to him, "Histological and Experimental Observations on the Destruction of Tumour Cells in the Blood Vessels."

He also makes very poor attempts at exploring with his eyes any large surface presented to him; if, for instance, he is shown the page of a journal on which there are a few widely-separated illustrations, he often says there is only the one on which his eyes first fall, and rarely succeeds in detecting them all. Similarly, when he is asked to count or to point to four or five coins placed irregularly and at some distance apart on a board in front of him, he is generally content with indicating one or two, and makes no attempt to run his eyes over the whole surface to make sure that those only are present which he had seen at the first glance. This failure is obviously not due only to the right-sided hemianopia, for he fails as often to pick out objects to the left as to the right of the point to which his eyes are directed; it seems, in fact, that his attention to visual impressions tends to be arrested or occupied by any object that is at the moment in central vision. If, on the other hand, he is asked to count coins or other objects arranged in a close series in front of him he usually starts at any part of the series to count to right or left, but soon becomes confused and begins to enumerate again those which he had already included in his count; he can, however, count them accurately if he is allowed to take each in succession into his hand. Similarly, though he often fails to count by vision alone fingers held at some distance apart in front of him, he succeeds if he is allowed to run his hand over them.

These and other tests indicate that not only do objects outside central vision fail to excite his attention

although he is not blind to them, but that he is also unable to orientate or localize in space the positions of objects seen in the peripheral parts of the retina, and the relative positions of those that come in succession into central vision.

This case consequently presents an apraxia of the oculo-motor movements similar to that described in the limbs, a defect in visual localization and orientation, and a failure of objects that stimulate the peripheral parts of the retinae to excite attention and the appropriate ocular movements.

Although his lower limbs are apraxic in imitating movements made in front of him, in attempting movements to order, and especially in more complex actions, as in putting on his trousers, he can now walk easily, but proceeds only in short, shuffling steps, as though not confident of himself. His gait is, however, not ataxic. If left alone, he quickly deviates from the direction in which he wishes to go and runs into objects even though he is aware they are present. When, for instance, he is asked to walk between two rows of beds, he frequently turns to the right or to the left and walks up against one; it is noteworthy that he more commonly deviates to the left, though the left halves of his visual fields are certainly unrestricted. Even when urged to keep his eyes to the ground and avoid obstacles, he often does not succeed; he has even run up against a wall or against a large screen which stands in the ward. He can, however, walk straight to a person or an object some distance away if urged to keep his eyes fixed on it, provided there are no obstacles in the way.

When he was brought into a large room in which a few chairs had been placed, and ordered to walk to a point which could be reached without encountering any serious obstacle, he almost invariably walked into a chair and then pulled up suddenly as if surprised at its presence, even though he had seen it and pointed to it before he started. After hesitating for a moment, as though uncertain how to get round it, he usually shuffled towards one side with side-steps, very much as a crab does when it meets a stone, frequently retraced his steps when almost around it, and after he had evaded it often set out in a wrong direction towards his goal. He explains his difficulty by saying, "I don't look where I am going and I can't always go where I want to," but if his movements are carefully observed it is obvious that it is chiefly due to the fact that visual impressions of the obstacles do not readily excite his attention.

An equally striking phenomenon^o is his inability, or at least his great difficulty, in finding his way about. When he is taken some distance from his bed he is unable to make his way to it again, even though he may see it and point correctly to it. On one occasion, for instance, he was brought about five yards from his bed, to reach which he had only to take a single right-angle turn, but though he indicated it correctly and recognized the patient in the adjoining bed, he turned to walk in a wrong direction when told to go to it. This happened even after the correct route had been pointed out to him. On another occasion, when taken into the next ward, he failed to return through the open door when asked to do so.

Although inattention to visual impressions certainly contributes to it, this inability to find his way about must be attributed chiefly to loss of spatial orientation and to inappreciation of direction and of the spatial relations of objects which he can see and recognize by vision.

SITE OF THE LESION.

The exact extent and position of the anatomical lesion which produced these symptoms is naturally of great interest. It may be assumed with considerable probability that the shrapnel ball had taken a direct course between its entrance and its exit, for in other cases of similar nature we found this to be the case.

Taking the points corresponding with entrance and exit wounds in this case, the brain was entered in the posterior and upper part of the right supramarginal gyrus, and we have reason to believe that the track passed through the dorsal part of this hemisphere, perforated the falx $1\frac{1}{2}$ cm. dorsal to and 1 cm. in the front of the posterior margin of the splenium of the corpus callosum, entered the left hemisphere in this position, passed just dorsal to

Wernicke's field in front of the knee of the optic radiations, and made its exit in the inferior part of the left supramarginal gyrus in front of the posterior end of the Sylvian fissure.

Experience has shown that the area of destruction and secondary change produced by such a missile is generally of considerable extent. The track would probably admit a finger.

Finally, it may be remarked that in several of the recorded cases of apraxia, and of disturbance of visual orientation and localization, the lesions corresponded more or less closely in position to that probably present in this patient.

MENTAL CONDITIONS FOLLOWING STRAIN AND NERVE SHOCK.*

BY

R. G. ROWS, M.D.,
TEMPORARY MAJOR, R.A.M.C.

THE following is a brief sketch of the work which is being done in the Red Cross Military Hospital, Maghull, in connexion with the mental and nervous disturbances occurring among those who have experienced the strains and shocks of a shorter or longer period at the seat of war.

The results produced on the nervous system by shocks of varying severity have frequently been described in detail, and it would be superfluous to collect again and classify the phenomena associated with a disturbance of the sensory and motor systems, of the vasomotor system, of the different organs of the body, and of all the functions of the mind.

Judging from the reports recently published in France—and these are fully corroborated by our own experience—it seems improbable that examination of the cases invalidated from the war will add very much to our knowledge of the symptomatology of these conditions. On the other hand, such an opportunity to investigate a large number of those suffering from psychic disturbances during the early stages of the illness has never been provided before. In this early period the patient is capable of co-operating effectively with the physician, and it is thereby rendered possible to go beyond the mere symptoms and to discover the psychic cause which has led to the determination of the form assumed by the disease and in many cases to trace the various stages through which the illness may have passed. This will perhaps be more easily appreciated if a series of cases is briefly described.

In the first place, the disturbances referred to above may appear in an intense form as the result of a shock, and, as in civil life, they will gradually disappear after a short period of rest and quiet in a hospital. But unfortunately the number of cases which recover so easily is limited. After several weeks or months in a hospital, and when most of the outward manifestations of shock may have disappeared, the patients will still complain of a changed feeling in themselves; there is produced an alteration in their personality which to them is something mysterious and for which they can find no satisfactory explanation. They confess to a slight loss of control and ask, "What is it that makes me so irritable at a little noise or at being brushed against by another patient as he passes me? I used not to be like that." As a result of this and of their inability to explain it to themselves, they suffer from a condition of anxiety, of apprehensiveness which is very troublesome and may form the starting-point for a more serious illness.

In some cases the physical expression of a special emotion, such as fear or terror, persists for a long time without much change. This condition is usually associated with an emotional state produced by the constant intrusion of the memory of some past incident. An example of this is seen in the case of a man who, after a charge, was placed on outpost duty. It was dark and he was in a state of considerable tension. He heard a noise,

* I have to thank the Medical Research Committee for the interest taken in the work of the hospital and for the assistance rendered in bearing the expense of circulating among the medical officers engaged on military cases of nerve shock a memorandum which has formed the basis of this paper.

which he thought came from some wire in front of him. Suddenly the area around him was illumined by a flare light and he saw a man crawling over the bank. Without challenging, he fired and killed the man. Next morning he found to his horror that he had killed a wounded Englishman who had advanced beyond his comrades and was crawling back. The physical expression of horror, together with an intense sweating and a very marked stammer, persisted for months. At the same time he was tormented with a fearful nightmare, and in his sleep he was heard to say, "It was an accidental shot, sir. Yes, Major, it was not my fault." In the daytime also his attention was concentrated on the memory of the incident, so that "I cannot forget it no matter how I skylark."

An examination back to this trying time which led to his recounting this terrible secret was followed by a marked improvement. The physical signs of the intense emotion gradually disappeared, the vividness of the dreams diminished, and his attention was less concentrated on the one subject. It is interesting to note that the production of a marked emotional state by the death of one of his children led to a recrudescence of all his symptoms—the expression of horror and the stammer—but they disappeared again in a short time.

In some instances the mental disturbance is complicated by the appearance of hallucinations relating to some experience at the front. These hallucinations and the dreams—both frequently occurring in the same patient—hinder the recovery of the patient, but rapid improvement almost invariably follows when an examination is made and the origin of the disorder is explained to him. It is found also that much may be done by educating the patient in a simple way to understand the mechanism of these morbid processes, so as to enable him to appreciate the importance of the emotional elements.

But the prolongation of the illness is not always due to dreams and memories of incidents connected with the war. Of equal, or perhaps of greater, importance in the longer cases are the memories of experiences in their earlier life with which a strong emotional tone was connected. These also may be revived in dreams, and in some instances they are added to the dreams of the incidents which occurred at the front.

In one case of this sort a man was tormented by the memory of an experience which happened to him during the first winter campaign. He and a comrade were carrying a pail of water to the trenches. It was very cold and they set down the pail in order to warm their hands. The comrade placed his hand against the cheek of the patient and said, "That hand is cold." At that moment he was shot dead. This incident was revived not only in dreams at night, but if during the day he were quiet and closed his eyes he could feel the cold hand against his face. He was much distressed by the frequent revival of this incident in such a realistic manner. But he was at the same time troubled by another dream, in which he ran down a narrow lane at the bottom of which there was a well. He dipped his hands into the water, but, on withdrawing them, he was horrified to find they were covered with blood. This dream was connected with a love affair in which his great friend interfered and angered him so much that he attacked him when next they met. He left him on the ground so injured that it was necessary to take him to a hospital. The patient became anxious as to what the result might be and left the district. He went to South Africa and later to America, but never heard whether the man he had attacked had died. The dream troubled him seriously and was difficult to unravel, but this and the one about the cold hand on his cheek disappeared after having been traced back to their origin. The patient made a rapid recovery, and has since been able to bear a severe trial satisfactorily.

The next case* referred to is an interesting example of the way in which, in a patient suffering from a disturbed mental condition following shock, the memory of a past incident led to an enormously exaggerated emotional value becoming attached to a recent occurrence. This patient broke out of hospital after having been refused permission to leave the grounds, and a statement regarding the offence was forwarded to the commanding officer of his

regiment. He became very depressed, said he would be disgraced, and that he would commit suicide rather than bring disgrace on his family. Investigation into this emotional outburst showed that his father had deserted the family, had got into prison and "tainted me." As he still remained in a very worried condition a further examination was made, and he confessed to feeling absent-minded and restless. For some time no explanation of this was forthcoming, but at a subsequent interview, after looking outside the door to see that no one was near, he said, "I want to tell you something, sir. Every night I wake to find that I have been restless and have thrown the clothes off the bed; also I find that I have 'lost nature.'" He was perpetually worried over this because he thought "the loss would affect my brain and would drive me mad." He admitted that he had gathered that idea from a book by Dr. X. which he had read years ago. It appeared also that Dr. X. had advertised a special bread and a special medicine which would preserve the nervous system, and that for years the patient had fed himself and his family with the bread and the medicine. But when it was pointed out that the book was written and the bread and the medicine were advertised by a charlatan with the view of making money out of those who were waiting to be duped, the restlessness at night and the "loss of nature" ceased.

The mental condition of this man has become practically normal, and a marked "tic" of the facial muscles and a general tremulousness have disappeared. It should be mentioned that in this case the dreams always began with some terrible experience in the trenches and then turned to some sexual acts with women, usually with his wife, and he awoke to find the clothes disturbed and also that he had "lost nature."

As an example† of hallucinations and delusions being dispelled by tracing them to their source and then giving the patient a clear insight into their nature, we may take a private, aged 31, admitted into this hospital suffering from hallucinations of hearing and delusions of supervision by his family and friends. He heard voices, apparently those of his brother, elder sister, and brother-in-law, telling him what to do and what not to do. The voices sometimes repeated his own thoughts and decisions. He had begun to form a theory about them, and considered that they belonged to a secret police entrusted with the task of supervising his actions and seeing that he did not again transgress as he had done.

An inquiry into his past revealed the following facts. He used to be a bank clerk, and as the result of drinking and smoking too much he had a nervous breakdown five years ago, and on the recommendation of his doctor he was given three months' holiday. While away he went with a prostitute. This was the first and only offence in sexual matters. At first he was not greatly disturbed by the memory of it, but when he went home some months later he thought he could detect a strangeness in the behaviour of his family, as if they knew of his misdeed. He then began to hear voices like those of his brothers and sisters proceeding from the wall, and, becoming rapidly worse and more depressed, he attempted suicide. After spending some months in a private asylum he emigrated to Canada, but was pursued by the voices and had to return to England. At the outbreak of the war he enlisted and went to France; but the voices distracted him so that he could not perform his military duties and he was invalided and sent to this hospital.

This patient during the five months of his residence in the hospital has been treated by the usual method employed here, namely, by seeking the cause of his mental disturbance. This was found in his affair with the prostitute and in his previous drinking. It was explained to him that the basis of his trouble was really the repetition of the memory of these incidents, together with the unpleasant emotional feeling associated with them, which had produced in him a self-reproach. When strongly under the influence of the self-reproach he had attempted suicide, and then the delusion of supervision had become grafted on and systematized. By persistent reasoning and persuasion week by week the process of systematization has been arrested and gradually the hallucinations and delusions have disappeared. The patient now has an insight

* I am indebted to Mr. T. H. Pear for permission to make use of this case.

† I have to thank Captain W. Brown, R.A.M.C., for permission to quote this case.

into the nature and origin of his illness and is to a large extent restored to health.

By means of this series of cases an attempt has been made not only to indicate the forms of mental disturbance observed among the patients admitted to this hospital, but also to show that the term "shock" by no means explains all the conditions of mental illness occurring in those who have returned from the front. Disturbances ranging from a slight, simple shock to a serious condition with hallucinations and delusions have to be observed. The more simple cases, which are popularly spoken of as "shock," recover quickly, but in the majority of instances there remains after the manifestations of shock have disappeared a "residuum," as Wernicke expressed it.

The work which is being done here is directed towards investigating the causes which have led to the persistence of this residuum and towards endeavouring by suitable treatment to assist the patients to recover. In order to understand the conditions we have to deal with it is necessary to consider the various factors which have been active in producing the disturbance. In the first place, it is important to remember that these men have lived through a prolonged period of strain before they have broken down under some special shock, such as the death of comrades at their side, the explosion of a shell near them, or the blowing up of a trench. Incidents such as these, together with the fatigue or exhaustion produced by life in the field, have led to the lowered capacity of resistance or control which is manifest in most of those who come under our care. Owing to their condition of lowered capacity the patients feel that they are not the men they were before the war began; they recognize a change in themselves and describe it clearly. They know that they are irritable, that they are unable to interest themselves or to give a maintained attention to a given subject. Instead of being jovial and social they are solitary and morose; instead of being good-tempered and taking things as they come they are irritable and find great difficulty in controlling themselves. All this is very real to them and leads to a condition of anxiety which is increased by their not being able to understand their condition; they worry because they fear how far this sort of thing may go. As a result they live in a state of expectancy which causes them to exaggerate the trifles of everyday life. Small incidents—slight psychic or physical disturbances which would have passed unheeded before the war—now assume a quite abnormal interest and importance for them.

All the conditions referred to so far can be observed in a merely superficial examination, but a deeper investigation will in many cases demonstrate that various other causes may have participated in producing the illness. These deeper causes—for example, the repeated revival of memories of horrible incidents at the front, terrifying dreams, and also memories of incidents of their past lives—have played a large part in determining and maintaining the disturbed mental condition. Examples of the action of these causes have been given in this paper, and it is perfectly evident that the incidents which have had such a disturbing influence have been those with which an intense emotional state has been associated. Dejerine has suggested that in all cases of hysteria and neurasthenia the cause must be sought in some antecedent emotional condition. The results of the investigations among these patients demonstrate that this principle is capable of a much wider application.

It is the strong emotional factor which so compels the attention of the patient. The normal freedom of their mental activity is interfered with, and in some instances the attention is so fixed on the disturbing influences that the offending memories and their accompanying emotional states cannot be expelled. Then may follow the appearance of hallucinations and the development of delusions which the patient employs to explain his condition to himself, and the repeated dwelling on these delusions leads to a habit of mind which becomes more fixed as time goes on unless some active and suitable treatment is adopted.

While in this state the patient is to a large extent incapable of reasoning about his condition; he is unable to make use of the sum total of his past experiences; he gives way to the emotional states in which he may find himself, or he dwells on the explanation he may have accepted. His difficulty lies chiefly in the fact that he has

little or no insight into the nature and mode of origin of his mental illness. This insight can be provided by explaining to him in plain language the mechanism of simple mental processes, by enabling him to understand that every incident is accompanied by its own special emotional state and that this emotional state can be reawakened by the revival of the incident in memory. The patient will thus be led to see that it has been no gross disease and no supernatural agency which has disturbed him; he will be able to recognize the relation of cause and effect in the origin and development of his illness.

When this relation is appreciated both the patient and the physician will begin to realize that they have some ground in common. And this stage being reached, the mystery of the illness will be swept away and the physician will be able to explain to some extent the reason and the mechanism of his loss of control, of his disturbed attention and of his lack of interest, and also to show him how he can educate himself to regain that which was lost. The patient will understand that it will not be possible for him to banish the memory completely. But he can be induced to face the trouble, to reason about it, and to recognize it simply as a memory of the past instead of allowing the emotional tone connected with it to dominate him until the condition of anxiety had been produced. The excessive emotional tone will thus be stripped away and the patient will become able to appreciate the real value of the incident, and this will assist him to recover from the condition of confusion, disturbed attention, and anxiety, which, if neglected, may lead to serious results. Further, just as in each case the disturbance can be traced to a specific incident or series of incidents, so the re-education must vary with each in order to overcome the difficulties connected with the specific cause which has been discovered.

The difficulties in the processes of investigation and treatment of these cases are often considerable, and it must be recognized that recovery will not take place in every instance. But the results obtained demonstrate that many mental illnesses recover in a most satisfactory manner under a well-directed and sympathetic treatment. The confidence of the patient must be obtained in order that he may be induced to co-operate in the treatment of his illness. This co-operation is indispensable, and it is extremely interesting to find how readily it can be obtained from patients in whom the illness has lasted only a short time. And when the difficulties, often insurmountable, which are encountered among those in whom the mental disorder has become fixed and systematized are considered, the value of the early treatment of mental disturbances in a hospital by an efficient staff who devote their whole time to the work, at once becomes manifest. The physician should be prepared to give at least an hour for an interview and in most instances several interviews will be necessary. Short cuts may be attempted; they rarely lead to success. A prolonged study of each separate case will not only provide a means of treatment for the individual, but will also collect a mass of evidence which will help to develop a new and enlarged view of psychological medicine.

MENTAL SYMPTOMS COMPLICATING A CASE OF ACUTE TETANUS DURING TREATMENT BY CARBOLIC INJECTIONS.

BY

JOHN EVERIDGE, F.R.C.S.ENG., CAPTAIN R.A.M.C.T.,

TEMPORARY ASSISTANT SURGEON, KING'S COLLEGE HOSPITAL;
SURGEON TO THE NEW ZEALAND MILITARY HOSPITAL, ETC.

THANKS to the valuable prophylactic effect obtained by prompt injections of specific antitoxin, cases of tetanus occurring among the wounded in the present war are quite infrequent. Consequently I offer no apology for publishing notes of the following case:

On November 11th, 1915, while unloading an ammunition wagon on the lines of communication, Gunner C. was struck by fragments of a high-explosive shell, which exploded close to him. He was severely and extensively wounded in the right buttock, right thigh, and right foot, as well as in the left leg. The wound of the right foot was very severe, the fragment of

shell having torn most of the extensor tendons and laid open the ankle-joint.

Earlier in the war it was the custom to make careful inquiries as to whether or not a wounded patient had received a prophylactic injection of antitetanic serum. The administration of these injections has become so much the invariable practice at the front that in the base hospitals one has ceased to ask the question.

Thus it happened that it was not until the occurrence in this case of subsequent events that one was led to investigate the question. The patient did not remember having received an injection; but it is possible that it was given while under an anaesthetic at the time of his first operation in France, or, on the other hand, it may have been that, wounded as he was far behind the firing line, he missed receiving treatment at a field ambulance or at a clearing station.

He came under my care at the 4th London General Hospital on November 16th, 1915, five days after he was wounded. For some days the wounds, which were extremely septic, were treated by peroxide irrigation and boric fomentations.

Six days later—on November 22nd—some trismus and a definite risus sardonicus were noted. He was at once given 4,000 U.S.A. units of antitetanic serum, and 1 c.cm. of 1 in 20 carbolic acid was injected subcutaneously every four hours. He received a further 1,500 units of serum the same evening.

Had it been possible to localize the focus of infection as being in the wound of the foot, it would have been an easy matter to amputate immediately, especially as the foot was so severely injured that the prognosis was not hopeful. But in the presence of other septic wounds, any one of which might be equally the source of infection, it seemed to me wiser to secure efficient drainage everywhere by means of opening and irrigating thoroughly the wounds of the thigh and buttocks, and by an astragalectomy on the foot.

After the initial symptoms the march of events was rapid. The muscles of the abdomen and back were strongly contracted, and convulsions occurred frequently. On the evening of November 23rd he was given 1,500 units, as well as a quarter of a grain of morphine and 2 drachms of chloral. The pain in the back and leg was severe. On November 24th he had a further 1,500 units of serum, chloral, and bromide every six hours and morphine in the evening. The same course of treatment was pursued on November 25th. On November 26th and 27th the patient remained in a semi-comatose state from the effects of the chloral and bromide. Whenever he was allowed to come round at all the spasms became intense; on November 28th they were less severe, and on November 30th he was treated less energetically with hypnotics. The mental condition now began to show a marked change. He became extremely restless and passed into a state of low, muttering delirium, with visions and hallucinations—a condition closely resembling delirium tremens. From time to time he attempted to get out of bed, and had to be forcibly restrained. This lasted for five days, during which time he had incontinence of urine and faeces. Chloral and bromide, which had previously quieted him, had now no effect. After four four-hourly doses of half a drachm of paraldehyde, however, he settled down into a quiet sleep.

On December 7th incontinence had ceased and he had regained a more normal mental state. Paraldehyde was continued every four hours until December 8th, as well as occasional injections of morphine and atropine and draughts of chloral. On December 9th the mental condition appeared normal, but on December 10th there was a bad relapse with more incontinence. This lasted acutely for three days, but it was not until December 20th that the mental state again became normal and he was able to recognize those around him.

With the exception of the single shell explosion noted above, the man had never been under fire. This fact, as well as the delay in onset of the mental symptoms, tends to show that they were not due to shell shock. On the other hand, I am not familiar with the occurrence of such a form of delirium as being a symptom of tetanus itself. This is also the experience of those of my colleagues with whom I have consulted. I have thought it possible that the carbolic acid injections may be not unassociated with the condition.

Injections of 1 c.cm. of 1 in 20 carbolic acid were given at four-hourly intervals from November 22nd till December 4th. At no time, however, were there any other symptoms of carbolic acid poisoning.

The patient's general health is now (February) perfect, and there is no trace of mental instability. The movements at the ankle are quite good, and with his remaining extensors he is able to carry out a fair degree of dorsiflexion.

THE Secretary of the United States Treasury, Mr. W. G. McAdoo, has transmitted to the House of Representatives, on behalf of the Public Health Service, a recommendation for an emergency appropriation of £20,000 for the promotion of rural sanitation with the object of checking the spread of pellagra and typhoid fever.

A CASE OF ACUTE GANGRENOUS CHOLECYSTITIS WITH SPREADING PERITONITIS OCCURRING IN THE EPIDEMIC OF JAUNDICE, GALLIPOLI, 1915.

BY

JOHN MORLEY, CH.M., F.R.C.S.,
CAPTAIN R.A.M.C.(T.),

HONORARY SURGEON, ANCOATS HOSPITAL, MANCHESTER, AND
MANCHESTER CHILDREN'S HOSPITAL; LECTURER IN CLINICAL
ANATOMY, MANCHESTER UNIVERSITY;

AND

F. BATTINSON SMITH, B.C., M.A.CANTAB.,
M.R.C.S., L.R.C.P., CAPTAIN R.A.M.C.(T.),

LATE RESIDENT SURGICAL OFFICER, ANCOATS HOSPITAL, MANCHESTER.

*With Observations on the Pathological Findings in
their Relation to the "Epidemic" Jaundice
of the Dardanelles.*

BY

WILLIAM CAMPBELL, M.B., CH.B. EDIN., B.Sc.(P.H.),
LIEUTENANT R.A.M.C.,

O.C. A.M.S. PATHOLOGICAL LABORATORY, CAPE HELLES; ACTING
PATHOLOGIST, ROYAL HOSPITAL FOR SICK CHILDREN, EDINBURGH;
DEMONSTRATOR OF PATHOLOGY, UNIVERSITY OF EDINBURGH.

Cases of ascending infection of the bile ducts, liver, and gall bladder became extremely common during October, 1915, amongst our troops on the Gallipoli peninsula. The cases, as we met with them in the early days of their illness, may be grouped clinically into three categories:

1. Jaundice, associated with a variable degree of pyrexia, and usually enlarged and tender liver.
2. Acute cholecystitis without jaundice.
3. A combination of the first two types, with jaundice accompanied by acute cholecystitis.

According to our observation, the three classes occur with a relative frequency that corresponds with the order given above, though the patients with cholecystitis may well develop jaundice at a later stage. The following case is reported in order to draw attention to the danger of an acute gangrenous inflammation of the gall bladder—a condition which is in any event of extreme gravity, and, apart from prompt surgical intervention, is almost inevitably fatal from general peritonitis.

Case.

Pte. S., R.A.M.C.(T.), aged 22, reported to one of us (F. B. S.) on sick parade on October 5th, 1915, complaining of the following symptoms: (1) Pain in the epigastrium that had been constant, slight, and aching in character for four or five days; (2) a cough that was worse at night, aggravating the pain; (3) general malaise, anorexia, and slight headache for the same period. There was no history of vomiting, though there had been occasional nausea and retching after food. There was nothing irregular in the frequency and character of the urine or faeces, though he had suffered from diarrhoea a few weeks before. He had been inoculated against typhoid (two doses) about twelve months before.

On examination the temperature was normal. There were no abnormal physical signs in the chest. The tongue was not quite clean, and there was indefinite epigastric tenderness. He was treated as a case of simple indigestion.

On the following day the symptoms were the same, and the temperature still normal. On the morning of October 7th he complained of pain across the lower chest on respiration. The temperature was 99.2°. The chest was quite clear. The epigastric tenderness was more marked but not definitely localized. The tongue was coated yellow, and there was a left follicular tonsillitis. That evening the man complained that his pain was worse, and he was admitted to the dressing station tent with a temperature of 102° F. During the night the pain grew worse, and the patient vomited several times.

On the morning of October 8th he was evidently very ill indeed. The temperature was 102.8°, pulse 120, and he was flushed and showed a marked "abdominal facies." On

examination of the abdomen respiration was shallow, jerky, painful, and limited to the thorax, the abdomen being almost immobile. On palpation there was general abdominal tenderness and rigidity, but all down the right side it was most marked, and in the right hypochondrium the tenderness was peculiarly exquisite. Percussion did not reveal any shifting dullness in the flanks. The liver dullness was more limited than usual.

Perforation of an inflamed gall bladder with spreading peritonitis was diagnosed, and the patient was removed to the main dressing station of the 1st East Lancashire Field Ambulance for immediate operation.

Operation.—Captain J. M. Postlethwaite anaesthetized with chloroform, and Captain Haskins assisted. Subcutaneous saline was given into the left axilla during the operation. A vertical incision through the right rectus was made over the gall bladder. A considerable quantity of turbid, foul-smelling, bile-stained fluid was found in the peritoneum in the right kidney pouch, extending down into the right iliac fossa and pelvis. The gall bladder, which proved to be unusually difficult of access, because so far back under the liver, and adherent, was examined after the peritoneal cavity had been packed off with gauze. It was distended and deeply congested. It showed no gross perforation, but on its inferior aspect, showing up in marked contrast against the surrounding purple, was a green gangrenous area rather larger than a shilling, with two or three smaller discrete patches of gangrene round it. No gall stones were present. The liver was normal in colour and consistency, and was not enlarged. Cholecystectomy was hardly feasible owing to the anatomical peculiarity of the case and the lack of appropriate instruments, so a drainage tube was inserted through the gangrenous patch near the fundus and sutured in. The gall bladder contained somewhat turbid, foul-smelling bile under considerable tension. A gauze drain was inserted alongside of the tube in the gall bladder, and the peritoneal cavity swabbed dry. The abdomen was closed with through-and-through silkworm-gut sutures.

Progress.—Rectal salines were given every four hours for the first twenty-four hours, and the patient was kept propped up in the Fowler position. Bile drained away freely, but two days later the patient was perceptibly jaundiced, though it soon faded. He improved at first. The abdomen became soft and mobile, the bowels were freely moved, and it was evident that there was no further peritonitis, though there was some suppuration in the abdominal wall. But the temperature remained high, and a typical clinical picture of severe typhoid fever gradually developed. For about ten days the temperature varied between 103° and 105°, with a pulse of 120 to 130. There were frequent loose motions, he was greatly prostrated, and the condition was complicated by an area of pneumonic consolidation at the base of the left lung, with a small serous effusion in the pleural cavity. Towards the end of the third week of his illness, however, the temperature began to drop and the pulse to improve, and at the time of writing (October 29th), though very emaciated, and still too weak for removal to a hospital ship, we hope that he is fairly on the way to ultimate recovery. The main credit for this is due to his nursing orderlies, and particularly to Lance-Corporal Gregory, R.A.M.C.(T.), who has shown the most unremitting care and devotion in a very difficult case.

Pathological Investigation.

A specimen of fluid from the gall bladder and subsequently several specimens of faeces and one of blood, for examination by cultural methods, were submitted to Lieutenant William Campbell, M.B., Ch.B., R.A.M.C., at the Pathological Laboratory, Cape Helles, and we are greatly indebted to him for the following reports:

Specimen of Fluid from Gall Bladder (October 16th).

1. I have been unable to find an entamoeba.
2. *Mycobacterium tetragenus* is present.
3. *Staphylococcus pyogenes albus* is present.
4. The only other organism isolated is an organism giving the cultural reactions of a paratyphoid bacillus and agglutinating up to titre with the agglutinating serum of *B. paratyphosus* B (1:4,000 Lister Institute paratyphoid B serum). Isolation of this organism was easy, and it is likely that it was present in greater numbers than either *M. tetragenus* or *S. pyogenes albus* owing to the number of colonies of this organism (paratyphoid B) which came up on plate cultivation. *B. coli communis* was not isolated, and the above represent the total findings.

NOTE.—Since these notes were written (October 29th, 1915) we have been informed that the patient died in hospital in Alexandria.

October 24th. The blood culture taken from the above case (October 21st) has remained sterile.

Three specimens of faeces (No. 1, No. 2, and No. 3) were sent to the laboratory on October 19th, 20th, and 21st respectively.

Specimen of Faeces No. 1 (October 19th).

Report.—Thin, offensive stool, showing no blood or mucus to the naked eye. Microscopically, no entamoebae found. Active *Trichomonas hominis* crows all the fields examined. No blood cells were found. Specimens plated on MacConkey's and on Endo's medium on October 19th. Likely colonies picked off after culture and examined further.

Result (October 24th): *B. paratyphosus* B isolated.

Specimen of Faeces No. 2 (October 20th).

Report.—Naked-eye appearance: Pea-soup type of stool; no blood and no mucus seen. Microscopically, active *Trichomonas hominis* present in large numbers; entamoebae present in small numbers. No blood cells found. Specimen plated on MacConkey's medium, October 20th.

Specimen of Faeces No. 3 (October 21st).

Report.—Naked-eye appearance: As in Specimen No. 2. Microscopically, active *Trichomonas hominis* present in large numbers; entamoebae (cysts) present in small numbers; no blood seen. Specimens plated on MacConkey's medium and on Endo's medium, October 21st.

* Since *B. paratyphosus* B has been isolated from the specimen of faeces No. 1, and as no other organisms of the typhoid or of the dysentery group were isolated from it, I do not think it necessary to carry the examination of specimens No. 2 and No. 3 further.

The above pathological report is of great value in that it may indicate the nature of the infection that gives rise to a considerable proportion of cases in the epidemic under consideration. Our specimen of bile was sent to Lieutenant Campbell with a request that he should look for the entamoeba of dysentery or any other organisms present, and we had no suspicion of paratyphoid before receiving his report. On clinical grounds there was a good deal of presumptive evidence for the view that the cases constituting this epidemic may be secondary to dysentery and due to the entamoeba. The great majority of patients with jaundice or cholecystitis give a history of dysentery or diarrhoea, commonly ceasing two to four weeks before the hepatic symptoms began. But few men who have been many weeks on the peninsula have not had some diarrhoea or dysentery at some time, so that too much weight cannot be given to the suggestive association of the two epidemics. We have, moreover, found a few patients with epidemic jaundice who deny having had any diarrhoea or dysentery at all during the campaign. It is plain that the etiological problem is essentially one for the laboratory, and it is only from cases requiring operation, or from post-mortem examinations, that the necessary material from the biliary tract can be obtained. Without claiming for a moment that this very important etiological problem can be settled by the evidence forthcoming from a single case, the presence of *B. paratyphosus* B in the gall bladder in great numbers is an arresting and suggestive fact that should be borne in mind in further investigations. If it should be established from a series of cases that the most serious cases in this epidemic are due to this organism, it may prove possible by prophylactic inoculation to save our troops from this disease.

Observations on the Pathological Findings in their Relation to the "Epidemic" Jaundice of the Dardanelles, by WILLIAM CAMPBELL, M.B., Ch.B. Edin., B.Sc. (P.H.), Lieutenant R.A.M.C.

If any medical officer serving in the zone of active operations on the Gallipoli peninsula were asked to mention those medical conditions which, from the number of cases affected by them, were of greatest importance, he would immediately answer: (1) Diarrhoeal diseases, (2) pyrexias of uncertain origin, (3) jaundice (? epidemic), and he would inevitably add the remark, "In October, 1915, the numbers of cases of jaundice had been so remarkably large that they constituted a definite epidemic." I have queried the term "epidemic" above because it is exceedingly doubtful whether these cases form a true epidemic in the sense in which I have been accustomed to accept the term.

The designations "Weil's disease" and "epidemic jaundice" are commonly used by medical officers to describe the cases of jaundice occurring, and many such cases came from the trenches to the clearing station with one or other of these two terms already marked on their tickets.

If by "epidemic" it is meant that many cases of jaundice occurred amongst the troops in a given area, then the use of the term may be defensible; but if it be

implied at the same time that the cases are in any sense infectious in character, there can be no doubt that the qualification "epidemic" should be given up unless and until the jaundice be proved on epidemiological and bacteriological grounds to be so.

While numerous cases of jaundice showed no elevation of temperature, there were very many others accompanied by definite pyrexia. This latter fact would seem to point to some organismal cause, especially as in a few cases which have been observed an antecedent pyrexia has been noticed during the two or three days immediately preceding the appearance of yellow coloration of the conjunctivae and skin.

There is at present little to support the view that the jaundice is haematogeneous in origin, and the probability that most of it is due to ascending infection of the biliary apparatus (catarrhal jaundice) is strong. This may be stated with emphasis, because, as Captains Morley and Smith have pointed out above, practically every one who has been a short time on the peninsula admits to having suffered from diarrhoea of some description; and it is an interesting fact that, with the advent of the colder weather, the decrease in the number of cases of diarrhoea from all causes marched practically *pari passu* with a corresponding increase in the number of cases of jaundice.

Regarding this, attention may be drawn to the view mentioned above, and based on clinical grounds, that there is a good deal of presumptive evidence that the cases constituting the epidemic may be secondary to dysentery, and due to the amoeba. But, while it is true that of those cases of diarrhoea the causes of which have been ascertained in the laboratory amoebic dysentery has formed a large proportion, it must be borne in mind that far from all the diarrhoeal cases are of amoebic origin; and it is to be noted that cases of enteric fever due to the paratyphoid organisms (including a smaller number due to *B. typhosus*), the smaller number of diarrhoeal cases which have been due to the Shiga-Flexner group of bacilli, the few cases due to the trichomonas, and finally those cases whose specific cause could not be ascertained by the bacteriologist, all go to make up the complement of diarrhoeal diseases from all causes.

If, then, it be sound to take the apparent parallelism between the incidence rate of diarrhoeal diseases from all causes and that of the so-called "epidemic" jaundice as indicating some relation between the two, it is reasonable to suppose that it is unlikely that the cases of jaundice have a uniform bacteriological cause.

Further, it was a matter of common knowledge on the peninsula that amongst apparently healthy individuals, even in those cases who have had no actual diarrhoea, a condition of chronic laxity of the bowels, unaccompanied by pyrexia, in which two or three bulky pultaceous motions were passed daily, was practically universal. This fact indicates that a very large amount of refuse matter is being got rid of, and would therefore seem to point to the diet containing too much indigestible material. But, as the army diet is reasonably good in quantity and quality, it rather points to there being some underlying catarrhal inflammation of the gastro intestinal tract, which again is in favour of the view that much of the jaundice is due to ascending infection of the common bile duct from the intestine. It is improbable, therefore, that all cases of "epidemic" jaundice are due to a single specific organism.

On the other hand, the occurrence of numerous cases of cholecystitis, with or without jaundice, is striking, and these cases of cholecystitis may afford a possible clue to the cause of some of the cases of "epidemic" jaundice in that they may be due to an organism whose growth is favoured by bile. Such an organism, having multiplied in the gall bladder, might very well produce a secondary descending infection of the common bile duct.

It must be remembered, however, that, as there have been many cases of amoebic (*Löschia histolytica*) dysentery, and that as numerous individuals, who have not suffered from actual dysentery, harbour the amoeba in their intestines, many cases of cholecystitis may represent the so-called "hepatitis," which is characterized by pyrexia and by tenderness in the right hypochondrium, and recognized as being a frequent complication of amoebic dysentery. Indeed Captains Morley and Smith have referred above to the tentative suggestion that the epidemics of cholecystitis and of jaundice may be in large part secondary

to dysentery and due to the amoeba. At the same time, I am not aware that jaundice has been found in places, where amoebic dysentery is endemic, to be a particularly common sequel of infection with the amoeba.

It will be gathered that, while the etiology of the "epidemic" jaundice of the Dardanelles is still uncertain, the problem of its elucidation gives great scope for laboratory investigations, especially to those bacteriologists who are fortunate in working at the base hospitals, where the cases can be kept for some time and who have quiet and settled conditions in which to prosecute their work. The matter can only be cleared up in the laboratory, for it must be granted that, from the clinician's point of view, the problem is not simple because he finds his cases of jaundice complicated in various ways.

For instance, the jaundice may be slight or pronounced in degree, the duration may vary from one or two days up to several weeks, and it may or may not be associated with one or more of the following conditions:

(a) *Pyrexia of indefinite character*; sometimes transient, but frequently of the nature of a low continued fever. Many cases, however, are afebrile and some run a subnormal temperature.

(b) *Digestive disturbances* (generally present); usually marked; evidenced in some cases by nausea and anorexia only, in others by intestinal colic, and in a few by diarrhoea.

(c) *Cholecystitis*, with marked tenderness in the right hypochondrium; pain sometimes referred to back as well.

Captains Morley and Smith have noted above that cases of jaundice following an attack of cholecystitis, as well as other cases of acute cholecystitis without jaundice, are also met with. Further, medical officers find that in nearly all cases of jaundice the patient gives the information that he suffered from diarrhoea and colic at some time or other on the peninsula, but, owing to the prevalence of diarrhoeal diseases, this is not to be wondered at.

Broadly speaking, the cases of "epidemic" jaundice might be divided into two groups:

1. Jaundice with pyrexia.
2. Jaundice with no elevation of temperature.

It is doubtful, however, whether this classification would help us, for the problem is complicated by the fact that temperatures of irregular type and uncertain origin are by no means uncommon, and occur equally in patients with and without jaundice. Again, typhoid fever occurring in inoculated cases shows itself as an atypical and generally abortive fever. The same is true in some degree of enteric fever due to the paratyphoid organisms, because, although the immunity conferred by antityphoid inoculation has been regarded by some as being homologous, and although many paratyphoid infections occurring in patients inoculated against *B. typhosus* give a good clinical picture of enteric fever, there is strong evidence for believing that antityphoid inoculation gives a partial immunity to the paratyphoid fevers, and that, therefore, many atypical and abortive cases of these in all probability occur as well.

It follows from these facts that the diagnosis of febrile conditions has become much more difficult for the clinician, who too often finds himself left in doubt as to what value should be placed on many a temperature chart for diagnostic purposes. This is true generally, and it is true of cases of jaundice with pyrexia. The classification of cases of "epidemic" jaundice into febrile and afebrile varieties may on this account not be of so much value to him as might at first appear.

Pyrexia occurring in these cases indicates the facts (a) of infection and (b) of reaction on the patient's part; but cases of mixed infection are not unknown, and the temperature chart may therefore indicate reaction not to one but to several organisms. Or, in cases of mixed infection, the reaction may be to one organism, while other ordinarily pathogenic organisms found in such cases may be mere saprophytes in the intestine. In respect of this it will be noted that, in the case recorded above, *B. paratyphosus* B occurred in the faeces in conjunction with *Trichomonas hominis* and *Entamoeba histolytica*.

The first specimen sent to me from this case was one of bile, and from it *B. paratyphosus* B was isolated, as well as *Micrococcus tetragenus* and *Staphylococcus pyogenes*.

albus. The two organisms last named I regard as contaminations. No organism was obtained from the blood culture taken from the same case.

Without attempting to assess to the *Trichomonas* and the *Entamoeba* in this particular case their pathological value (if any) in the production of the gangrenous cholecystitis, it seems fair to regard the *B. paratyphosus* B as having been the cause of the condition. To the clinical pathologist who has had the opportunity of seeing patients with "epidemic" jaundice, the case suggests one or two points which I shall now discuss very briefly.

As is generally recognized, catarrhal jaundice commonly occurs without cholecystitis; similarly, cholecystitis is very frequently unattended by jaundice. Both facts are capable of a simple anatomical explanation. But in some cases in the Gallipoli epidemic jaundice followed a definite cholecystitis, and one hears as well of numerous cases of jaundice in which a history of troublesome spasmodic pain in the right hypochondrium, highly suggestive of an antecedent cholecystitis, was obtained. It may therefore be that the relation between the cholecystitis and the jaundice is of greater importance than has been recognized hitherto, and it is possible that cases of cholecystitis treated by operation will furnish to the bacteriologist the most hopeful material for the solution of an etiological enigma.

From this point of view the case recorded by Captains Morley and Smith may be of special value. It shows, at all events, that in a patient inoculated against typhoid fever a paratyphoid organism in the early days of infection may ascend from the intestine to the gall bladder and there settle without causing more than an initial and indefinite epigastric tenderness associated with anorexia and headache; that later its numbers and virulence may be so increased as to cause actual gangrene of the gall bladder; and that, therefore, it is not improbable that from the gall bladder, in cases of cholecystitis, a subsequent descending infection of the common bile duct with consequent jaundice may take place—an infection due to an organism which has meantime been multiplying in the bile. This may explain numerous cases of jaundice with pyrexia, especially those cases which give a history suggesting a previous cholecystitis.

It is likely, then, that a close study of those organisms whose growth is known to be favoured by bile may help to enlighten us as to the cause, or causes, of the "jaundice with pyrexia" which occurred in the Dardanelles; and, although jaundice is not a common complication of ordinary typhoid fever, it is possible that the paratyphoid infections may play a much more important part than the *B. typhosus* in the production of febrile jaundice. The possible connexion between the "carrier" problem and the occurrence of febrile jaundice suggests itself; and it would be interesting to know how many cases of "epidemic" jaundice, bacteriologically examined, have yielded a paratyphoid organism.

Be this as it may, I am for various reasons strongly of the opinion that it is highly improbable that the cases of jaundice occurring in the Gallipoli "epidemic" have, by any means, a uniform specific bacterial cause.

REMOVAL OF INTRACRANIAL FOREIGN BODY UNDER X RAYS.

BY

JOHN ROBERT LEE, M.D., B.S.MELB., F.R.C.S. EDIN.,
TEMPORARY LIEUTENANT R.A.M.C., FULHAM MILITARY
HOSPITAL, LONDON, W.

THE following case of gunshot wound of the head, with a piece of shell in the brain, illustrates the value of the use of an electro-magnet or x-ray screen for removal.

A lance-corporal received a gunshot wound on September 25th, 1915, in France. The piece of shell entered the skull about the middle of the left temporal region. He had an injection of antitetanic serum four hours after the injury. When admitted to this hospital on October 9th he was conscious, complained that he could not sleep, and that he had considerable pain. The superficial wound in the side of the head had healed. The temperature was 99° and the pulse 60. Next morning he vomited.

A skiagram taken on October 11th showed some depressed fragments of the internal table round a small hole in the middle

of the squamous portion of the left temporal bone, and the shadow of a piece of shell about $\frac{1}{2}$ in. by $\frac{1}{4}$ in. was seen on the plate 1 in. behind the hole and $\frac{1}{2}$ in. beneath the surface.

On October 13th Mr. Leslie Paton examined the eyes (pupils not dilated) and found: The right optic disc, highest point + 3 D., edges blurred, veins distended, general retina + 5, swelling 2+. Left optic disc, highest point + 5 D., general retina + 1, swelling + 4. The patient had sensory aphasia, word-blindness, but no apraxia.

Operation.

A large temporal flap was made, and the opening in the skull enlarged; pieces of depressed bone were removed, the torn edges of the membranes were opened up, and about 2 oz. of thick pus under pressure escaped. The piece of shell could not be felt with the probe, and a rubber tube was put in and free drainage established.

On October 15th another skiagram showed that the piece of shell had dropped further back in the abscess cavity into the occipital lobe. The temperature at this time varied between 97° and 99°, but on October 23rd the evening temperature was 100°, on October 24th 101°, and on October 26th 102°; it then became normal and has remained so ever since. The pulse-rate varied between 64 and 100, and after October 26th was from 72 to 80. On October 23rd the eye appearances were: Right optic disc, highest point + 3.5 D.; left optic disc, highest point + 4 D.; veins still much distended.

A probe was passed down along the abscess track, and a stereoscopic skiagram taken.¹ The fragment of shell was found to be lying in the occipital lobe, one eighth of an inch in front of the tip of the probe and half an inch mesial to it. A steel probe was then passed down the track, and an electro-magnet capable of lifting 14 lb. weight was applied to the probe and held in position for a few seconds, but the bit of shell was not drawn out by this means.

It then seemed to me that it might be possible to see the fragment, and remove it under the x-ray screen, and, after consultation with Dr. Florence Stoney, the radiologist to the hospital, the attempt was made on November 9th. The steel probe was again passed in along the track, and I was able quite clearly to see the probe and the fragment. It was found that the latter had been pulled forward by the magnet, and caught in brain tissue. A crocodile forceps was then passed along the track to the depth of four inches, and after some manipulation the piece of metal was seized and removed. The patient was not under anaesthesia and felt no pain, except just as the sharp edges of the fragment came into contact with the edges of the superficial wound.

On November 13th the patient's general condition was quite good. On November 17th the wound had healed; aphasia was less marked, but he still had some slowing of mental cerebration, and at times difficulty in naming articles, with some loss of memory in naming places and for recent events. The eye symptoms were: Right optic disc still blurred; swelling subsided very much; highest point of disc + 2 D., general retina ametropic; small linear haemorrhages especially in lower part of disc; left optic disc still all blurred; subsidence not so marked in appearance as in the right eye; swelling, highest point of disc + 2 D.; some haemorrhages.

The two practical points demonstrated are: First, the use of an electro-magnet for the removal of portions of shell which are capable of being so attracted; and, secondly, the fact that bits of metal can be demonstrated inside the skull, although the x rays have to penetrate two layers of bone; the surgeon may thus receive very material assistance in such cases by seeing the relationship of fragment to instruments during actual removal.

My thanks are due to Dr. Florence Stoney for the excellent skiagrams and help with the screen; to Dr. Leslie Paton, who kindly worked out the eye conditions; to Major Parsons, the Officer-in-Charge, and to Colonel Peterkin, the D.D.M.S., for permission to publish this case.

¹ One skiagram was reproduced in illustration of a report of this case published in the *Journal of the Royal Army Medical Corps*, January, 1916.

DR. ALLEN WALCOTT has contributed an article on beri-beri in the Amazon basin to the *Journal of the American Medical Association* for December 18th, 1915. He has been for six years in the employ of the Madeira-Mamore Railway, which runs through a dense tropical forest along the east bank of the Madeira River 1,500 miles from the mouth of the Amazon. There is a hospital at Candelaria on the line, but no other for many hundred miles in any direction. Out of 30,430 admissions in four years, 963 cases were diagnosed as beri-beri. On the strength of his own previous experience of this disease in San Francisco and Panama, Dr. Walcott concludes that beri-beri in Brazil is of the same type as is found elsewhere, and its cause is the lack of vitamins in the food. The doctors, nurses, and labourers in the medical department have been completely free from attacks of the disease for the last three years, protected by the special precautionary measures used in other lands where it prevails. These measures are described in detail by Dr. Walcott.

PARACHOLERA.

BY

ALDO CASTELLANI, M.D., M.R.C.P.

THIS term was introduced by me some years ago to denote cases which, though clinically hardly distinguishable from cholera, are due to vibrios somewhat different from true *V. cholerae* (Koch). As well known for many years, vibrios have been described which are somewhat different from Koch's germ, and Hewlett, Cunningham, and myself have suggested that the disease may be due to a group of closely allied vibrios. I will not consider in this paper the numerous cholera-like vibrios found in water, and will limit myself to supposed pathogenic vibrios found in the stools of cases presenting cholera-like symptoms. The most important of these vibrios are the following:

1. *Finkler and Prior's organism*, isolated from cases of so-called cholera nostras in Germany many years ago. Its pathogenicity has been doubted by several observers. According to certain authorities, it would appear that the original strain has been lost and that no modern serological tests have been carried out with it.

2. *Pasquale's Vibrio massahuae*, isolated from cases clinically indistinguishable from true cholera in Massowah

in 1895. According to Pasquale, the organism differs from *V. cholerae* (Koch) in having two terminal flagella at each end. Durham found that this vibrio was serologically identical with a vibrio isolated from the water of certain German rivers by Dumar.

3. *Ruffer's vibrios*. Ruffer has isolated certain vibrios from Mohammedan pilgrims returning from Mecca and suffering from various diseases, but with no cholera symptoms. He has compared these "El Tor vibrios" with vibrios he has isolated from other sources, and distinguishes four groups. Neufeld and Haendel, however, having examined some of these vibrios, consider that they are true cholera.

It must be noted, as observed by Grieg, myself, and others, that in cases of true cholera, together with true *V. cholerae*, vibrios may be isolated which are not agglutinated by cholera serum.

Vibrio kegallensis (Castellani, 1913).

This vibrio, for which I suggested also the name *V. paracholerae*, has been isolated by me, as stated in previous publications, from cases in Ceylon clinically scarcely distinguishable from cholera, with profuse serous diarrhoea, severe vomiting, muscular cramps, etc. It was very abundant in the stools and the only species of vibrio

TABLE I.—Showing the Principal Characters of Three Strains—Serologically Identical—of *V. kegallensis* and Seven Strains of Serologically True Cholera.

	<i>V. kegallensis</i> .			True Cholera Vibrios.						
	Strain 1.	Strain 2.	Strain 3.	No. 1 (Saigon).	No. 2 (Ceylon).	No. 3 (Ceylon).	No. 4 (Ceylon).	No. 5 (Ceylon).	No. 6 (Ceylon).	No. 7 (Ceylon).
Motility ...	+	+	+	+	+	+	+	+	+	+
Litmus milk ...	Δ Pt C	Δ s Pt C	Δ s Pt C	Δ s	Δ s	0	Δ	Δ C	Δ C	Δ
Lactose ...	Δ-K	Δ	Δ vs	Δ s	Δ s-K	Δ	Δ	Δ s	Δ s	Δ
Saccharose ...	Δ	Δ	Δ	Δ	Δ	0	Δ	Δ	Δ	0
Dulcitate ...	0	0	0	■	K	K	K	■	K	K
Mannite ...	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ
Glucose ...	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ
Maltose ...	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ
Dextrine ...	Δ vs	Δ	Δ vs	Δ	Δ vs	Δ	Δ vs	Δ	0	■
Raffinose ...	0	0	K	0	0	K	K	K	K	K
Arabinose ...	Δ	Δ	Δ	0	K	Δ vs	0	K	Δ vs	Δ vs
Adonite ...	0	K	0	0	0	K	K	K	K	K
Inulin ...	0	K	0	0	0	K	K	K	K	K
Galactose ...	Δ	Δ	Δ vs	Δ	Δ	Δ	Δ	Δ	Δ	Δ
Sorbite ...	■	K	0	0	0	K	K	K	K	K
Laevulose ...	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ
Inosite ...	■	K	0	0	0	K	K	K	K	K
Salicin ...	Δ	K	0	0	0	K	K	K	K	K
Amygdalin ...	Δ	0	0	0	0	K	K	K	K	K
Isodulcitate ...	0	0	0	0	0	K	K	K	K	K
Erythrite ...	0	0	0	0	0	K	K	K	K	K
Glycerine ...	Δ	0	0	Δ vs	Δ vs	0	0	K	0	K
Indol ...	0	0	0*	+	+	+	+	+	+	+
Voges-Pro. ...	0	0	0	0	0	■	0	0	0	■
Red nitrates ...	■	0	0	+	0	+	+	+	+	+
Neutral red ...	0	0	0	0	0	0	0	0	0	0
Gram ...	0	0	0	0	0	0	0	0	0	0
Gelatine ...	+	+	+	+	+	+	+	+	+	+
Serum ...	+	+	+	+	+	+	+	+	+	+
Broth ...	T	G T P	G T P	G T P	G T P	G T P	G T P	G T P	G T P	G T P
Peptone water ...	G T	G T	G T†	G T P	G T P	G T P	G T P	G T P	G T P	G T P

* Or trace.

† Or P very slight.

ABBREVIATIONS.—Δ = Acid. C = Clot. K = Alkaline. Δ-K = Acid then alkaline. T = Turbidity. G T = General turbidity. P = Pellicle. Pt C = Upper portion peptonized and clot at the bottom (milk). s = Slight. vs = Very slight. 0 = Negative result—namely, neither acid nor clot in milk, neither acid nor gas in sugar media, non-production of indol, non-liquefaction of serum or gelatine as the case may be.

TABLE II.—Showing Agglutination Limits of Serums Derived from Hyperimmunized Rabbits.

Serums.	<i>V. kagallensis</i> Strain 1.	<i>V. kagallensis</i> Strain 2.	<i>V. kagallensis</i> Strain 3.	<i>V. cholerae</i> Strain 1.	<i>V. cholerae</i> Strain 2.	<i>V. cholerae</i> Strain 3.	<i>V. cholerae</i> Strain 4.	<i>V. cholerae</i> Strain 5.	<i>V. cholerae</i> Strain 6.	<i>V. cholerae</i> Strain 7.
<i>Kegallensis</i> Strain 1...	2,000	2,000	1,600	0	0	0	0	0	0	0
<i>Kegallensis</i> Strain 2...	2,000	2,000	2,000	5	0	0	0	0	0	0
<i>Kegallensis</i> Strain 3...	2,000	2,000	1,600	10	5	0	0	0	0	0
True cholera (Berne)	10	20	20	> 4,000	> 4,000	> 4,000	> 4,000	> 4,000	> 4,000	> 4,000

present. It was found also in the water of a well in Mutale, near which a small epidemic of cholera-like cases occurred. The germ is microscopically and culturally very similar to *V. cholerae*. It is very motile, like true cholera, and it is easily stained by the usual dyes; it is Gram-negative. In stained preparations it has the same shape as the true cholera vibrio, but is perhaps slightly larger and thicker. On agar and gelatine and serum the growth is similar or identical to true cholera. Gelatine and serum are liquefied. Milk is generally rendered acid and clotted or peptonized. In peptone water the pellicle is very slight or absent. The germ does not produce indol, or only an extremely slight trace. It must be remembered, however, that certain strains of true cholera vibrio may produce only a very slight amount of indol, and may practically produce no pellicle in peptone water. The production of haemolysis is inconstant with all the strains of *V. kagallensis* I have examined.

Serological Reactions.

V. kagallensis is not agglutinated by true cholera serum in dilutions higher than 1 in 10 or 1 in 20; cholera vibrio is not agglutinated by *V. kagallensis* serum. The absorp-

tion test and Pfeiffer's test confirm the results obtained by the agglutination test.

Pathogenicity.

I have been unable to reproduce the disease in the lower animals by feeding experiments, but, as is well known, this is the case also with true cholera. Considering that the vibrio was present in the stools of the patients in enormous numbers, and was the only species of vibrio present, the probabilities are, in my opinion, that it is pathogenic.

CONCLUSIONS.

1. The term "paracholera," as I suggested some years ago, might be used to denote cases of cholera-like diseases due to vibrios, which are specifically different from *V. cholerae* (Koch), though closely allied to it.
2. In Ceylon cases of paracholera occur which in all probability are due to *V. kagallensis* vel *paracholerae*.

REFERENCES.

Castellani: *Journal* Ceylon Branch, British Medical Association, 1913 and 1914; *Reports* to the Advisory Committee for the Tropical Diseases Research Fund for the Year 1914, etc. Hewlett: *A Manual of Bacteriology*, 1914. Ruffer: *Bacterial Diagnosis of Cholera*, Alexandria, 1907.

A CASE OF CHRONIC NON-TUBERCULOUS PERITONITIS IN A CHILD.

BY

CECIL WORSTER-DROUGHT, B.A., M.B., M.R.C.S.,
LATE HOUSE-PHYSICIAN OF THE KVELINA HOSPITAL
FOR CHILDREN, ETC.

As I am unable to find any record of a precisely similar condition to that which occurred in the following case, I venture to consider it sufficiently singular to justify its publication. As regards general appearance and all clinical manifestations, few would have hesitated to diagnose the complaint as the ascitic form of tuberculous peritonitis.

A boy, aged 4½ years; when first seen very bright and intelligent; had suffered from no previous illnesses excepting measles. As a baby he had been fed on cow's milk; his five brothers and sisters were all healthy and there was no tuberculosis in the family. The history of the beginning of his present complaint was indefinite. For about four months he had complained of pain in the "stomach" and occasionally vomited after food; there was no diarrhoea. The abdomen during this period had become larger and larger and loss of flesh had been considerable. There was no suggestion of injury.

Condition when First Seen.—The chest, face, and limbs were very emaciated; the abdomen was large and prominent. The heart and lungs appeared quite normal; pulse 90, respirations 28, temperature 98.8°. A large amount of ascitic fluid was present; there was no pain even upon firm pressure. The subcostal circumference was 24½ in.; the umbilical 21½.

Subsequent Progress.—The condition was diagnosed as tuberculous peritonitis; he was kept in bed and given syrup of iodide of iron; oleate of mercury ointment was rubbed into the abdomen daily. Two days after admission he was tested by von Pirquet's cutaneous reaction. On the right arm bovine tuberculin was used and on the left human tuberculin, with a control underneath each. Both proved positive, the intensity of the two reactions being about equal. The circumference of the abdomen in seven days had increased from 24½ in. to 25½ in. in the case of the subcostal circumference, and from 21½ in. to 22½ in. in that of the umbilical. Owing to the respiratory embarrassment—the respirations were now 40—five pints of dark brown fluid were removed by laparotomy; no glands were felt inside the abdomen, nor were any tubercles seen. A small piece of the parietal peritoneum, cut out and subsequently examined microscopically, showed no tubercles.

Ten days later the wound had quite healed and the stitches were removed, but there was still a small amount of fluid. During the time he had been under observation the temperature had varied between 97° and 98.8°; at no period had it been higher. At the end of another week the temperature suddenly went up to 100° and a purpuric rash appeared over the chest

and arms. A few hours later he became comatose and died the next morning.

The necropsy afforded no evidence of tuberculosis. In the abdomen was a fairly large quantity of fluid and numerous adhesions; the visceral and parietal peritoneum was enormously thickened. The omentum and mesentery were somewhat rolled up, and contained much inspissated pus between and around their layers. Pus of a similar nature was present on other parts of the peritoneum. No enlarged glands were found either in the abdomen, mediastinum, or neck; there was no sign of tuberculous ulceration of the intestine. The heart and lungs were normal, but the stomach wall was very thick. The spleen was soft and not enlarged; the liver indicated chronic congestion; the kidneys, brain, and meninges were normal. With such *post-mortem* revelations it can scarcely be maintained that the *Bacillus tuberculosis* was the organism responsible for the pathological changes, although clearly the condition was due to bacteria of low virulence.

Of the many varieties of chronic peritonitis, the following only need be considered in connexion with this case: (1) Diffuse adhesive peritonitis, (2) chronic proliferative peritonitis, (3) tuberculous, (4) gonorrhoeal, (5) pneumococcal, and (6) idiopathic (so-called) peritonitis.

Although undoubtedly the condition found at the necropsy could be described as diffuse adhesive peritonitis with suppuration, it does not agree with the type to which this name is applied, inasmuch as the latter follows an acute attack. The case differed from one of proliferative peritonitis in that pus and numerous adhesions were present and that the etiological factors were not the same.

The onset and course of the case were certainly more or less typical of chronic tuberculous peritonitis. There was a gradual subacute onset; the temperature varied between normal and subnormal. According to Hutchison, however, the ascitic effusion is rarely large; in this case it was sufficiently great to warrant laparotomy. Further, had the case been tuberculous, one would have found at least some *post-mortem* evidence of tuberculosis. In tuberculous peritonitis the effusion is usually straw-coloured, though occasionally it may be haemorrhagic; in this case it was dark brown. When ascites is present, the peritoneum is almost invariably found to be studded with tubercles.

It has been said that gonorrhoeal peritonitis has been found in males associated with a gonorrhoeal infection. In the case under discussion there is nothing to suggest this.

Pneumococcal peritonitis is more often primary or secondary to some other source of infection than a complication of lobar pneumonia. It is most common in female children, and is very acute; the pus is said to be thin, widely diffused, and with much fibrin. According to Still, primary peritonitis in children beyond the stage of infancy is nearly always tuberculous or pneumococcal. Records of 91 cases of pneumococcal peritonitis in children under 15 years of age, collected by Annand and Bowen, show that the symptoms were always severe, closely resembling, with one exception, the clinical course of diffuse perforative peritonitis. There was the same sudden onset, often with rigors and violent and persistent pain, frequent vomiting, advancing prostration, and early death. In children, however, this condition has been known to give rise to chronic encapsulated abscess, and it is conceivable that the chronic suppuration in this case may have been due to a strain of pneumococci of low toxicity.

Allchin, however, mentions certain forms of peritonitis attended with suppuration which run "a course the duration of which may justify their being designated as chronic." They may continue for many months, the severity of the local condition and the toxic manifestations being insufficient to cause death, though the general health of the sufferer steadily deteriorates. "Such cases," he says, "have been referred to as 'acute progressive fibrino-purulent peritonitis.' It is only in the sense of their duration that they are to be regarded as chronic, being rather of the nature of a succession of acute or sub-acute attacks of localized character." Since this patient's illness did not commence with an acute attack, and during the course of observation showed no rise of temperature indicative of an acute exacerbation, it does not coincide with Allchin's description of acute progressive fibrino-purulent peritonitis.

It appears evident that the end was brought about by a sudden rise in the toxæmia, a fact which also accounts for the purpuric rash. As the evidence in favour of pneumococcal infection is not great, the most one can say is that the case was a somewhat anomalous type of chronic suppurative peritonitis and due to an organism of low virulence, such as *Bacillus coli communis*. Had the clinical appearance not been so typical of tuberculous peritonitis, one would have endeavoured to cultivate the organism from a swab taken at the time of operation. My acknowledgements are due to Dr. T. R. Whiphram for his courtesy in permitting me to make use of the case.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

THE TREATMENT OF LAMBLIA INFECTIONS.

I WAS interested to read in the JOURNAL (March 18th, p. 407) of Drs. Woodcock and Penfold's experiences in the treatment of *Lambliæ* infections. In a paper I recently published in the *Journal of Tropical Medicine and Hygiene* I laid stress upon the importance of repeated and careful examinations of the stools both before and after treatment, and also mentioned some drugs tried by myself. In the doses in which I used them, emetine, beta-naphthol, and methylene blue all failed, completely to sterilize the patient of his infection. An apparent improvement occurred after the latter two, but prolonged examinations showed that this was only of a temporary nature.

I also described toxic symptoms following the administration of the methylene blue. Since then Major Marshall, of Edinburgh, has drawn my attention to a paper by himself and Gee published long ago in India, in which similar symptoms were met with after the use of this drug for malaria. He believes it is due to the difficulty of getting samples of the drug free from zinc chloride, and recommends giving it with extract of hyoscyamus to prevent bladder symptoms. Of other drugs I have used, bismuth alone, salicylic acid alone, salol, thymol, and cyllin have also proved ineffective.

It is specially interesting, then, to hear of Drs. Woodcock and Penfold's apparent cure of a case by the combined use of beta-naphthol and bismuth salicylate. Before finally

concluding, however, that this is a cure, further examinations should be carried out especially after the administration of good saline purges. Though very constant in certain cases, the passage of the cysts in others is equally inconstant, and they apparently may disappear for quite a long time of their own accord. An attack of diarrhoea or a purge often quickly brings them back again.

I recently saw a case heavily infected with *Trichomonas* and proposed treating him with methylene blue, but before doing so I thought I would observe him for a week. The trichomonads disappeared of their own accord, and so far (one month) have not again put in an appearance. If I had given the drug I would naturally have concluded that it had made them disappear. Turpentine, so lauded by French workers, and guaiacol carbonate I note also failed in some of the authors' cases. I am certain that many so-called successes, if followed up for a sufficiently long period (six months to a year), would have to be written off and debited to the failure column. Drs. Woodcock and Penfold's first case approaches the time limit given, though one would like to know how many times "several" really means. Their other cases, examined four and three days after treatment, of course give far too short a time to base any definite conclusions upon.

London, W.

GEORGE C. LOW, M.D.

A CASE OF POTASSIUM CHLORATE POISONING IN AN INFANT.

I FOUND a child aged 4½ months in a prostrate condition. There was marked pallor, with cyanosis of ears and lips and of the hands and feet, which were cold; breathing was quickened and shallow, but not jerky or noisy. The child lay still with eyes open, some contraction of the eyebrows, and an occasional peevish cry. The rectal temperature was normal; the pulse, 204, could be felt at the wrist. There was no cough, and nothing was found abnormal in the lungs. There was no vomiting and nothing abnormal about the abdomen. Some castor oil had been given before arrival, and the bowels had acted normally. The appearance suggested profound toxæmia. The diet had consisted of cow's milk, cream, and sugar of milk; the feeds had been prepared with scrupulous care, the mother herself being a medical graduate. Poisoning by gas-stove fumes was excluded, and the cream used was found on inquiry to be free from any preservative, such as boric acid.

It was noticed on the previous day that the feeds had been taken with some reluctance, but nothing abnormal was noticed about the child until the early morning of the day when first seen. When seen three hours later some brown-black material, the size of a small pea, found on the napkin was thought to be probably faecal until some greenish-yellow urine containing particles of similar material was seen issuing from the urethra. It was evident great destruction of the haemoglobin was in progress, and I suspected a chemical poison. Rough tests showed the supposed sugar of milk to be an inflammable salt of potassium, subsequently proved to be potassium chlorate. Death ensued without convulsions.

Post-mortem Examination.—The musculature was of a dusky red colour. The heart and blood vessels contained soft chocolate-coloured clot, and the walls of the aorta showed patches at intervals of brownish discoloration. The liver, spleen, and kidneys were chocolate in colour, with a "burnt sienna" coloured exudate on scraping. The calices of the kidney and the ureters and bladder were filled with a soft, friable brownish-black material which was not blood clot. The bladder also contained some turbid yellowish-brown fluid.

Reading.

E. W. SQUIRE, M.B.Lond.

AT a meeting of the American Medical Library Association held at Washington in May, 1915, Mr. James F. Ballard urged that all medical libraries should adopt a uniform method of preparing statistics of their contents, and the following recommendations were made:—Everything of over 100 pages is a volume; everything of any size, if bound, is a volume; everything under 100 pages, if unbound, is a pamphlet. Duplicates should not be counted, except second copies of books in general use. Uncatalogued material and incomplete and unbound periodicals should not be included.

Reports of Societies.

DISCUSSION ON GUNSHOT WOUNDS OF THE SPINE.

At the meeting of the Medical Society of London on March 20th a discussion on gunshot wounds of the spine was opened.

MEDICAL ASPECTS.

Captain JAMES COLLIER said that the subject could be considered under the following heads: (1) The nature and mechanism of production of the lesions; (2) the state of the reflexes and of muscle tone in the affected region; (3) the distinction between root lesions and central lesions of the cord; (4) disturbances of sensibility; (5) prognostic indications; (6) the occurrence of rare and unusual phenomena.

The Nature of the Lesions.

The lesions had been caused by high-velocity bullets, shrapnel, fragments of shell casing, and by concussion of high explosives without external wound. The lesions might roughly be classified thus:

1. *Direct lesions*, resulting from the passage of a missile across the spinal canal, whether it touched the spinal cord or not.
2. *Indirect lesions*:
 - (a) Those due to the indriving of bone, etc., into the spinal canal.
 - (b) Impact lesions in which the missile struck against the bony wall of the spinal canal.
 - (c) Concussion lesions from the shock of high explosives.
3. *Secondary Lesions*.—Perithecal and intrathecal haemorrhage, medullary haemorrhage and thrombosis, meningitis, oedema. These lesions were important as the cause of the deepening of symptoms, often at a considerable time after the injury.
4. *Remote lesions*, which might be found anywhere in the spinal cord and chiefly near the surface. Such were spots of necrosis, sieve-like rarefaction, punctiform haemorrhages, oedema, and swelling of axons. These lesions were produced by the sudden raising of the intraspinal pressure caused by the passage of the missiles through the intraspinal space or by a general concussion effect. They were well marked in cases of concussion without external wound.

After discussing the mode of production of the direct injury, he said that it seemed to him impossible that a bullet could cross the spinal canal without causing the most severe and irreparable of transverse lesions, and he argued that in all cases in which relative or complete recovery occurred the lesion had been indirect—either an impact lesion or due to the indriving of bone. Probably the bullet was most frequently deflected by the bony wall and seldom traversed the canal. The passage of a high-velocity bullet in the immediate vicinity of the spinal canal or the impact of a projectile upon the bones forming the canal might cause lesions of the cord though the walls themselves remained intact. The damage to the cord produced in this way by indirect injury varied from the most severe with symptoms of a total transverse lesion with no recovery to the slightest with complete recovery.

Concussion Lesions.

Concussion lesions might occur from the bursting of high explosive shells when the back was turned towards the force of the explosion without the production of an external wound, lesion of the bones, or even bruising of the soft tissues. It was possible to conceive that when severe lesions had been caused in this way there had been such distortion of the spinal column as might produce a subluxation of the vertebrae which became immediately reduced, but not before it had severely compressed the cord. There was, however, no evidence of such a subluxation, and the lesions must be regarded as due to impact. In his own cases and in others seen the lesions had been in the lower dorsal region.

Root Lesions.

Sometimes the lesions produced by projectiles affected the spinal roots after they had left the thecal space to a much greater extent than the cord or thecal contents. This seemed to be the case when there was much fracture and crushing of the bone, especially in the region of the transverse processes. There was usually much swelling and oedema in the damaged area. Such root lesions were not entirely due to direct injury; they might result from

subperiosteal haemorrhages and periosteal swelling which strangled the roots in the intervertebral foramina, or from pachymeningeal haemorrhage.

Intrathecal Haemorrhage.

Blood effused into a free thecal space found its way into the lower part of the space around the cauda equina and lumbo-sacral enlargement, and, if massive in quantity, might distend that space and cause pressure upon the roots and epiconus, and ultimately completely destroy by pressure and evascularization the cauda equina, and perhaps also the lumbar enlargement. Small effusions might cause local signs of nerve root injury. A severe condition of this kind might resemble a complete lesion of the cauda equina or lumbo-sacral enlargement. Lesser conditions might cause signs difficult of explanation unless the possibility of intrathecal haemorrhage were borne in mind.

Total Necrosis.

Total necrosis of the distal segment of the spinal cord was found in one patient. The signs were those of a complete transverse lesion at the level of the third dorsal segment, and the patient survived for three months. The most plausible explanation for such lesions was a spreading thrombosis throughout the blood vessels of the distal segment.

Reflex Action.

It was usually held that the initial condition of reflex action after the occurrence of severe lesion of the cord was that there was complete loss of both jerks and superficial reflexes, or that, if the loss was not complete, the only sign of reflex action left was a feeble flexor response of the toes; and that the early presence of the extensor response, or its early return, indicated that the lesion was not complete and was of good import. He had seen one case, fatal on the fourth day, with persistent extensor plantar response which negated this view. There were four consecutive stages in the condition of the plantar reflexes following transverse lesion of the cord: (1) An initial extensor response; (2) either complete absence of reflex or a reduced flexion reflex; (3) extensor response; (4) normal flexion reflex which returned when recovery was complete. He had repeatedly observed these successive changes, and considered that the plantar reflex was an index of the severity of the damage and an important early indication as to recovery. His observations led him to support Lieutenant-Colonel Gordon Holmes's view that the "reduced flexor response" was a unisegmental reflex involving the first sacral segment only. Another important point which had been brought out by recent experiences was that the influence of the higher nervous system upon the reflex action and muscle tone of the cord was strictly homolateral.

Contracture.

Three conditions of contracture of the feet occurred in these paraplegic cases: (1) The dropped foot with retracted toes—pes cavus; (2) the retracted foot with retracted toes—the calcaneus position was often extreme, the ankle-jerk was always lost and the anterior tibial jerk marked, an extensor plantar reflex was always present; (3) the dropped foot with dropped toes, with either absent or reduced flexor response. He considered that the dropped foot with dropped toes indicated a more complete transverse lesion. The calcaneus position was a very remarkable phenomenon, and had always persisted in such cases as he had met with.

Speaking of the ultimate condition of the paralysed region in cases of total transverse lesion, he suggested that "isolation dystrophy" might reach such a point that no signs of activity of the lumbar enlargement remained. To "paralysis in extension" and "paralysis in flexion" he thought might be added a third type—complete flaccid paralysis—from which the other types developed, and to which they returned when there was an increasing lesion or from long-standing isolation of the distal segment.

SURGICAL ASPECTS.

Lieutenant-Colonel DONALD ARMOUR said that the cases met with fell into two main classes: (1) Those in which the function of the cord was not interfered with; (2) those in which there was interference with function with or without damage to the vertebral column. Later effects—such as arose from inflammation, and as adhesions, serous

cysts, blood clot, continual suppuration, etc.—had also to be considered. The most frequent cause of cord injury was a driving in of fragments of bone. The lesions varied from concussion to extensive injury, diffuse and irregular in distribution, with a tendency to diminish gradually from the site of the disturbance. The point of chief importance was whether it was possible to recognize clinically the nature or extent of the damage. X rays were most unreliable in this respect. They might fail to reveal a bony injury when it was present, and never showed the full extent of the injury within the spinal canal.

With regard to operative procedure, three questions arose: (1) Would any benefit accrue? (2) Would life be endangered by it? (3) Might the patient be made worse by the operation? In practised hands he did not think that operative treatment should add materially to the risk.

The level of the lesion, as determined by diagnostic methods, did not correspond to the level of the vertebral damage, and therefore a wide area of the cord should be exposed. The dura, if intact, should not be opened if sepsis were present, and drainage should be employed. A contraindication to operation was a septic condition of the kidney or bladder. If the intercostal muscles were paralysed, this undoubtedly added to the danger of the operation, but such danger might be successfully guarded against by a skilled anaesthetist. An operation was indicated to remove pressure by bony fragments, haemorrhage, oedema, secondary thickening, etc. Since there was no sure means of distinguishing between concussion and actual gross damage, he thought that if any doubt existed, the patient should be given the benefit of the chance of relief by surgery.

DISCUSSION.

Dr. LEONARD GUTHRIE, speaking of the prognosis in transverse lesions of the cord, said that in cases of complete transverse lesion certain familiar symptoms arose; similar symptoms resulted merely from spinal shock. Spinal shock could not be excluded within three months of the injury. In certain cases in which an operation had been performed it had been reported that the cord was disintegrated and pulped, and yet return of function followed. Any return of function was an indication that the cord had not been completely destroyed, as was supposed. He referred to a case in which some return of power and of reflexes took place a year and three months after the cord was said to have been destroyed. With spinal shock, first flaccid paralysis, and then paralysis in extension or in flexion might follow. Paralysis in extension was an indication of a lesion less severe than in paralysis in flexion. Flexion which had become permanent was distinct from that occurring with stimulation, and represented a cadaveric position or a return to the fetal condition. Great caution should be exercised in accepting the view that a complete transverse lesion of the cord had existed. He then recorded certain anomalous cases in which the effects of lesions seemed to indicate the existence of separate sensory paths for sensations which are generally considered to take the same course.

Captain E. ADAMS, speaking from experiences at King George and St. Thomas's Hospitals, referred to 14 cases with positive evidence of damage of nerve tissue. In all there were destruction of nerve cells, haemorrhage and concussion. Three ended fatally, 2 from urinary sepsis and 1 from bronchopneumonia; in 3 there had been no improvement, but of 1 it was too early to speak definitely; in 8 substantial progress had been noted. In such cases he thought that bedsores and catheters must account for some fatalities. The former danger had been greatly lessened by more skilled nursing, but he questioned whether it was right to hand over cases of spinal cord damage to male nurses for regular catheterization. The same view seemed to be suggested by those who in France had resorted to suprapubic cystotomy. Relief of pressure on the cord was the chief aim of surgery. In all fatal cases exploration of the cord showed it to have been severely pulped. In those which improved the cord was softened in one. It was a matter for consideration whether the neural arches should be removed in all cases. In the majority he thought that exploration was not only justifiable but indicated. He preferred to wait until two or three weeks after the wounds had healed.

Captain E. FARQUHAR BUZZARD said that he was in almost complete agreement with Colonel Armour and Captain Adams. In all cases in which an operation was done to determine whether there were pressure on the cord it was not wise to rest satisfied with the mere removal of a foreign body without proper laminectomy. Paraplegic symptoms sometimes came on after a considerable interval. He related such a case in which a foreign body had been removed without laminectomy. The condition had greatly improved after rest. More rest was required after an injury in the cervical region than after an injury elsewhere in the cord. A troublesome sequel to cord lesions was spasticity. In the treatment of this the education of the patient to enable him to overcome the contracture was important. Electric treatment and massage possibly did more harm than good.

Major NEWTON PITT had found that the results of laminectomy were generally very disappointing; it was therefore very difficult to know when to insist on its performance. In the treatment of the cystitis he had been impressed by the improvement which followed suprapubic cystostomy in two cases. Many anomalies were met with in the reflexes. The imperfect flexor plantar response was very interesting, as also was the variability of the plantar responses. He had seen a spastic condition of the legs with flexor plantar response in some cases and considerable divergences in the great and little toe responses on each side, and in that of the tensor vaginae femoris. The etiology of these variations needed more elucidation. Pyrexia occurred in two cases with marked spasticity and flexion of the limbs when extension was applied and disappeared when this was discontinued.

Dr. S. A. K. WILSON referred particularly to so-called cases of concussion of the cord. One case was that of a youth who was advancing when a shell burst ten yards in front of him but without hitting him. He fell down on to soft ground with sudden abdominal pain, followed by involuntary defaecation and loss of power and sensation below the waist. The symptoms were those of a transverse lesion at the level of the ninth dorsal segment. He had gradually improved. The nature of such conditions was undetermined; possibly they might arise from sudden "evascularization" of the cord. He also recounted a case in which symptoms came on after a considerable interval when the patient was thought to have got well. Three months after the injury the patient had suddenly noticed that he could not feel the coins in his pocket, and loss of sensation was detected in his right arm and leg. The symptoms cleared up after two months' rest.

Lieutenant-Colonel P. SARGENT agreed that when any doubt existed the patient should have the benefit of an exploratory operation; it was not a difficult or dangerous procedure. It would reveal conditions not recognizable by neurological methods or by x rays. It was difficult to decide when to operate in the early stages. The question of nursing had to be considered, and again, if the condition seemed almost hopeless, an operation might preclude the possibility of sending the patient home alive to his relatives. All that an operation could do was to relieve pressure, and the earlier that was done the better. In certain cases the spinal cord was swollen, particularly in the cervical region. Many such cases recovered spontaneously and progressed satisfactorily, but it was open to question whether a simple incision into the cord would not assist in recovery and avoid further destruction. The chief difficulty in recent cases was sepsis, which was often a deterrent.

FASTING TREATMENT FOR DIABETES.

At a meeting of the Hunterian Society on March 8th, when the President, Mr. W. H. KELSON, was in the chair, Dr. W. LANGDON BROWN, in a paper on the treatment of diabetes by fasting, said that three recent methods of investigation had been of great assistance in diabetes: (1) The estimation of the blood sugar, which had shown that, whereas in the large majority of cases of clinical diabetes there was hyperglycaemia, in a few, usually mild, cases the blood sugar was below normal; the blood, however, in many of these latter cases of "renal" glycosuria developed hyperglycaemia later on. (2) The so-called pancreatic-diastase reaction, which had shown that the amount of diastase in the urine was subnormal in nephritis, moderately raised in chronic pancreatitis, and

very greatly increased in acute pancreatitis, with blocking of the ducts. The reaction was of value in diagnosing cases of glycosuria of pancreatic origin. (3) The estimation of the alveolar CO_2 had often proved of use in foretelling the onset of coma. Obvious errors of internal secretion were not often met with, but sugar in the urine might occur in the following conditions:

1. *Pancreatic Insufficiency.*—In this case there would be hunger pain and other symptoms of hyperchlorhydria. Very often fatty diarrhoea, and certainly increased diastase reaction.

2. *Thyroid Over-action.*

3. *Suprarenal Over-action.*—Many of the cases of glycosuria in later life, with raised blood pressure, were probably of this type.

4. *Pituitary Over-action.*

The disease was formerly looked upon as due to a disorder of carbohydrate metabolism; it was now recognized that such facts as the presence of oxybutyric and other acids, and the varying amount of ammonia in the urine, indicated that the metabolism of fats and proteins was implicated as well. In order to standardize results he used the test diet containing 100 grams of carbohydrates and 108 grams of proteins. This was capable of producing 164 grams of carbohydrates, and the proportion of this excreted as glucose gave the "coefficient of excretion" in any particular case. The essential principle of the new treatment was fasting. While fasting, in an ordinary person, would occasion a rise in the diacetic acid, in a diabetic it was followed by a diminution. The method of treatment was a complete fast for forty-eight hours followed by von Noorden's "vegetable egg" diet for forty-eight hours. Protein was then added cautiously during the ensuing days; this formed the "ladder diet" stage. After a fortnight the fast routine might be repeated in suitable cases. The aim was finally to reach a "balanced diet" in which a small proportion of carbohydrates found a place. The usual diabetic diet contained far too much protein, and this excess often predisposed to acidosis. Diabetics were not intolerant of the carbohydrates equally; laevulose was much more readily assimilated than most. As artichokes contained inulin, which on digestion gave rise to laevulose, they might be made the first addition to the diet. Others, readily assimilable, were potatoes, baked apples, milk in small quantities, and even green peas. By making use of the fast routine and the balanced diet far more satisfactory results were obtained than by other dietetic methods.

Reviews.

EXERCISE IN EDUCATION AND MEDICINE.

WE noticed the first edition of Dr. R. T. MCKENZIE'S *Exercise in Education and Medicine*,¹ and we now welcome the appearance of a second edition of a book which is certain to be valued by all who are interested in the subject, either as educationists or as physicians. It contains a historical review of the progress of physical education in many parts of the civilized world, even in such countries as China and Manila and among the North American Indians. In the United States this branch of education has received special attention, and the provision of gymnasiums and playgrounds forms an outstanding feature of municipal work. In the universities which have grown up so abundantly in the various States of the Union during the last generation the need for the physical training of students has been not only recognized but even to some extent over-emphasized, for we are not sure that we agree with the author's statement that this training increases the powers of self-preservation and efficiency and teaches a graceful carriage and "those social and moral qualities which can be cultivated so well in no other way." The athlete may be a ruffian and a bully. Record breaking and the desire to win games by any means should be sternly repressed, as only when his skill is associated with a chivalrous character does the athlete become admirable. An excellent feature of the system followed by American teachers of physical education is the "floor talks," or short addresses of about ten minutes' duration on such subjects as the causes of disease, the

carriers of infection, cleanliness, the dangers of dirty uniforms and soiled towels, on diet, exercises, bathing, alcohol, tobacco, and venereal disease. It is hardly possible to over-estimate the good that may be done by a teacher who can deal with subjects such as these in a manner to secure the attention and interest of his hearers.

In his remarks about the athletic education of girls, the author says that though they do not appear to have a natural taste for regular exercises, there has been improvement in this respect in recent years. The exercises followed should not be the same as those for boys, but should be adapted to suit the special character of girls. It is particularly desirable that the co-operative spirit should be encouraged among them by means of "team games," and that there should be plenty of outdoor exercises to promote nervous stability. No comparison in records should be made between men and women; in most exercises women only attain to about two-thirds of the standards reached by men, but in dancing, swimming, skating, and fencing they reach much nearer the male level.

The later part of the book gives a detailed account of the therapeutic use of exercises, and here as elsewhere it is abundantly illustrated by drawings and photographs.

PUBLIC HEALTH.

MR. MATTHEWS, in his book on *Refuse Disposal*,² describes the various methods employed in collecting and disposing of the refuse of towns and cities. The subject is pregnant with interest to bodies concerned in maintaining and improving public health. Efficient and economic scavenging demands increasing attention from sanitary authorities, and the full and reliable information contained in this book will undoubtedly be helpful to authorities about to adjust their equipment to existing necessity. The description of removal methods shows the great development which has taken place in the type of vehicle for removal purposes. The immense advantages, from a sanitary point of view, such a removal car as the Fram possesses, as compared with the uncovered dust cart too commonly used at the present time, are apparent. Mr. Matthews, no doubt intentionally, deals briefly with all methods of disposing of organically charged matter, excepting destruction, since he regards it as the only method of disposal which safeguards the public health. The various types of destructor are described and are fully illustrated by photographs and plans. The claims of the smaller type of destructor are of especial interest at present to those in charge of military stations, where the amount of refuse per head of population is considerable, and where speedy and safe disposal is an urgent necessity.

*The Colchester Oyster Fishery*³ is an interesting little book devoted to description of an industry which dates from a very early age. The oyster was recognized as a delicacy before the time of the Roman Empire, and its value as an article of invalid dietary is admitted. It is of the greatest importance, therefore, that the cultivation of oysters should be conducted under conditions which ensure that the marketed product is wholesome. Where circumstances are less favourable than those which obtain in the Pyfleet oyster beds, risks attendant on sewage contamination may render the product a source of danger. It is the indisputable right of the consumer to be safeguarded against such a menace, and any dealer who markets oysters from sewage-contaminated waters incurs grave responsibilities. Mr. LAYE has demonstrated that the geographical position of the Colchester fisheries is such that contamination under existing conditions is well-nigh impossible, and his book has rendered the industry with which he deals a notable service.

PLAGUE IN ART.

No disease holds so large a place in art and literature as plague, for although there are several which claim a heavier tribute of human lives, plague, by the swiftness

¹ *Exercise in Education and Medicine*. By R. Tait McKenzie, B.A., M.D. Second edition, thoroughly revised. Philadelphia and London: W. B. Saunders Co. 1915. (Roy. 8vo, pp. 585; 469 figures. 18s. net.)

² *Refuse Disposal: A Practical Manual for Municipal Engineers, Members of Local Authorities, etc.* By E. R. Matthews, A.M.I.C.E., M.I.M. and C.E., F.R.San.I., F.R.S.Edin. London: C. Griffin and Co., Ltd. 1915. (Post 8vo, pp. 173; 99 figures. 6s. net.)

³ *The Colchester Oyster Fishery*. By H. Laye, F.S.A., Chairman of the Colne Fishery Board, Colchester. Published by the authority of the Colne Fishery Board. 1916. (Cr. 8vo, pp. 92; 41 illustrations. 2s. 6d. net.)

with which it has spread through nations and over continents and the upheavals of the social system which it has caused, has always struck a special terror into the hearts of men. In their fear afflicted communities sought for metaphysical aid, and when the day of deliverance came their gratitude and their wish to propitiate the anger of heaven found expression in the building of temples and churches, in the erection of statues, and in pictures, medals, and votive offerings of various kinds. While artists in different ages have found inspiration in plague, writers of fiction have described its visitations and poets have sung its horrors. Historians who have not thought other infectious diseases or general problems of hygiene worth notice have chronicled epidemics of plague and have discussed their economic, social, moral, and political effects. On the memorials of these visitations found in architecture, sculpture, painting, and literature, Dr. RAYMOND CRAWFORD based the Fitz-Patrick Lectures delivered by him before the Royal College of Physicians of London in 1912. He has since embodied the substance of them, with considerable expansions, in a handsome volume in which he gives a masterly review of the whole subject from the earliest records of pestilence down to the end of the eighteenth century.⁴

Among the earliest votive offerings were representations of the parts affected by the disease, such as the golden images of "emerods" sent back by the Philistines with the Ark of the Covenant which they had carried off from the Israelites and placed in the temple of their own god, Dagon. Ancient Rome was sorely afflicted by pestilence, and in the closing days of the third century before Christ the magistrates sought aid at Epidauras, the famous shrine of healing. The serpent of Aesculapius was sent and a temple dedicated to the god was built on the Isola Tiberina. In recent excavations many votive offerings have been found on its site. In Christian times representations of saints whose names were for any reason associated with plague figure largely among the adornments of churches. Saint Sebastian was a favourite subject, probably because his was one of the few nude figures allowed to Christian art in Italy, Switzerland, Southern Germany, and South-Eastern France. Statues and pictures of St. Roch, who is usually depicted with a bubo in the left groin, are also very common.

Dr. Crawford gives an interesting account of the effects of the Black Death on the literature, art, and architecture of England. Throughout the Middle Ages plague was endemic in central and southern Europe, and dances of death, plague banners, votive and commemorative paintings, and representations of plague scenes bear witness to the deep impression which it made on the minds of men. These epidemics also gave a strong impetus to the production of mystery and miracle plays.

Among the historians of pestilence the first place must be given to Thucydides, but Dr. Crawford, from a critical study of his description of the great pestilence of Athens, concludes that the disease was not oriental plague but typhus fever. Of plague the most striking records in literature are found in two works of fiction. In his *Promessi Spesi* Manzoni gave an account of the terrible outbreak at Milan in 1630, which can never be forgotten by any one who has read it, and Daniel Defoe's *Journal of the Plague Year* was accepted by Mead as the authentic record of an eye-witness of the appalling visitation which made London a city of death in 1665. Dr. Crawford, however, thinks that Defoe used materials collected by him for a record of the plague of Marseilles in 1720, and transferred the scene to London. Samuel Pepys, from his own observations, painted a truer picture.

Dr. Crawford's book is illustrated with excellent photographs of the most famous pictures dealing with pestilence in the churches and galleries of Europe. It is a monument of learning and industry, and is written in a style which makes it worthy to rank among the best contributions to the literature of plague. It is a pity, however, that a work so full of varied matter should have neither index nor table of contents.

⁴ *Plague and Pestilence in Literature and Art.* By Raymond Crawford, M.A., M.D. Oxon., F.R.C.P. Oxford: The Clarendon Press, 1914. (Roy. 8vo, pp. 230; 31 plates. 12s. 6d. net.)

NOTES ON BOOKS.

MISS A. E. POPE has written a number of books for the instruction of nurses. Her volume of *Anatomy and Physiology for Nurses*⁶ deals mainly with elementary physiology. Of this it contains an ambitious and up-to-date summary which, one would think, is bound to give a strange idea of the science to any one not possessing a solid knowledge of its elements. There are numerous diagrammatic illustrations; many of these, adapted from drawings of microscopical preparations, would gain by the addition of figures to show the scale of magnification under which they are reproduced. In Fig. 109 the inferior thyroid veins are wrongly labelled as the "brachio-cephalic vein." Miss Pope's *Quiz Book of Nursing*⁶ contains a series of questions and answers designed for the use of nurses who teach and nurses who study under them; it is designed to offer the information essential from the nursing standpoint. It is divided into chapters dealing with the ward, the general and special care of patients, treatment, medicine, diet, disease, and so forth. Special chapters at the end are given to expositions of the duties of visiting nurses, hospital planning, and hospital book-keeping. Much of the book is excellent; but when the author states (p. 384) that a tumbler contains no more than from 6 to 8 fluid ounces, one is tempted to think she has forgotten for a moment that America is the home of the long drink.

Dr. ELIZABETH BUNDY'S *Textbook of Anatomy and Physiology*,⁷ now in its third edition, contains the quantum of knowledge thought suitable for the pupils in training schools and other educational establishments. The type and spelling are American; the illustrations have been selected from such standard works as those of Morris, Deaver, and others. Dr. Bundy's book appears to have begun life as an "Anatomy for Nurses," and contains comparatively little physiology. Occasionally it divagates into pathology; thus on page 338 we read that "Cataract is a thickening of the lens. . . ."

Dr. N. C. FLETCHER'S *Compendium of Aids to Home Nursing*⁸ is an attempt to express the wisdom of the well-trained nurse in the form of memoriae technicae and tabulation, and is based on the author's Polytechnic lectures. It is complete and concise, and should be of service to those who learn best with the help of mnemonic aids.

The Child: His Nature and Nurture,⁹ by Dr. W. B. DRUMMOND, covers a good deal of ground that has been touched on by other authors. The history and comparison of the Froebel and Montessori methods of education is of considerable interest, and will be welcomed by many teachers of young children.

There are some good points in *What Every Mother Should Know*,¹⁰ by C. G. KERLEY, but we cannot agree with the author on the proportions of milk advised for infants of from 3 to 10 days old. Three ounces of milk to seventeen ounces of water and lime water is too dilute a food for the average baby, nor do we like the suggestion that the food for twenty-four hours be mixed at one time.

⁶ *Textbook of Anatomy and Physiology for Nurses* By A. E. Pope. Second edition. New York and London: G. P. Putnam's Sons, 1915. (Cr. 8vo, pp. 604; 137 figures. 1.75 dols. net.)

⁶ *A Quiz Book of Nursing for Teachers and Students.* By A. E. Pope and T. A. Pope. Same publishers. (Cr. 8vo, pp. 499; 5 figures. 1.75 dols. net.)

⁷ *Textbook of Anatomy and Physiology for Training Schools and other Educational Institutions.* By Elizabeth R. Bundy, M.D. Third edition. London: J. and A. Churchill, 1915. (Med. 8vo, pp. 423; 233 figures. 8s. 6d. net.)

⁸ *A Compendium of Aids to Home Nursing (Home Nursing Simplified and Tabulated).* By N. Corbet Fletcher, B.A., M.B., B.C. Cantab. London: J. Bale, Sons, and Danielsson, Ltd. 1915. (4½ by 5 in., pp. 163. 6d. net.)

⁹ *The Child: His Nature and Nurture.* By W. B. Drummond, M.B., C.M., F.R.C.P. Edin. London and Toronto: J. M. Dent and sons, Ltd. 1915. (Cr. 8vo, pp. 223; 11 illustrations. 2s. 6d. net.)

¹⁰ *What Every Mother Should Know about her Infants and Young Children.* By C. G. Kerley. New York: P. B. Hoeber, 1915. (Cr. 8vo, pp. 107.)

MEDICINAL AND DIETETIC PREPARATIONS.

Chloramine-T Disinfectant.

IN the paper on the antiseptic action of hypochlorites, published in the JOURNAL of December 4th, 1915, Dr. H. D. Dakin showed that probably it was conditioned by the formation of chloramines rather than by any decomposition with liberation of oxygen. In another paper, published in the JOURNAL of January 29th, 1916, by Dr. Dakin, Professor Cohen and Dr. Kenyon, it was pointed out that, as it was believed that the antiseptic action of hypochlorites was

due to their capacity for attacking proteins and related bodies, with formation of substances containing chloramine linked to nitrogen, so chloramine appeared to act also, for when brought into contact with proteins such as blood serum it parted with its chlorine, which attached itself to the nitrogen of the second substance. When the hypochlorites act upon free ammonia the simplest chloramine, NH_2Cl , is produced, and by reaction on other bodies other more complicated chloramines are formed. After testing a number of chloramines, they selected para-toluene-sodium-sulphochloramide. This substance has been used with results so satisfactory that a considerable demand has arisen for it, and the substance was put upon the market under another name a short time ago.¹ Boots Pure Drug Company now inform us that they prepare para-toluene-sodium-sulphochloramide, and can supply it under the name "Chloramine-T," suggested by Dakin and his fellow-workers, in powder or in the form of compressed tablets. The powder is fine, white, and flaky, with a faint chlorous odour. It is freely soluble in water, so that it is easy to make a 3 or 4 per cent. solution, which is the strength recommended for wounds. A weaker solution (1 to 2 per cent.) has been highly praised in the treatment of wounds and infections of the mouth and throat, and Mr. A. Edmunds, who had used it at Malta, said during the discussion at the Harveian Society after the reading of Sir Berkeley Moynihan's address on February 24th that as the supply then available to him was small he had reserved it for such cases. Sir Berkeley Moynihan mentioned in his paper published in the JOURNAL of March 4th that chloramine gauze prepared by Dr. Dakin had been used in Leeds and elsewhere in the Northern Command with results which justified the belief that it was the best method so far introduced for checking and controlling the development of infective processes. Messrs. Boots have sent us a sample of gauze, which seems to be very well prepared. The chloramine is entangled in the meshes of the gauze, which in consequence has a rather pungent odour when the package is first opened. With reference to the powder, Messrs. Boots inform us that at the price they are charging a 2 per cent. solution costs 3d. a lb. and a 4 per cent. solution therefore 6d. a lb., as compared with 10d. a lb., the present price of hydrogen peroxide (10 volumes). The germicidal action of Chloramine-T, molecule for molecule, is about four times as great as that of sodium hypochlorite. The prices charged by Messrs. Boots are: For the powder, 1s. an oz.; 4 oz. for 3s. 6d.; 1 lb., 12s. 6d. Bottles of 100 tablets (8.75 grains each), 4s. 6d.; bottles of 12 tablets of 43.7 grains each, 2s. 8d. The price of the gauze, containing approximately 35 per cent. Chloramine-T, is 1s. a roll. The prices in all cases are post free.

MEDICAL AND SURGICAL APPLIANCES.

Axis Tractor Adaptable to any Obstetric Forceps.

DR. R. I. CUMING (West Brompton) has designed a contrivance to obviate the bulkiness, complexity, and expense of a special instrument; it can be fixed on the handle of a forceps of any pattern and applied even when efficient help is not at hand. He has used it, he states,



in many difficult cases, and it has never failed him. The instrument consists (1) of a traction handle with a swivel, allowing the head to rotate freely, connected with (2) an indicator, rounded at the free end, which shows the direction of

traction. (3) A sliding bar, furnished with a screw and thumb-piece, allows of the instrument being fitted to any forceps and of the direction of traction being adapted to any pelvis. The underside of the sliding bar is fitted with (4) a screw arrangement, which holds the instrument to the forceps and at the same time regulates the amount of pressure on the head. The appliance is made by Messrs. Salt and Son, Birmingham.

¹ BRITISH MEDICAL JOURNAL, February 19th, p. 289.

THE school of massage for blinded soldiers founded in 1915 by Madame A. Léopold-Kahn at the convalescent home at Reuilly has received official sanction.

ELECTROLYTIC HYPOCHLORITE FOR HOSPITAL SHIPS.

A REPORT to the Medical Research Committee¹ on the use of sodium hypochlorite prepared by the electrolysis of sea water for disinfecting and antiseptic purposes on ship-board, especially in hospital ships, has been made by Drs. H. D. Dakin and H. G. Carlisle, and will be read with much interest, because it is important both in its scientific and practical aspects. The report mentions the well-known Hermite process for the sterilization of sewage by electrolytic hypochlorite, introduced about 1893, and the use of electrolytic hypochlorite for general disinfection by several sanitary authorities, notably at Poplar, and the valuable results obtained through its use in the plague epidemic in Glasgow in 1901.

Installation on H.M.H.S. "Aquitania."

The report contains a description of apparatus installed on H.M.H.S. *Aquitania*, and is illustrated by scale drawings which would make it possible for any combination of doctor and engineer to introduce the method into any ship in which its use seems advisable. The electrolyzer consists of a rectangular box of teak or cedar bolted together and divided into twenty or twenty-five cells by means of carbon plates placed parallel to one another. Great care must be taken in the selection of the carbon plates, and a particular kind of graphite is recommended. Two wires leading the ship's current (100 to 110 volts direct current) are suitably connected through a switch with the electrolyzer, which, to ensure even distribution of current, is provided with a copper plate attached to the four binding screws at each end. If alternating current only is available, it must be transformed. If the voltage be 200 to 220, two electrolyzers can be placed in series. Thanks are expressed to Dr. Edward Hopkinson, of Messrs. Mather and Platt of Manchester, for his assistance in constructing a practical and efficient apparatus, and apparently that firm is prepared to provide electrolyzers.

Strength of Solution.

When using ordinary sea water it is inadvisable to continue electrolysis for more than ten minutes. In that time, with a current of 60 to 75 amperes at 110 volts, a solution will be obtained containing usually a little less than 4 parts per 1,000 of sodium hypochlorite or available chlorine. For most purposes it is advantageous to limit the electrolysis to five minutes, and at the end of that time the solution will contain from 2 to 2.7 parts per 1,000 of sodium hypochlorite or available chlorine. For swabbing floors, walls, latrines, etc., this may be diluted with an equal part of water. Comparative experiments upon the bacteriological conditions of floors before treatment, after treatment with salt water, and after treatment with hypochlorite at 1 in 1,000 showed a large reduction by the use of plain sea water, but a huge reduction after the application of the hypochlorite.

Use in Wards.

The results of the free use of hypochlorite in the wards were most gratifying. The general opinion after the experience of two voyages to the Mediterranean was strongly in favour of the hypochlorite as contrasted with phenolic disinfectants. In the typhoid and dysentery wards the results were particularly striking and the absence of odour most marked. In these wards the hypochlorite disinfectant was placed in the bedpans before use. The most important effect, however, had been the large reduction in secondary infection occurring among the ship's staff. While it was not considered that this fortunate result was exclusively due to the hypochlorite, it was generally considered among competent observers that its introduction had been an important cause of the improvement.

Drinking Water.

The hypochlorite had also been used for the purification of the ship's drinking water. About 1 in 1,000,000 was sufficient for all ordinary purposes, and the instability of electrolytic hypochlorite was so great that after three or four hours all traces of chlorine disappeared. On the average about 25 per cent. of the hypochlorite disappeared

¹ Journal of the Royal Army Medical Corps, February, 1916.

in twenty-four hours when the solution was stored in shallow tubs, but in covered vats the rate was materially less.

Surgical Use.

Electrolytic hypochlorite for surgical use should not be kept for more than twenty-four to forty-eight hours, but it can be so readily and cheaply prepared that this is not a matter of consequence. As it is free from excess of alkali and reacts faintly acid to phenolphthalein, it was considered that it would be suitable for surgical use, and it was also thought that the presence of the sodium and magnesium salts in the sea water might have a beneficial lymphagogic action similar to that observed in the hypertonic salt solution described by Sir Almroth Wright. It was believed to have been first used for surgical purposes on the French ship *Charles Roux*, and Drs. Dakin and Carlisle were able by the kindness of the P.M.O., Dr. Heitz-Boyer, to spend several days on the ship and to see the solution employed on about 200 purely surgical cases, most of them from Cape Helles, where the wounds were well known to be badly infected. The idea of using the electrolytic hypochlorite on the *Aquitania* was welcomed by Lieutenant-Colonel R. H. Fuhr, D.S.O., R.A.M.C., and it was used in a number of suppurating injuries, many of them originally due to frost-bite. The clinical results were similar to those observed with the hypochlorite prepared from bleaching powder, as originally described by Dr. Dakin in this JOURNAL on August 28th, 1915. A slightly lower concentration was preferred, and for this purpose the sea water, electrolyzed for five minutes, using about 65 to 70 ampères at 110 volts, and therefore containing from 2 to 2.7 parts per 1,000 of sodium hypochlorite, was found a good concentration for general use in surgery.

Laundry.

The solution was also useful in the laundries. In some of the French boats it was used for soaking undyed cotton and linen; it acted as a disinfectant, and had also a marked action in loosening dirt and in bleaching. The solution should be well diluted so as to contain about 0.12 to 0.25 per 1,000 of available chlorine.

Swimming Baths and Harbours.

A similar solution has been used for purifying the water of the swimming baths at Bow and Poplar, and an experiment made in the swimming bath on the *Aquitania* showed that the addition of electrolyzed sea water in the proportion of 1 in 2,000,000 of available chlorine caused a reduction in the number of organisms in two hours from 2,000 to 200 per c.c.m. It is suggested that the solution may find an important application in the treatment of the heavily infected salt water frequently found in harbours and ports, particularly those of the Mediterranean, where the tidal purification is slight. Observations were also made as to the effect of the solution on various structural materials.

Effects on Metals, etc.

Clean iron and steel were attacked rapidly by 1 in 1,000; copper more slowly; brass still more slowly; and aluminium, zinc, nickel, and tin scarcely at all under the conditions of the experiments. Lead was the most resistant of all the metals tested. Tin plate, nickel plate, and galvanized iron were not appreciably attacked if the plating was intact. Wood took up a certain amount, but in no case was significant damage done. Wooden tubs containing strong hypochlorite solutions for long periods developed a soft whitish deposit, but if this was not scraped off further action soon ceased. Painted wood and metal proved to be very resistant. None of the floor surfaces in the wards on board ship showed significant damage, but the solution dried rather slowly on damp days on linoleum. Speaking generally, it may be said that no significant damage to ship structures was observed after two months' use.

An Expert Opinion.

In some remarks attached to the report Lieutenant-Colonel Fuhr says that for the purification of drinking water the method was quick, simple, and very easily

worked, giving a clear potable water with no appreciable taste or smell if the mixing was thorough. With regard to its use in surgery, he says that he has been much impressed by the results, and by the fact that on changing gauze dressings they readily peel off without pain or bleeding of the granulations. Some considered that the chemically made balanced solution was less irritating, but this, in Colonel Fuhr's opinion, was a matter of dilution and increased frequency of dressing. For sanitary purposes it was the best, cheapest, and most easily applied method available, and as a deodorant it was invaluable. The *Aquitania*, accommodating more than the seven largest London hospitals, had given him full opportunity for forming a considered opinion, particularly as large numbers of dysentery and paratyphoid cases had been carried. The confinement of approximately 4,000 patients in a limited space rendered essential most stringent sanitary precautions, and Colonel Fuhr states that he has satisfied himself that for efficiency, economy, and utility, electrolytic hypochlorite is very essential for hospital ships.

DR. GODLEWSKI states in the *Press médicale* (February 3rd) that he has taken blood from sucklings for haemoculture and Wassermann's reaction, and more recently from military patients, without ever missing a vein, never making a *saignée blanche* as Dupuytren would say. Godlewski makes use of the fact that a vein can be displaced laterally, but only to a limited degree. A vein in the bend of the elbow being made prominent, the needle of a hypodermic syringe or any other suitable needle is thrust into the skin on one side of the vein—on the concave side if the vein be somewhat curved. The needle pushes the vein away for from 2 to 5 mm., but then the limit of lateral displacement is attained, and the point will enter without fail. The needle must be passed almost parallel to the surface of the arm obliquely towards the vein and close under the skin, otherwise it is certain to pass behind the vein.

A SYMPOSIUM on leprosy was held on October 27th at a meeting of the Chicago Medical Society (*Journ. Amer. Med. Assoc.*, November 13th, 1915, p. 1753). The disease in North America is limited to a few foci. In 1815 a leprosy person from Normandy settled at Tracadie, in New Brunswick, and there has been leprosy in the district ever since. There is a lazarette containing 26 beds, but, as the result of partial segregation and better sanitary conditions, leprosy is rapidly diminishing, and few of the beds are now occupied. Scandinavian immigrants have introduced leprosy into Minnesota, eleven cases being detected in 1900. By 1903 no new cases were reported. Along the Mexican frontier a few cases are now under treatment; the patients seem all to be Mexicans. It is believed that there are about 100 lepers in New York and a few cases in Chicago, but in no instance did the disease arise in either place. Two well-known foci of leprosy in the United States are in Louisiana and Key West, Florida. In Louisiana, where leprosy is active, every effort is made to segregate lepers as completely as possible, public asylums of refuge being now provided for them. No such institutions appear to have been established elsewhere in the States, and the establishment of a national sanatorium for lepers is advocated.

THE *Revue Neurologique* is the official organ of the Paris Société de Neurologie. The number for November-December, 1915, which has recently appeared, is, like that of May-June, 1915, devoted entirely to war neurology. It forms a volume of 436 closely printed pages, containing original contributions on disturbances of vision due to lesions of the intracerebral optic paths and of the cortical visual sphere by Pierre Marie and Charles Chatelin; on nervous disturbances of reflex nature by J. Babinski and J. Froment; on the relation of trembling to emotional states by Gilbert Ballet; and others, besides abstracts of communications made to societies and papers in medical journals—French, English, Russian, and Italian—during the second half of 1915. A special feature is a review of the work of French military services of neurology. Summaries of some Austro-German papers are included. These are said to be "of little importance," but the editors state that they have thought it their duty to place at the service of humanity all scientific productions whatever be their source. The January issue of the *Edinburgh Review of Neurology and Psychiatry* is also devoted to the neurology of the war. It contains a report by Dr. A. Ninian Bruce of a case of disseminated sclerosis following exposure with long periods of remission, and fifty-two pages of abstracts.

British Medical Journal.

SATURDAY, MARCH 25TH, 1916.

WOUNDS OF JAW AND FACE.

On the outbreak of war those whose daily work made them realize the calls the army and navy would make on the dental profession urged not only that dentists in large numbers would be needed for preventive dental treatment—treatment more especially designed to obviate the many and serious disabilities arising from septic teeth and want of teeth—but also that special attention should be paid to the difficult subject of repair after serious injury of the jaws and face. They remembered the disabilities, ranging from the loss of power to eat anything but soft food accompanying an ununited fracture of the mandible to the awful misery of such cases as that figured in Heath's *Injuries and Diseases of the Jaws*, in which the whole suborbital part of the face had been blown away by a shell. This occurred in the Crimean war and culminated in the suicide of the victim. They knew, too, that the dentist had not been idle in devising means to relieve the miseries of these unfortunates. Civil practice constantly provides a certain number of cases of direct injury, of necrosis, of resection for tumours, in which greater or lesser amounts of bone and soft parts are lost from the jaws and face; and the need had already produced the men to deal with it. Foremost of these was Claude Martin, a dentist of Lyons, who by lifelong study elucidated the main principles of the methods of combating cicatrization and of applying temporary and permanent substitution apparatus, even to the extent of artificially replacing an entire mandible. Further the surgeon had introduced bone grafting, skin grafting, improved methods of plastic operation, and above all, better ways of dealing with sepsis.

What may be called preventive dentistry, which in view of the numbers involved and of its influence on the general health of the soldier and sailor is the more important problem, has received very considerable and constantly increasing attention.

Colonel Lee, in his speech on the Army Estimates last week, said that at every clearing station along the whole front there is a well-qualified dental surgeon, well equipped with appliances. We may add that we understand that the French authorities have accepted the services of a corps of 1,000 dentists.

The dentists employed with the armies probably have plenty to do, and the treatment of wounds of the jaw is only a part of their duties. It is, however, a very important matter, and the need for special hospitals at the bases was early recognized in France; at the end of November, 1915, there were seven special centres—Paris, Lyons, Bordeaux, Marseilles, Montpellier, Bourges, and Clermont. Mr. H. Baldwin, President of the Odontological Section of the Royal Society of Medicine, in introducing the discussion on war injuries of the jaws and face, reported in our issue of March 11th (p. 375), said that in Paris the jaw cases were divided between the dental department of the American ambulance, a wing of the military hospital of the Val-de-Grâce, the dental school and Michelet Hospital, and a private hospital maintained by the

Comtesse de Grammont. The total number of beds provided in these four hospitals for jaw cases was about 1,000. The organization at Lyons under the general direction of Dr. A. Pont he described as wonderful. The central institution was installed in a large school building called the hospital for stomatology and bucco-facial prosthesis, and in that and five other hospitals beds were provided for 830 jaw cases. The beds in one hospital were reserved for jaw injuries complicated by wounds of the sinuses and ear, under the care of an experienced oto-rhino-laryngologist, as well as a stomatologist. Another was for jaw injuries complicated by wounds of the eyes, and had an ophthalmological service.

In England a start has been made in the Eastern Command, a special hospital having lately been organized at Norbury, where there are now collected about 130 jaw cases under the care of a specially selected dental surgeon. In one direction at least—the treatment of ununited fractures of the jaws—this specialization has already proved of value. We are sure that the military authorities in this country realize the great possibilities of relief the progress of dental and medical science has made available, and are aware that there is a very considerable number of dental surgeons willing and able to help.

In the same discussion Dr. Hotz, of the Paris centre, and Dr. Hayes, of the dental department of the American ambulance in Paris, said that the ultimate success of the treatment of such cases depends upon the building up and restoration of the jaws as a skeleton or framework upon which the final plastic operation can be made. When such cases came under specialist treatment late, though they might be cured of infection and their wounds healed, faces, he said, were distorted, mastication rendered impossible, and the fractured parts were not only displaced but consolidated, so that for reduction either a radical surgical operation, or long and tedious treatment with some special apparatus had become necessary. The moral that skilled dental intervention at the earliest possible moment is essential was supported by all subsequent speakers. Though it may be possible to make a general classification of jaw injuries, yet a specially made splint or apparatus is necessary for each one of such cases, because the teeth, which are used as *points d'appui* for the splints, are not in any two cases alike, and because when it comes to apparatus of replacement, such as false jaws, each case obviously stands alone. Only a skilled dentist can devise, make, fit, and fix these splints and apparatus. The teeth are very generally the groundwork on which the possibility of splint or permanent replacement apparatus rests. A judicious selection must at the outset be made of the remaining teeth and it may be advisable even to retain roots. Teeth likely to be of permanent value are scaled and perhaps filled; those of no value are extracted to aid in the general clearing up of sepsis. An excellent illustration of the expert use of roots was shown among the cases exhibited at the discussion alluded to. The issue between permanent disability and permanent usefulness of the jaw lay in the preservation of a molar root situated in the hinder fragment of the jaw. In this case the dental surgeon, Mr. W. Hern, was able to preserve the root and bring the case to a triumphant issue.

In those more serious cases in which bone grafting or replacement apparatus are contemplated, the patient should be in the hands of a dental surgeon at the earliest possible moment, while the parts are still accessible for taking impressions and noting the various necessary measurements. When vicious bony

union has taken place, when the original wounds of soft parts or the scars of plastic operations have cicatrized; the time for this work, the very foundation of the whole process, is past. Vicious bony union must now be broken afresh. Cicatrices must be stretched by long and painful effort, sometimes, as Claude Martin noted, extending over a year or more, and the result can never be as good as in cases taken in hand at once.

Special centres, each with a skilled dental surgeon and a general surgeon to undertake bone grafting or any necessary plastic operation, are needed, and it will often be necessary to keep ambulant cases under treatment for long periods, since recovery is often necessarily very protracted. In France this point is considered so important that lately, when in preparation for a large influx of wounded an order was sent out to evacuate all such cases as could walk, jaw cases were excepted unless they could be sent to a hospital similarly equipped.

FASTING TREATMENT FOR DIABETES.

ABOUT two years ago Dr. F. M. Allen of the Rockefeller Institute Hospital in New York introduced a new and apparently valuable method for the treatment of diabetes mellitus in certain of its stages. This has already been described briefly in this JOURNAL,¹ and was the subject of a paper read to the Hunterian Society recently by Dr. Langdon Brown (see p. 452). It consists in fasting or starvation, prolonged for several days together if necessary, followed by a period of very light diet. The treatment has been tried with success at the Massachusetts General Hospital, and an account of the experience gained with it there and details of the very various diets employed in these cases have recently been published by Dr. Hill and Miss Eckman.²

An outline of the treatment is as follows: The diabetic patient is kept on ordinary diet for two days after admission, in order that the severity of the disease may be determined. He is then starved, and no food is allowed save whisky and black coffee, one ounce of the former being exhibited every two hours from 7 a.m. to 7 p.m. This furnishes food to the value of about 800 calories, and serves to keep the patient more comfortable while he is being starved; if whisky is thought undesirable, bouillon or any clear soup may be given instead. Water may be taken *ad libitum*. If there is evidence of acidosis (strong acetone or diacetic reactions in the urine) a drachm or two of sodium bicarbonate may be administered every three hours; this, however, is rarely necessary, and there is no danger of producing diabetic coma by the starvation—a most important point brought out by Dr. Allen. The patient should be up and about during the period of starvation and not confined to bed. The starvation is continued until the urine shows no sugar; in the experience of Dr. Hill and Miss Eckman four days is the longest period of starvation that has been found necessary, but they know of obstinate cases that have been starved for as long as ten or eleven days. They say that the patients tolerate fasting remarkably well, and that they have not themselves seen any ill effects from it. The patient should be weighed daily, and a slight loss of weight is to be expected. It is, indeed, to be desired in the case of a fat patient, according to Dr. Allen. It is noted that starvation does not affect the urinary output of

diacetic acid and acetone in any definite way; if they were previously absent, the appearance of these bodies in the urine is not necessarily a cause for alarm.

When the urine has become free from sugar, as a result of the starvation, the patient is given at first a very light diet of vegetables, such as French beans, celery, spinach, cabbage, or asparagus, thrice boiled in water in order to remove as much of their digestible carbohydrate as possible, with tea or coffee to drink. It is very important that the diet should be raised and improved very gradually. Both the protein and carbohydrate in the food should be increased very slowly; the authors give full lists of the foodstuffs and diets they employ, and the food values and heat values of all the diets they tabulate. They emphasize the fact that the diabetic patient should be encouraged to keep thin rather than fat, and to do with as little food as will keep him in health. If, for example a patient is doing well on a mixed diet containing 50 grams of protein, 50 of carbohydrate, and 150 of fat, with a heat value of about 1,800 calories, he should be encouraged to be content, and not add to his dietary. They say that it is surprising to see how well most patients do on a diet with a heat value of only 1,500 or 2,000 calories. They note that a semi-starvation day of 150 grams of vegetables once a week, whether the urine contains sugar or no, is of value for the purpose of keeping well within the margin of safety, and of reminding the patient that he is on a strict diet. It is important, too, that the diabetic should take a considerable amount of exercise, as this enables him to utilize his carbohydrate diet better. Full details of the stages whereby the diet is increased are given by Dr. Hill and Miss Eckman, with directions for the cook and plenty of menus for the dietetician to choose from. It is clear that Dr. Allen's treatment has proved most successful in America, and it is much to be desired that it should be given a full trial in this country.

THE DIRECTION OF THE ARMY MEDICAL SERVICE.

THE Secretary of the War Office issued the following announcement on March 20th: "Surgeon-General W. Babbie, V.C., has been appointed to assist Surgeon-General Sir A. Keogh, Director-General Army Medical Services, especially in the work of supervision of invaliding and all questions connected with the physical fitness of the troops at home. The reports circulated in various newspapers to the effect that Surgeon-General Sir A. Keogh has resigned are quite untrue." On the outbreak of war Sir Alfred Keogh, who had been Director-General of the Army Medical Services from 1904 to 1910, was appointed Chief Commissioner of the British Red Cross Society in Belgium and France. Two months later it was decided to duplicate the office of Director-General of the Army Medical Services, and Sir Alfred Keogh was placed in charge of the office of Director-General at home, while Sir Arthur Sloggett became Director-General of the Expeditionary Force. This decision was taken on account of the amount of medical work connected with the Expeditionary Force on the one hand, and the home forces and new recruits on the other. It was a period of great anxiety for the medical services, especially with regard to sanitation and the prevention of epidemic disease, for the standing organizations had to be enormously enlarged, not only in France, but also, and perhaps even more urgently, in this country. Recruits were pouring in, and one of the consequences of our want of preparation for a European war was that no arrangements for their training or housing existed, so that almost everything had to be improvised. Mr. Tennant, in his speeches on the Army Estimates, has paid tributes to

¹ BRITISH MEDICAL JOURNAL, 1915, ii, 611.

² *The Starvation Treatment of Diabetes. With a Series of Graded Diets used at the Massachusetts General Hospital.* By L. W. Hill, M.D., and Miss S. Eckman, with an introduction by R. C. Cabot, D.M. Second edition. Boston: W. M. Leonard, 1916. (Pp. 132. 1.00 dol.)

the extraordinary success with which the difficulties were surmounted; and it will always be recognized that the great response which the medical profession at home made to the call for recruits, was due in large part to the confidence felt in the broad outlook which Sir Alfred Keogh took of the situation. Surgeon-General W. Babbie, V.C., graduated M.B.Glasg. in 1880, and entered the Army Medical Service in the following year. He received the C.M.G. for his services as senior medical officer in Crete in 1897-98, and the V.C. for his gallantry at Colenso. He was on the staff of the Natal Army, and was present at all the actions for the relief of Ladysmith, and subsequent operations in Natal and the eastern Transvaal, being promoted lieutenant-colonel and receiving the medal with five clasps. He was Assistant Director-General, 1901-1906, Inspector of Medical Services, 1907-10, and Deputy Director-General A.M.S., 1910-14. He was then appointed Director of Medical Services of the Army in India. Last year he became Principal Director of Medical Services, Mediterranean Expeditionary Force, Egypt and Malta.

THE CALCUTTA SCHOOL OF TROPICAL MEDICINE.

ANOTHER long step towards the realization of the scheme for establishing a great school of tropical medicine in Calcutta is recorded in our columns this week. Two years ago the Governor of Bengal laid the foundation stone of the laboratories; on February 26th last he laid the foundation stone of a hospital which will form an integral and essential part of the school, and those who attended the ceremony were able to inspect the laboratories. This is rather good going, though Sir Leonard Rogers seemed disposed to grumble because the pace had not been better. His original plan was for six professors in the tropical school, and it now seems probable that the ambition will be realized. Three professors were sanctioned by the Government, and afterwards a professor in pharmacology was sanctioned, as it was felt that the pharmacology of Indian drugs had been properly included in the scope originally assigned to the school; further, the imperial serologist, Colonel Sutherland, I.M.S., to whose pioneer work some reference was made in an article on blood stains published in the *JOURNAL* of February 19th, was given permission to lecture, and finally there appears to be good reason for hoping that the Rockefeller foundation will endow a separate professorship in protozoology, so that that subject may be separated from medical entomology. Commercial associations in India have undertaken to make annual contributions for five years, and endowments for three research workers have been provided, in addition to a special scholarship founded by Mrs. Mitra in memory of her husband, who was first medical officer and afterwards home minister for Cashmere. The Indian research fund, through the good offices of the Surgeon-General, Sir Pardey Lukis, has provided a lakh of rupees for the equipment of the laboratories, and the scheme has now been taken a step further towards completion by the realization of the plan for the erection of a special hospital, most of the money to defray the cost of which has been collected. The credit for all this is undoubtedly primarily due to Sir Leonard Rogers, Professor of Pathology in the Calcutta Medical College, who not only conceived the scheme but has known how to enlist the support of the Government and to appeal to the generosity of the public.

THE INFLUENCE OF SEX ON DISEASE AND MORTALITY.

The fact that sex *qua* sex creates a predisposition to certain diseases is of course a commonplace, but we do not perhaps recognize at how early an age this physiological influence of sex makes itself felt. As soon as the fetal heart can be heard it is found to beat more rapidly in the female than in the male, though the difference is

too small to enable the sex to be foretold, being in point of fact less than the difference observed between individuals of the same sex. At birth, boys on the average weigh four or five ounces more than girls. It has been suggested that the determination of sex may be dependent upon nutritional conditions affecting the mother, but in so far as this hypothesis assumes an abundant food supply to be favourable to the birth of males it is not supported by statistics. It is even asserted, though not, we believe, on any sound statistical evidence, that there is a marked excess of male births in poverty-stricken countries and those ravaged by war and famine. We referred in the *JOURNAL* of January 15th, p. 105, to some interesting investigations by Dr. R. J. Ewart bearing on the subject, and cannot pursue it further now. It seems clear, however, that the superiority in weight and size of male infants at birth is not due to better conditions of nutrition. At birth there are morphological differences, slight it is true, but still quite recognizable; for instance, the antero-posterior diameter of the abdomen is distinctly greater in male than in female infants, while the anterior superior iliac spines are more prominent, and the ischia more widely separated in girls than in boys, and so on. After birth these differences become more and more pronounced, so much so that even before puberty the boy and the girl have developed into two very distinct organisms, differing morphologically, functionally, and psychologically—differing, indeed, even pathologically. Those who advocate co-education do not seem to have considered this aspect of the question. A parallel education is conceivable, and even desirable, but the differences between the sexes is too great for any uniform system to be applicable. Boys and girls do not spontaneously play the same games. Girls are more precocious than boys, and their individuality asserts itself earlier. It is therefore not surprising that the two sexes should, from childhood onwards, display different pathological predispositions. The first indication of a distinct pathological predisposition is shown by the greater mortality among male infants, so much so that even though more males are born, by the end of the first year of life females may predominate. Tetany is said to be more frequent in boys and convulsions in girls, and the latter display an overwhelming liability to suffer from chorea. It may be argued that the larger size of male infants at birth renders them more liable to obstetrical traumatism, but this would only account for the excess of male mortality during the first few days of existence, whereas the excess persists throughout early childhood. The difference cannot be due to any lack of care affecting the male infant; on the contrary, in most countries the birth of a boy is the source of special congratulation. No influence can be invoked to explain this excess of male deaths except a less resistance to disease, a proclivity that operates in all latitudes. Taking the coefficient of mortality among female infants as 100, that of boys has varied from 123 in England and 121 in France to 110 in Serbia and Japan. This proportion holds good even in countries with a high all round infantile mortality, and the ratio is much the same during the age period 0-5 years. In the age period 5-15 the rates for the two sexes are almost identical, but after 20 years of age the mortality among females again falls in spite of the risks entailed by pelvic affections, pregnancy, and labour. Speaking generally, it may perhaps be said that the boy reacts more violently to disease than the girl, is more easily knocked over than the latter, does not recuperate as quickly when the illness takes a favourable turn, and does not offer as much resistance when suffering from chronic affections.

VENOUS THROMBOSIS IN MYOCARDIAL FAILURE.

In a monograph of the new series of the Johns Hopkins Hospital Reports, Drs. Sladen and Winternitz have collected from the literature of the last sixty years 48 cases of venous thrombosis occurring usually as a terminal

event in patients with heart failure. They add a case observed by themselves, and give an account of 15 more cases, 14 of them seen during recent years at the Baltimore hospital from which they write. The condition, they say, is one that has not met with the recognition its frequency and severity deserve. The patients were of all ages, and 46 of the total of 65 were females. The mortality of the thrombosis was 83 per cent., 36 of the patients dying within a month. Mitral stenosis had been thought the commonest cardiac lesion leading to the heart failure and thrombosis; but the authors found mitral stenosis either alone or in combination in 24 of the patients, mitral reflux in 35. The thrombosis occurs most often in the veins of the upper extremity, the left and right sides being about equally often affected. The iliac or femoral veins were involved in only 7 of the 65 patients. As for the signs and symptoms produced by the thrombosis, oedema was by far the commonest and not infrequently the only manifestation. Local pain and tenderness over the veins and palpable cords in the course of the vessels were the next most frequent indication; cyanosis and local coldness, evidences of a collateral circulation, loss of the jugular pulse, unilateral exophthalmos, and torticollis were among other signs noted. Three cases were not recognized clinically, general oedema being a marked feature in all three. Pulmonary embolism with the formation of an infarct was the most serious complication; no patient who recovered had shown signs of this.

THE PRICE OF DRUGS.

We publish elsewhere a letter from a correspondent on the subject of the high prices at present prevailing for many drugs; probably the increase of 50 per cent. in the cost of drugs for a year therein referred to is by no means an unusual experience. It will be remembered that at an earlier period of the war a circular was sent to the medical profession drawing attention to the shortage of existing supplies of many drugs, and recommending economy in their use; a failure of the usual sources of supply naturally means an enhanced price for such quantities as are available, while other causes—such as increased cost of transport and increased consumption—also play a part in raising prices. Several of the drugs showing the greatest increase in cost—such as salicylates, aspirin, bromides, phenacetin, potassium permanganate, atropine, and cocaine—were before the war either obtained entirely from Germany or were produced here from raw materials, such as bromine, coming principally from that country; others—like morphine and quinine—have always been made here, and their rise in price would appear to be due chiefly to the large demands of the army. Our correspondent suggests that the Association should endeavour directly, and indirectly through the Government, to induce manufacturing firms to produce drugs hitherto obtained from Germany. There is good reason for saying that the present high prices would seem to offer a sufficient inducement to manufacturers; if they have not taken up the production of the drugs in question on a large scale it must be because difficulties exist which are not easily disposed of. The increased demand for drugs due to the huge requirements of the army, and of chemicals of a great variety of kinds required directly or indirectly in modern warfare, has resulted in chemical and pharmaceutical manufacturers being extremely busy in executing orders, and this at a time when large numbers of their male employees have joined the army. These considerations have in many cases precluded the possibility of taking up new manufactures, which inevitably require a fair amount of experimental work; a further difficulty is that, owing to the vast amount of army work in the hands of engineering firms, it is a very difficult matter to get new plant constructed, while the congested state of railway transport makes its delivery when made a very slow matter. Nevertheless, in spite of all these and other

difficulties, manufacturers in this country are producing considerable quantities of some of the drugs formerly sent here by Germany, and there is good ground for believing that most of the manufactures so established will continue here after peace has been declared.

UNWARRANTABLE CRITICISMS.

MR. McNEILL's attack upon the arrangements for collecting and treating the wounded after some of the big actions in which the British army has been engaged in France seems to have aroused a good deal of indignation in the Expeditionary Force. Colonel Arthur Lee's statements in his speech reported at page 461, founded upon personal experience while occupying an official position which enabled him to watch the evacuation of the wounded, may be received with all the more confidence because of Mr. Chamberlain's frank admissions as to defective arrangements in Mesopotamia. In a private letter we have seen, from a writer in a good position to judge, the allegations of which Mr. McNeill made himself the mouthpiece are described as tragic nonsense. "I have been round the front recently," the writer says, "and do not know how any great changes for the better can be made. Mr. McNeill does not understand the situation, nor can he or anyone imagine it who has not been there. The base hospitals," the writer continues, "within a fortnight after Loos were practically normal again, except for the retention of some of the worst cases which it was thought inadvisable to move. This is a great tribute to the administration, and there was little or no delay anywhere." One base alone got "8,000 cases within a very few days, and among them there were in that fortnight only 60 deaths"; although a large proportion of the casualties notified were, of course, only slight wounds, they filled up the hospitals temporarily. "There are," the letter continues, "grouzers who complain that they have no work suitable to their high qualifications, but these are just the people who do not do the work waiting for them. Thank God the majority of the profession is playing the game!... Take Mr. McNeill's remarks about stretchers. Field ambulances were grabbing stretchers indiscriminately; orders were given to disgorge to a proper distributing centre, and at the same time to obtain an extra supply. If more were wanted, a chit for the supply of fifty stretchers, for example, would bring them back with the car or cars which went to fetch them. So, you see, there is truth in what Mr. McNeill says! There was, however, no complaint of want of stretchers."

THE Royal Medical Benevolent Fund Guild, which works in co-operation with the Royal Medical Benevolent Fund to assist, by personal service, the families of medical men who, owing to the death or incapacity of the breadwinner, are reduced to poverty, is always glad to receive gifts of clothes, including secondhand boots and shoes in good condition, and household linen. As was shown by the report of the annual meeting of the Fund, published in the JOURNAL of February 26th, the Guild is now called upon as a result of the war to deal with many widows and children who in happier times would not have dreamt of asking for assistance. We are informed that the cupboards at the clothing dépôt, 43, Bolsover Street, W., are very bare, and that clothes suitable for boys and girls working in offices, for women and for old men, are much wanted. They should be sent to the secretary of the Guild at the address mentioned.

It has been suggested that benevolent societies be formed for the benefit of the families of officers and other ranks of the medical services auxiliary to the Regular Royal Army Medical Corps—namely, the Special Reserve, the Territorial Force, and new army. Funds

would be raised by voluntary subscriptions, and it has been proposed that each branch of the service should appoint a committee of five to seven members to administer its own funds. A meeting, presided over by the Director-General, will be held in the Lecture Theatre of the Royal Army Medical College, Grosvenor Road, S.W., on Wednesday, May 10th, at 3 p.m., and it is hoped that as many officers as possible will attend. In the meantime any inquiries may be referred to Lieutenant-Colonel G. St. C. Thom, R.A.M.C., War Office, S.W.

It is satisfactory to note that among the Shakespeare tercentenary celebrations tributes of honour from the medical profession to the memory of our greatest poet will not be wanting. Sir St. Clair Thomson has chosen "Shakespeare and Medicine" as the subject of his oration to the Medical Society of London on May 1st. This date has been fixed for the oration so that it may take its place in the programme of official celebrations. Another homage from the profession will be paid by Mr. Alban Doran, who has written the article on Shakespeare's medicine in *Shakespeare's England*, a volume designed on lines laid down by Sir Walter Raleigh and Sir Sidney Lee which is to be issued from the Clarendon Press.

Medical Notes in Parliament.

A Year of War.

(Continued from p. 430.)

ARMY MEDICAL ORGANIZATION.

ARMY MEDICAL SERVICES IN FRANCE.

Colonel Arthur Lee's Reply to Mr. McNeill.

IN the course of the debate on March 16th Colonel Arthur Lee (formerly R.A., and British Military Attaché with the United States army during the Spanish-American war, and now parliamentary secretary to the Ministry of Munitions) began his reply to Mr. McNeill, complaining that he had disfigured his speech by very bitter personal attacks upon distinguished officers of the Army Medical Service who were not in a position to defend themselves in public. His reason for speaking was not, Colonel Lee said, his present office, but the fact that for nine months he had been Lord Kitchener's special personal representative to report to him upon the practical working of the medical services in the field, especially with regard to the collection, care, and evacuation of the wounded at the front. He had, he admitted, no special qualification for the work, except the fact that as a soldier he had some knowledge of the practical difficulties which distinguished war conditions from those of peace. The distinction was often forgotten by critics, who, animated no doubt by the most disinterested motives, were apt—he was referring to professional critics, whether they came from Glasgow or Portland Place—not to realize the difficulties with which the medical services were confronted, and had been led in many instances to be grossly unfair to their colleagues overseas. He had had unique opportunities of watching the daily and nightly work of the medical services at the battle of the Aisne, at both battles of Ypres, at Neuve Chapelle, at Festubert, and at other places that had been mentioned. In the harrowing tale Mr. McNeill had told he failed to recognize anything which in the faintest degree corresponded to the facts as he saw them. Mr. McNeill had already shown himself over-credulous in regard to other matters—witness his discovery of two million impending war babies, reduced after investigation to two false alarms and one case of twins. He had again shown this defect in this instance. If there was, Colonel Lee continued, any official at the War Office universally recognized as a success in view of his great talents, his alert and far-seeing mind, his wisdom, patience, and urbanity in dealing with innumerable complaints and representations, it was Sir Alfred Keogh. He was entitled to the highest praise, and it was true that there had been no specially bitter attack upon him. There had, however, been a very bitter and vicious attack upon Sir Arthur Sloggett and Surgeon-

General Macpherson. Mr. McNeill had complained that Sir Arthur Sloggett did not combine the organizing skill of Napoleon with the scientific genius of Lister and Paget. These were rare qualifications, and when a man possessing them was found Colonel Lee would, he said, be the first to support his being placed at the head of the medical services. Whether the distinguished informants who supplied Mr. McNeill with the material for his attack believed that they possessed these high qualifications or not he did not know, but he had met in this country surgeons who had not made the sacrifices these officers had made, who had given him the impression that they probably held a higher view of their qualifications than was generally held by their profession at large. Sir Arthur Sloggett had great qualities for the position of head of the medical services in the field—great experience, extraordinary tact, and great powers of dealing with the difficult personal situations bound to arise, such as that which arose at the beginning of the campaign between the Royal Army Medical Corps and the Red Cross. He was very accessible to suggestions, and was responsible for establishing in the field that Advisory Council of eminent civilian surgeons who met periodically and gave the medical services the benefit of their advice.

Festubert, Ypres.

With regard to the attack on Surgeon-General Macpherson, on the ground that there had been a terrible breakdown in the medical arrangements at the battle of Festubert, Colonel Lee said that he had been specially commissioned to watch the medical arrangements throughout that battle, and there was no breakdown. The evacuation of the wounded proceeded without a hitch, in spite of the fact that an enormous number of wounded had to go through one clearing station. There was no criticism at the time, no complaint by officers or by men, and he thought that Mr. McNeill had been very misinformed. It was not true that Surgeon-General Macpherson had been removed from the first army to another on account of the breakdown, nor that he had subsequently been removed to Salonika. Surgeon-General Macpherson was selected to go to Salonika on account of his high qualifications.

With regard to the general criticisms of the organization of the medical services, Colonel Lee said that he thought it would be a fatal mistake to deprive the divisional medical arrangements of their mobility. One of the chief anxieties of the heads of the medical service had been lest the sedentary character of the war at the moment should deprive the medical service of its flexibility, power of rapid movement, and of adapting itself to new conditions, all of which were necessities in the event of the army advancing. As to Mr. McNeill's statements about the first and second battles of Ypres, Colonel Lee said that they bore no relation whatever to the facts. It was not a mistake to establish a clearing station at Poperinghe; it was the only town within easy reach of Ypres where there was any building of sufficient size. It was not under fire, and was suitable in every way except that there was only the one broad, good, smooth road. If Mr. McNeill had known anything about the conditions of war he would not have suggested that the wounded should be diverted to the other clearing stations at Haasbruck and Bailleul. Had he known the state of the side roads in Flanders he would never have suggested that the wounded should be subjected to the atrocious agony of being carried over them, even in the best motor ambulances. As a matter of fact the wounded were not evacuated from Ypres by motor ambulances but by trains. He could speak confidently on the subject, for he had seen practically every wounded man evacuated and taken out of the area. On October 31st, 1914, 1,600 wounded men were evacuated in the course of the night without any hitch of any sort, an achievement which reflected the greatest credit upon the Army Medical Service. As to Hooge, where it was said that doctors worked forty or fifty hours at a stretch, whilst medical staffs of other divisions were waiting at Ypres with nothing to do because their troops were not engaged, the suggestion was perfectly ludicrous to any one who knew how hard pressed we were. There was not one single unit not engaged in the battle, and every man—cooks, typewriters, and non-combatants—was put into the firing line. As to the eighty men Mr. McNeill alleged had been forgotten, a good deal could be

said, but it was sufficient to say that they were not British. As to the charges that men were left lying out, Colonel Lee said that the collection of the wounded and their evacuation had been carried out with dispatch and regularity never before known in war. He challenged Mr. McNeill to produce evidence to satisfy any reasonable man that there had been anything approaching a breakdown in any of these great battles. Colonel Lee added that in the course of his duties he had interrogated thousands of officers and men at every stage from the front to the base hospitals, but so far from hearing complaints, he heard one long story of gratitude and praise of the way in which they had been treated by the medical services. Two services had in general been outside the fire of criticism—the commissariat and the Army Medical Service.

"Movable Hospitals": Clearing Stations.

As to the argument that the fact that the men arrived home with septic wounds was proof of neglect, the truth was that every wound was septic from the moment it was inflicted. Colonel Lee expressed his inability to understand what Mr. McNeill meant by field hospitals at the front. [Mr. McNeill interposed to say that he had only repeated what he had been told.] As to Mr. McNeill's suggestion that the wounded should be attended by a system of movable hospitals with easy access by motor car, Colonel Lee said that if by hospitals were meant buildings or marquees, with operating rooms, surgeons, nurses, anaesthetics, and everything necessary for operating under modern conditions, then they existed already as close to the firing line as was compatible with not being under shell fire. That was an important point; it was not a question of whether a surgeon and his assistants were afraid, or not afraid, but whether it was physically and mentally possible to conduct operations in a hospital into which a high-explosive shell was liable to be dropped. The experiment had been made, and in some instances hospitals had been pushed up towards the zone of shell fire, with deplorable results to the patients and staff. If the suggestion meant some new form of movable hospital pushed up in close proximity to the firing line, then in the first place the military authorities would not allow it, because it would hamper them; and in the second, it would instantly be spotted by enemy aeroplanes and become the constant mark of artillery fire. Again, what was to be done with the wounded man after he was operated upon in a movable hospital? A movable hospital was meant to move, but after an abdominal operation a man must be kept quiet for a week. The only possible advantage would be that a man could be operated on a few minutes—at the outside half an hour—sooner than he would have been at a clearing station.

Abdominal Operations and Compound Fractures.

It was not the case that opportunities for doing abdominal surgery had never been instituted; they had existed during the whole time he (Colonel Lee) was at the front, and in standing orders issued to the medical service on March 27th, 1915, there was reference to the conditions under which abdominal operations should be conducted, not merely in the clearing stations, but, if necessary, in the field ambulances. The abdominal operations had been singularly successful and there had been a very large proportion of recoveries. The same statement applied to compound fractures. Mr. McNeill had really once more succeeded in discovering what Lord Morley, when he was a member of the House of Commons, used to describe as a *nidus equinus*.

Dentistry.

It was not true that dentistry was neglected; at every station along the whole front there was a well qualified dental surgeon, well equipped with appliances.

Nidus Equinus.

Mr. McNeill had called for an investigation—a few competent and disinterested, not necessarily technical, investigators to be sent out to corroborate the horrors he had described. He wanted the tree pulled up by the roots to see how it was growing. Colonel Lee concluded by saying that he was under no obligation to the War Office, and that to serve Lord Kitchener for nine months sometimes brought more kicks than ha'pence. He had felt impelled by a sense of common justice and decency

to make a vigorous protest against Mr. McNeill's unjustifiable, violent, ill-informed and baseless attack upon a body of as highly skilled, devoted, and gallant men as ever served the State. They deserved not censure, not carping criticism, not personal libels, but the whole-hearted gratitude of the whole community.

Sir John Spear said that it was comforting to hear of the great devotion of the medical men, and the great care taken of wounded soldiers, but Mr. Hodge complained that the accusation that a large numbers of stretchers gathered together before the battle of Loos had been dispersed because the number was in excess of regulations had not been answered. Mr. Hodge also complained that the War Office was doing nothing for nurses who had been broken in the war. They got twenty-six weeks' sickness benefit from an approved society, and after that an invalidity pension of 5s. a week, but nothing from the War Office.

MR. TENNANT'S REPLY.

Mr. Tennant, in a general reply, touched first upon this point. The devotion and self-sacrificing services rendered by the nurses throughout the war were appreciated, and he would take care to see that proper action was taken, but he suspected that Mr. Hodge was referring to members of Voluntary Aid Detachments and not to nurses permanently attached to the army. With regard to the Army Medical Advisory Board, Mr. Tennant said that Sir Alfred Keogh's attention at the outbreak of war was particularly directed to sanitation, which was more important than anything else, for everyone knew that the expectation was that more would die of disease than of wounds. That had been so in nearly every great war, and this war was very unusual in that respect. The responsibility for the sanitation in France had been placed upon an advisory board, to which Dr. Hill was added as a physiologist to deal with poisonous gases. The work done by this body against the gas attacks had been quite extraordinary. He believed that Mr. McNeill now admitted that the work done by the army medical authorities had been admirable, but, Mr. Tennant continued, he regretted very much and would resent on behalf of his medical advisers any false impression such as the speech of Mr. McNeill would have created had it not been for the speech of Colonel Lee. Mr. McNeill interposed to say that he had not spoken from his own knowledge, and had said nothing which he had not been told by people who had seen as much as Colonel Lee, and were in many respects more qualified to judge. Mr. Tennant said that that was a matter of opinion, but he was amazed to hear such a statement, because every soldier he had met from the front, and all persons who came from the front, said that the medical services had really left nothing to be desired. It had been wonderful, and Sir J. Walton exclaimed: "The best there ever was in the world."

MESOPOTAMIA.

On March 22nd Colonel Yate called attention to the operations in Mesopotamia, and criticized the arrangements. The Secretary of State for India, in his reply, said that the campaign began as a comparatively small operation within the resources of the Indian Government. It had grown until it had exceeded those resources, and he was heartily glad that the ultimate control was now exercised by the Imperial general staff at home, acting through the Government of India, the military authorities there, and the general officer commanding on the spot. That transfer had already proved itself advantageous. Mr. Chamberlain went on to say that he had to admit that there had been a lamentable breakdown of the hospital arrangements. He did not seek to palliate some of the things which he had learnt had taken place, but it should be remembered that the campaign had been carried on in circumstances of very great difficulty. According to his latest information—though he was not in a position absolutely to vouch for its accuracy—there had been an abundance of hospital supplies of all kinds at Basra at all times. He thought that there had been a great, and he was inclined to believe inexcusable, shortage of necessary medical appliances above Basra. That was due in large part to the enormous difficulty of river traffic. There had been a shortage of transport; only particular types of river craft, with a very shallow draft, were suitable for the purpose. Recourse was had to Egypt and other countries, but there had been misfortunes in regard

to some of the transports, which had been destroyed or lost by perils of the sea en route. But though the shortage of river transport accounted for a good deal, it did not account for all, and neither the Government at home nor the Government of India were satisfied with the state of things which had prevailed. As Mr. Long had stated, General Bingley and Sir William Vincent had been instructed to proceed to Mesopotamia and investigate the medical arrangements there. The inquiry would not interfere with the urgent work now to be done, but it was necessary that the Government should be informed as to the facts and in a position to weigh and apportion responsibility. The commissioners had begun their inquiry in Bombay, where they had seen officers invalided from the front, and they had sent home questions they desired to be addressed to certain officers invalided home. They had now gone on to Mesopotamia, and he hoped that the steps taken had already worked an improvement, and would prevent a repetition of those occurrences of which complaint had been made. General Aylmer had reported that he was extremely satisfied with the arrangements made for the wounded in the field after the recent action. A large number had already been sent down stream, and the rest were following. Mr. Hobhouse expressed the hope that the responsibility would be brought home to those who had allowed men to perish, while serving the country, for want of care and foresight. Mr. Chamberlain intervened to say that while it was his feeling and belief that there had been inexcusable deficiencies in the arrangements for the treatment of the wounded, he hoped the House would keep an open mind until the information was completed. He was profoundly dissatisfied with the information which had reached him, but he did not know the truth, could not depend upon private letters, and did not wish to be held to have uttered any judgement on anybody. Mr. Hobhouse agreed that to judge now a case of this gravity would be unfair both to those who were making the inquiry and to those who were the subject of it.

Unfit Men.—In the discussion of the Army Estimates Major Astor gave several instances of the enlistment of medically unfit men. Such men were useless in the army, were unfit for the mildest form of home defence, were costing the country much money in allowances, and were prevented from doing useful work as civilians. The War Office should get rid of these men at once, so that they might find occupation. He said also that many men were spending months in hospitals undergoing treatment before they were discharged, but nothing was being done to assist them in the way of getting employment and acquiring skill which would be of use to them after their discharge. The true policy was to let every man realize that when he left the army he could serve the State by increasing the production of the country. Mr. Anderson alleged that some doctors were making the test too low, and accepting men who were of no value from a military point of view. Mr. Long, in his reply, admitted that there was an accumulation of men at home who were unfit for foreign service. He said that the Committee over which he presided had the matter under investigation, and that it was also engaging the attention of the Field Marshal Commanding-in-Chief the Home Forces and the Adjutant-General. Returns had been prepared showing that the men unfit were at once put under orders for discharge so that they might be useful in industries. On March 21st Mr. Tennant said, in reply to a question, that a man voluntarily attested, who, on being called up in his group, was not found fit for any service by the medical board was not accepted.

Spectacled Soldiers.—In an answer to Sir Henry Craik, on March 16th, Mr. Tennant stated it was not the case that men were rejected on account of defective distant vision which could be corrected by glasses. It was true that a considerable number of men who had glasses were now serving in the army. The British standard of vision for general service was not regarded as abnormally high. It was fixed by a joint committee of military officers and ophthalmic experts.

Venereal Diseases.—In reply to Colonel Lockwood, on March 21st, Mr. Tennant said that in Egypt during the last eight weeks the percentage of admissions for venereal diseases had averaged 0.09 per cent. per week, which he understood was equal to an average annual admission ratio of 46.8 per 1,000. No figures had been received for Salonika.

Cerebro-spinal Meningitis.—In reply to Mr. Chancellor, on March 16th, Mr. Tennant said that fifteen soldiers were now segregated at the Fulham Military Hospital as carriers of cerebro-spinal fever infection. Two soldiers segregated as carriers had developed the disease in acute form. The Army

Council were advised that these carriers should be segregated, not because they had actually communicated the disease to other persons, but in order to prevent them from doing so.

Pensions.—Mr. Tennant has informed Mr. Watt that pensions are granted to the widows of soldiers killed by accident while in the performance of military duty. In reply to Mr. Watt, the Financial Secretary to the War Office said that in the case of soldiers who, having done long spells of service in the trenches, lost their mental balance or were suffering from severe mental strain, while there was ground for hope that a permanent cure would be effected in a reasonable time, the men were not discharged, but given light duty at home. When discharge was necessary from the causes mentioned a pension was awarded.

Tuberculosis.—In reply to Major Astor, on March 16th, Mr. Tennant said that the only men discharged from the army not eligible for sanatorium benefit under the National Insurance Act were those who refused to become insured on entering the army. The number was unknown.

Nervous Shock.—In reply to Sir John Jardine, on March 21st, the Financial Secretary to the War Office said that the War Office was directly and wholly responsible for the care and treatment of uncertifiable soldiers invalided through nerve shock. Any payments made to the asylum authorities or Board of Control in this connexion were made to them as agents of the local military authorities. Mr. Tennant stated that cases requiring special but not prolonged treatment were transferred to one of the Territorial Force general hospitals or to other appropriate hospitals. Severe cases requiring prolonged treatment were transferred to the British Red Cross Hospital at Maghull or the Springfield War Hospital at Wandsworth.

Pay of Medical Officers at Asylums.—In reply to Mr. King, on March 15th, the Home Secretary said that medical officers of asylums adapted as war hospitals, who had been granted temporary commissions in the Royal Army Medical Corps, received in most cases the pay of their rank and not their asylum salary. In those instances in which the pay of their rank was less than their asylum salary, they were paid at the higher rate, and this would continue as long as the institution remained a war hospital. In one or two cases, where the circumstances were exceptional, special arrangements had been made.

Dope Poisoning.—In reply to Mr. Rowlands, on March 21st, Mr. Brace said that the obstacle to the use of the non-poisonous dope in aircraft factories was that one of the essential ingredients was not produced commercially in this country at present. The departments concerned were making every effort to arrange for an increased supply, and new instructions embodying further administrative measures for guarding against the danger had been issued by the Home Office to all aircraft factories. Steps were being taken to extend the use by contractors of a dope made under War Office supervision, which contains as little tetrachlorethane as possible.

THE National Council for Combating Venereal Diseases proposes to organize a number of conferences and courses of lectures, and to issue a summary of the principal conclusions of the Report of the Royal Commission. An appeal for financial support has been issued, and is signed, among others, by the President of the Council, Lord Sydenham, who was Chairman of the Royal Commission; Sir Thomas Barlow, Chairman of the Executive Committee; the Presidents of the Royal College of Physicians, the Royal College of Surgeons, and the Central Midwives Board, Sir Rickman Godlee, Sir Malcolm Morris, Dr. F. W. Mott, and Mrs. Scharlieb, M.D.

AT the monthly meeting of the Committee of the Medical Sickness and Accident Society on March 17th the accounts presented showed a margin in favour of the society in the sickness expectation—a rather unusual event at this time of the year. With so many members serving in all parts of the world with the R.A.M.C., it is impossible to regard the experience as normal, and all calculations are set out of gear and upset. The new business was better than for the preceding month, and the amount of sickness benefit insured by each member has risen. The fees of locumtenents are higher, and this is reflected in the sum necessary to cover this expenditure. The Combined Sickness Benefit and Endowment Assurance Scheme, although limited in its amount, appears to be popular owing to the rate at which it is offered to the profession, and the committee feels that its decision to reopen the life assurance branch on sound lines has been justified. The contract for sickness benefit holds good until age 65, and at that age the annuity scheme, which will be submitted for approval at the annual meeting, will, it is believed, prove a useful and valuable benefit in place of the sickness benefit. For full prospectus apply to the Secretary, Medical Sickness and Accident Society, 300, High Holborn, W.C.

THE WAR.

CHEMICAL WORK.

(From a Correspondent in Northern France.)

In many of the arrangements of the Army Medical Service in France there is an air of permanency a little depressing from one point of view, but highly satisfactory from another. On the one hand it suggests that the authorities foresee a much longer stay in France than any one can care to believe possible; on the other hand, it induces a conviction that so far as the environment can contribute to the success of medical work, whether prophylactic or curative, nothing feasible is or will be left undone.

At least half a dozen mental images occur in this connexion, but the particular institution which happens to have evoked the thought is one of the hygiene laboratories. There are several of these doing chemical work with the field armies in the guise of mobile laboratories, but that now in mind is a stationary laboratory which forms part of the outfit of the sanitary officer of the principal hospital and evacuation base.

The rooms occupied are part of a building used in peace times as a dried fish warehouse, but they have been so completely transformed as to make it difficult to realize the fact. The main room, besides being well lighted, is very large, and the whole place is thoroughly well equipped. It is possible, therefore, to undertake all the work that commonly falls to the lot of the chemical department of a well-organized public health laboratory at home, and also a certain amount of research work should opportunity for its performance occur.

The routine work of the laboratory consists in helping to safeguard the health of the troops by examining water supplies and testing for impurities the thousand and one forms of preserved and other foods issued by the Army Service Corps for use in the camps and hospitals.

Thus it comes about that there is generally to be seen on the shelves an array of samples awaiting their turn for examination, and seemingly always the same, but in reality daily changing. To specify them would take too long; it must suffice to say that they range from tinned mushrooms to bully beef, and from paraffin oil to powders sovereign against lice.

The routine work done at the mobile hygiene laboratories is of the same general order, but a good deal of their time is often taken up by a form of sanitary police work—namely, keeping an eye on the way in which the men told off to chlorinate water carry out their instructions. The supervision is exercised not by actually watching the men at work but by taking specimens of water served out as ready for use and testing it in various ways to see whether the work has been intelligently as well as conscientiously performed. At none of the laboratories does the officer in charge work single-handed. Sometimes there are two, sometimes three, collaborators.

In common with the workers in bacteriological laboratories, most O.C.'s of hygiene laboratories try to keep going some side line in the nature of original research. Any expert chemist at work in France and versed in the physiological as well as other aspects of his profession is bound to perceive problems whose solution would be of direct benefit to the army, and opportunities for tackling these are gladly seized if the amount of routine work on hand leaves any time available.

As instances may be quoted an endeavour made at the laboratory more specifically mentioned in this note to establish a means of identifying genuine cases of shock—not the shock consequent on exposure, severe injury, or the performance of a prolonged operation, but the peculiar condition to which Laurent, in the first Balkan war, applied the old term "*commotio cerebri*," and known out here as "shell shock."

In many instances of supposed shell shock the diagnosis may, no doubt, seem luminously clear, but in others there is plenty of room for difference of opinion. Moreover, whatever may be the view taken of the difficulties these cases present, it could not fail to be advantageous to have at command some datum which being both material and positive would be as independent both of patient and observer as a thermometer reading.

The central conception is to use the sugar contents of the blood in the confirmatory diagnosis of these cases, the reasoning in general outline being much as follows: It is well recognized that one of the sequences of any grave disturbance of the central nervous system may be loss of control by the latter over the formation or retention of sugar, and when evidence of such loss is sought it is to the urine that the clinician turns. But sugar in very minute quantities is a normal constituent of urine, and all the tests for its presence in abnormal amount are of a very coarse kind. Consequently no one who uses urine analysis as a means of throwing light on the condition of the central nervous system can feel that he has obtained any assured guidance from his work. Loss of sugar control may exist, but the tests used may have failed to reveal it.

But this does not mean that sugar observations are necessarily useless. Any sugar found in urine must be derived from the blood, and if the sugar contents of the latter could be shown to be altered, such alteration would be better evidence of loss of control than could be any testimony derived from the urine. This would be true even if the tests applied were in both cases equally delicate and precise, for the examination is made at a stage nearer the *causa causans*—that is, the condition of the nervous system—and the evidence obtained would therefore be more direct.

Consequently the aim of the research has been to determine whether there is any method of sugar separation and titration so delicate as to be capable of determining with precision the variation of the sugar contents of the blood above or below the nominal physiological limits, and yet sufficiently simple to be used with the rapidity and frequency required when the final aim of the process is clinical.

The answer so far obtained seems to be in the affirmative, the process employed being a modification of the method of Bang. The distinctive feature of this method is the titration of very minute quantities of cuprous oxide by means of iodine. In the modification the much more delicate reaction of titanium trichloride with ferric chloride and thiocyanide is employed. In both processes the amount of blood required is as little as two drops. Full details of the modification will, it is understood, be made generally available by the publication of a paper thereon at an early date.

A second investigation now in progress at the same laboratory relates to the extreme breathlessness noted in early cases of trench nephritis. It is not known whether this is due to acidosis or some other cause. In the attempts to determine this point made in England the tests have been applied at a date too late for the results to be in any wise conclusive.

GERMAN EXPERIENCES.

NEURASTHENIA AMONG SOLDIERS.

At a meeting of the Berliner medizinische Gesellschaft last November Dr. Stadelmann, attached to a reserve military hospital, said that 50 per cent. of the invalid soldiers under his care suffered from neurasthenia, and this accounted for as many medical casualties as all the other complaints—such as rheumatism, pulmonary catarrh, etc.—put together; 50 to 70 per cent. of these neurasthenic patients complained of symptoms referred to the heart, but only about 5 per cent. suffered from real heart disease. Most of these patients, particularly the middle-aged, did not wish to recover, dreading a return to the front. Radical measures were necessary in order that the army should not be deprived of the services of this large body of men; they should not be sent home, but should be kept in convalescent quarters behind the front. This plan was already adopted on the western front. Dr. Albu gave an account of his many failures earlier in the war in such cases. At first he kept his patients in bed, often for many weeks; he seldom found them any the better, and even when tachycardia was diminished by rest in bed it usually returned as soon as the patients began to move about again. He had given up this treatment and drug treatment also, having found that even bromine preparations were quite useless. Far better results were obtained when the patients were made to walk and were given light work, and when everything was done to distract their attention from their symptoms. A third speaker, Dr. von

Hansemann, whose experience was gained in a convalescent institution, also emphasized the importance of treating these cases as psychic rather than as organic. He gave his patients plenty of freedom to walk about, so that they might learn to rely on themselves again. The influence of parents, wife, and children was, he said, most detrimental.

TREATMENT OF TYPHOID FEVER AND DYSENTERY.

Dr. F. Meyer praised digitalis in the treatment of typhoid fever. In every case, whether there was an immediate need for cardiac stimulants or not, digitalis was given as a routine measure, and since this treatment had been adopted systematically there had been a great reduction in the frequency of cardiac complications. The administration of killed and sensitized bacilli had never in his experience provoked a further rise of temperature; in many cases the fever fell rapidly. Inoculation late in the course of the disease averted relapses. In very severe cases he had given injections of 20 to 30 c.cm. of blood taken from persons whose fever had ceased and whose acquired immunity to typhoid was raised. He had never seen ill effects from this treatment, which often brought the fever down rapidly. In dysentery he had learnt to rely principally on castor oil and polyvalent serum. Liberal doses of castor oil were most efficacious. He had never seen any disaster follow the administration of serum, but he had sometimes found it inert. This was because he did not at first always use a polyvalent serum, and as his material included cases infected with the Shiga-Kruse bacillus, as well as with the Y bacillus, it was clear that only a polyvalent serum would meet the needs of every case. Among his severe cases the mortality was only 3 per cent., and among severe and light cases together it was only 1.2 per cent.

CASUALTIES IN THE MEDICAL SERVICES.

ROYAL NAVY.

Killed in Action.

SURGEON-PROBATIONER JAMES JOHNSTON, R.N.V.R., was reported as killed in a list of naval casualties published on March 13th. He ranked from July 28th, 1915. His death took place on February 29th, at the age of 20; it is not stated where. He was the fourth son of the late Thomas Johnston, farmer, of Witheote, Oakham.

ARMY.

Killed in Action.

Third-class Assistant Surgeon Alexis Renwick Emmett, of the Indian Subordinate Medical Department, was reported, in the casualty list published on March 17th, as killed in action in East Africa. He was born on November 13th, 1884, entered the Bengal army, and attained warrant rank on February 27th, 1905, being promoted to the third class on February 27th, 1910. He had previously served in the north-west frontier of India, in 1908, in the operations in the Zakka Khel country and in the Mohmand country, receiving the frontier medal with a clasp. Before the war he was in civil employ in the Central Provinces. He was attached to the second battalion of the Loyal North Lancashire Regiment.

Lieutenant John Wilson, R.A.M.C., was notified as killed in France in the casualty list published on March 18th. He was the son of the late Adam Wilson, of Armadale, was educated at Edinburgh University, where he took the M.B. and Ch.B. in 1909, and was in practice at Hamilton till he took a temporary commission in May, 1915. He was attached to the 10th battalion of the Duke of Wellington's Regiment, the old 33rd Foot.

Accidentally Killed on Service.

Lieutenant Gavin Neil Murphy was killed by a fall from his horse in France, on March 12th, aged 42. He was the youngest son of the late Hugh Gavin, of Stirling, was educated at Stirling High School and in the school of the Royal College of Surgeons, Edinburgh, and took the Scottish triple qualification in 1901, also the F.R.C.S. Edin. in 1903. He then joined the Irish Presbyterian mission hospital at Anand, in the Bombay Presidency, and had only recently taken a temporary commission in the R.A.M.C. He married Miss Maud Muriel Stevenson, M.B. Edin., daughter of the late Dr. Fleming Stevenson

of Dublin, who was serving as a lady doctor in the same mission hospital, and leaves a widow and four children.

Died on Service.

Captain William Gem, South African Medical Corps, was reported, in the casualty list published on March 14th, as having died while serving with the South African Expeditionary Force. Neither date nor place were stated. There are expeditionary forces from South Africa now serving in Egypt and in East Africa certainly, perhaps also in France. He was educated in Dublin and took the diplomas of L.R.C.P.I. and L.R.C.S.I. in 1881. Before the war he was medical officer of health of Krugersdorp, in the Transvaal. He was medical officer of the 10th South African Infantry (Witwatersrand Rifles).

Captain Percy Brewster Ridge, R.A.M.C. (T.F.), of the 4th London General Hospital, died at Denmark Hill, London, of pneumonia, on March 12th, aged 33. He was educated at Queen's College, Cork, where he was senior exhibitor, and graduated as B.A.O., M.B., and B.Ch. of the Royal University, Ireland, in 1906. After serving as senior house-surgeon of the Prince of Wales General Hospital and Cancer Hospital, and as pathologist to the Royal Hospital for Diseases of the Chest and to the City of London Hospital for Diseases of the Chest, he became assistant pathologist and curator of the museum of King's College Hospital and lecturer on morbid anatomy to the hospital medical school. He had only recently joined the 4th London General Hospital as a captain.

Lieutenant Percy Haycraft Berry, R.A.M.C., was reported, in the casualty list published on March 17th, as having died in Egypt. He was educated at Cambridge and at Guy's Hospital, took the M.R.C.S. and L.R.C.P. Lond. in 1913, was in practice at Watford, and joined the army as a temporary lieutenant in May, 1915.

Captain Arthur Ryland Chavasse, R.A.M.C., died of pneumonia at No. 2 General Hospital, British Expeditionary Force, in France, on March 12th, aged 28. He was the only son of the late Sir Thomas Chavasse, of the Linthurst Hill, Barnt Green, Worcestershire; was educated at Oxford, Dublin, and St. Thomas's Hospital, and graduated as B.A. Oxon. with honours in physiology in 1908, and as M.A., M.B., and B.Ch. in 1911, also taking the M.R.C.S. and L.R.C.P. Lond. in the same year. He had acted as clinical assistant in the children's medical department, as house-physician, as casualty officer, and as senior obstetric house-physician at St. Thomas's, and as resident medical officer of Queen Charlotte's Hospital. He took a temporary commission as lieutenant in the R.A.M.C. on February 15th, 1915, and was promoted to captain on completion of a year's service.

Wounded.

Captain J. E. M. Boyd, R.A.M.C., Mesopotamia.
 Captain J. H. Fletcher, R.A.M.C. (temporary), France.
 Captain H. P. Hart, R.A.M.C., Mesopotamia.
 Captain H. K. Rowntree, I.M.S., Mesopotamia.

Missing, believed a Prisoner of War.

Captain R. T. Vivian, R.A.M.C., Mesopotamia.

DEATHS AMONG SONS OF MEDICAL MEN.

Cemery, Percival Conrad, Acting Quartermaster-Sergeant, 14th Battalion, Hants Regiment, fourth son of Lieutenant J. B. Cemery, R.A.M.C., of Aston Villa, Brockenhurst, and late of Alton, killed in Mesopotamia on January 21st, aged 26.

Edwards, Harrington Douty, Lieutenant-Commander R.N., son of Lieutenant C. R. Edwards, R.A.M.C., lost at sea about March 11th. He entered the navy as a cadet in 1902, and became lieutenant-commander in October, 1914. He was decorated with the D.S.O. in August, 1915.

Farrar, Valentine Anstruther, Second Lieutenant 17th Battalion Lancashire Fusiliers, second son of Dr. Reginald Farrar, of the Local Government Board, now a major in the R.A.M.C., died on March 17th, in France, of wounds of the head received on March 15th. He was educated at Harrow and at Magdalen College, Oxford, where he was an exhibitor. At the beginning of the war he enlisted in the Public Schools Battalion of the Royal Fusiliers, got a commission on September 9th, 1915, and left for France in January, 1916. He was a grandson of Dean Farrar.

Giffard, Colin Hay, Captain 1st Battalion, King George's Own First Gurkha Rifles, son of Douglas Giffard, M.R.C.S., of Merlindale, St. Winifred's Road, Bournemouth, killed in Mesopotamia on March 8th, aged 32. He was born on December 11th, 1883, served in the embodied militia from October 6th, 1900, to July 16th, 1901, and entered the army as a second lieutenant in the South Wales Borderers on December 4th, 1901. He joined

the Indian Army as lieutenant on June 20th, 1903, was posted to the 1st Gurkhas on March 6th, 1904, and became captain on December 4th, 1910.

Hackman, Cedric Craven, 13th Battalion (Kensingtons) County of London Regiment, killed somewhere in France on or since May 9th, 1915, was the son of Dr. L. K. H. Hackman, honorary secretary of the Portsmouth Division of the British Medical Association.

Johnson, Bernard Angus, Private 5th, Weald of Kent, Battalion of the Buffs, East Kent Regiment, elder son of George Lindsay Johnson, M.D., F.R.C.S., of 24, Wetherhall Gardens, Hampstead, killed in Mesopotamia on January 21st, aged 30.

Landale, James Russell, Captain 2nd Queen's Own Rajput Light Infantry, son of the late Deputy Surgeon-General James Landale, R.A.M.C. (retired), of Cheltenham, killed in Mesopotamia on March 8th, aged 34. He was born on December 6th, 1881, entered the Royal Scots Fusiliers as second lieutenant on January 8th, 1901, entered the Indian army, and was posted to the 2nd Q.O.R.L.I. on September 30th, 1905, and became captain on January 8th, 1910. He served in the South African war, in the operations in the Transvaal from May, 1901, to May, 1902, and received the Queen's medal with five clasps. His father died from an accident at Cheltenham on the same day that he was killed (see p. 470).

Langdon, Laurence, Lieutenant 14th Battalion Hampshire Regiment, attached 2nd Battalion Middlesex Regiment, second son of the late Thomas Charles Langdon, F.R.C.S., of Winchester, and of Broughton, Hants, died of wounds, in France, on March 14th, aged 41. His first commission was dated March 31st, 1915.

NOTES.

DR. DUNDAS GRANT is acting as surgeon in charge of the ear, nose and throat department of the New Zealand Military Hospital, Walton-on-Thames.

HONOURS.

The *London Gazette* of March 15th notifies the bestowal of a number of honours for service in the various expeditionary forces: Ten D.S.O.s, 78 Military Crosses, and 181 Distinguished Conduct Medals. Among the latter were three men of the R.A.M.C.: Sergeant W. E. Holdsworth, 1/2nd West Riding Field Ambulance; Private G. H. Needham, and Corporal W. Oliver, both of the 1/3rd West Riding Field Ambulance.

The King has bestowed the order of the Royal Red Cross on the following nurses, in consideration of their valuable services and devotion to duty on the occasion of the loss of the hospital ship *Anglia* on November 17th:—*First Class*: Mrs. M. S. Mitchell, Acting Matron, Queen Alexandra's Imperial Nursing Service (Retired List). *Second Class*: Miss A. Meldrum, Sister, and Miss E. A. Walton, Staff Nurse, Q.A.I.M.N.S. (Reserve).

Midshipman Charles Douglas Horsfall Herbert-Dixon, R.N., who was commended for action and who has been awarded the D.S.C. for services at Gallipoli, is the only son of Major Herbert-Dixon, O.C. 3/5th London Field Ambulance, and at his time of action was only 15½ years old.

MEDICAL OFFICERS WANTED.

2/1st South Midland Mounted Brigade.

Three medical officers are wanted to complete Brigade at present on East Coast. Applications to Major D. M. Spring, S.M.O., R.A.M.C.(T.), Head Quarters, Hempton, Fakenham, Norfolk.

India.

THE SCHOOL OF TROPICAL MEDICINE, CALCUTTA.

AN important step forward in the provision of a complete school of tropical medicine in Calcutta was taken on February 24th, when Lord Carmichael, Governor of Bengal, laid the foundation stone of the hospital for tropical diseases. It stands immediately to the south of the laboratories described and illustrated in the *JOURNAL* of March 7th, 1914. The chemical laboratory and the medical college adjoin, and the new eye hospital to be erected by the Government of Bengal will occupy a site facing the tropical hospital. The hospital when complete will consist of a basement and three floors. The ground floor will provide thirty-eight beds for Indian male patients. On the first floor there will be smaller wards of nine beds each for European males and Indian females, and of six beds each for European females and children respectively. There will also be twelve small single rooms for private patients and a theatre for clinical teaching and the few operations likely to be required. The second floor will be used temporarily for nurses' quarters until sufficient accommodation is available at the medical college hospital. Quarters are also provided on the top floor of the central block for a resident medical officer and a sister-in-charge, and in the turrets for two

Indian house-physicians. At first the hospital will contain eighty beds, but eventually thirty-six other beds can be provided on the third floor. Bathrooms, lavatories, pantries, and reading rooms are provided for each wing on both floors. In the north wing on the first floor there will be admission rooms, a clinical microscopical room, and a room for the sister. The funds for the erection of the hospital have been provided by public subscription. The laboratories and the hospital when complete will form a fine group of buildings on the new central avenue of Calcutta, which is being constructed by the improvement trust. The advantage of having the school, laboratories, and the hospital close together is too obvious to be insisted upon.

At the ceremony the Governor was received by the Surgeon-General of Bengal, Colonel Edwards, who said that the foundation and rapid progress of the school was due to the untiring energy of Sir Leonard Rogers. The first research scholarship in India would be attached to it, and would commemorate Dr. A. Mitra, who was a student first of the Calcutta Medical College and then in Edinburgh; he became chief medical officer at Cashmere, and finally home minister of that state. The scholarship had been founded by his widow.

Sir Leonard Rogers related the course of events which had led to the selection of the present site for the school and hospital. It had at first been proposed to appoint six professors, but this had to be cut down to four. Afterwards, however, the permission to lecture was given to Colonel Sutherland, I.M.S., imperial serologist. It was, however, felt to be unfortunate that a single professor should teach both protozoology and entomology, and as honorary secretary of the endowment fund he had made an appeal to the Rockefeller International Health Commission of New York. Dr. Victor G. Heiser, a member of the Commission and head of the sanitary service of the Philippine Islands, visited Calcutta, and after inspecting the new laboratories and seeing the great opportunities for research in the Calcutta hospitals, supported a request that the Rockefeller Commission should vote £1,500 a year to endow a separate professorship in protozoology. After the war, therefore, it would, he hoped, be possible to open the school with six professors, and he believed that medical men would be attracted not only from India, but from beyond its borders to the Calcutta School of Tropical Medicine. The response to the appeal for endowments by the jute, tea, and mining associations would warrant the appointment of three research workers, in addition to the scholarship founded by Mrs. Mitra. The hospital for tropical diseases was a necessary complement of the school. Though the subscription list was yet insufficient, he was able to look forward with hope now that the building had actually been commenced.

Lord Carmichael, after whom the hospital is to be named, then laid the stone, and in a short address recalled that it was exactly two years since he had laid the foundation stone of the laboratories. Hopes then expressed by Sir Leonard Rogers had since been fulfilled beyond expectation, in spite of unforeseen difficulties of great magnitude. Afterwards the company present inspected the laboratories of the tropical school.

Sydney.

[FROM OUR SPECIAL CORRESPONDENT.]

THE PROFESSION AND THE DEPARTMENT OF PUBLIC INSTRUCTION.

THE medical inspection of school children has been actively carried on by departmental medical officers for some years, and good work has been done in this direction. Now, however, the Government has decided to go a step further and to undertake the work of treating all the school children who have any physical defects. For this purpose they have advertised for the services of additional medical officers and specialists. This is regarded as the thin end of the wedge towards a complete system of nationalization of medical services, and a special meeting of the New South Wales Branch of the British Medical

Association was held on January 14th to consider the matter. At that meeting the following resolution was passed unanimously:

That the Association is strongly opposed to any of its members accepting any of the appointments as medical officers, ophthalmic surgeon, ear, nose, and throat surgeon, physician, under the Department of Public Instruction now being advertised, unless the Government gives sufficient guarantees that the treatment of the school children will be confined to those whose parents are unable to afford to pay for medical attendance of the kind indicated, and that the rights of private medical practitioners will be preserved; and that, the Minister having written to the effect that it is the intention not to make any discrimination on the ground of the financial circumstances of the children, the appointments be declared inimical to the interests of the profession.

This resolution has been sent to all the members of the Branch, and it has aroused the ire of the Minister of Education. He stated that he did not believe that the great bulk of the medical men would endorse this arbitrary action.

... The principal weapon used by the British Medical Association when in conflict with the lodges and friendly societies of this State was the refusal of its members to meet in consultation any medical man who accepted a contract with the friendly societies. This meant the absolute isolation and ostracism of the practitioner. I propose in this instance to meet any such action by inviting my colleagues to permit me to bring in a bill enacting that any licensed medical practitioner refusing to meet another qualified licensed medical practitioner in consultation without good cause shown shall have his own registration cancelled.

The Minister's bark is worse than his bite, and it is hoped that a satisfactory settlement of the question will be effected.

NATIONAL ASSOCIATION FOR THE PREVENTION AND CURE OF CONSUMPTION.

The annual general meeting of this association was held on January 27th under the presidency of Sir Philip Sydney Jones. The report referred to the material reduction in the staff of the association owing to the war, and to the heavy responsibility which had fallen on the dispensary nurse. There were 368 new patients admitted to the dispensary during the twelve months, and 174 old patients continued their attendances. The number of attendances was 9,708, and the actual number of patients under treatment on December 31st, 1915, was 186. Ninety-four patients were sent to the sanatoriums during the year, and the patients visited in their homes by the nurse was 386. Sir Philip Sydney Jones was re-elected president, and Dr. F. S. W. Zlotkowski vice-president.

England and Wales.

LIVERPOOL MEDICAL INSTITUTION.

A SPECIAL meeting was held on March 16th, in the afternoon, with the object of presenting the congratulations of the members of the Liverpool Medical Institution to Mr. Edgar A. Browne and Dr. George C. Walker on their attaining the jubilee of their membership of the institution. There was a good attendance and ladies were invited to be present at the ceremony, which was preceded by a formal welcome by the President and the two members to be honoured. Tea was provided during half an hour's conversation, and many old friends were present on this memorable occasion. The President, Dr. Charles J. Macalister, occupied the chair, and after letters of regret from the Lord Mayor and others expressing their unavoidable absence had been read, introduced the following resolution:

The members of the Liverpool Medical Institution tender to Mr. Edgar A. Browne and Dr. George C. Walker their hearty congratulations upon their completion of fifty years of membership of the society.

Mr. Edgar A. Browne, as surgeon to the Eye and Ear Infirmary and lecturer in ophthalmology in the University of Liverpool, has been in the foremost rank of those who have advanced the science of his speciality.

Dr. George C. Walker, as physician to the Bootle Borough Hospital, has conferred invaluable benefits upon the sick and suffering among his fellow-townsmen.

Both alike have shown unwearied devotion to clinical work. Dr. Walker has served the institution as vice-president, and Mr. Edgar A. Browne as member of council, secretary to the ordinary meetings, vice-president, and president, and the members desire to place on record their gratitude to and pride in these veteran members of the profession.

They express the hope that these gentlemen may each have many years of happiness with the gratification of being able to look back upon a life's work which has been continuous, effective, and appreciated both by their patients and in the counsels of the profession.

The President lightly touched upon the village of Bootle, at that time a seaside place for Liverpool townspeople, who used to bathe there. It was in such a village Dr. George C. Walker settled down as a general practitioner. Now Bootle was a town with mayor and council, and the shore had long since been converted into spacious docks. With the growth of Bootle a hospital was soon found to be a necessity, and Dr. George C. Walker became attached as honorary physician, which post he held for many years, and was now consulting physician. Later he devoted his skill to mental diseases, and resided in Southport for some time, and was still engaged in active practice there. Speaking of Mr. Edgar A. Browne, the President dwelt upon his wit and humour—ever sources of pleasure to all who heard him. His position in Liverpool as an eye specialist was so well known that it was unnecessary for him to elaborate this point.

Dr. T. R. Glynn, Professor of Medicine, in supporting the resolution, was reminiscent of the days of his youth and that of Mr. Edgar A. Browne, and of the many repartees in which Mr. Browne indulged on various occasions. Dr. Glynn bore testimony to his friend's kindness of heart, his critical acumen, and his excellent method of rendering his discourses, even on eye diseases, not only instructive, but highly entertaining, spiced as they were with quips and anecdote.

Dr. R. Caton, Emeritus Professor of Physiology in the University of Liverpool, spoke of the literary ability of Mr. Edgar A. Browne, and of the artistic gifts inherited from his father, "Phiz," who illustrated many of Charles Dickens's works; both in literature and art Mr. Browne was one of the foremost men in the city. His criticism of art in the widest sense was highly valued, and his opinion was constantly sought for by many in the artistic professions.

Mr. Thomas R. Bickerton, Ophthalmic Surgeon to the Royal Infirmary, gave an account of the work of Mr. Browne, not only as a medical student, but as a medical practitioner. Liverpool had been a gainer in every respect in possessing such a citizen. In the early part of his career Mr. Browne paid a good deal of attention to diseases of the skin, and his published papers in the *Liverpool Medical and Surgical Reports* in 1869 and later revealed not only correct clinical observation, but evidence of that critical faculty which had ever characterized his work. In ophthalmology the many papers Mr. Browne had published showed how wide his researches had been and how valuable his observations were to all who practise the speciality.

The resolution was carried by acclamation.

Dr. George C. Walker gratefully acknowledged the honour that had been paid him, and his reply was adorned with apt poetical quotation referring to the responsibilities of a medical man. No class of men were called upon to do so much for so little, but, although they could not expect their attention to be repaid, they had their own exceeding great reward in the knowledge that they were doing good. It was such a thought that had sustained him throughout his professional life, and this vote of congratulation was to him a ratification of his endeavour to carry out this high ideal.

Mr. Edgar A. Browne genially objected to being pelted with virtues which he asserted he did not possess. He recalled to mind the reason of his becoming a member of the Medical Institution. It was not due to his professional knowledge, but to the fact that he was proficient in swimming. So good was he said to be in the science and art of natation that he was invited to come in and draw up a set of rules and regulations for persons apparently drowned. In spite of, or perhaps on account of, this circumstance, he felt he had received much benefit from his membership, and to his friends and all present he tendered his warm thanks for the honour they had paid him.

Ireland.

At the nineteenth annual meeting of the Royal Victoria Eye and Ear Hospital, Dublin, it was stated that 1,534 in-patients were treated during the year, and that the average number of beds occupied was 98.70. In the out-patient department 7,573 new patients were registered. In November, 1914, ten beds were placed at the disposal of the War Office, and in October, 1915, the number was increased in response to a request. Viscount Iveagh defrayed the cost of the equipment of these beds through the Dublin branch of the British Red Cross Society.

The Newry Board of Guardians has refused to adopt the graded scale of salaries for dispensary doctors recommended by the Local Government Board in 1906. The guardians have recently been advertising, without success, for a doctor for one of the districts, vacant by the resignation of Dr. Irvine. A substitute has been appointed as locumtenent at four guineas a week.

Correspondence.

MEDICAL ARRANGEMENTS AT SUVLA LANDING.

SIR,—The criticism in Parliament upon medical military affairs has aroused public anxiety. I trust some of it may be allayed when people hear the experience of one who took part in the treatment of those who were wounded during the first three days of the landing at Suvla Bay.

I was on board H.M. hospital ship *Soudan*, her station was in the naval firing line, and she received the first men who were wounded on the first day of the landing. I was deeply impressed by the efficiency of the first aid which was rendered to these men. All the wounds were skilfully dressed, properly splinted; those cases that required it had received a dose of morphine, and a short and accurate account was written on a label which was attached to each man. Many of the severe cases were so well and carefully dressed that I felt confident in leaving them until I could find more time to go thoroughly into their troubles.

On shore I could see many kinds of shells bursting among our advancing troops, on the land behind them, and on the beach where the wounded were being collected prior to their embarkation for our ship.

Nothing could have been wrong with the organization which planned and accomplished the deliberate and correct treatment of the wounded in the midst of that devastation, from which there was then no shelter. It must be borne in mind that this organized effort included the successful co-operation of naval and military medical units.

A good deal of the criticism made on this subject is based upon ignorance. Some of my professional brethren have told me I ought not to have been sent to Suvla Bay, and that my right place was at home to attend the cases on their return to this country. I was in my right place at Suvla Bay, where I attended numberless cases with which the work of my life had trained me to deal, and to any one of which I would have been called to see, immediately, at my hospital in London. The organization was as right in sending me there as it was in bringing me home when the ship was carrying cases mainly of a medical nature.

While in Eastern waters I had plenty of opportunity to observe the arrangements made by the naval and military authorities for the rapid conveyance and final accommodation of the wounded men disembarked from our ship. I came to the conclusion that had I friends or relations among those wounded in the Eastern theatre of war, I should be satisfied that the right thing would be done to them.—I am, etc.,

London, W., March 18th.

G. LENTHAL CHEATLE.

THE PHYSICS OF A SURGICAL DRESSING.

SIR,—To my mind Major C. W. Duggan holds the key of the whole argument, namely, that antisepsis and osmosis should be our guides in treating wounds not aseptic. Provided the dressing is not left on the parts too long to become more of a menace than a benefit I consider

that the drier the wound is kept the better. It must be remembered that a dressing is a compromise, and in many superficial wounds the advantage lies in applying as little dressing as possible. Provided the parts are kept clean any kind of dressing, no matter how effective, is a hindrance; the wound will do better if left uncovered. With deep-seated wounds, or wounds other than superficial, the case is rather different. Here we are concerned with a foul opening leading down to tissues more or less damaged, and that treatment which removes the discharge most effectively whilst keeping the surface sweet will give the best result. It is not a matter of moist *versus* dry dressing, but rather one of effective disposal of a discharge loaded with deleterious agents which may reinfect the surrounding parts. No doubt a wet dressing covered with impermeable material, if the parts are thoroughly drained and the dressing not allowed to become saturated with discharge, may not do much harm; indeed, I believe the healing process may be hastened. But in such a case the dressing should be renewed sufficiently often to keep the surface of the wound antiseptic; the frequency will depend upon the depth and character of the wound and the thoroughness with which antiseptics are brought into contact with the infected focus.

If the wound is septic, make it aseptic. Frequently we cannot attain to this perfection, but in all circumstances this end must be kept steadily in view, for until the wound becomes aseptic there can be no true healing process.

In general practice many so-called discoveries of to-day and yesterday have been in use time out of mind, and Sir Almroth's saline treatment of wounds amongst others. I know that my neighbours in Yorkshire, like myself, have used it for long. I have discarded impermeable coverings for dressings for a great many years. I very soon discovered their danger in a wide practice where patients cannot be seen every few hours.

I give this instance of the ineffectiveness of an impermeable dressing over a wound. An armourer-sergeant belonging to this town was sent home suffering from a septic finger which had been treated for more than a month. The finger had the usual wet dressing covered with impermeable oiled silk. I gave it a very thorough washing with a weak antiseptic, clipping away all dead skin, and clearing out the wound as well as I could, and then put it up in a dry dressing. It healed almost directly.—I am, etc.,

Helmsley, March 4th.

ALEXANDER BLAIR, M.D.

THE PRICE OF DRUGS.

SIR,—Is it not time that some effort was made by combined effort to do something to reduce the present price of drugs? It is a very serious matter for general practitioners who dispense their own medicines, and in my own case it had caused a 50 per cent. increase in cost during the last year.

One cannot possibly do without bromides and salicylates and many other drugs which at the present time are enormously increased in price.

Our Association should at once make representation to the Government and make an effort to induce private firms to set about manufacturing drugs that have previously been made in Germany. If there is anything whatever in the cry that after the war we shall boycott German products there ought to be no delay in guaranteeing the firms against any loss on their outlay in plant.—I am, etc.,

Buckingham, March 7th.

ARTHUR E. LARKING.

Universities and Colleges.

UNIVERSITY OF DURHAM.

The following candidates have been approved at the examinations indicated:

FIRST M.B. (*Elementary Anatomy and Biology, Chemistry, and Physics*).—R. L. Dagger, *R. C. Brown, T. H. R. Anderson, N. R. Beattie, Dorothy O. S. Blair, Nan Coxon, H. L. Mather, R. P. Wantless, Philomena R. Whitaker. *Elementary Anatomy*: M. J. Erdberg, Kun Piu Leung, May Raw, R. Sanderson. SECOND M.B. (*Anatomy and Physiology*).—J. M. Brydson, *J. R. Hughes, S. Raj Chatterji, S. (Rev.) Foskett, I. Giris, S. E. Goulstine, J. P. Higham, D. Levinstein, Habib Toma, H. W. Walther, G. R. Woodhead. (*Anatomy*).—Iris M. Cheeseright.

* Honours—Second Class.

Obituary.

THEODORE THOMSON, C.M.G., M.D.LOND.,
D.P.H.CAMB.,

FORMERLY ASSISTANT MEDICAL OFFICER TO THE LOCAL GOVERNMENT BOARD.

By the death of Dr. Thomson at the comparatively early age of 57 the public health service has lost a first-class epidemiologist and sanitary administrator. The son of the Rev. Wm. Thomson, of Belhelvie, Aberdeenshire, he was one of a large family, several members of which have taken important positions in the profession of medicine. He studied at Aberdeen, Edinburgh, and London, taking the degree of M.D.Lond. in State Medicine in 1892 and the D.P.H.Camb. in 1888. His first public health appointment was that of M.O.H. to the city of Aberdeen in 1886, which appointment he resigned after less than two years' service to take a similar post at Sheffield. During the small-pox epidemic at Sheffield, which prevailed during 1887-8, he was in charge of the administration of the public health service of the town, and his ability as an administrator was brought to the notice of the Local Government Board by the late Dr. W. F. Barry, whose report on the outbreak is so well known. Dr. Thomson joined the staff of the Board as a medical inspector in 1891, and continued in the service of the Board until his retirement, owing to continued ill health, in 1913.

He was at first engaged in numerous inquiries on the causation of outbreaks of disease, particularly on outbreaks of enteric fever at Maidstone, Worthing, Newport (Isle of Wight), Chichester, Swinton and Pendlebury, and many others. His conclusions were in all cases logical deductions from the facts, and if no conclusion could be come to he at once admitted this, and did not shirk the issue by bringing forward surmises or unsupported hypotheses. Thus, in his report on recurrent prevalence of enteric fever in the Folkestone urban sanitary district during the years 1896-1900, he admitted that the fever could not be explained on the known facts. At the same time he drew attention to the presence of the same milker at each of three farms the milk supplied from which was suspected as the medium of infection. It was not until the continued prevalence of fever at Folkestone was again investigated in 1909 by his lamented colleague, the late Dr. R. W. Johnstone, that it was ascertained that this milker was an enteric fever "carrier," and had for fourteen years been producing the fever. These occurrences caused him subsequently to devote a large amount of work to the investigation of the effect of "carriers" in disseminating enteric fever; and in conjunction with Dr. J. C. G. Ledingham extensive inquiries were made as to the proportion of carriers among convalescents, the duration of their infectivity, and other matters. If it had not been that his health broke down there is no doubt that he would have dealt with the whole subject in a comprehensive report. As his experience increased he was engaged on various important Commissions; he was placed on the committee of inquiry into the public health of the city of Dublin and was appointed delegate for England at the International Sanitary Conferences at Paris and Rome in 1903, 1906, and 1907. In 1904 the prevalence in the West Indies of small-pox of a very mild type, such that the nature of the disease even was often in doubt, led to great difficulties, owing to the differing quarantine regulations of the various islands. Dr. Thomson was sent out to endeavour to settle this question, to secure the adoption of some uniform procedure, and to reorganize the sanitary administration. In this he succeeded. In 1906 he was sent on a special mission to advise on the sanitary defence and administration of the Persian Gulf, in conjunction with the Powers interested in this region, especially for the prevention of the importation of exotic disease from the shores of the Persian Gulf to other countries. For his services to the Colonial and Foreign Offices he received the C.M.G. From this time he became more and more engaged in the prevention of importation and spread of diseases of an exotic nature, an important part of the work of the Local Government Board which perhaps is not generally known to the public. He was frequently consulted by the Colonial and Foreign Offices on such subjects as cholera, plague, yellow fever, and colonial sanitary

administration in general. For some years he was a member of the West African Medical Advisory Committee, and was British representative on the International Office of Health and Public Hygiene, the head quarters of which are at Paris. There was, however, one important disease which is endemic and epidemic in this country to which he devoted much attention, and his report "On measles in England and Wales, and measures which may be or have been adopted by sanitary authorities for controlling this disease" forms a classic on the subject. He showed that although a number of authorities had adopted the compulsory notification of this disease, this notification had not been properly followed up by visits of advice to the parents, provision of nursing assistance in the homes for cases needing it, provision of medical attendance under similar circumstances, nor the provision of hospital treatment of cases which could not be properly looked after at their homes. Owing, as was believed, to lack of these provisions, the result of notification was very disappointing, and there was no reduction in the excessive mortality from this disease, which causes such a waste of infant life. The recent Order of the Local Government Board empowering sanitary authorities to provide all these desiderata for dealing with measles may be looked upon as the fruit of his work in this direction. In 1911 Thomson succeeded the late Dr. H. Franklin Parsons as assistant medical officer to the Board, and from this period until his retirement early in 1913 his time was taken up in administrative work.

Of striking presence, clear intellect, polished and suave in manner, with a good knowledge of the French language, Thomson was marked out for a diplomatist. Fond of company, devoted to golf, he had a large circle of friends; he never married. His services were readily available to all applicants, and he never appeared to be too busy to devote any amount of time to the assistance of any investigator who might ask his advice on public health matters; but there can be no doubt that for years he worked too hard and overtaxed his physical powers. His retirement was a great loss to the Local Government Board, and other departments of the State will no doubt miss his wise and prudent counsels.

SIR CHARLES BALL, BT., F.R.C.S.

We regret to record the death of Sir Charles Bent Ball, Bt., M.D., M.Ch., F.R.C.S., which occurred on March 17th at his residence in Dublin.

The late Sir Charles Ball was a surgeon of great eminence, and his abilities caused him to be held in high respect not only in Ireland but throughout the United Kingdom. He was born in 1851, and was the youngest son of the late Robert Ball, LL.D., and brother of the well-known astronomer. Sir Charles Ball received his education at Trinity College, Dublin, and from his entrance to the medical school of the college in 1870 his career was a series of rapid successes and distinctions. In 1871 he was a senior moderator, and graduated B.A.; in 1872 he gained the Senior Medical Exhibition and Travelling Prize. In that year also he took the degrees of M.B. and M.Ch., while three years later he became M.D. He studied also in Vienna. He became a Fellow of the Royal College of Surgeons of Ireland in 1879, and in 1900 received the honorary Fellowship of the Royal College of Surgeons, England. Two years later he gave some lectures at San Francisco, and in 1903 was Erasmus Wilson Lecturer to the Royal College of Surgeons. He published a number of papers in the medical journals and transactions, and was the author of a well-known book on diseases of the rectum and anus, a second edition of which appeared in 1896. He described a special operation for the cure of pruritus ani which is commonly spoken of by his name. Among the numerous appointments held by Sir Charles Ball were those of Honorary Surgeon to the King in Ireland, Regius Professor of Surgery in the University of Dublin, President of the Royal Academy of Medicine, Ireland, Lord Chancellor's Consulting Surgical Visitor in Lunacy, and medical referee for Dublin City and County under the Workmen's Compensation Act. He was the representative of Dublin University on the General Medical Council, and a Past President of the University Biological Association. In addition to being consulting surgeon to various Dublin hospitals, he was

visiting surgeon to Sir Patrick Dun's Hospital; he was also consulting surgeon to the Masonic Girls' School and Simpson's Hospital. His practical skill as a surgeon was equal to his attainments and knowledge, and it will be remembered that it was Sir Charles Ball who operated upon Lady Dudley during her serious illness when Lord Dudley was Lord Lieutenant of Ireland.

Soon after the outbreak of war Sir Charles Ball was made a temporary lieutenant-colonel R.A.M.C., and was frequently present at the disembarkation of wounded soldiers brought to Dublin, even on occasions when severe weather and early hours made attendance trying for a man of his years. At one time he was a member of the Advisory Board for the Army Medical Service. He was president of the Leinster Branch of the British Medical Association in 1903, and of the Section of Surgery of the annual meeting in 1905, when the Association met in Leicester. Sir Charles Ball was also a president of the Royal Zoological Society of Ireland, and took a keen interest in the work of this society for many years. He was knighted in 1903, and in 1911 was created a baronet.

ODILLO MAHER, M.D.,

OPHTHALMIC SURGEON TO THE SYDNEY HOSPITAL.

Our correspondent in Sydney, New South Wales, writes: By the death of Dr. Odillo Maher, of Sydney, which occurred at Hobart, Tasmania, on January 10th, from acute pneumonia, the medical profession in Sydney has lost one of its leading members. He was born in Sydney in 1858, and was educated at St. Mary's College, Lyndhurst, and at St. Patrick's College, Goulburn. After spending a year at the Sydney University he went to Ireland, and in 1881 he took the degrees of M.D., Ch.M. at the Royal University. In the following year he obtained the diploma of M.R.C.S.Eng. He early devoted his attention to ophthalmology, and was appointed house-surgeon to Moorfields Hospital, and later became clinical assistant at the same hospital. On his return to Sydney he began practice as an ophthalmic surgeon. In 1886 he was appointed honorary ophthalmic surgeon to the Sydney Hospital, and also to St. Vincent's Hospital, Sydney; both positions he retained up till the time of his death. He was also examiner in ophthalmology in the Sydney University. He occupied several important positions at different times. He was President of the Eye Section at the Australasian Medical Congress in Adelaide in 1905; he was a member of the Council of the New South Wales Medical Union for many years, and a member of the New South Wales Medical Board for the last two years. He was a Fellow of St. John's College within the University of Sydney, and was recently appointed a member of the consulting staff of the Military Base Hospital at Randwick, Sydney.

In 1894 he was one of the victims of the serious railway accident at Redfern, and was severely burnt about the hands and face. This necessitated a prolonged absence, and it was feared that he would never be able to resume his work as an operating ophthalmic surgeon. Fortunately this unfavourable opinion proved to be incorrect, and he resumed full work after an interval of two or three years. He contributed many important articles to the medical journals on his own speciality.

The funeral at Waverley cemetery, preceded by a Requiem mass at St. Mary's Cathedral, was largely attended. He leaves a widow and a family, one of his sons having but recently graduated in medicine at the Sydney University.

DEPUTY SURGEON-GENERAL JAMES LANDALE, R.A.M.C. (retired), died at Cheltenham on March 8th, aged 79. He had dined out on the evening of March 7th, and, walking home, stumbled over an obstruction in the dark and fell. He was assisted home, and did not seem to have been seriously injured, but passed away in his sleep during the night. He was educated at Edinburgh University, where he took the degree of M.D. in 1856 and the L.R.C.S. Edin. in the same year. He entered the army as assistant surgeon on September 15th, 1857, became surgeon in 1869, and surgeon-major in 1873, retiring as deputy surgeon-general on December 10th, 1892. He served in the Indian Mutiny in 1858-59 with the 92nd Foot, and was present at the actions Rahatgarh, Mangrauli, Sindwaha, Kurni, and

Baroda, and received the Mutiny medal. By a sad coincidence his son, Captain James R. Landale, was killed in action in Mesopotamia on the day of Deputy Surgeon-General Landale's death.

LIEUTENANT-COLONEL ROBERT ALEXANDER PETER GRANT, R.A.M.C. (retired), died at Reay House, Inverness, on March 8th. He took the M.R.C.S. in 1858 and entered the army as assistant surgeon on June 13th, 1859, becoming surgeon in 1871, surgeon-major in 1873, and retiring with a step of honorary rank on July 2nd, 1884. He served in the New Zealand war of 1863-66 in the province of Terawaki, was mentioned in dispatches in the *London Gazette* of October 20th, 1865, and received the medal.

SURGEON-MAJOR EDMUND JOHN HOSKINS, Bengal Medical Service (ret.), died in London on January 22nd, aged 79. He was educated at St. Bartholomew's, and took the diplomas of M.R.C.S. in 1858 and L.S.A. in 1859, and the degree of M.D. at St. Andrews in 1860. He entered the Indian Medical Service as assistant surgeon on October 1st, 1860, became surgeon on October 1st, 1872, and surgeon-major on July 1st, 1873, retiring on April 7th, 1879. The *Army List* assigns him no war service.

We regret to announce the death of Dr. DAVID W. CHEEVER, which occurred at his house in Boston on December 27th, at the age of 84. He graduated at Harvard in 1852 and was one of the original surgical staff of the Boston City Hospital which was opened in 1864. He had been a teacher at Harvard since 1860 when he was appointed demonstrator of anatomy. He became professor of clinical surgery in 1875 and professor of surgery in the Medical School in 1882. On his retirement in 1893 he received the title of emeritus professor. He was president of the American Surgical Association in 1889 and the author of *Lectures on Surgery* and of more than sixty papers and addresses on professional topics. He reported more than 1,200 major operations performed by himself, with 85 per cent. of recoveries.

DEATHS IN THE PROFESSION ABROAD.—Among the members of the medical profession in foreign countries who have recently died are Professor Gilbert-Ballet, of Paris, one of the foremost authorities on mental disease in France; and Dr. Léon Labbé, senator for the Orme department, and member of the Institute of France, whose name is associated with a successful operation on a man who had swallowed a fork, aged 83.

Medico-Legal.

WORKMEN'S COMPENSATION FOR RHEUMATISM.

Glasgow Coal Company Ltd. v. Welsh.

THE House of Lords on March 6th gave judgement on an appeal from the Second Court of Session in Scotland which raised a point of some novelty under the Workmen's Compensation Act, 1906.

The facts were as follows: One, Welsh, was a miner employed as a brusher at the Glasgow Coal Company's colliery. On October 23rd, 1914, the water pump broke down and a large quantity of water accumulated in the pit bottom. Work was suspended, and five days later Welsh was directed to go down the pit. He went down in the belief that he was going to do his ordinary work as a brusher, but, in fact, on reaching the pit bottom he was told off to bale the water. On this work he was engaged up to his chest in water for eight hours.

During the next day or two he felt great stiffness and cold and pains in his joints, but continued to work till the morning of November 2nd. On November 3rd he consulted a doctor, who found that he was suffering from subacute rheumatism. On January 26th, 1915, he returned to work but was unable to earn his full wages, and his incapacity did not wholly cease until March 2nd, 1915. During the whole of this time he was suffering from rheumatism caused by the extreme damp and exposure to which he had been subjected.

The Sheriff Substitute had found that this was an injury caused by accident "arising out of and in the course" of Welsh's employment, and made an award in his favour.

Viscount Haldane, in his speech, said that the question was whether, upon the above facts, the event could be, in point of law, an accident within the meaning of the Act. He thought that had Welsh died suddenly while so exposed there could be no doubt that that would have given a title to his dependants

to claim on the footing of injury from accident, and he was unable to see why a claim in respect of a less serious mishap should be excluded by the circumstance that the miscalculated action of entering the water took time to produce its consequences. In his judgement that miscalculated action of entering the water must be taken to have constituted a definite event which culminated in rheumatic affection and to have imported into that event the character of an accident within the meaning of the Act.

The other lords concurred, and the appeal was dismissed.

The Services.

INDIAN MEDICAL SERVICES.

It has been decided that the outfit allowance of Rs. 600, notified in India Army Order, No. 122, dated March 22nd, 1915, shall be granted to all I.M.S. officers in permanent civil employ (including those who have officiated for three years in civil employment) who reverted to military duty, during the present war, prior to the issue of India Army Order, No. 546, dated October 11th, 1915.

EXCHANGE DESIRED.

TEMPORARY LIEUTENANT, anaesthetist to a base hospital in France, wishes to exchange with officer similarly employed in London or neighbourhood. - Address No. 1250, BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C.

Medical News.

THE Wellcome Historical Medical Museum, Wigmore Street, will be closed for cleaning during the whole of the month of April.

PROFESSOR J. MARTIN BEATTIE, M.D., will open a discussion on tuberculous diseases of children and the milk supply at a provincial meeting of the Royal Sanitary Institute to be held at the University of Liverpool on March 31st at 3.30 p.m.

APPLICATIONS from hospitals within nine miles of Charing Cross, and from convalescent homes and sanatoriums for consumption taking patients from London, to participate in the grants made by King Edward's Hospital Fund for London must be received at 7, Walbrook, London, E.C., before March 31st.

IN response to the request of a First Aid Conference held at Washington in August, 1915, President Wilson has appointed a board of standardization to investigate first aid methods, packages, and the standardization of equipment, and to draw up a uniform course of instruction to be given throughout the country.

THE late Mr. Stanley Boyd left estate valued at £32,646. After providing for certain legacies he left the residue of his property in trust for his mother and sister and the survivor of them, and subject thereto he gave £2,100 to Epsom College for one foundation scholarship, and the ultimate residue to the University of London for the endowment of a professorship of pathology in the Medical School of Charing Cross Hospital. Out of the property bequeathed to him by his wife he gives a number of legacies to her relatives, £1,000 each to the London School of Medicine for Women, the New Hospital for Women, and the Pathological Department of the New Hospital for Women, and any residue to the New Hospital for Women.

THE Military Education Committee of the University of London has presented its annual report for 1915. The medical unit was in camp for its annual training during the summer vacation on Salisbury Plain. Arrangements have been made for camp training during the other vacations, and for periods of intensive training in preparation for the special examinations for certificates A and B held for cadets of this unit. Upon the announcement of the War Office's decision in regard to the younger medical students taking combatant commissions, a considerable number of medical cadets transferred to the artillery and infantry units. Three former officers of the University of London O.T.C. (of whom one was an ex-cadet), eighty-six former cadets, and one other officer recommended for his commission by the university have fallen in the war. A number of honours, including one Victoria Cross, have been awarded to officers and cadets of this corps.

WITH the *St. Bartholomew's Hospital Journal* for March is published, under the title *St. Bartholomew's and the War*, a second supplementary list, made up to February 16th, 1916, of those connected with the hospital and medical school who are serving in the navy, army, and territorial force. It brings up the number to over 1,600. Five, of

whom two were serving in the R.A.M.C. (Lieutenant Brunton and Lieutenant Garrod, both sons of members of the staff of the hospital), were killed in action; six, of whom two were in the R.A.M.C., have died of wounds; three, all in the R.A.M.C., have died; eleven, of whom seven were in the R.A.M.C. and one in the I.M.S., have been wounded. The good services rendered by many others have been recognized in dispatches and by promotions and decorations. The list is illustrated by portraits of many of those who have been killed, or died; among the portraits is that of Miss Buckingham, who died as matron of the 2nd Birmingham War Hospital. The list contains the names of forty-four other present or former nurses of the hospital who are serving with the armies at home or abroad.

SPECIAL meetings of the Central Midwives Board were held on March 15th and 17th. Reports on 7 adjourned cases resulted in no action being taken in 5; 1 case was further adjourned for three months, and 1 woman was struck off the roll. Of the 14 fresh cases, 1 midwife was severely censured, judgement on 2 others was postponed for reports in three and six months, and 11 women were struck off. Neglect in cases of ophthalmia neonatorum, puerperal fever, and pemphigus were among the most serious charges, but there was one of signing a false certificate of stillbirth; as usual, there were a number of cases of ignorance of the use of the clinical thermometer, inability to take the pulse, want of cleanliness, etc. The Board held its monthly meeting on March 16th. In reply to a letter from the General Medical Council regarding an alleged case of "covering" an uncertified woman by a registered medical practitioner, the Board, in forwarding the papers to the Council with a request that it will take such action in the matter as it may see fit, expressed its readiness, if so desired, to appear as prosecutors in the case. The Standing Committee, having completed the revision of the rules after carefully considering suggestions for their amendment sent by local supervising authorities, medical officers of health, etc., decided to ask the Privy Council to approve the same and order that the new rules shall come into force on July 1st next for a period of five years. Sir Francis Champneys presided at all three meetings.

AT an inquest held recently at Wigan on an illegitimate child Mr. H. Milligan, the Wigan Borough Coroner, made some remarks reflecting on the medical man who had attended the child and who gave the death certificate. Not content with that, the coroner proceeded to make observations which can only be interpreted as an attack on the Wigan medical profession generally. In the case in question the statement of the woman who had charge of the child was to the effect that the child had suddenly appeared to be choking, and she had run with it to the doctor, who said it had croup, and gave medicine and certain directions for treatment. Next day the child was worse, and the doctor was sent for, and was said to have promised to go, but failed; the child died later in the day without having been seen again by the doctor, who gave a certificate of death from bronchopneumonia. On this one-sided evidence the coroner based his attack on the doctor, and made it a text on which to deliver a homily to the Wigan profession. As only too frequently occurs in coroners' courts in certain districts, the doctor's side is not given. He may have had perfectly satisfactory reasons for not carrying out his promise to visit, if he ever made it, and if the coroner had had any proper sense of fairness he would have seen that the doctor's side of the question was made as public as he asked the press to make the other side. According to the newspaper report, the coroner, after noting that the doctor had said that the child had croup, and yet gave a certificate of bronchopneumonia, added: "It made it very difficult to know where they were when they had such contradictory statements." The public have a right to demand that coroners who venture to criticize in such matters should have at least an elementary knowledge of what they are talking about. If the coroner had read in the official book of death certificates the instructions to medical practitioners as to the terms to be used in death certificates, he might have seen the injunction: "Avoid using the word 'croup' at all." If, as appears probable, the coroner's remarks about the Wigan medical profession in general are as unfair as his remarks about this particular case, the "higher authorities" to which he threatens to make complaint might well be asked to decide the additional question whether the coroner is not deserving of censure for thus displaying a want of acquaintance with the terms to be used in death certificates and for his one-sided treatment of the medical profession.

Letters, Notes, and Answers.

AUTHORS desiring reprints of their articles published in the **BRITISH MEDICAL JOURNAL** are requested to communicate with the Office, 429, Strand, W.C., on receipt of proof.

CORRESPONDENTS who wish notice to be taken of their communications should authenticate them with their names—of course not necessarily for publication.

THE telegraphic addresses of the **BRITISH MEDICAL ASSOCIATION** and **JOURNAL** are: (1) **EDITOR** of the **BRITISH MEDICAL JOURNAL**, *Antology, Westrand, London*; telephone, 2631, Gerrard. (2) **FINANCIAL SECRETARY AND BUSINESS MANAGER** (advertisements, etc.), *Articulate, Westrand, London*; telephone, 2630, Gerrard. (3) **MEDICAL SECRETARY**, *Meditsecra, Westrand, London*; telephone, 2634, Gerrard. The address of the Irish office of the British Medical Association is 16, South Frederick Street, Dublin.

Queries, answers, and communications relating to subjects to which special departments of the BRITISH MEDICAL JOURNAL are devoted will be found under their respective headings.

QUERIES.

QUININE COLLYRIA.

DR. B. W.—Quinine sulphate is only soluble in water to the extent of 1 in 800, therefore it is not possible to get a clear solution of 1 per cent. strength without the addition of acid, and if this were added the solution causes unnecessary pain. Quinine hydrochloride is soluble in water to the extent of 1 in 40; if, therefore, this salt be used, a clear bland solution of even 2 per cent. strength can be obtained. An even stronger and quite unirritating solution can be made by using the acid hydrobromide of quinine, which is soluble in water to the extent of 1 in 7. The hydrochloride is usually the more easily obtained. It may be added that cocaine has no curative value—in fact, aqueous solutions are injurious to the normal corneal epithelium, tending to cause exfoliation; consequently the healing of corneal lesions is delayed by its exhibition.

ANSWERS.

THE TREATMENT OF PRURITUS ANI.

DR. C. P. BURD (Upton-on-Severn) writes, in answer to "A. E.," to suggest that the patient be instructed to give himself a cold water enema each night before going to bed and to leave off all other aperients for a time.

DR. A. WINKELRIED WILLIAMS (Dermatologist, Royal Sussex County Hospital, Brighton) writes: Post-operative pruritus ani is frequently a nocturnal plague. A point in the management of these cases, not mentioned in most papers on the subject, is for the patient to acquire the habit of stooling just before going to bed. A small faecal mass in the rectum near the internal sphincter, or the site of an old operation, will light up a bout of itching, and its removal will often give a night of perfect freedom. The habit is to some patients rather difficult to acquire and a suppository may at first be required, and some find it inconvenient to habitually empty the rectum twice in twenty-four hours. In eczematous cases the time-honoured directions to wash with cold water after stooling does not always agree, and a mild antiseptic grease generally gives a better result; an ointment of hydrarg. oxid. flav. 2 grains, vaselin. flav. 1 ounce, should be freely applied to the anal region and just inside the external sphincter before stooling and used freely in after-cleansing. An efficient temporary remedy for bouts of intolerable pruritus is acid carb. 60 grains, ol. olivae 2½ ounces; in many cases it acts better and more rapidly than cocaine and is much safer.

LETTERS, NOTES, ETC.

NEED FOR RESIDENT SURGICAL OFFICERS AT HOSPITALS.

THE Central Medical War Committee invites applications from gentlemen of good hospital surgical experience, who, being over age or otherwise disqualified for service in the R.A.M.C., would yet be willing, if the necessity arose, to take appointments as resident surgical officers in hospitals. This appeal is not intended to interfere with the ordinary announcements of vacancies for such posts, but the Central Medical War Committee would like to have in reserve a supply of experienced surgeons who would, if necessary, be prepared to fill such appointments for a time. Applications should be sent to the Secretaries, Central Medical War Committee, 429, Strand, London, W.C.

THE DIAGNOSIS AND TREATMENT OF DIPHTHERIA.

LOCUM writes: As a locumtenent of considerable experience in many parts of England, I feel it my duty to call attention to a subject of very great importance both to the credit of the profession and the interests of the community—namely, the diagnosis and treatment of diphtheria. Nearly every practitioner with whom I have discussed the subject is more or less a law unto himself, and there appears to be no safe anchorage wherein to trust unflinchingly in the treatment of an illness giving rise at all times to great anxiety to all concerned. One practitioner does not believe in serum at all, and distrusts at times the accuracy of the positive microscopic report. Another is content to give the antitoxin by the mouth, and

is convinced that he has got quite as good results from that method of administration, and that a favourite mixture given is sufficient treatment locally for the throat. Another gives subcutaneously 2,000 units of serum, and is more or less content to rest on his oars. Another I know of gives 8,000 or 12,000 straight away, and declares that anything less is useless. Still another says that by the administration of antitoxin a mysterious and deleterious negative phase is set up. And yet another has written that serum may be positively dangerous. Such a diversity of opinion is necessarily bewildering to the man who perhaps only sees an occasional case.

Of course one realizes that the severer cases will demand the more heroic treatment, but then it is not always easy to say when a case is, or is going to be, severe or not. In the obviously severe cases there is less difficulty, for in my experience, apart from the obviously dangerous constitutional symptoms, the amount and extent of membrane is not always a sure guide to severity. I think that if some practitioner of large experience would give us his precise methods of treatment, and a few hints on early diagnosis in doubtful cases, whilst the swab is on its journey or when it need not be sent, it would be a very real help; for prophylactic serum administration, although in my opinion the ideal and proper treatment, may not always be acceptable in the case of parents with a limited education, especially if it turns out to be simple tonsillitis, although I must say that when the position is put wisely before them they nearly always take the common-sense view; but these are just the cases in which the dosage of antitoxin presents the greatest difficulty, as time is recognized to be a factor of such vital importance.

WHAT DETERMINES SEX?

DR. STEPHEN M. LAURENCE (Trinidad, B.W.I.) writes: The following case, which recently came under my notice, might prove of interest. Mrs. P. is a vigorous-looking woman of 40 years. She has been married three times, and has had fifteen children—all boys. She gave her history as follows: She married very early, and had her first child, a boy, at 15 years of age. He is alive and well, aged 25. She had five other boys by her first husband, six in all. They were all born dead before the eighth month was completed (evidently she had developed syphilis). This husband had no other children. She bore her second husband five boys—the first three being born dead, the last two are still alive. This husband had two children by another mother—one boy and one girl. From her third marriage there are four boys. All of these are alive. The last husband has two other children—a boy and a girl. The woman here is the constant factor, the resulting sex being the same in fifteen consecutive pregnancies to three different men, two of whom had girls by another mother. The number of husbands and the unusual number of children seems to preclude mere accident.

DECREASE OF MEDICAL PUBLICATIONS.

THE annual report of the Library Committee of the Philadelphia College of Physicians for 1915 states that the total number of volumes in the collection, including 10,237 unbound Reports and Transactions, was 107,782. The number of unbound theses and dissertations was 12,949, and of unbound pamphlets 90,670. The total increase in the number of volumes during the year was 2,085. Owing to the war about 250 periodicals ceased to reach the library, while some twenty others were received at irregular intervals. Most of the books received, other than English or French, came through Amsterdam; no theses or dissertations were received from the war zone. In comparison with the number of new publications received in 1913, there was in 1915 a decrease of about 90 per cent. of the books published in French, about 69 per cent. of those issued in German, and about 34 per cent. in British publications.

BOLD ADVERTISEMENT.

MUCH has been heard of the commercial enterprise of Germany, and her newspapers are now boasting that she will quickly recover the trade lost owing to the war. Perhaps it is not sufficiently realized that German success in this, as in other fields, is largely due to sheer impudence. A curious example is given in the *Chronique Médicale* of February 1st. It is there stated that a number of French doctors have received from a Stuttgart firm of manufacturers of artificial limbs a catalogue of its wares with an offer of a large discount on the usual prices. Surely such an offer could only have come from Germany.

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

	£	s.	d.
Seven lines and under	0 5 0
Each additional line	0 0 8
A whole column	3 10 0
A page	10 0 0

An average line contains six words.

All remittances by Post Office Orders must be made payable to the British Medical Association at the General Post Office, London. No responsibility will be accepted for any such remittance not so safeguarded.

Advertisements should be delivered, addressed to the Manager, 429, Strand, London, not later than the first post on Wednesday morning preceding publication, and, if not paid for at the time, should be accompanied by a reference.

NOTE.—It is against the rules of the Post Office to receive *poste restante* letters addressed either in initials or numbers.

THE TOXICOLOGY OF SALVARSAN:

DIOXYDIAMIDO-ARSENO-BENZOL (SALVARSAN OR KHARSIVAN).

BY

WILLIAM HENRY WILCOX, M.D.LOND.,
B.Sc.LOND., F.R.C.P.LOND.,LIEUTENANT-COLONEL R.A.M.C.; PHYSICIAN TO OUT-PATIENTS,
ST. MARY'S HOSPITAL, LONDON; SENIOR SCIENTIFIC
ANALYST TO THE HOME OFFICE;

AND

JOHN WEBSTER, F.I.C.,

ASSISTANT SCIENTIFIC ANALYST TO THE HOME OFFICE; DEMONSTRATOR
OF PATHOLOGICAL CHEMISTRY TO ST. MARY'S HOSPITAL
MEDICAL SCHOOL, LONDON, W.

Dioxydiamido-arseno-benzol dihydrochloride is the chemical name for a most valuable therapeutic remedy, and it is better known by the name "salvarsan," or "kharsivan"—the latter denoting the English preparation.

Salvarsan was introduced by Professor Paul Ehrlich in 1910, and neo-salvarsan in 1912. They were also known by the respective numbers "606" and "914," these denoting the numerical position of the compounds in the list of chemical substances prepared and experimented upon.

On the outbreak of war it was found desirable that dioxydiamido-arseno-benzol should be manufactured in this country. The preparation of this important remedy was satisfactorily carried out, and it was introduced under the name of "kharsivan." Before being placed on the market samples of kharsivan were submitted to careful chemical and physical tests, and these gave practically identical results with salvarsan.

Physiological and therapeutic tests were carried out by one of us (W. H. Wilcox) at the request of the Board of Trade, and it was found that the English preparation was practically identical in its physiological and therapeutic effects with salvarsan. The toxic action of kharsivan was certainly not greater than that of salvarsan.

Kharsivan was then definitely introduced after the sanction of the Board of Trade had been received. The testing of kharsivan after its introduction was entrusted to the Medical Research Committee, who have submitted samples of every batch prepared to searching physiological and toxicological tests.

USES.

Syphilis.

Salvarsan, or kharsivan, has become definitely established as the most effectual remedy for the treatment of syphilis.

The recent discovery in 1905 of the causal agent of syphilis—namely, the *Spirochaeta pallida*—has enabled this organism to be demonstrated in the lesions associated with syphilis. The special serum test—the Wassermann reaction—published in 1906, enabled the presence of a syphilitic infection to be demonstrated in the blood serum, and in the cerebro-spinal fluid in cases where the central nervous system was involved.

The therapeutic effect of any antisyphilitic remedy can be definitely estimated by the application of tests for the presence of the specific organism in syphilitic lesions, and by the application of the Wassermann reaction to the blood serum.

It is by these tests that it has been definitely proved that salvarsan or kharsivan are the remedies which occupy the foremost place in the treatment and cure of syphilis.

It is unnecessary to emphasize the importance of these remedies from a prophylactic point of view, since the rapid destruction of the infective agent in the body means the prevention of spread of infection.

Other Spirochaete Infections.

Other spirochaete infections, such as relapsing fever in man, due to a spirochaete infection; recurrent fever in animals, due to spirochaetes; and spirillose infection of birds, respond equally well to the administration of salvarsan or kharsivan in proper doses.

Yaws is a disease due to a spirochaete infection, and this responds rapidly to treatment with salvarsan or kharsivan.

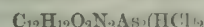
Mycosis fungoides and glandular conditions resembling syphilis have shown marked benefit after treatment with salvarsan or kharsivan.

Tertian malaria has been cured by the administration of these remedies, but *quartan malaria* does not seem to respond to treatment in the same way.

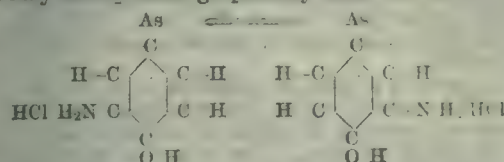
Salvarsan, or kharsivan, has been used with benefit in leukaemia, pernicious anaemia, lymphadenoma, trypanosomiasis, anthrax, psoriasis, and lichen planus, but the effect has not been of so marked a degree as in the spirochaete infections above named.

CONSTITUTION AND PROPERTIES.

Salvarsan, or kharsivan, has the chemical formula:



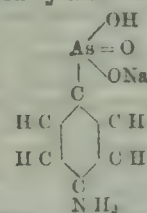
This may be expressed graphically thus:



Salvarsan is seen to be a complex compound of arsenic with the benzene nucleus.

It was evolved after a great deal of experimental work extending over a number of years. Koch had found that ordinary antiseptic drugs which were of high value outside the body were useless *in vivo* since they had as powerful a toxic action on the organism as on the parasite; or otherwise expressed, their organotropic action was equal to their parasitotropic action. Ehrlich endeavoured to find a drug which had as high a parasitotropic but as low as organotropic action as possible. He found that the best results were yielded by compounds of arsenic with the benzene nucleus.

Atoxyl was an example of one of these compounds. Its constitution is expressed by the formula:



Koch found that this drug was markedly parasitotropic in sleeping sickness, and that the organotropic action was low. He spoke highly of the value of atoxyl.

When atoxyl came to be extensively used on man it was soon found that the drug had a peculiar organotropic action in some cases, which completely contraindicated the use of the drug altogether. It had an organotropic action for the optic nerve and in some cases caused optic atrophy and complete blindness.

Further experiments on other compounds of arsenic and benzene led to the discovery by Ehrlich and his co-worker, Berthelm, of salvarsan; it was found to have a high parasitotropic action in the body and a very low organotropic action. Salvarsan had no organotropic action on the optic nerves. A peculiarity of salvarsan is that the parasitotropic action on spirochaetes is much greater in the body than *in vitro*.

Salvarsan at the time of its introduction was the drug which, of all remedies known, gave the highest parasitotropic action for spirochaetes combined with the minimum organotropic action.

The introduction of this valuable remedy marked an epoch in the treatment of syphilis, and it was found that no other known drug compared in efficacy with salvarsan and its derivatives.

Salvarsan is a powder of a pale yellow colour. It contains arsenic in amount equal to 34 per cent. expressed as the metal arsenicum, or 44.9 per cent. expressed as arsenious oxide (As_2O_3).

It is soluble in water (1 in 5), forming an acid solution. It is soluble in methyl alcohol (1 in 3), and in ethyl alcohol (1 in 12). It is also soluble in glycerine. If salvarsan is dissolved in water and caustic soda solution

is cautiously added a precipitate forms, which redissolves on the addition of slight excess of the alkali.

Salvarsan is very unstable and decomposes on exposure to the atmosphere. It is sold in hermetically sealed glass tubes, which contain an inert gas in addition to the powder. In aqueous solution salvarsan rapidly decomposes.

Chemical Tests.

1. An aqueous solution of salvarsan, when treated with a stream of H_2S gas, yields no precipitate of arsenic sulphide even after the addition of hydrochloric acid and warming. This shows the absence of inorganic arsenic.

2. An aqueous solution of salvarsan gives with either ferric chloride solution or with bromine water a brown colour, becoming a deep crimson in a few seconds.

3. Ignite the solid substance in a test tube: the substance melts and chars, whitish fumes are given off, and a blackish sublimate forms on the tube. When cool the contents of the tube have an aromatic smell, like that of nitrobenzene.

4. An aqueous solution of salvarsan is placed in a test tube, which is cooled in ice. Some solution of nitrous acid is added till present in slight excess and the mixture left for twenty minutes. The excess of nitrous acid is removed by the addition of urea solution. The solution is divided into two parts:

(a) To one part an alcoholic solution of alpha-naphthylamine is added; a beautiful violet colour results.

(b) To the other part an alcoholic solution of beta-naphthylamine is added. No vermilion colour is produced, showing the absence of atoxyl.

5. *Reinsch Test.*—Salvarsan if submitted to this test gives a definite reaction for arsenic. The fact that the arsenic is present in organic combination does not prevent the detection of arsenic by this test.

6. *Marsh-Berzelius Test.*—Salvarsan gives an unsatisfactory result, since the organic combination of the arsenic prevents its detection by this test.

In order that the Marsh-Berzelius test may be accurately employed, it is necessary for the organic compound to be broken up. This can be done by oxidation in the usual manner with nitric and sulphuric acid, or by means of hydrochloric acid and potassium chlorate. In this way the arsenic is converted to arsenic acid. The oxidized solution should be reduced by treatment with potassium meta-bisulphite and dilute sulphuric acid and the excess of sulphur dioxide boiled off.

This solution now contains the arsenic in the form of arsenious acid, which can readily be detected or estimated by the Marsh-Berzelius test.

7. *Mirror Test.*—For quantitative estimations of minute amounts of salvarsan the mirror yielded by a given quantity of salvarsan, or an organ containing it, is compared with a series of standard mirrors obtained from known amounts of arsenious oxide.

The electrolytic method of the Marsh-Berzelius test is much the most satisfactory for toxicological work.

Physiological Tests.

Animals on which these may be conveniently employed are white mice, white rats, and rabbits.

A solution of salvarsan in normal saline is taken, and a solution of caustic soda is added until the precipitate which forms just redissolves. This solution is made up to a strength of 1 per cent. (1 gram in 100 c.cm.) It is slightly alkaline in reaction, and is used for injection into animals.

Mice.—These animals are susceptible to the toxic action of salvarsan.

The maximum dose borne without a fatal result is for a mouse weighing 20 grams, about 0.004 gram—that is, 0.2 gram per kilo. Of the 1 per cent. solution, 0.4 c.cm. is injected subcutaneously under the skin of the back, and by gentle massage with a glass rod the liquid is dispersed. No fatal result should follow the injection, but larger doses will probably cause death. Smaller doses—for example, 0.3 c.cm. and 0.2 c.cm.—should also be given. They should not produce a fatal result.

Rats.—These animals are very convenient for the application of toxicological tests, since they are less delicate than mice as regards susceptibility to shock, and

they are able to withstand larger doses per kilogram body weight.

For rats a curative dose in experimental spirochaete infections is 0.05 gram of salvarsan per kilogram body weight. In a rat weighing 100 grams a dose of salvarsan of 0.5 c.cm. of 1 per cent. solution—that is, 0.005 gram—causes no toxic symptoms. The solution is given subcutaneously as above.

In a rat weighing 100 grams a dose of salvarsan of 1.5 c.cm. of 1 per cent. solution—that is, 0.015 gram—is well borne and produces no toxic symptoms. (Dose = 0.15 gram per kilo.)

In a rat weighing 100 grams a dose of salvarsan of 3 c.cm.—that is, 0.03 gram—is borne without marked toxic symptoms. (Dose = 0.3 gram per kilo.)

In the above experiments local sloughs may occur at the site of injection after a few days. These usually heal up.

Rabbits.—Doses of salvarsan of 0.2 gram per kilogram body weight are borne without toxic effect if given subcutaneously, though subsequent local sloughing is likely to occur. A dose of 0.1 gram per kilogram body weight is well borne if given intravenously.

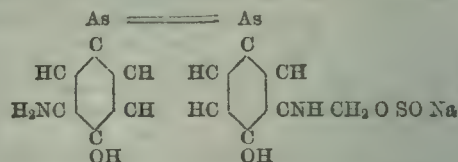
NEO-SALVARSAN.

This is a powder of a somewhat deeper yellow colour than salvarsan; it is less finely divided, and does not adhere to the sides of the capsule in which it is contained. It is more unstable than salvarsan, and its solution quickly decomposes, especially if heated.

Solutions of neo-salvarsan should be made in distilled water or in a weak saline solution (0.4 per cent.) and the temperature of the solution should not exceed 20° to 22° C.

Neo-salvarsan forms a neutral solution, and alkali should not be added to it before use.

Neo-salvarsan is salvarsan acid sodium formaldehyde sulphoxylate. It has the formula:



Owing to the addition of the further chemical group in salvarsan, neo-salvarsan contains a lower percentage of arsenic. A dose of salvarsan must be multiplied by $\frac{2}{3}$ in order to get the corresponding dose of neo-salvarsan.

Thus 0.6 gram of salvarsan corresponds to 0.9 gram of neo-salvarsan.

Neo-salvarsan has the same physiological and therapeutic effects as salvarsan. The addition of the further chemical group to salvarsan considerably adds to the convenience and facility of administration without altering the therapeutic action of the new compound.

MODE OF ADMINISTRATION OF SALVARSAN AND NEO-SALVARSAN.

Subcutaneous and also intramuscular injections of solutions of these compounds were used, but a long experience has shown that intravenous injections are far preferable. They are more efficacious and attended with less risk if carefully given. There is much less pain and discomfort with intravenous than with the other modes of injection.

Subcutaneous and intramuscular injections are always associated with a good deal of local discomfort or pain, and in the experience of one of us (W. H. W.) local necrosis of the tissues at the site of injection is by no means uncommon. Also local inflammatory troubles may follow a subcutaneous or intramuscular injection; thus, one case in which an injection of salvarsan was given in the subscapular region developed a local pleurisy, with effusion at the site of the injection. This case was seen by one of us (W. H. W.).

Suspensions of salvarsan or neo-salvarsan in oily liquids have been recommended, but the absorption of the drugs in this mode of administration is uncertain and local troubles may follow, so that this method is certainly less desirable than the intravenous mode of administration.

PREPARATION OF SOLUTIONS.

For Intravenous Injections.

Salvarsan.—Salvarsan 0.6 gram is placed in a sterile glass flask containing 40 c.cm. of 0.5 per cent. sterile saline solution. The powder quickly dissolves on shaking. Some solution of pure caustic soda (15 per cent.) is added cautiously drop by drop until the precipitate which forms just redissolves. About 20 to 23 minims of the solution will be required. The liquid is now made up to 300 c.cm. with 0.5 per cent. saline solution. This solution is used for injection into a vein, the usual precautions being taken to prevent entry of air or escape of the arsenical solution into the subcutaneous tissue round the vein.

Neo-salvarsan.—Neo salvarsan 0.9 gram is placed in a sterile flask, and 150 c.cm. of specially pure sterile normal saline (0.4 per cent.), of temperature not exceeding 22 °C., are added. The neo-salvarsan readily dissolves, and the solution is ready for injection with the usual precautions.

For Intramuscular or Subcutaneous Injections.

Salvarsan 0.6 gram is triturated in a sterile mortar with 20 minims of a 15 per cent. caustic soda solution, 15 c.cm. of sterile distilled water are added, and one or two drops more of the caustic soda solution, if the liquid is not quite clear.

Neo-salvarsan 0.9 gram is dissolved in 18 c.cm. of sterile distilled water.

Precautions should be taken as to the purity of the distilled water used in the preparation of the saline solution and for dissolving the salvarsan or neo-salvarsan. The water should be freshly distilled and kept under perfectly aseptic conditions until required. It has been shown that if distilled water contains bacteria, the sterilization of it, while killing the bacteria, does not destroy the toxins present in them, and such water may cause a rise of temperature on intravenous injection quite apart from any toxic action of the salvarsan or neo-salvarsan.¹

SYMPTOMS FOLLOWING AN INTRAVENOUS INJECTION OF SALVARSAN OR NEO-SALVARSAN.

Slight Symptoms.

The patient should be resting in bed during the injection and for twenty-four hours afterwards. With this precaution in a number of cases no symptoms of any kind occur.

It is common, however, for slight symptoms to occur, although every care may have been taken in the preparation and administration of the solution. Thus, nausea for a few hours after the injection and occasionally vomiting are common. A rise of temperature of one or two degrees Fahrenheit, within a few hours of the injection is common. Slight headache often occurs, but this in most cases is probably the result of the rise of temperature. A slight diarrhoea—for example, two or three actions of the bowels within twenty-four hours of the injection—is not uncommon.

The above symptoms are all that occur in the great majority of cases.

Slight albuminuria for one or two days after an injection has occurred on rare occasions.

Thrombosis in the course of the vein into which the injection has been given is of rare occurrence, but has been seen by one of us (W. H. W.).

Marked pyrexia occasionally follows an injection—for example, a rise of three or four degrees Fahrenheit or even more. This may last for a few days without other marked symptoms. It has been suggested that this rise of temperature is due to the endotoxins liberated by the destructive action of the salvarsan on the spirochaetes in the body.

Shock during, or immediately after, an injection has occurred, but is very uncommon. In a recent case a fatal result occurred during the course of an injection, although every care had been taken.

Severe Symptoms.

These are of two types:

I. Symptoms of Arsenical Poisoning.

Very occasionally symptoms of acute arsenical poisoning follow an injection of salvarsan. Thus some shivering or a rigor may follow an injection; there will be a rise of temperature; headache and some pains in the limbs,

nausea and vomiting, with furred tongue and diarrhoea, may occur. The conjunctivae are injected, and in some cases subconjunctival haemorrhages occur. An erythematous rash and slight jaundice occur in these cases. The patient becomes somewhat delirious, and stupor may supervene. The urine contains albumin and some granular casts, and traces of bile are present in cases with jaundice.

II. Symptoms of Profound Toxaemia.

This is the type of case which is usually attended with a fatal result.

Details of the symptoms are given in some of the cases enumerated below. Within three days of the injection of salvarsan dangerous nervous symptoms supervene—for example, collapse and abnormal mental condition. In one case acute pain in the abdomen and pain at the back of the neck were complained of. The patient becomes stuporose with twitchings of the muscles, and epileptiform convulsions are likely to occur. Coma intervenes, with collapse and death. The pupils are often dilated and the reflexes absent. The prognosis is very grave in cases of this type. The urine is usually markedly diminished in quantity and contains albumin and casts.

The pathology of cases of this kind is difficult to understand. After careful consideration it appears that the symptoms are really due to a profound autointoxication, such as occurs in uraemia. This view is borne out by the occurrence of degenerative changes in the liver, heart, and kidneys which are found on *post-mortem* examination in these cases.

The symptoms are not to be explained by anaphylaxis due to the setting free of endotoxins consequent on the destruction of spirochaetes, since the latent period (three days or more) in some of the cases is quite incompatible with this explanation.

Most of the deaths from salvarsan or neo-salvarsan are of this type, and it is important that every safeguard should be taken to avoid catastrophes of this nature.

Post-mortem Signs in Cases of Death after Salvarsan.

There is little of a definite nature to be found in these cases beyond degenerative changes of a fatty nature, or cloudy swelling, in the heart, liver, and kidneys. In some cases death has been due to a local lesion—for example, haemorrhage from a cerebral vessel.

EXCRETION OF SALVARSAN AND TOXICOLOGICAL ANALYSES.

After an injection of salvarsan arsenic is found in the blood. Thus, one hour after the injection of 0.6 gram there was found respectively in two cases $\frac{1}{2}$ mg. and $\frac{3}{4}$ mg. of arsenic (calculated as As_2O_3) in 100 c.cm. of blood serum. The blood clot was found to be almost free of arsenic, this being found only in the blood serum.

Salvarsan is excreted mainly by the kidney and bowel. Arsenic is present in the urine and faeces for at least three weeks after an intravenous injection.

In cases of death after salvarsan arsenic is found in the abdominal viscera—for example, spleen, kidney, liver, suprarenal glands, etc. It is also found in small amounts in the muscles and blood.

A most interesting feature is that arsenic seems to be almost entirely absent from the brain and nervous system, so that the symptoms of profound toxaemia in cases of salvarsan poisoning are certainly not due to the action of the arsenic as such on the central nervous system.

SALVARSAN IN LACTATION.

To investigate the influence of salvarsan on the milk of a lactating woman to whom the drug has been administered, the milk from a woman to whom two intravenous injections of salvarsan were given was collected. The first specimen was taken 72 hours after the first injection (0.4 gram) had been given; the second specimen was collected 12 hours after the second injection, of 0.5 gram. Both of these specimens were found to be free from arsenic.

In a second woman to whom 0.5 gram of salvarsan had been given, samples of milk were collected 5½ hours, 10½ hours, 16 hours, 36 hours and 60 hours respectively after the injection. Arsenic was entirely absent from all these samples, though the most delicate tests were employed.

It thus appears certain that the benefits resulting in a

syphilitic baby who is suckling from an infected mother, to whom salvarsan is given, cannot be due to the presence of salvarsan in the milk ingested by the baby. Any improvement in the child's health in such a case is to be explained on other grounds—for example, the presence of antibodies in the mother's milk, consequent on the destruction of spirochaetes in her body as a result of her injection of salvarsan.

PRECAUTIONS IN THE ADMINISTRATION OF SALVARSAN.

It must be remembered that salvarsan and neo-salvarsan are compounds having a powerful therapeutic action, and that in some patients, in spite of all precautions that may be taken, certain toxic symptoms will develop.

The susceptibility to salvarsan of patients with sound bodily organs and in good health undoubtedly varies very much, and in a susceptible person an average dose of salvarsan may produce alarming and even dangerous symptoms. Fortunately this idiosyncrasy to the effects of salvarsan is not common in healthy people.

CONTRAINDICATIONS.

Renal Disease.

Renal disease is a contraindication to the use of salvarsan. A careful clinical examination for symptoms of the condition should be made, and also a careful examination of the urine should be carried out. It is important to note the daily quantity of urine excreted, the specific gravity, the percentage and daily quantity of urea and chlorides, and especially the presence of albumin or casts. Renal inadequacy as shown by a low figure for urea and chlorides adds to the risk of toxic symptoms from salvarsan. The presence of albumin and casts in the urine will usually be a contraindication for the administration of salvarsan. The important question to be considered is the excretory efficiency of the kidney, and if this is poor, then, generally speaking, salvarsan should be avoided if possible.

In cases of albuminuria due to pyelitis or cystitis salvarsan may be given, provided that the renal excretion is good. The same view holds also with cases of functional or physiological albuminuria. There is undoubtedly risk in giving salvarsan in cases of acute and subacute nephritis, and also in parenchymatous and chronic interstitial nephritis.

In cases of albuminuria due to nephritis of syphilitic origin very careful consideration is necessary before salvarsan should be given. There is bound to be some risk, but the call for an efficient remedy to deal with an obstinate condition of this kind may be so great as to more than counterbalance the risk. It is always wise in these conditions to give a small dose of salvarsan—for example, 0.3 gram for an adult. This dose may be repeated in four weeks, and it may be increased if the first dose was well borne.

Circulatory System.

Where there is advanced heart disease and failure of compensation, salvarsan is contraindicated. The presence of a valvular lesion, provided that compensation is well maintained and the condition of the patient good, is not necessarily a contraindication.

In advanced degenerative conditions of the heart muscle there is risk of syncope from shock, and salvarsan should be avoided. In conditions of advanced arterio-sclerosis it is wise to avoid the use of the drug.

Respiratory System.

Serious bronchial conditions—for example, septic forms of severe bronchitis—are contraindications.

Nervous System.

Salvarsan is usually contraindicated in advanced degenerative conditions of the central nervous system. In meningitis of syphilitic origin the drug should be used with great caution, and should never be given in more than half doses.

Salvarsan has been used recently in the treatment of tabes and general paralysis of the insane. As a rule, the intravenous administration of the remedy does not directly do good except in early cases. The reason for this is that when salvarsan is administered intravenously the drug is not excreted by the choroid plexus and does not penetrate to the cerebro-spinal fluid, which remains free from arsenic.²

In order to overcome this difficulty, cases of tabes and general paralysis of the insane have been treated by giving salvarsan intravenously, afterwards withdrawing blood from a vein—for example:

- (1) At an interval of an hour or so; or
- (2) After an interval of a few days.

The serum is separated under aseptic conditions, and is injected into the spinal canal by lumbar puncture. In the former case (1) the serum will contain a small amount of salvarsan. In the latter case (2) the serum will contain perhaps a trace of salvarsan, but also antibodies.

Both methods have been attended with much greater success than the mere intravenous administration of salvarsan.

It is difficult to say whether the benefit from spinal injection of salvarsanized serum is due to direct action of salvarsan in the serum on the affected nervous tissues or to the action of the antibodies present. Probably both have an important beneficial action.

In cases in middle or advanced life, where there is a certain amount of arterio-sclerosis present and the blood gives a positive Wassermann reaction, the question often arises whether salvarsan should be administered. In cases of this kind it is well to avoid the use of the drug unless there is definite and unmistakable evidence of an active syphilitic lesion.

The presence of a positive Wassermann reaction, apart from any active syphilitic lesion, is not, in our opinion, a sufficient justification for the use of salvarsan in these cases.

The presence of any serious disease of any kind should always call for the greatest consideration before a full dose of salvarsan is given. It must be remembered that there is bound to be risk of the development of serious toxic symptoms.

INTERVALS BETWEEN SUCCESSIVE DOSES.

Toxicological analyses show that a full dose of salvarsan (0.6 gram) is not completely excreted after three weeks. Probably by this time only minute traces remain in the body.

We are strongly of opinion that an interval of four weeks should elapse between the administration of full doses of salvarsan. With shorter intervals there is risk of a cumulative action, since the second dose may be given while some of the former dose still remains in the abdominal viscera.

TREATMENT OF SALVARSAN TOXAEMIA.

Prophylactic treatment is most important.

An aperient should be given the night before the remedy is administered. Alcohol and tobacco should be avoided for twenty-four hours before and after the administration. The patient should remain in bed on the day in which the drug is given, and for twenty-four hours afterwards.

Slight symptoms—such as nausea, slight pyrexia, headache, etc.—call for nothing but the simplest remedies. Should the temperature remain above normal for more than a few hours, the patient should remain in bed until it has reached the normal line and remained there for twenty-four hours.

It is wise to diet patients carefully until all symptoms have cleared up. The diet should be light—for example, milk, milk puddings, fruit, vegetables, toast, bread, etc. Meat, meat extracts, soups, and alcohol should be avoided. Constipation should be avoided by giving suitable aperients.

Where serious symptoms occur—such as collapse, twitchings, stupor or delirium or coma—an intravenous injection of normal saline (2 to 3 pints) should be given, and repeated if necessary. Normal saline may also be given subcutaneously with advantage. Rectal injections of normal saline, containing 3 drachms of sodium bicarbonate to the pint, should be given every eight hours. Where the blood pressure is not low venesection should be done, and about 10 oz. of blood withdrawn. This should be followed by the giving of saline into the vein.

If the patient becomes comatose, it is important to continue nourishment by the mouth—for example, 15 oz. of peptonized or citrated milk should be given by a stomach or nasal tube every six hours. For collapse,

strychnine (gr. $\frac{1}{6}$) may be given hypodermically every four hours, and oxygen, or oxygen passed through alcohol, may be administered with advantage.

In the early onset of toxic symptoms the following mixture should be given:

Sodium citrate	...	...	...	...	...
Sodium bicarbonate	...	...	...	...	...
Potass. citrate	...	...	...	...	...
Caffeine citrate	...	...	...	...	...
Syr. aurant.	...	...	...	...	...
Aq.	...	...	...	...	...

Every three hours.

TOXICOLOGICAL ANALYSES AND CASES.

I. Analyses of Urine and Faeces.

CASE I.—P. L. June 2nd, 1911, 0.6 gram salvarsan given.

		Milligrams of Arsenic per 100 Grams.	
		Urine.	Faeces.
June 3	...	1.0	1.4
June 5	...	1.0	2.5
June 7	...	0.17	1.7
June 9	...	0.17	...
June 10	...	0.07	...

CASE II.—H. 0.5 gram salvarsan given October 12th, 1914.

No. of Days after Salvarsan.		Milligrams of As ₂ O ₃ in 100 c.cm. Urine.	
4	0.3
7	0.3
10	0.15
13	0.03

CASE III.—C. 0.5 gram salvarsan given October 14th, 1914.

No. of Days after Salvarsan.		Milligrams of As ₂ O ₃ in 100 c.cm. Urine.	
2	0.2
5	0.2
8	0.15
11	0.05

CASE IV.—G. 0.5 gram salvarsan given October 12th, 1914.

No. of Days after Salvarsan.		Milligrams of As ₂ O ₃ in 100 c.cm. Urine.	
2	0.4
4	0.2
7	0.2
10	0.15
13	0.1

CASE IV (continued).—0.5 gram salvarsan given October 29th, 1914.

No. of Days after Salvarsan.		Milligrams As ₂ O ₃ in 100 c.cm. Urine.	
4	0.4
7	0.4
10	0.2
13	0.1
16	0.03
21	0.025

CASE V.—T. 0.5 gram salvarsan given November 11th, 1914.

No. of Days after Salvarsan.		Milligrams As ₂ O ₃ in 100 c.cm. Urine.	
3	1.33
5	0.8
8	0.33
11	0.12

CASE VI.—F. 0.5 gram salvarsan given October 12th, 1914.

No. of Days after Salvarsan.		Milligrams As ₂ O ₃ in 100 c.cm. Urine.	
2	1.33
4	0.4
7	0.16
10	0.11
13	0.025

II. Analysis of Milk.

CASE I.—This was kindly sent by Dr. McIntosh and Dr. Fildes, of the London Hospital. The mother was suffering from ulceration of the throat and a macular rash of two months' duration. Her child, aged 5 months, had a rash on the body and well marked enlargement of the spleen. On March 13th, 1911, the mother received 0.4 gram salvarsan intravenously, on March 16th 0.5 gram salvarsan intravenously, and on March 21st 0.6 gram salvarsan intramuscularly. The child was suckled all the time.

All symptoms of syphilis in the mother and child rapidly cleared up within five days of the second injection.

Analysis of samples of milk from the mother taken

- (a) Seventy-two hours after the first injection,
(b) Twelve hours after the second injection,

showed in the first case (a) the merest trace of arsenic—0.006 mg. of As₂O₃ per 100 c.cm. milk. In (b) no trace of arsenic was present.

CASE II.—B. A mother suffering from syphilis received on March 8th, 1912, 0.5 gram salvarsan given intravenously, on March 27th 0.6 gram, and on April 17th 0.6 gram.

Samples of milk were collected: (a) Five and a half hours, (b) ten and a half hours, (c) sixteen hours, (d) forty hours, and

(c) eighty-eight hours after the first injection. All of these samples were entirely free from arsenic.

III. Analyses of Blood.

CASE I.—"S." kindly sent by Dr. A. Fleming, May, 1914; 0.6 gram salvarsan given intravenously. Blood taken one hour after injection. On analysis 0.33 mg. of arsenic (As₂O₃) were found in 100 grams of blood.

CASE II.—"B." kindly sent by Dr. A. Fleming; 0.6 gram salvarsan given intravenously July 1st, 1914. Blood drawn off one hour after injection. The serum was separated from the clot. In 100 c.cm. of serum 0.5 mg. of arsenic (As₂O₃) were found. The clot contained no arsenic.

IV. Cases in which Death occurred after the Administration of Salvarsan or Neo-salvarsan.

CASE I.—A. E., aged 12. Case of congenital syphilis with ascites and cirrhosis of liver. Salvarsan was given, 0.3 gram on September 1st, 1911, and 0.3 gram on September 8th, 1911. The patient died on September 16th, 1911. Death was not accelerated by the administration of the salvarsan, since this was given as a last resort, the condition of the patient being hopeless before its administration. The liver contained arsenic corresponding to 2.5 mg. per 100 grams.

CASE II.—A female, aged 23, suffering from secondary syphilis. Given 0.4 gram salvarsan on November 30th, 1911, and 0.4 gram on December 4th, 1911.

A rise of temperature occurred after the first injection, and also after the second. On December 7th epileptiform convulsions occurred, and coma supervened. The urine contained much albumin, death occurring on the same day after a few hours.

Post-mortem examination showed fatty degeneration of the heart muscle, and cloudy swelling, with focal necrosis of the liver. Analysis showed that the liver contained arsenic in amount corresponding to 0.83 mg. per 100 grams.

CASE III.—A patient suffering from symptoms of syphilitic meningitis. On admission to hospital on August 28th, 1912, he was stuporose. He complained of headache and pain at the back of the neck. Vomiting occurred. There was ptosis of the right eyelid, and weakness of the right side of the face. Both plantar reflexes were extensor. The Wassermann reaction of the blood was positive; that of the cerebro-spinal fluid negative. On August 30th 0.5 gram of salvarsan was given intravenously. Collapse occurred four hours after, and death twenty-nine hours later.

Post-mortem examination showed that death was due to haemorrhage from a small aneurysm of the basilar artery. Analysis showed that in the liver arsenic was present in amounts corresponding to 4 mg. per 100 grams; in the brain only a mere trace was present—0.01 mg. per 100 grams.

CASE IV.—G. Tertiary syphilis. In January, 1913, 0.4 gram of salvarsan was given intravenously; there was some collapse a few hours after, but the patient recovered quickly, and was well in twenty-four hours. On July 26th, 1913, 0.4 gram of salvarsan was given intravenously; the patient was quite well after twenty-four hours, but on July 30th, 1913, the patient was seized with acute abdominal pain and pain at the back of the neck at 10 a.m. At 12.30 p.m. he was comatose and collapsed; at 5.45 p.m. he was in the same condition, with some oedema of legs. Death occurred at 9 p.m.

Apost-mortem examination was made by Dr. Salusbury Trevor, and the case was regarded as one of salvarsan poisoning.

CASE V.—Tertiary syphilis with gummata of legs. 0.6 gram salvarsan given on May 9th, 1914, caused no toxic symptoms. On May 23rd 0.6 gram salvarsan given; a rise of temperature and shivering occurred in the evening. On May 25th aphasia occurred, and later coma supervened, with convulsions and death at 10 p.m.

Post-mortem examination by Dr. Spilsbury showed some thickening of pia mater and arachnoid membrane in the brain. The heart showed very advanced fatty degeneration. A small gumma was present in the lower lobe of the left lung. The liver showed advanced fatty degeneration of the cells in the centre of the lobules. The kidneys were enlarged and showed cloudy swelling.

Analysis showed:

Liver:	1.1 milligrams of arsenic as As ₂ O ₃ per 100 grams.
Kidney:	0.2 milligram of arsenic per 100 grams.
Spleen:	2 milligrams of arsenic per 100 grams.
Brain:	No arsenic present.
Spinal Cord:	No arsenic present.
Stomach Contents:	0.08 milligram of arsenic (As ₂ O ₃) per 100 c.cm.
Aorta:	0.025 milligram of arsenic per 100 grams.

CASE VI.—M. H., aged 19 (London Hospital case).

On January 3rd, 1913, salvarsan 0.6 gram was given. On January 9th the patient vomited and became comatose; death occurred on January 12th.

Analysis showed:

		Milligrams of Arsenic (As ₂ O ₃) per 100 grams.	
Small intestine	0.1
Large intestine	0.11
Liver	0.16
Kidney	0.13
Spleen	0.17
Spinal cord	? Trace.

CASE VII.—Specimens kindly sent by Dr. McIntosh and Dr. Fildes. The patient had suffered from acute meningo-

encephalitis of syphilitic origin. On May 26th, 1913, epileptiform convulsions and coma occurred. May 29th, 0.9 gram of neo-salvarsan was given. Collapse occurred three and a half hours later, and death in four and a half hours.

Analysis showed:

	Milligrams of Arsenic per 100 grams.
Liver	0.8
Kidney	1.0
Bone	0.07
Muscle	0.06
Blood	0.05
Brain	0.02

CASE VIII.—Dog, weight 24 lb. 3 oz. Neo-salvarsan 0.3 gram was given, and the animal killed twenty-four hours later. Specimens kindly sent by Dr. McIntosh and Dr. Fildes. Arsenic (As_2O_3) was found in the organs as follows:

	Milligrams of Arsenic per 100 grams.
Liver	1.0
Kidney	0.4
Muscle	0.08
Blood	0.1
Brain	Trace only
Bone	Trace only

CASE IX.—Specimens kindly sent by Dr. McIntosh and Dr. Fildes. The patient was admitted to hospital suffering from secondary syphilis and acute nephritis on May 27th, 1913. On June 20th 0.9 gram neo-salvarsan was given; no ill effects followed. On June 27th 0.9 gram neo-salvarsan was given. On June 29th there was severe headache; on June 30th restlessness and drowsiness; on July 1st convulsion, coma, and death.

Analysis showed the presence of arsenic in the organs as follows:

	Milligrams of Arsenic per 100 grams.
Liver	0.2
Kidney	1.55
Muscle	0.03
Blood	0.02
Brain	Trace only
Bone	Trace only
Suprarenal gland	? Trace
Skin	Nil
Aorta	Nil

It is interesting to note that in this case, in which acute nephritis was present, a very high relative percentage of arsenic was found in the kidney.

CASE X.—Specimens kindly sent by Dr. McIntosh and Dr. Fildes. An infant, aged 3 weeks, suffering from severe symptoms; there was a marked nummular eruption on the arms and legs, and pemphigus was present on the hands and feet. There was ulceration and discharge from the nose. On March 28th, 1911, salvarsan 0.02 gram was given; on March 30th 0.04 gram; and on March 31st 0.04 gram, on each occasion intravenously. Death occurred on April 1st, 1911.

Analysis showed the presence of arsenic in the organs as follows:

	Milligrams of Arsenic (As_2O_3) per 100 grams.
Liver	0.4
Kidneys	0.49
Spleen	0.39
Suprarenal gland	0.17
Lung	0.03
Brain	Absent

For kindly co-operation and help in the work detailed in this paper we are greatly indebted to Dr. J. McIntosh and Dr. Paul Fildes, of the London Hospital; to Dr. B. H. Spilsbury, of St. Mary's Hospital; and to Dr. A. Fleming, of St. Mary's Hospital, London.

REFERENCES.

¹ McIntosh, Fildes, and Dearden, Salt Fever in the Treatment of Syphilis by "606," *Zeit. für Immunitätsforschung*, January, 1912; also *Lancet*, March 9th, 1912. ² McIntosh and Fildes, the Fixation of Arsenic by the Brain after Intravenous Injection of Salvarsan, *Proc. Roy. Soc., B*, vol. lxxxviii, 1914.

A CASE OF GAS GANGRENE EXHIBITING UNUSUAL PROOFS OF A BLOOD INFECTION.

BY

G. T. MULLALLY, AND J. W. McNEE,
F.R.C.S. Eng., CAPTAINS R.A.M.C., M.D.

(From a Casualty Clearing Station and a Mobile Laboratory, France.)

This case is reported because it presented, in an unusual and convincing way, proofs of the occurrence of a blood infection with gas-forming organisms. No similar case has occurred in our considerable experience of gas gangrene, nor have we heard of any other like it. The essential facts may be given at once:

Private —, Argyll and Sutherland Highlanders, was wounded late at night on March 18th, 1915, by a bullet which entered the right arm, fracturing the humerus. Gas gangrene developed in this wound on March 21st—that is, two and a half days after the injury. As the man passed through a field ambulance on March 19th he received the usual antitetanic injection below the left nipple, and was thereafter evacuated at once to a casualty clearing station. On March 20th he complained of pain at the site of the serum inoculation, and by March 21st a definite patch of gas gangrene had appeared there. On March 20th, the day after admission to the casualty clearing station, a hypodermic injection of pituitrin was made into the left forearm to combat collapse. By March 22nd the site of this puncture showed also an area of gas gangrene.

From these three places (right arm, left pectoral region, and left forearm) and also from the blood the same type of gas-forming organism was isolated by cultures made on March 22nd. This organism was of the "malignant oedema" type, most of the bacilli showing central spores.

The arm was amputated on March 24th, and the man made a good recovery, being evacuated to the base on March 27th. Subsequently information was received that he made good progress for some time, but later developed "pneumonia," from which he died on April 17th, a month after the original wound.

A brief account of the clinical features and the bacteriological findings are given below, in detail, to complete the record of the case.

The important facts in this case seem to be:

1. The rapid appearance of gas gangrene at three distant sites in the body. It is evident that the slight local injuries caused by the antitetanic injection at the field ambulance and the hypodermic injection of pituitrin at the casualty clearing station, offered suitable foci for organisms circulating in the blood stream to come to rest and develop.

2. Bacteriological evidence was obtained of what had been proved to us in nature—namely, that the gas-forming organisms had invaded the blood stream.

3. The fact that the man recovered from this severe infection sufficiently to be transferred to the base three days after the arm was amputated is in itself remarkable.

Private —, Argyll and Sutherland Highlanders, was wounded in the right arm on March 18th, 1915, and admitted to a casualty clearing station next day. When admitted he was in a state of profound collapse and almost pulseless. The bullet had entered the back of the right upper arm, and emerged in front and to the inner side, making a large ragged wound. The humerus was fractured, and the brachial artery torn across. Antitetanic serum had been injected at a field ambulance before admission. On the following day he was rather better, and the wound was thoroughly syringed out with peroxide solution. Towards evening he collapsed again and became almost pulseless. The wound was dressed, and at this time showed no definite evidence of gas gangrene. Although somewhat delirious, he now began to complain of pain in the left pectoral region, where the antitetanic injection had been given. Next morning a little crackling was felt over this area, but this was at first put down to air having, perhaps, been injected along with the serum. Owing to the collapse, he was given during the night a hypodermic injection of pituitrin into the left forearm. On March 21st his general condition was unchanged, but a large patch of gas gangrene was now evident on the inner side of the right arm and forearm, below the exit wound. Another patch of gangrene was also found on the left side of the chest, including the area of the antitetanic injection. Both gangrenous areas were freely incised and dressed with peroxide solution. The affected area on the chest wall

MAJOR W. L. KELLER, Medical Corps, U.S.A., has, we learn from the *Military Surgeon* for February, sent to the Surgeon-General of the United States Army a communication in which he says that he treated many varieties of sciatica during the past year, and has found no treatment so useful as the injection of novocain into the sacral canal through the hiatus sacralis; 4 c.cm. of a 5 per cent. solution was dissolved in 100 c.cm. of normal salt solution and sterilized by boiling. The patient was placed in the knee-chest position, and the region of the sacrum and coccyx rendered sterile by iodine. A needle from 6 to 10 cm. long, attached to a large glass syringe, was used to inject from 60 to 120 c.cm. of the solution. One injection gave absolute relief in the majority of cases, but three or four might be required. The effect was immediate, and the patient could usually walk without pain or limping when he left the table.

included skin and subcutaneous tissue only, the structures below the deep fascia not being invaded. On March 22nd he was not so well, and a further patch of gas gangrene had appeared on the outer side of the left forearm, where the pituitrin had been injected. This new area was incised, and treated as in the other cases. Cultures from all three wounds, and also from the blood, were made on this day (*vide infra*).

He now began to improve, in spite of a certain amount of spread of the gangrenous condition on the left chest into the axilla, which necessitated further incisions. The right arm was amputated above the wound on March 24th, after which the man made a good recovery, being strong enough to be evacuated to the base on the 27th.

The following are the details of the bacteriological examination:

Films were made from all three wounds, and stained by Gram's method. In all the films bacilli of malignant oedema type, showing central spores, were recognized, along with a variety of other organisms. Cultures were made from all three wounds and from the blood in the following media:

1. Shake culture in large tubes of glucose agar.
2. Broth cultures made partly anaërobic by placing a wad of cotton-wool, soaked in a mixture of pyrogallol acid and caustic soda, in the tube below the rubber stopper.

By both of these methods growth was readily obtained of an organism, which later showed central spores, and was morphologically identical with the bacillus of malignant oedema. The same organism was obtained in the cultures from all the wounds, and from the blood as well. As regards the blood, 5 c.cm. of which was used to inoculate the tubes, the broth culture yielded the better result. In all the glucose agar tubes inoculated there was marked production of gas, splitting up the medium.

We are indebted to Major H. Rogers, R.A.M.C., for permission to record this case.

AMPUTATIONS AT BASE HOSPITALS IN FRANCE.

By C. GORDON WATSON, C.M.G., F.R.C.S.,

LIEUT.-COLONEL R.A.M.C. (TEMP.);

O.C. No. 1 RED CROSS (DUCHESS OF WESTMINSTER'S) HOSPITAL.

From time to time letters have appeared in the medical press from surgeons at home criticizing the methods of their surgical confrères on this side the Channel, and no small share of this criticism has fallen on the flush amputation. Nevertheless, this method, after a run of eighteen months, is still the operation of choice in the class of case for which it came into use—severe sepsis threatening life. Our methods, especially in cranial and joint surgery, have varied from time to time, and the pendulum has swung to and fro between the radical and conservative, but our methods of amputation in cases of severe sepsis have throughout been governed on "coalition" lines; radical in the relief of sepsis and gangrene, conservative in saving life.

Flush Amputation as a Life-saving Device.

The flapless or flush amputation, the method of Antyllus, was revived in this war as a life-saving device, to deal with a special class of case seldom seen in civil life (emphysematous gangrene), because it was found to be the most efficient method, and not because of the ease of its performance, as some critics have suggested. In dealing with these cases, when amputation is decided on, three main points have to be kept in view:

1. To keep the patient alive during and after the operation.
2. To perform an operation which will check the spread of infective gangrene and prevent septicaemia.
3. To save as much of the limb as possible.

Gas Gangrene in Civil Practice.

In civil practice, amputations for crushed and mangled limbs are usually performed early, before the onset of serious sepsis, and can in most instances be conducted on

orthodox lines, without the prospect of re-amputation. In rare instances, however, acute spreading traumatic gangrene follows rapidly on fractures of the "run over by motor bus" variety. The infection is then usually streptococcal and anaërobic, with the formation of gas. Emphysematous gangrene, once it commences in the damaged tissues, spreads like lightning. Immediate amputation is required to save life, and any attempt to secure primary union will not only be useless but probably fatal. Anyone who has met with a case like this in civil practice must have been profoundly impressed.

Gas Gangrene in Gunshot Wounds.

"Gas gangrene" following gunshot wounds in this war, instead of being a rare occurrence, as in civil practice, is quite common. The onset and progress of the gas distension of a limb which precedes the gangrene is rapid beyond belief, unless seen.

In one case of wound of the thigh under our care, within six hours of the first signs of the onset, gas had extended up to the axilla and down to the ankle.

In another case of a wound in the region of the great trochanter, at 9 p.m. the wound (which had been freely laid open) showed no signs of gas. In under ten hours the man was dead, having suffered much agony, and the opposite thigh, which was uninjured, was blown up with gas to an enormous size.

The toxæmia is so fatal as to be unparalleled. Within a few hours of the onset of physical signs of gas, extensive gangrene may develop in the wounds, and life will hang upon the slender thread of an immediate and rapid amputation, with the minimum of shock.*

As the gas distends the fascial planes, pain becomes very severe, and the limb may swell to an enormous size, but with the onset of gangrene the pain usually disappears. The mental faculties may remain unclouded (despite profound toxæmia) on the very threshold of death.

When infection becomes general, on auscultation, gas may often be heard circulating in the heart, like the sound of a boiling kettle. This gives rise to great distress, and often to a shallow, contorted, almost tetanic facies. Extreme pallor is a marked feature of general infection. This may come on so suddenly as to raise the suspicion of internal hæmorrhage, and I have known a tourniquet applied to a thigh (where there was no wound of exit) until the diagnosis could be cleared up. A general infection is usually fatal from cardiac failure or gas embolism. After death not only the damaged limb but the entire body, including the great veins, liver, etc., may be distended with gas.

With this pitiful picture surgeons in France are only too familiar. Fortunately experience has taught that if the case is seen early the patient, if not the limb, can in most instances be saved. In the earliest stage, when the typical gas odour appears and a few bubbles can be squeezed from the wound, heroic incisions and the freest possible drainage, followed by constant lavage with sodium hypochlorite, will usually succeed; but if the case has come under observation when gas has begun to spread into the intramuscular planes beyond the site of injury and the limb has begun to swell, amputation is imperative. Any attempt to perform a complete amputation (that is, with flaps to cover the bone) must be made through uninfected tissues, which would not be possible in most instances, as the majority of these are thigh cases. Even when the conditions may appear favourable for a primary flap amputation clear of existing infection nothing will be gained by this procedure in the great majority of cases, for the following reasons.

Disadvantages of Flap Amputation.

1. There will be less chance of ultimately saving the patient's life because there will be less chance of checking the infection.
2. There will be more chance of the patient losing his life at the time from shock.
3. For the amputation to succeed it will have to be performed as high or higher in the limb than the second stage of a primary flush amputation.
4. Healing by first intention cannot be expected. (The cases must be seen on the spot to appreciate this.)
5. The risk of secondary hæmorrhage (a very grave danger in these cases) is greatly increased. Since the

* Intravenous ether anaesthesia is invaluable in these cases.

routine adoption of the flush method we have had the good fortune to lose no case from secondary haemorrhage following amputation in this hospital. The only death in this hospital from secondary haemorrhage after amputation, during the last six months, occurred in a case operated on near the front by the flap method. Secondary haemorrhage occurred during transit and again after admission to this hospital.

6. The need for re-amputation for sepsis or haemorrhage may be expected at a time when the patient is unable to stand further operation, and often when there is no more limb available for an amputation.

Advantages of Flush Amputation.

The advantages of the flush method are:

1. Rapidity with minimum shock.
2. A plain open surface for dressing, which is favourable to the subsequent control of sepsis and which prevents pocketing.
3. Great diminution in the risk of secondary haemorrhage.
4. The operation provides the best mechanical relief of gas tension by dividing all the tissues at right angles to the muscle planes.
5. It allows a temporary amputation to be performed close to the site of injury, so that a permanent amputation can be performed later (when sepsis is under control) a little above the injured area.
6. In cases associated with fracture the proximal end of the bone can be, and should be, left intact (that is, not sawn through) and projecting beyond the plane of muscle section, thus minimizing the risks of osteomyelitis and also providing a useful medium (a) for the application of pressure by means of dressing in case of haemorrhage (a practical point of great value), (b) for moving and fixing the limb, (c) for the application of extension to the skin.

The flush circular method may be modified, according to circumstances, by a single skin flap cut from the damaged area and turned back, thus saving a few inches of bone in the final result, although this flap is liable to slough owing to anaërobic or streptococcal infection.

Amputations for Conditions other than Gas Gangrene.

In my experience amputations are seldom called for at the base hospitals for other conditions. Cases of fractured femur, unless they develop gas infection or severe streptococcal infection, are so well and so thoroughly treated that most of the limbs are saved. Useless mangled limbs, even though not "gas infected," are best treated by the flush method in the first instance, because by this method (owing to the nature of the sepsis) more limb is saved in the end. A few cases of dry gangrene are met with in which an orthodox amputation can be performed at the seat of election.

In field ambulances or casualty clearing stations conditions are somewhat different, and it may be, and often is, practicable to perform amputations with flaps for severely damaged limbs before the onset of sepsis, just as in civil practice. Even under these more favourable conditions the result may be vitiated by a hurried evacuation (as occurred in the case mentioned above). These remarks refer in the main to the lower extremity. Gas infection in the arm is not only less common but also less serious.

After-Treatment of Flush Amputation.

After-treatment of the flush amputation seems to give rise to trouble at home. In many instances at this hospital the amputations have been completed by a secondary operation, and in every case with satisfactory results. Unfortunately, we have been compelled to send most of the cases home after the primary amputation.

The secondary amputation should be done as soon as sepsis is under control and the general condition of the patient is favourable to further amputation, and before extensive cicatrization has occurred.

The details of the secondary amputation are important. If flaps are cut and muscle planes opened up, a "flare up" may be expected, but if the muscle attached to the bone is carefully separated from the periosteum by snipping with scissors until the amount of bone required to be removed has been bared, and if the bone is divided without lacerating the granulation tissue, the operation can be

done without any local or general reaction. Before dividing the bone, the handle of a Lane's bone elevator should be passed over the bone and the blade held upwards by an assistant. This serves to protect the soft parts from the saw and to steady the limb. The flexible metal of the fracture box can be used to serve the same purpose. The skin can be brought together without undercutting and need not necessarily be sutured at the time, although sutures should be inserted for tying later. Deep mattress sutures should be used and rubber tubing inserted beneath the loop and knot of the stitch to avoid sloughing of the skin from pressure. This stage is greatly facilitated if a single flap has been cut and turned back in the first instance. The periosteum should not be stripped back from the bone, otherwise new bone is thrown out in the muscles. During the interval between the first and second operation the skin should be kept stretched by means of an extension attached either to a weight and pulley or to the bone stump, if long enough, or to a Thomas's knee-splint. A big metal ring (18 in. diameter) may be used for the stirrup to facilitate dressing.

When the bone is left long and projecting beyond the divided muscles, troubles in the form of necrosis and intramuscular callus should not arise, troubles which have formed the basis of some complaints in the past. Some critics seem to imagine that the operation is performed (when the bone is cut short) as a permanent procedure, and that healing by granulation is to be awaited. This involves a very prolonged convalescence, and in all probability a painful stump with indifferent skin prone to ulceration. The second operation can and should be performed before any serious cicatricial contraction has occurred. In several instances this has been done here under gas and oxygen, and a completely healed and comfortable stump has been secured within a month of the original amputation.

Consultants to Consult.

A well-known surgeon, who has retired from practice, writing in the *Lancet* (August 7th, 1915) to criticize this operation, says: "It must be remembered that our younger surgeons at the front have no experience to guide them; they are largely guided by what they have read." Every surgical base has the advantage of the advice of a consulting surgeon (contemporaries, more or less, of our critic). Practically all the surgery is done by surgeons who in civil life are on the staff of one or other of the London or provincial hospitals. These surgeons are, in fact, not guided by what they have read, but by what they have seen out here, and should be far better judges (aided by the consultants) of the fitness of any procedure than those who base their opinions of conditions in France on what they read or even on what they see at home when the danger of death has been surmounted by the procedures they call in question.

THE AFTER-TREATMENT OF AMPUTATION STUMPS.

By C. W. G. BRYAN, F.R.C.S., TEMP. CAPTAIN R.A.M.C.,

BRITISH EXPEDITIONARY FORCE.

[SURGICAL REGISTRAR, ST. MARY'S HOSPITAL, LONDON.]

In amputations performed for septic gunshot wounds it is usually necessary to leave the wound unsutured, and often a rapid operation has to be carried out with flaps insufficient to cover the end of the bone, which must be excised at a later date.

At the exhibition of fracture apparatus at the Royal Society of Medicine in October, 1915,¹ Sir George Makins showed a short Thomas's knee-splint for exerting traction on the soft parts of an amputation stump. I have been using recently a simple and easily-made arrangement which has the advantage of permitting the wound to be dressed without relaxation of the pull on the soft parts, a continual powerful extension of skin and muscles being kept up.

A ring of aluminium, having a diameter of eighteen inches, is made from a length of the splinting supplied in the regulation field fracture box. All round the amputation stump, from the joint above to about an inch from the edges of the wound, longitudinal strips of two-inch

adhesive strapping are applied; these strips are prolonged about twelve inches beyond the end of the stump and attached to the aluminium ring. The ring is then suspended by three pieces of cord, tied to it equidistant from one another, the cords passing through pulleys hooked to a

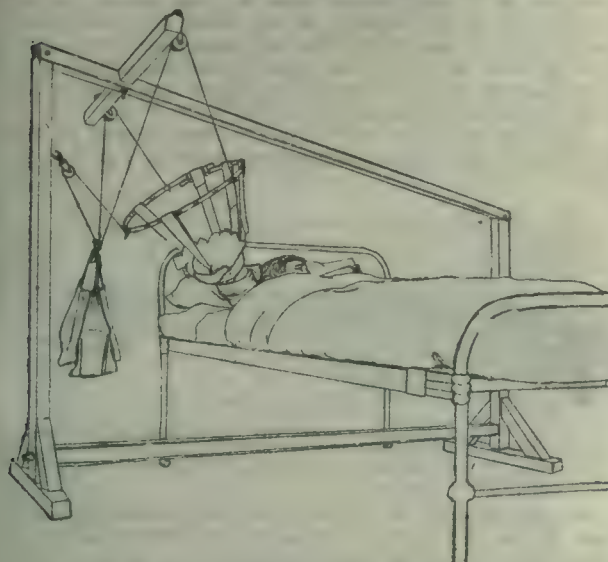


FIG. 1.—The extension apparatus applied to a stump after amputation through the upper third of the arm.

Balkan splint, to which an extra bar of wood has been bolted (Figs. 1 and 2).

The free ends of the cords are tied together and one or more weights are hooked on, at or near the point of junction, so adjusted that the tension on the three cords is approximately equal. For a thigh amputation a weight of about 8 lb. is used, and for the arm about 5 lb. suffices. For an amputation stump of the lower extremity, the foot of the bed is raised on blocks to provide counter-extension.

The wound is accessible for dressing through the open ring, the pull on the soft parts being kept up uninterruptedly.

The method is used as soon as the acute inflammation of the wound has subsided. If long flaps have been fashioned, they are pulled down by the appliance and their edges approximated. If it has not been possible to form



FIG. 2.—The extension apparatus applied to an amputation stump of the thigh.

long flaps the bone may not be covered, but the soft parts are kept from retraction until such time as a secondary removal of bone can be carried out.

When the wound is granulating and sufficiently healthy to permit of partial closure, the soft parts are dissected up from the bone, and the necessary amount of the latter is removed; in some cases the skin edges can be approximated by a few mattress sutures, free drainage being provided. The extension is then reapplied and kept up until the wound is completely healed.

If at the first operation it is possible to suture the amputation wound, it is advantageous to take the tension

off the flaps in the way here described, and for the same purpose it may be of use for amputations in civil practice.

The appliance allows the patient free movement and encourages mobility of the joint above; if necessary, the position of the Balkan splint is moved from day to day for this purpose.

I have used the aluminium ring attached to a Thomas's splint, but the method of extension by weight and pulley gives more powerful and continuous traction than a fixed extension, it allows more movement in the joint above, it adjusts itself to the patient's movements in bed, and he is more comfortable and more easily nursed.

I wish to express my thanks to Lieutenant-Colonel T. McDermott, R.A.M.C., for permission to publish this note, and to Lieutenant C. H. Hopwood, R.A.M.C., for the photographs with which my description is illustrated.

REFERENCE.

¹ BRITISH MEDICAL JOURNAL, October 16th, 1915, p. 574.

A METHOD OF TREATING GUNSHOT FRACTURES BY AN EXTERNAL FIXATION APPARATUS.

BY

B. SANGSTER SIMMONDS, M.B., B.S. LOND.,
GRAYLINGWELL WAR HOSPITAL, CHICHESTER.

THE difficulty of maintaining the bones in good position in some cases of gunshot wound, in which large septic wounds were present, led me to devise this method.

My plan is by means of an aseptic operation to insert into the bone, at a distance from the seat of fracture, screws which are long enough to project well beyond the surface of the skin, and to immobilize the fragments by means of a rigid plate fixed to the screws by nuts, the whole operation being done without interfering with the original wound.

Since I have devised this operation I find that other methods of fixation by means of an external apparatus have been used, but can find no record of such an apparatus being used for the treatment of compound fractures. Parkhill, by means of an open operation, exposed the fractured ends of the bone, placed them in correct position, inserted long screws and fixed them in position by an apparatus external to the skin, afterwards closing the wound. Lambotte has described an apparatus for the treatment of simple fractures by means of a rigid bar external to the skin attached to four long screws inserted into the bone. In this case also the bones are placed in position by means of an open operation, and I can find no statement that he has used it in septic compound fractures. Further, the apparatus also is complicated and expensive.

Experience in all recent wars up to the present has taught that in cases of septic compound fractures the wound should in no case be explored, on account of the risk of the serious spread of infection. But in the present war some surgeons have plated these fractures, leaving the wounds freely open, with excellent results. This operation, I believe, however, is not recommended by the majority of surgeons, the results in many cases being unsatisfactory.

The apparatus which I have been using is shown in FIG. 1. It consists of a plate of the form indicated made

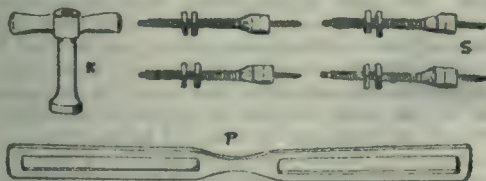


FIG. 1.—The apparatus used in the operation.

of sheet brass $\frac{1}{8}$ in. thick and plated with tin, four screws long enough when fixed in the bone to extend about $1\frac{1}{2}$ to 2 in. beyond the skin, and a pair of nuts for each screw by means of which the plate is fixed in position. The screws I have been using consist of a wood screw thread for screwing into the bone, attached by means of a collar to

a $\frac{1}{8}$ in. steel rod in which is cut a thread for the nuts. The collar by means of which the two are joined forms a shoulder up to which the wood thread is screwed home into the bone. The distal end of the screw has a square section, to which a clock key is fitted for screwing it into the bone.

The operation is performed as follows:

The arm is shaved and the skin cleaned as far as possible the day before the operation, and the parts above and below the wound are covered with a sterile dressing and a mackintosh, to prevent as far as possible any soiling by the discharge from the wound. When the patient is under the anaesthetic the wound is covered with dressings



FIG. 2.—Arm after operation.

and a sterile bandage, the whole of which is painted with tincture of iodine. The bandages above and below the wound are then removed, the skin is well cleaned with petrol or acetone, and when quite dry is painted with iodine.

The limb is then manipulated to bring the fragments into as perfect position as possible. In the case of the humerus and radius the posterior surface of the bone is selected for operation; in the case of the tibia the subcutaneous surface.

The point for insertion of the first screw is the highest point of the shaft of the bone, paying due regard to important structures, such as the circumflex nerve. A longitudinal incision, $\frac{1}{4}$ in. long, is made over the centre of the surface of the bone at the point selected. With a blunt dissector a passage is cleared down to the bone, the compact layer of which is then drilled with a hand drill. The point of the screw is made to enter the hole, and by means of the clock key is screwed home. It is very important that no pressure whatever shall be used



FIG. 4.—Fractured tibia. Lateral view immediately after operation.

when the screw has once commenced to bite, the clock key merely being held between the finger and thumb so that the screw cuts its own way into the bone. In a similar way the second screw is inserted in the lower end of the shaft. These two screws can now be used if necessary in order to manoeuvre the fragments into more perfect position. The plate is then placed in position over these two screws and used as a guide in making the incisions for the third and fourth screws, which are inserted in the same way. Great care must be exercised in inserting the screws parallel to each other and at right angles to the surface of the bone; if this is not done accurately the screws will not pass through the slot in the plate.

The nuts are placed one on each side of the plate on each screw, and when the plate is in position are tightened with a spanner. The wounds through which the screws pass are then dressed with small pieces of gauze soaked in collodion or Whitehead's varnish.

The plate can be bent slightly to counteract any slight error in the position of the screws, but only in the first case I treated in this way was any bending necessary.

The plate used for the radius is made slightly curved to follow the curve of the bone; for other bones it is straight.

In cases of fracture of both bones of the forearm it is only necessary to correct the displacement of the radius, as when this is brought into correct position the ulna always corrects itself. I first noticed this fact by examining skiagrams of several dozens of cases of badly comminuted fractures of the shaft of the ulna in which the radius was intact. In no case was there any linear displacement of the fragments whatever. The only exception I have seen was a case in which the interosseous membrane and muscles were badly lacerated, the upper fragment of the ulna projecting through the wound.

The converse does not hold true on account of the attachment of the pronators and supinators to the radius.



FIG. 3.—The same case. Lateral view of forearm after operation. The screws were left in for nine weeks, during which time there was no rise of temperature, and no suppuration in any of the screw holes.

In the majority of the cases treated in this way there was no rise of temperature whatever following the operation. In one case of gunshot wound of the forearm, with comminuted fractures of the middle of the shafts of the radius and ulna and large septic entrance and exit wounds, the plate was left in position for nine weeks; when the screws were removed there was no sign of suppuration in any of the screw holes. In some other cases there has been some superficial suppuration in some of the screw holes, which did not, however, necessitate removal of the screws till firm union was obtained.

The great advantages of this method are: First, that the apparatus is simple and inexpensive; those I have used have been made on the premises by the engineer at Graylingwell War Hospital, Chichester, at the cost of a few shillings. Secondly, that the operation is simple and rapidly performed, the original wound is not interfered with, and healthy tissues are not extensively opened.

I have not tried this method in cases of fracture of the femur, as most of our cases have been four or five weeks

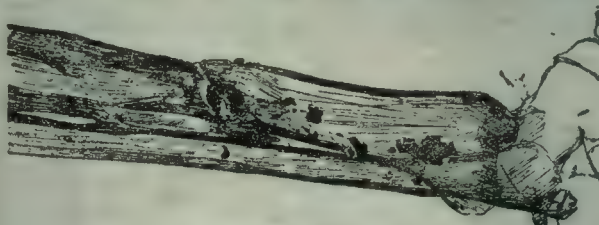


FIG. 5.—Fractured tibia. The same case, four weeks after removal of screws. Lateral view.

old when admitted. The apparatus, however, would be suitable for cases sufficiently recent to enable one to get the fragments into position by extension on the operating table. For this purpose I have had screws made sufficiently long to pass right through the femur, thus penetrating both compact layers of the bone, and so giving much greater strength to the apparatus.

With suitably shaped plates I intend to try it in cases of fractured jaw, clavicle, and other bones.

Owing to the difficulty of joining a wood screw to one with a thread for nuts the collar is somewhat clumsy, and I am now having screws made in one piece, the thread for screwing into the bone being cut with an ordinary die and at the end being ground to a point in such a way that it forms a tap to cut its way into the bone.

P.S.—Messrs. Down Bros. are now making these plates of steel in four sizes for radius, tibia, humerus and femur, and screws for these made in one piece.

THE late Surgeon-Major Frederic Carter, of Ongar, Essex, who served in the Mutiny, left estate valued at £34,343.

A NOTE ON DYSENTERIC ARTHRITIS.

BY

T. GILLMAN MOORHEAD, CAPTAIN (TEMP.) R.A.M.C.

JUDGING from the scanty literature at my disposal, the occurrence of arthritis, single or multiple, as a complication or sequel of amoebic dysentery has received very little attention, though some writers, such as Phillips, briefly refer to it, and Manson states that a condition resembling gonorrhoeal rheumatism has frequently been noted as a sequel, and that at least one epidemic has been recorded in which a large proportion of the cases became affected in this way. Osler also briefly refers to the possibility of its occurrence.

As, however, its practical importance seems to have been overlooked, I write this note with the object of pointing out that in all cases of arthritis occurring in our troops a history of dysentery should be inquired for, and, if such a history is obtained, a course of emetine should at once be ordered. In my experience of six recent cases emetine clears up the arthritis most rapidly after other treatment has failed.

In four out of the six cases there was definite proof that amoebic dysentery had been present, either by the finding of amoebae in the stools at the time the arthritis was present, or owing to the fact that the patient had been previously treated in this hospital for amoebic dysentery, and that amoebae had been found at the time of this treatment.

In two cases the history of dysentery while at the peninsula was quite definite, but I had no means of determining whether the dysentery had been of the amoebic or bacillary variety. One of these cases—a bad one—was given both serum and emetine; the other was treated by emetine alone, and both rapidly recovered.

The case that first called my attention to the subject was that of a man who was admitted on December 4th, 1915, suffering from well-marked amoebic dysentery, confirmed by examination of the motions. He was given a course of 5 grains of emetine, and rapidly improved as far as the dysentery was concerned, but remained weak and very much pulled down.

On December 29th, 1915, our bacteriologist (Lieutenant Willmore) reported the stools as containing no amoebae.

On January 7th, 1916, he complained of severe pain in the right knee, and on the next day the joint was found to be much swollen, due to the presence of fluid and general thickening of the periarticular tissues. The condition, in fact, as Manson states, exactly resembled that of gonorrhoeal rheumatism. The patient was put on large doses of sodium salicylate and alkalies, but on January 9th the right knee was worse, the left knee was also involved, and the right elbow and both wrist-joints were also painful and swollen. By January 14th there was no improvement; the patient could not move in bed owing to the pain, and the slightest attempted movement of any of the affected joints caused acute agony. On this date it was decided to stop the salicylates, and to start a course of emetine injections.

By January 18th the wrist and elbow had practically completely cleared up, and the knees, while still swollen, were enormously improved, and could be moved freely without pain. A week later there was still further improvement, and in the first week of February the patient was able to get out of bed for a short time daily.

The other cases resembled this as far as the appearance of the affected joints were concerned, except that in none of the others were the joints of the arms involved, the knees being the joints to suffer most, as they were affected in all of the cases, while in two the ankles also, and in one the right hip-joint, were involved.

The complete proof that these cases of arthritis were amoebic in origin is wanting, as I did not feel justified in aspirating the joints, but if we may rely on the therapeutic test of rapid recovery under the use of emetine, there is little doubt as to the nature of the condition.

It is possible that the severe strain put on the joints by the life of a soldier renders them unusually liable to suffer, and if there should be any extensive appearance of the condition it is important that medical officers should be on the look-out for it, and should at any rate give anti-dysenteric treatment a trial.

THE King has granted Dr. Gordon O'Neill, Professor of Obstetrics in the Peiyang Medical Council, Tientsin, permission to wear the Seventh Class of the Order of the Excellent Crop, conferred upon him by the President of the Chinese Republic.

PRELIMINARY NOTE ON A DISEASE CALLED
"BUNGPAKKA."FOUND IN THE NORTHERN TERRITORIES
OF THE GOLD COAST.

By C. R. PATTON, M.B., CH.B.,

MEDICAL OFFICER WEST AFRICAN MEDICAL SERVICE.

THIS curious disease has been known to the natives of West Africa for some time, as the Chief of Tansia told me that he had had it at the time when the slave raider Samori overran the Northern Territories about twenty years ago. It goes by many names, according to the severity of the outbreak, to the locality and tribe in which it manifests itself. The various natives of the Gold Coast, the Northern Territories, the Nigerias, and the Senegal are said to recognize it readily, and it is probably even more widely spread, but information on the subject is scanty. In the Wa district, at any rate, certain low-lying villages in the swamps seem to be more adapted to the incidence and spread of "bungpakka" than others.

Names.

The multiplicity of names will probably give one an idea of its prevalence; thus, in the following languages its synonyms are:

Hausa: *Chewan daji* (?). In Robinson's Hausa dictionary is mentioned "a fever which breaks out when the guinea-corn is ripe (*Chiewo na sabon dawa*). To prevent being attacked by it the Hausas give presents of *dawa* to the poor."

Dagarti: *Bunyura*, *Bunyuri*, *Bungura*.

Walla: *Bungyura*.

Lobi: *Bungpakka*, *Bungpwakka*, *Bungpwakka*, *Bungworra*.

Season.

It occurs both sporadically and epidemically at the time when the guinea-corn and rice (*hakki*) are ripe and ready for harvesting—that is to say, just after the rainy season in the Northern Territories.

Sex and Age.

It attacks both sexes, and it occurs at all ages in those who are able to eat grain. Adults appear to be more prone to it than children.

Etiology.

The natives regard it as infectious. Some ascribe it to the sun's activity at this time of the year. It appears to me to be due to a micro-organismal infection which produces a neuro-toxic effect as well as a local reaction. In every one of the pus slides I examined I found a heavy infection of *saccharomyces*. Every precaution was taken to prevent contamination, and yet the fields showed yeast cells in all stages of gemmation. The slides were made, fixed, and stained as soon as the pus was taken from the abscess. The cultures showed a true fungus growth. No experiments were tried owing to lack of material. Personally, I am inclined to think that the disease is caused and perpetuated by a yeast fungus; the yeast spores probably remain in the mud bins in which the grain is stored awaiting a favourable opportunity to grow, they get their chance after the rains, when the interior of the bins becomes a hot moist chamber. The grain becomes infected in the bin, the people eat the grain raw, and being usually constipated, their intestines are secondary incubators. The yeast cells are probably absorbed from the intestine somewhat in the same way as fat is by migratory leucocytes, and thence into the general circulation.

Incubation Period.

The definite incubation period appears to be three days, during which there is malaise, headache, a sense of fatigue, anorexia, intense thirst, and constipation.

Symptoms.

The onset is sudden; one or more rigors may usher in the attack. The temperature rises rapidly to 103° or so. There is extreme tenderness in the muscles which are to be the seats of inflammation. Within twelve hours painful tumours make their appearance in the affected muscles; only the voluntary muscles are affected, and the abscesses seem always to occur near their insertions. There may be only one nodule, or a crop. In some

cases the distribution is bilaterally symmetrical. The tumours are deep-seated; they are hard, non-fluctuating, very painful, with their long axes either in or parallel to the long axes of the muscles affected. They do not correspond to lymphatic glands. Each tumour is about the size of an English hen's egg. They are at first hard and firm, and are easily visible and palpable; later on, if the patient survives, they become slightly soft, but never flabby. Usually, in mild cases, the abscesses point after some weeks, and burst if unopened. As a rule, the fewer the nodules the better the prognosis.

The natives often incise the nodules to relieve the symptoms; if white fluid exudes, the case is labelled fatal; if the fluid is yellow, the patient will recover. Sometimes there is no fluid, and then the Ju-ju man gives the patient a delphic reply. Some of the natives carry the scars of former "bungpaga" abscesses.

The patient is alert and sleepless on account of the great pain in the affected muscles. Sedatives have to be used in large doses before any relief is obtained; salicylates are of no avail.

If the patient survives the acute stage he stands a good chance of recovery. The deaths usually occur within the first week, the third and sixth days seeming to be the most critical. Even during convalescence (for two months or more) the patient exhibits an occasional febrile reaction.

Mortality.

"When it is called Bungpaga it is very fatal, nearly all die; but when we call it Bungyura most of the people recover." This is the typically oracular answer one gets from the natives. Some of the people consider the disease to be as fatal as sleeping sickness.

General Remarks.

From the investigations of Drs. Corson, Ryan, and myself we are inclined to believe that this is a special disease. The Hausas say that they have seen it occur among the other tribes, but not among themselves. Perhaps they wish strangers to be impressed with the efficacy of the dawa offerings. One could not discover whether the fortunate poor contracted the disease after eating these oblations.

The natives also readily recognize such infections as actinomycosis, anthrax, bubonic plague, guinea-worm, and malaria, syphilis, etc. Their knowledge of disease seems to be exact, but they are so superstitious and suspicious that they make one wade through a quagmire of falsehood and general information to get to the tiny islets of truth bearing on one's quest.

An epidemic of this disease broke out recently among the labourers employed on the Yeji-Mcongo road. The officer in charge of the construction work said that by far the largest number of fatalities were due to this disease. He had made arrangements for the provisioning of his workmen; large quantities of maize, millet, guinea-corn, etc., were bought and stored in mud huts so as to meet requirements. Some of this grain may have been infected, and may have given rise to this outbreak. Preventive measures should be adopted in good time so as to prevent an outbreak among troops who live on such food. Millet is often eaten in the raw state. Our men should be warned of their danger and should be ordered to cook their grain.

Investigations into the cause and spread of this disease are being taken in hand in West Africa, but it would help matters considerably if all cases of this disease were reported on.

An interesting experiment in school hygiene at Winchester, Massachusetts, is described in the *Boston Medical and Surgical Journal*. Two seventh-grade classes, consisting of children of the same kind, were compared after one class had been for four months taught in a room so altered that a full supply of fresh air could be admitted. The temperature was kept at about 45° F., and the children were clothed in blanket coats and bloomers, with lined canvas boots. At the end of the period the children were compared with those of another seventh-grade class in the same building who worked in an ordinary room. It was found that whereas the average gain in weight of the open-air class was 3.61, that of the other class was 1.69. In height the open-air class gained 0.49, the other 0.24. In the haemoglobin test the open-air class gained 4.55, while the other lost 3.07 per cent.

AN OBSERVATION IN PERNICIOUS ANAEMIA.

BY

O. LEYTON, M.D., D.Sc., F.R.C.P.,

PHYSICIAN TO THE LONDON HOSPITAL.

SOME years ago, after careful examination of the literature, I published a paper* embodying an original idea, and ventured to express the view that, although original, I doubted whether it was novel. A few weeks later, whilst buried in journals in search of data on quite a different subject, I found that my idea had been anticipated some years previously, and on looking up that paper I found yet an earlier reference to a journal published in 1886 embodying the treatment suggested.

The vastness of the literature must be my excuse for absence of any references to experiments of a similar nature to the one I am about to describe.

In March, 1915, I had under my care a very severe case of pernicious anaemia, also one of well-marked erythraemia (polycythaemia).

The consensus of opinion as to the process leading to anaemia in pernicious anaemia is that an excessive destruction of red cells is occurring. The cause of this destruction has been a subject of considerable work, more speculation, and no satisfaction. It would ill become me to add to the speculation.

Erythraemia must be due to one or a combination of the following: abnormally rapid development of red cells, an abnormally slow destruction of red cells, an insufficient quantity of plasma.

On an attempt to determine which of these takes the most prominent part, I am engaged at present.

It seemed to me that it would be of interest to note what would happen if I were to transfer some quantity of blood from the patient suffering from erythraemia to the patient who had pernicious anaemia, and at the same time inject into the erythraemic patient some blood from the case of pernicious anaemia.

Courtesy to my colleague, Dr. F. J. Smith, makes me digress for a moment: the case of pernicious anaemia under my care wished to return home, and therefore left the hospital, and I am indebted to Dr. F. J. Smith for transferring to me one of his patients.

The patients had the circumstances explained to them in detail; that there were certain risks, and that as far as I knew, no similar observation had been recorded. The two men said that they were quite willing to undergo any treatment which might in any way benefit them, and that they did not mind any risk, because for several years their lives had been spent in hospitals and were of no advantage to them or any one else.

Details of the method of transferring the blood are unnecessary. All that is essential is to state that the apparatus was washed out with sterile olive oil and drained, so that there should be no excess, and that coagulation was prevented by the addition of a minute quantity of sodium citrate. Every precaution was taken to prevent any air being injected, and a window quite close to the point of injection allowed me to be certain that not a bubble entered.

After a small quantity—that is to say, 2 oz.—of blood had been injected into the man suffering from pernicious anaemia, he went paler; he complained of nausea and faintness, and the injection was immediately stopped. He then became slightly flushed in the face, and made grimaces as if he were undergoing pain. On being asked, he stated that he had pain all over him, something like cramp, quite severe; this lasted for a minute, and then disappeared, and he was soon quite comfortable.

I was very disappointed that only so small a quantity of blood had been introduced, but nevertheless thought that if the blood contained some material which stimulated production of red cells this might lead to improvement in the condition of the patient. Examination of the blood a week later showed that the red cells had risen from 600,000 to 1,050,000, and the haemoglobin percentage from 10 to 20.

As the result was so promising it made me almost regret that it was not my custom to publish any observation on treatment within a year of having made it; this resolution

* A Contribution to the Treatment of Chronic Empyema. *BRITISH MEDICAL JOURNAL*, April 15th, 1905.

had been brought about by a statement of a former teacher, whom I hold in the greatest respect, who had once (probably humorously, although truthfully) made the remark that journals took so long to publish papers that he had often altered his view before his theories appeared in print.

The result was sufficiently satisfactory to make the patient anxious to have further treatment, and five weeks later I again transferred blood, and on this occasion some 8 oz. of blood. The symptoms produced were similar to those produced on the former occasion, but much more severe. The patient vomited for close upon half an hour, and for a time gave rise to some anxiety due to the strain thrown upon his heart. The after-effects were not satisfactory, neither the number of red cells nor the quantity of haemoglobin being increased to any large extent.

Therefore, in this case, at any rate, transference of blood proved to be useless. The patient left the London Hospital in March, 1916, in a condition very similar to that in which he entered it in March, 1915. I record the observation in order that other observers to whom a similar idea may occur should realize that there is a certain risk in transferring large quantities, and that it is quite probable no benefit will result.

Reports

ON

MEDICAL AND SURGICAL PRACTICE IN HOSPITALS AND ASYLUMS.

THE ISOLATION HOSPITAL, SOUTHAMPTON.

AN ANOMALOUS CASE OF ENTERIC FEVER.

(Reported by OSCAR HOLDEN, M.D., D.P.H., Resident
Medical Officer.)

T. F., a gardener aged 25, was admitted on August 1st, 1915. He had been out of sorts for about fourteen days, but remained up and about. Walked a considerable distance on July 29th, and got up to breakfast on July 31st, but went to bed at mid-day, and was delirious the same evening. He had consulted his private doctor on July 30th because of diarrhoea. He had not been inoculated against typhoid fever.

On admission he was seriously ill. There were sordes around the teeth and lips, the tongue was dry and foul, but there were no spots or rash. The abdomen was tympanitic, rigid, and diffusely tender; on palpation it moved fairly well on respiration. The spleen was not palpable; the liver was felt just below the chest margin. There was no cough or other lung signs, but a most persistent hicough. The heart sounds were regular and strong, with a very faint rub at the apex.

The chief points in the further progress of the case were: Violent hicough until the end; practically complete suppression of urine for forty hours after admission, and then a copious flow with incontinence; obstinate constipation for fifty-two hours after admission, and then large, frequent, and offensive stools, also incontinent. The abdomen, at first distended, became flat, but the tenderness persisted. Unconsciousness, becoming more profound, ensued, with increasing restlessness until death.

At no time was his temperature above 97° F. Widal reactions were inconclusive. Lumbar puncture, thirty-six hours before death, afforded no evidences of intraspinal mischief. The urine contained abundant albumin and a few granular casts. Death appeared to be due to a profound intoxication.

Post-mortem Examination.

August 7th, 2.30 p.m. Well-developed man. Post-mortem staining marked.

Abdomen: The omentum was spread out over the small gut and was injected. No free peritoneal fluid and no adhesions. Stomach, duodenum, and jejunum normal, except for slight injection, probably due to turpentine given therapeutically. The ileum showed no enlargement of solitary follicles or Peyer's patches, except in the last foot. Here in the upper half the patches and follicles were reddened and swollen, but not ulcerated. In the 5 in. above the ileo-caecal valve were masses of small ulcers, with some larger ones. So numerous were the ulcers that the gut wall presented a ragged, rat-eaten appearance. The ileal side of the valve was partially sloughed away. The appearance of the ulcers hardly warranted the

assumption that they were typhoidal, but bacteriologically they proved to be such. The appendix and large gut were normal. The spleen was hard, not enlarged, and rather anaemic. The liver, normal. The kidneys showed parenchymatous nephritis, more severe in the right organ. **Heart:** A patch of recent fibrinous pericarditis showed over the apex. There was no valvular disease. Atheromatous patches were scattered over the ascending aorta. The brain and meninges were normal.

Comments.

It seemed that the patient had been up and about during an attack of enteric fever, ending fatally six days after taking to bed.

The complete constipation may be accounted for by blockage at the ileo-caecal valve during separation of the sloughs; the subsequent diarrhoea to imperfect closure after sloughing. The suppression of urine may have been caused by the onset of a specific parenchymatous nephritis.

The continual subnormal temperature is difficult to account for in view of the extensive ulceration and sloughing of the lower end of the ileum. The spleen was of a non-febrile type. Possibly the intoxication was so great that there was a depression of the cerebral nerve centres, but the heart rhythm was unaffected and the strength unimpaired until a few hours before death. The action of the toxin was similar to that seen in some suddenly fatal cases of diphtheria.

I have to thank Dr. Lauder, M.O.H. Southampton, for permission to record this case.

Reports of Societies.

VISUAL DISTURBANCES FROM CEREBRAL LESIONS.

At a meeting of the Ophthalmological Section of the Royal Society of Medicine on March 22nd, Colonel LISTER, A.M.S., C.M.G., and Lieutenant-Colonel GORDON HOLMES, M.D., R.A.M.C., read a paper on disturbances of vision from cerebral lesions, with special reference to the cortical representation of the macula. The authors stated that in their work at the base hospitals in France during the past eighteen months they had observed a large number of cases in which the vision was affected by lesions of various portions of the optic system, and a certain number of suitable cases had been selected bearing on the cerebral localization of vision, more particularly on the representation of different regions of the retina in the cortex. As the observations were necessarily made at an early stage after the infliction of the injury, some of the effects observed may have been due to functional disturbances, rather than to local injuries of the corresponding cortical areas or their centripetal fibres; but if it could be shown that there was a constant relation between the probable site of the injury and the form of the visual defect, certain general conclusions would be justifiable. The injuries in the cases referred to included penetrating and perforating wounds of the cranium by rifle bullets, shell fragments, and shrapnel, as well as local concussion and depressed fractures.

Superior quadrantic hemianopia was strikingly rare in gunshot wounds of the occipital region. The fact that in over 2,000 cases of head injury a central scotoma was never seen when a direct injury of the occipital poles could be excluded was regarded as striking evidence that central vision was represented on either, or both, the mesial or the lateral surface of the posterior borders of the occipital lobes. The observations conformed to the general view that the visual area corresponds with, or at least includes, the area striata. No conclusive evidence had been obtained that achromatopsia, with intact vision for white, was produced by cerebral lesions which involved either the cortex or the optic radiations.

The authors formulated the following conclusions, which they do not yet regard as final:

1. The upper half of each retina is represented in the dorsal, and the lower in the ventral, part of each visual area.
2. The centre for macular or central vision lies in the posterior extremities of the visual areas, probably on the margins and the lateral surfaces of the occipital lobes.
3. That portion of each upper quadrant of the retina in the immediate neighbourhood of, and including, the

adjacent part of the fovea centralis is represented in the upper and posterior part of the visual area in the opposite hemisphere, and vice versa.

4. The centre for vision from the periphery of the retinae is probably situated in the anterior end of the visual area, and the serial concentric zones of the retina from the macula to the periphery are probably represented in this order from behind forwards in the visual area.

At a meeting of the Section of Medicine of the Royal Academy of Medicine in Ireland on March 3rd Dr. WALTER SMITH read a paper on *Soya bean (Glycine hispida) and its uses in physiology and medicine*. Attention was drawn to its important dietetic and economic applications, which admitted of considerable extensions, if its cultivation were extended, especially in South Africa. The seeds were free from starch and sugar, and had been utilized in the treatment of diabetes. Takeuchi, a Japanese savant, had discovered that the bean contained a specific ferment, urease, which rapidly converted urea into ammonium carbonate. The relations of ordinary urea to ammonium cyanate and of sulphur urea (thio urea) were discussed, and the mutual reversibility of the process in each case was experimentally shown. The almost immediate influence of urease in converting urea into ammonium carbonate was demonstrated, and it was pointed out that urea had recently been discovered in a number of plants up to as much as 3.5 per cent. in a fungus. A practical point in connexion with urease was its application to the quantitative estimation of urea. The most rapid methods of estimation for routine work were: (a) The hypobromite method; (b) Folin's process with $MgCl_2$ and HCl ; (c) the most accurate method was by urease, which was quite applicable to clinical work, and was, in fact, a very simple and easy method. The ammonia was absorbed by decinormal sulphuric acid.

Rebielus.

LARYNGOLOGY AND OTOTOLOGY.

DR. W. H. KELSON'S book, *Diseases of the Throat, Nose, and Ear*,¹ illustrates the extreme difficulty of presenting a useful survey of these large subjects in a small space. He states in the preface that it is "written for general practitioners and senior students, and so full details are given as regards such proceedings as the doctor himself usually undertakes—for example, the removal of cerumen; but to those which he generally passes on to the specialist—for example, the mastoid operation—only brief reference is made." Nevertheless, we think that the student wants to know more about the operation for acute mastoiditis than that it "consists in opening the antrum and removing any diseased bone found, and draining; some operators, however, close the wound." About three-quarters of a page is devoted to the radical mastoid operation, but in neither case is it mentioned that the cavity is packed, and no account is given of the after-treatment, which often falls to the lot of the general practitioner, and which is all-important to the final success of the case. As no details of the operative procedure are given, the six large illustrations of the surgical anatomy of the parts appear superfluous. The style of writing is somewhat loose, and the arrangement of subjects rather haphazard; thus, hay fever, rhinorrhoea, and vascular neuroses are not placed near together, while rhinoscleroma, leprosy, and glanders are separated from syphilis, tubercle, and lupus by many paragraphs. The paragraph headed "Organic affections of the nose" is devoted entirely to perversions of smell, and occupational deafness due to exposure to noise comes under "toxic causes" of internal ear disease. The headings of the chapters and paragraphs are, indeed, so erratic as to cause confusion, and one often finds the account of a disease interrupted by a new heading in capitals, while a new subject is begun without the distinction of a fresh heading. Having made these criticisms, it remains to say that the book shows evidence of a wide

knowledge and experience of the subject. Errors are few, though in dealing with the treatment of syphilitic nerve-deafness the remark that "later on injections of pilocarpin may be tried" is an inadequate reference to a method of treatment the value of which lies in its early application. But the teaching is in general sound and practical.

A small manual written for students and practitioners can only achieve success if it offers real help in the recognition and treatment of disease. This, we fear, is just what Professor COOLIDGE's little book on *Diseases of the Nose and Throat*² fails to accomplish. Professor Coolidge writes in a pleasantly facile and discursive style, but his descriptions of pathological processes lack precision and omit details which give a clear clinical picture of disease and assist the practitioner in the understanding and management of the individual case. Thus, the paragraph on tuberculosis of the pharynx does not mention that it is painful, and that it usually occurs in the latest stage of consumption; among the causes of anosmia it is said that "it may be a symptom of some constitutional weakness or nervous instability"; of the diagnosis between nasal and cerebro-spinal rhinorrhoea it is only stated that it is possible by chemical analysis, "but sometimes uncertain on account of the similarity of the fluids." The diagnosis between antral and frontal empyema is hardly discussed and no mention is made of Fraenkel's posture test; while the causes of antral suppuration "may be a foreign body, some suppurating focus, possibly connected with the teeth, discharging into it, or a diseased condition of the antral wall." In the sections on treatment, the doses of drugs are not systematically given; that in the after-treatment of antral operations "if packing remains in the antrum it should be removed as soon as it can be dispensed with" is rather vague; and so is the statement that after the frontal sinus operation the skin wound is "brought together and sutured, except when it is considered safer to keep it open temporarily." Two measurements only are given in the article on bronchoscopy and oesophagoscopy—from the incisor teeth to the bifurcation of the trachea, "about fourteen and one-quarter inches," and to the cardiac orifice, "about fifteen and three-quarter inches"; the latter is unnecessarily particular, seeing that the distance varies by an inch or more in different individuals, and the former is $4\frac{1}{2}$ inches in excess of the measurement usually given. Exception must be taken to the advice to remove nasopharyngeal fibromata with an *écraseur*. The author states that "in some cases most of the growth can be removed in this way," and does not appear to realize the dangers of incomplete removal.

SURGERY.

UNDER the title *Back Injuries and their Significance*³ Mr. A. McKENDRICK has written an interesting little book. Its object is to throw some light on the class of cases which bulk so large in courts of law, and is intended to help not only the medical practitioner but the lawyer. As the author points out, it is in the minor rather than in the major injuries that difficulty as to diagnosis and doubt as to treatment chiefly arise. Cases of strained back are fully considered, and interesting suggestions made with regard to electrical testing by means of condenser discharges. Mr. McKendrick is surgeon in charge of the x-ray department at the Royal Infirmary, Edinburgh, and hence writes with authority on the subject of radiographic diagnosis. The book throughout is very helpful and shows well how necessary it is to be systematic and accurate in examining and reporting on any case which may eventually find its way into court.

A Manual of Surgical Anatomy,⁴ by L. BEESLY and T. B. JOHNSTON, has recently been published. It resembles

¹ *Diseases of the Throat, Nose, and Ear*. By W. H. Kelson, M.D., B.S., F.R.C.S. Eng. London: H. Frowde, and Hodder and Stoughton. 1915. (Demy 8vo, pp. 286; 6 plates, 89 figures. 8s. 6d. net.)

² *Diseases of the Nose and Throat*. By A. Coolidge, A.B., M.D. Philadelphia and London: W. B. Saunders Company. 1915. (Post 8vo, pp. 360; 68 figures. 6s. 6d. net.)

³ *Back Injuries and their Significance under the Workmen's Compensation and other Acts*. By A. McKendrick, F.R.C.S.E., etc. Edinburgh: E. and S. Livingstone. 1916. (Cr. 8vo, pp. 179; 14 figures. 2s. 6d. net.)

⁴ *A Manual of Surgical Anatomy*. By L. Beesly, F.R.C.S. Edin., and T. B. Johnston, M.B., Ch.B. London: H. Frowde, and Hodder and Stoughton. 1916. (Cr. 8vo, pp. 571; 164 figures. 12s. 6d. net.)

in appearance a volume of Cunningham's *Manual of Practical Anatomy*, and the general arrangement of the book closely follows that adopted in that well-known book. Several pictures from it, which have, in the course of time, become firmly fixed in memory, will be recognized. The new figures and diagrams, of which there are many, are drawn by Mr. J. T. Murray, and are excellent. In addition, there are many useful radiograms, illustrating the positions of the epiphyseal lines and other subjects. The book includes in its scope something more than surgical anatomy, for the authors have wisely described many of the operations of surgery from the anatomical point of view, without, however, considering surgical technique. They have adopted the new anatomical nomenclature, but have taken pity on the older of us by adding the old-fashioned names where there is any difficulty. It has sometimes been said that anatomy should be taught by operating surgeons, as they are better able to appreciate what is really essential to the medical student. Without going as far as this, it is certainly true that much anatomy is learnt in a rather unintelligent way, without any heed being paid to its surgical significance. The book shows evidence of a clear grasp of practical points, and there is no doubt that every second-year student would do well to possess it, using it as a companion to his manual of anatomy in the dissecting-room. He would find that its study would greatly lessen his labours at a later date, when watching operations and working in hospital, and eventually when presenting himself for his final examination.

The Clinics of Dr. J. B. Murphy at Mercy Hospital Chicago,⁵ published in the form of a sturdy two-hundred-page volume six times a year, is a periodical that has now completed its fourth year of existence. It is composed of *viva voce* accounts of surgical cases, the operations that were done upon them, the results obtained, and any particularly interesting points for discussion that might arise in connexion with them. Dr. Murphy's clinic is famous, and the variety of the cases with which he has to deal is very great; the result is that his bimonthly review is of no little interest to the surgeon. It is inevitably a superficial production, time and opportunity for the profound study of the cases being, apparently, to seek. But it has all the value that attaches to the ephemeral handiwork of an exceptionally gifted operator.

INCOME TAX.

THE assessment of income tax is affected by upwards of fifty different Acts, and *Pratt and Redman's Income Tax Law*⁶ constitutes a successful attempt to classify and render intelligible the existing chaotic accumulation of statute law. Generally the condensations avoid the danger of ambiguity, but there are exceptions. For instance, in dealing with the allowances for depreciation, Mr. Redman condenses the phrase "trade, manufacture or concern in the nature of trade," by omitting the qualification of the word "concern," whereas it is on that very qualification that the authorities apparently rely in holding that depreciation is not allowable in the case of assessments on professional men. Deduction for rent in calculating profits is not, as the author suggests, subject to restriction according to the Schedule A. assessment, which is material only where the premises are owned and no rent is actually paid. The payment of life assurance premiums carries with it a right to receive an "allowance," but is not a deduction in the same way as business expenses, and would more properly be dealt with fully in Chapter IX than among the deductions allowable under Schedule D. The case law is admirably selected and introduced by way of footnotes, and the book has been brought thoroughly up to date. It includes the text of the more recent Finance Acts and a chapter on excess profits duty, but fortunately the latter is of little interest to medical practitioners.

⁵ *The Clinics of John B. Murphy, M.D., at Mercy Hospital, Chicago.* (Med. 8vo, pp. 798-1265, illustrated. Paper, 35s. net per year; cloth, 50s. net.)

⁶ *Pratt and Redman's Income Tax Law.* By J. H. Redman, Esq., of the Middle Temple, Barrister-at-Law; with a chapter on *Excess Profits Duty*, by the late J. Tidd Pratt, Esq., Q.C. Ninth edition. London: Butterworth and Co., and Shaw and Sons. 1916. (Post 8vo, pp. 511. 9s. 6d. net.)

ORDEAL BY BATTLE.

WHEN OLIVER'S *Ordeal by Battle*⁷ was published, in June, 1915, it was eagerly read by men who had grown weary of party shibboleths, and wanted to think for themselves in a desperate effort to understand how this world catastrophe had come upon us. The book frankly discussed the share of responsibility of all of us in bringing it about; our sins of commission and omission—alike of those who were foolish enough to believe in "wait and see," and those who, though they saw, were weak enough to wait. The author was one of those who sat at the feet of Lord Roberts when he tried to arouse the country to the need of national service. The book, therefore, contains a trenchant criticism of the paralytic policy of the decade before the war, but it does not spare the party which was in opposition throughout the greater part of that period. We cannot do very much more than announce the publication of a cheap edition slightly abridged, congratulate the publishers on having brought it out in a handy form and good print, and express the opinion that every one who desires help in thinking clearly should spare the shilling for its purchase. We may perhaps add this much—a great deal has been written about the stupidity of the Germans in their misunderstanding of the psychology of other people. Mr. Oliver shows very cogently how the Germans may fairly retort that we misunderstood theirs. Not only the rank and file of us, but the leaders. The psychology of Lord Haldane, for instance, will probably be still the subject of speculation in the twenty-first century, possibly by the Gibbon of that day. This cheap edition of *Ordeal by Battle* is abridged, but chiefly by condensation of the discussion of the German aspirations and preparations, the least important part to us at this time, and the author has written an introduction which is an appeal to the country to-day; it concludes with the quotation from one who has lost his life in this war: "Under a hesitating commander one of the greatest dangers lies in the fact that it is always possible to produce sound military reasons for doing nothing"; and Mr. Oliver adds, "This is true not only of operations in the field, but of the political conduct of war."

NOTES ON BOOKS.

THE *Medical Register*⁸ for 1916 has been issued. It contains the customary table showing the number of persons whose names were entered in, added to, or removed from the *Medical Register* from 1892 to 1915 inclusive. The average number added by registration for the last twenty-four years was 1,284, and for the last five years 1,265. The average for the five years down to and including 1914 was 1,172. The actual numbers were 1,526 in 1915, 1,433 in 1914, and 1,168 in 1913. The total in 1915 included 181 colonial, and 88 foreign registrations. The total number of names in the *Medical Register* for 1915 is 43,225, as compared with 37,671 in 1914, and 41,940 in 1913. The number of names on the colonial list in 1916 is 692, and on the foreign list 125.

The *Dentists' Register*, 1916, has also been issued. It contains 5,453 names. In 1913 the number was 5,140. Of those now on the register 4,005 are graduates or licentiates in dental surgery, 9 have colonial licences, and 14 are foreign dentists. The number of persons registered on their own declaration as in bona fide practice of dentistry is 1,425, but of these 7 have medical or surgical qualifications.

To those who are interested in the scope and working of the many various scientific and learned societies in Great Britain and Ireland, and some others as well, the *Year Book* compiled from official sources and published by Messrs. Griffin and Co.⁹ will be of great service. It is now in its thirty-second annual issue. It contains outlines or details of the work of the various societies, with lists of their officers, accounts of their meetings, and details of their published work that in many cases would escape any but local notice if it were not for the *Year Book*. The

⁷ *Ordeal by Battle.* By F. S. Oliver. Abridged edition. London: Macmillan and Co., Limited. 1916. (Cr. 8vo, pp. 402. 1s. net.)

⁸ *The Medical Register*, 1916. London: Published for the General Medical Council by Constable and Co., Ltd. 10s. 6d. *The Dentists' Register*, 1916 (same publishers). 5s. 4d.

⁹ *The Year Book of the Scientific and Learned Societies of Great Britain and Ireland.* Compiled from official sources. Thirty-second annual issue. London: C. Griffin and Co., Ltd. 1915. (Demy 8vo, pp. 357. 7s. 6d.)

societies concerned are classified in fourteen sections; the section devoted to medicine covers thirty-seven pages. Particulars are given of certain of the Government institutions for purposes of reference.

The fifth German edition of Professor ORTNER's well known textbook of treatment¹⁰ has been translated by Dr. BARTLETT and edited by Dr. POTTER for the benefit of American medical practitioners. The text is divided into sixteen sections, in which are considered the treatments advisable in the diseases of the various organs and systems of the body. The pathological physiology of the diseases is touched upon in order that the reader may have some scientific basis for the lines of treatment he is advised to adopt. Numerous prescriptions are given, altered so as to conform to the American *Pharmacopoeia*. The German original attaches no little importance to the resources of diet, climate, hydrotherapy, and other methods of treatment. The translators, recognizing the importance of this characteristic, have adapted these references to the needs of practitioners dwelling in America, so far as possible. The translation has been well done. The many pitfalls presented by the spelling of the prescriptions (which are given in Latin) have not all been avoided. The book forms a thoroughly sound and conservative manual of treatment. Its previous English editions have been well received, and we can commend the new edition.

¹⁰ *Treatment of Internal Diseases for Physicians and Students*. By Professor N. Ortner. Edited, with additions, by N. B. Potter, M.D. Translated by F. H. Bartlett, M.D. Third edition in English; revised and reset from the fifth German edition. Philadelphia and London: J. B. Lippincott Co. 1915. (Med. 8vo, pp. 653. 21s. net.)

MEDICAL AND SURGICAL APPLIANCES.

An Electro-Medical Apparatus.

A NEW apparatus of the "universal" type for electro-medical applications has been introduced by the Medical Supply Association (167-185, Gray's Inn Road, London, W.C.) under the name of the "Galvanostat." Its purpose is to use the electrical supply from the main, no matter at what voltage, or whether continuous or alternating, to provide a current for galvanization, ionization, electrolysis, and the testing of muscular reactions. The current is passed, by way of suitable resistances, into a vessel of water, and by an ingenious arrangement of electrodes the transmission to the patient is regulated by rotating a disc of vulcanite over a graduated celluloid scale so as to furnish any degree of variation from absolute zero up to 500 milliamperes. The smoothness of the adjustment, the steadiness of the current, and the fact that there is no danger of the patient getting into direct contact with either the positive or negative side of the supply, are strong points in favour of this apparatus, and an additional recommendation is its surprisingly small size and its portability.

MEDICAL SICKNESS, ANNUITY, AND LIFE ASSURANCE SOCIETY.

THE thirty-third annual general meeting of the society was held at its offices, 300, High Holborn, W.C., on March 28th. Dr. F. J. ALLAN, who presided, in presenting the annual report, said that since the war broke out the experience of all insurance societies had been exceptional. The amount of new business had been less than in previous years, but it was substantial, and in the circumstances, with a net gain at the end of the year of seventy new members, was satisfactory. A considerable proportion of the members had increased their insurance for sickness benefit up to 12 guineas a week. As some had applied for insurance for larger amounts, the committee were recommending a further alteration in the rules to enable this to be done; the society safeguarded itself in granting such insurance by requiring a guarantee that the sum insured for was less than the applicant's income. Nearly £20,000 had been paid during the year to members in sickness and accident benefit, an average of £610 per 100 members; this was the largest sum in the experience of the society, but proportionately to the number of members at risk the amount was less than in 1913, when it was £627 per 100 members. During the year one-fourth of the members had to avail themselves of the society's help, and he considered that if that fact was appreciated by the profession the society would have a much larger membership. Though there were many companies offering insurance for sickness and accident, no other company or

society could offer such good terms. From the separate list presented it would be seen that there were 450 members on active service last year; the claims from these were less than 10 per cent.; five members had died from wounds or sickness contracted on service. The decision of the society not to charge extra premiums either for sickness or life assurance had been much appreciated, and had led to a certain amount of new business. New members, however, were not accepted for more than 6 guineas a week insurance. Although the society offered an endowment insurance payable at 65, the absence of an annuity fund had been felt to be a defect, and in order to meet the deficiency the committee had consulted Mr. S. G. Warner, F.I.A., who had drawn up a scheme which was before the meeting. Holders of annuities would be given several options, and in the event of death or surrender before the age of 65, all the premiums paid, except the first, would be returned with simple interest at 3 per cent. per annum. The scheme was based on the most recent life tables, which showed greater longevity than previous tables, yet the improved investment facilities made it possible to carry out on quite safe lines the scheme recommended by the actuary. Unfortunately, members holding annuity policies under the old tables could not transfer to the new proposal. Considerable depression had taken place in the value of high class securities, and if the society had to realize its investments it would suffer a loss, but an insurance office under normal circumstances never had to contemplate the possibility of liquidation; all that really mattered was the safety of its income. The bulk of the securities held by the society were repayable at par, and consequently no loss could accrue, but at the quinquennial valuation the actuary had to value the investments at the price then obtaining. In order to meet any apparent deficiency the committee had considered it desirable to make provision for it by the formation of an investment reserve account, and to set aside some £4,000 for that purpose. It was also proposed to keep the surplus balance of the management fund in hand to meet emergencies that might arise. The Chairman then referred to the death of Mr. Addiscott, who had acted as secretary of the society since 1893, and who on his retirement from that post was appointed actuary in order that the society might have the advantage of his long experience and sound judgement. The society had also to mourn the loss of Dr. G. A. Heron, one of its trustees, who took great interest in its work. The Chairman then formally moved the adoption of the report, which was seconded by Dr. MAJOR GREENWOOD and carried, after Dr. VINAGE had made some observations.

An alteration of Rule IV, to allow a member to insure for more than £12 12s. per week full pay, was carried, as was the alteration necessary to reopen the annuity fund on the lines suggested by the committee.

HEALTH OF MUNITION WORKERS.

THE Health of Munition Workers Committee, appointed by the Ministry of Munitions, under the chairmanship of Sir George Newman, has issued four more memorandums.¹

Of these, the first in order, on industrial fatigue and its causes, is perhaps the most important, since it deals with general principles. This being the case, we hope to refer to it more fully in a subsequent issue.

The next memorandum, on special industrial diseases, deals with a number of substances now extensively used in the manufacture of high explosives which may produce symptoms not hitherto familiar to the majority of practitioners. Of tri-nitro-toluol (also known as trotyl and T.N.T.), operatives employed in its manufacture and in loading it, either pure or mixed with other substances, into munitions have been found affected with unusual drowsiness, frontal headache, eczema, and loss of appetite. Exceptional cases may occur with sudden collapse after a few hours' work on a hot day, but generally the symptoms are at first slight, and, if exposure ceases, quickly disappear. If, however, the exposure be continued, the symptoms tend to become more severe, and may be associated with cyanosis (ashen grey and livid colour of the lips); shortness of breath, vomiting, anaemia, palpitation, bile-stained urine, constipation, rapid weak pulse, pains in

¹ No. 7, Industrial Fatigue and its Causes (Cd. 8213), price 1½d. No. 8, Special Industrial Diseases (Cd. 8214), price 1d. No. 9, Ventilation and Lighting of Munition Factories and Workshops (Cd. 8215), price 1½d. No. 10, Sickness and Injury (Cd. 8216), price 1½d.

the limbs, and jaundice. In a few cases profound jaundice, with danger to life, has supervened, and even death has resulted.

Other explosives discussed are tetryl (tetra-nitro-methyl-anilin), during the manipulation of which a light dust, which may cause troublesome eczema, is produced; and fulminate of mercury, which involves the liability to mercurial poisoning and eczema.

There is a section on tetrachlorethane, which is a solvent for acetate of cellulose, and is an ingredient of the dope varnish applied to the canvas coverings and tapes of aeroplane wings and bodies, in order, by impregnating them with cellulose, to render them impervious to moisture and air. The poisonous effects of this substance were discussed by Dr. W. H. Willcox in the *JOURNAL* of February 26th, p. 301.

It is pointed out that the demand for explosives, nearly all of which are products of nitration, has introduced increased risks of exposure to nitrous fumes, which arise not only in nitrating substances involved in the manufacture of explosives, but also in the manufacture of nitric acid itself. Here reference is made to a memorandum recently issued by the Factory Department of the Home Office.

There are notes also on lead and on the dermatitis which may be produced by some of the substances already mentioned, and also by contact with certain fluids used to lubricate and cool metals in engineering works.

Memorandum No. 10, dealing with sickness and injury, is a continuation of No. 8. It points out that facilities for prompt treatment of all cases of sickness and injury are of special importance in factories where poisonous substances are used, that organization of treatment is necessary, and that it may be of a simple kind. A local dressing station or aid post should be established in each workplace for minor injuries, and a central dressing station or surgery for more serious cases, or those requiring continuous treatment. The aid post should be under the care of an officer (preferably a foreman or forewoman) trained in first-aid work, and the central dressing station in charge of a competent person with knowledge of ambulance work, with a trained nurse on regular duty, ambulance assistants being selected from employees trained in first-aid work. It is stated that many large works now have a medical officer on the staff who is responsible for the supervision of the surgery, and available for serious cases before removal to hospital.

We would counsel all medical practitioners who practise in districts where munition works exist to obtain copies of these two Memorandums (Nos. 8 and 10). They can be obtained through any bookseller.

Memorandum No. 9 deals with the ventilation and lighting of munition factories and workshops, and has an appendix discussing localized exhaust ventilation.

The memorandums³ issued by this Committee, though they vary in interest, are all of importance and are well worth preserving; the Committee, indeed, seems to be in the way of producing a sort of handbook on industrial diseases which, though it will have special application to certain industries, will deal with many questions of general application to all workshops and factories.

³ Notes on previous memorandums have been published in the *JOURNAL* of December 11th, 1915, pp. 865, 866; January 15th, 1916, p. 102; February 19th, p. 282.

MADAME DARD, widow of Dr. Dard of Dijon, has left the whole of her estate, after the payment of certain legacies, to the Association Générale des Médecins de France. It is estimated that the association will receive £40,000 to be used for the benefit of the widows and orphans of members.

THE Italian Society for the Study of Malaria, of which Professor Angelo Celli was the founder and the animating spirit, is appealing for funds to be applied to the erection of a monument in his memory in the Roman Campagna, the scene of Celli's efforts in the battle against malaria. Subscriptions may be sent to the treasurer of the society, Professor Alessio Mazari, Via Agostino Depretis 92, Roma.

At a meeting held on March 6th the trustees of Columbia University, New York, decided to admit women as students in the medical faculty as soon as the present school buildings can be altered to furnish proper accommodation for the purpose. For more than twenty-five years efforts have been made to induce the authorities to open the medical department to women.

NATIONAL ASPECTS OF MATERNAL AND INFANTILE MORTALITY.

A REPORT on maternal mortality in connexion with child-bearing and its relation to infantile mortality¹ has been prepared by the medical officer of the Local Government Board in England, in continuation of previous reports dealing with other aspects of the subject.

The present report is divided into four parts. The first deals with the decline of the birth-rate and death-rate, and with variations in infant mortality; the second and third with the maternal deaths in connexion with childbearing and their causes; and the fourth with public health administration in relation to maternity.

In his introduction Dr. Newsholme says that the report shows "that childbearing is still associated in some parts of the country with very excessive mortality, and in every part of the country with much avoidable sickness and mortality," and adds: "In order to secure healthy infancy and childhood it is necessary that, both during pregnancy and at and after the birth of the infant, increased maternal care and guidance and medical assistance should be provided."

The maximum birth-rate recorded in England and Wales occurred in 1876, when it reached 36.3 per 1,000 of population; since then it has fallen, and in 1914 it was 23.8. The total number of births in 1914 was 878,882, but if the rate of 1876 had been maintained it would have been 1,346,719. The apparent shortage is, therefore, in round numbers, 467,000. The effect of this fall upon the total population of the country has been masked by the decline in the national death-rate which has also occurred, so that the rate of natural increase of the population in 1901-11 remained as high as in 1891-1901. Emigration, however, reduced the rate of increase by 1 per cent. in the last decade. While admitting that the national death-rate can still be largely reduced, Dr. Newsholme points out that, "as the average age of the population increases, the possibility of maintaining the present natural increase by maintenance of the present birth-rate, and by saving of lives will diminish. . . . If contemporaneously the present rate of decline in the national birth-rate continues, it is not difficult to foresee that eventually births and deaths will balance, and the population of England and Wales will, apart from migration, become stationary as it becomes older."

Statistics are quoted from the Census Report, 1911, showing the total increase of population in certain European countries during thirty years. Expressed in percentages they are:

	United Kingdom.	England and Wales.	German Empire.*	Belgium.*	France.
1881-1891 ...	11.1	11.7	9.3	9.9	1.8
1891-1901 ...	12.1	12.2	14.0	10.6	1.6
1901-1911 ...	9.1	10.9	15.2	10.9	1.6

* Period 1880-1910.

The influence of migration on the population of Ireland and Scotland is probably the cause of the discrepancy between the figures for the United Kingdom and for England and Wales; and this seems to be confirmed by the fact that the loss of England and Wales through migration in the several periods appears to have been 2.32, 0.22, and 1.54 per cent. respectively.

Such statistics illustrate the national importance of the subject, and when every allowance is made for the effects of emigration, they do not materially touch the validity of the conclusion that the diminution in the rate of increase in the population of the United Kingdom is due to the diminution of the ratio of the number of infants born to the population.

The phenomenon is not peculiar to this country, and is not in it so marked as in some others, so that its causes must be looked for in general conditions which are affecting all the nations of modern Europe, as well as the Overseas Dominion and apparently the United States of America also, for the statisticians of the United States have concluded that the birth-rate has been declining very rapidly among Americans of the second and later generations.

¹ Cd. 8085. Price 7d.

The following table,² compiled by Dr. Louis Parkes, exhibits what has been happening in a compendious form:

Table showing the Decrease in the Mean Birth-rates between 1887-8-9 and 1910-11-12, a Period of Twenty-three Years.

7-9.	5-7.	3-5.	Increases.
Hungary ... 8.2	Austria ... 6.7	Norway ... 4.9	Bulgaria ... 3.6
Australia ... 8.0	Belgium ... 6.4	Sweden ... 4.6	Ireland ... 0.3
Serbia ... 7.8	Italy ... 5.8	Denmark ... 4.5	Roumania ... 0.3
Germany ... 7.7	Finland ... 5.4	France ... 4.1	
England and Wales ... 7.0	Scotland ... 5.3	Spain ... 4.0	
	Netherlands ... 5.3	Russia ... 3.7	
	New Zealand ... 5.0	Switzerland ... 3.3	

It is evident from this table that, with the exception of Bulgaria, with a decided increase of 3.6 in the birth-rate, and of Ireland and Roumania with very slight increases, the birth-rates of most of the other nations which furnish registration statistics have been lowered in the course of the last quarter of a century, and some very considerably lowered. It is now generally admitted, both in this country and abroad, that the lowered birth-rate is not due to natural causes, such as a higher average age at marriage, or to a natural decrease of fertility, or even to a lower rate of illegitimate births. It is believed to be due, in most part, to voluntary restriction, the general incentives to which must be universal amongst the nations, and must be of very various character, the kind of incentive that is effective in Australia or New Zealand differing materially from that which is operative in Hungary or Serbia.

Dr. Parkes expressed the opinion that in the more highly civilized and industrialized countries the causes were a desire for a higher standard of social comfort, a disinclination on the part of married women to devote all their lives and energies to the rearing of the future race, and their desire for a larger share in the political and other privileges enjoyed by men, combined, in the case of both parents, with a doubt as to what the future may have in store for the offspring. Amongst the more intelligent of the working classes there may be fears of over-population, of periodical trade depressions and unemployment, and amongst the middle classes similar fears, due to the overcrowding of the professions and the uncertainties of a commercial career, where trusts and great trade combinations seem to hold the field. "With more occupations open to women as the result of the war, or of political changes following the war, both single and married women will have careers open to them which will in the mass militate against a high rate of national fecundity; and we may," he considers, "expect that social changes of this character will accentuate the further fall of the birth-rate for some years to come, which must result from the destruction of so many males who in the natural course of events, if unmarried, would have become husbands and fathers, and, if married, would have increased the number of their children."

The main topic of Dr. Newsholme's report, however, is the consideration of means the State and municipalities can take towards the reduction of infant mortality. Over 21 per cent. of the deaths of infants under a year old, and nearly 33 per cent. of the total deaths in the first five years of life, are due to infective diseases, including measles, diarrhoea and enteritis, whooping-cough, and tuberculosis; manifestly many of these deaths could be prevented if we knew how. In the case of measles and whooping-cough we do not, and in the case of the others results have so far fallen short of expectations.

A hopeful sphere for salvage work is to be found among the causes of death due to conditions operating at or before the birth of the infant. Those attributed to premature birth, atelectasis, and injury at birth, account for no less than 23.6 per cent. of the deaths in the first year of life, and for 15.4 per cent. of all deaths in the first five years. Over 12 per cent. of infantile deaths are ascribed to "atrophy, debility, and marasmus," and of these probably a large portion are due to antenatal infection, and therefore preventable also. The effect of syphilis in causing deaths, post-natal, but much more antenatal, is for various reasons hidden under the present system and scope of infantile deaths registration.

We need not now attempt any detailed examination of the parts of the report which deal with the maternal loss

of life from puerperal fever and from other accidents and diseases of pregnancy and childbirth, since the facts are well known and admitted. So new is much of the work included within the scope of antenatal clinics, prematernity wards, prenatal nurses, and the like, that it has not yet found its way into the textbooks of midwifery. Antenatal care is the application of preventive medicine to pregnancy in the common interest of both mother and infant; the antenatal clinic may play a large part in it, directly among the wage-earning classes and indirectly among others. It may perform at least five functions: (1) The expectant mother may be advised as to the special hygiene of her condition, and as to the best preparations for the birth of her infant; (2) much needless suffering may be avoided by giving advice and treatment for the minor disabilities of pregnancy, such as dyspepsia, constipation, varicose veins, and bad teeth; (3) more serious conditions, such as albuminuria, with its veiled threat of eclampsia, can be looked for, discovered in time, and treated with success; (4) in the case of patients attended by midwives arrangements can be made to obtain medical assistance if needed; and (5) the conditions which bring an expectant mother in an exhausted state to face the strain of labour can be avoided, and, if necessary, unsuitable home conditions may be replaced by more favourable hospital ones. Such experience as there is tends to show that women, if they are suffering, will go to an antenatal clinic, when they know of its existence.

It would be a mistake to promise much until we know a good deal more, but it can hardly be disputed that work along the lines of maternity and child welfare centres, such as infant health visiting, infant consultations, and schools for mothers, has already done much good in all districts in which it has been widely and wisely applied. This is well brought out by some statistics for Chelsea given by Dr. Parkes, showing, among other things, the birth-rates and infantile mortality-rates in the whole borough and in certain limited classes.

Table showing Birth-rate, Infantile Mortality-rate, Death-rate, and Rate of Increase in Chelsea (Census Population 66,385).

3-year Periods.	Birth-rate.	Infant. Mort. Rate.	Death-rate.	Rate of Increase.
<i>Chelsea Borough.</i>				
1906-8	21.9	121	16.3	5.6
1909-11	20.0	106	15.3	4.7
1912-14	18.7	77	13.9	4.8
<i>Industrial Dwellings, Superior Class.</i> <i>Population 1,250.</i>				
1906-8	36.0	67	11.2	24.8
1909-11	28.0	75	8.8	19.2
1912-14	26.4	61	10.4	16.0
<i>Industrial Dwellings, Inferior Class.</i> <i>Population 1,265.</i>				
1906-8	30.8	138	19.8	11.0
1909-11	30.8	119	19.0	11.8
1912-14	26.1	71	11.9	14.2
<i>Seven Streets, Lowest Wage-earning Class.</i> <i>Population 3,480.</i>				
1906-8	37.6	180	25.0	12.6
1909-11	37.4	141	24.4	13.0
1912-14	33.8	86	18.7	18.1

The figures are in some instances too small to justify any wide conclusions, but so far as they go they confirm the general belief that the decrease in the birth-rate has been most pronounced in the upper, and the decrease in the infantile mortality-rate in the lower, strata of the population. They suggest that much may be done by wise administration to safeguard infant life, but when we note that the infantile mortality-rate in the intermediate class is lower than that for the whole borough, and in the lowest wage-earning class not much above, the thought will arise whether, for further improvement in the future, we must not rather look to the antenatal clinic, which may tend both to increase the birth-rate by diminishing abortions and stillbirths, and decrease the infantile death-rate by diminishing the number of babies born only to die.

² *Journal of the Royal Sanitary Institute*, vol. xxxvi, No. 12.

British Medical Journal.

SATURDAY, APRIL 1st, 1916.

SURSUM CORDA.

THE conferences of representatives of local Medical War Committees held last week in Leeds, London, Birmingham, and Bristol, while they afforded opportunity for the discussion of difficulties and ventilation of criticisms of the action and composition of the Central Medical War Committee—criticisms which that Committee is glad to have, and by which it will endeavour, as far as possible, to benefit—gave good reason also to hope that the profession has determined to live up to the great example it has set to all professions and callings during the last twenty months, and to take advantage of the splendid opportunity it now has of completing its task.

The difficulties of the men who may have to go have already received, and must continue to receive, much attention. None of us ought to rest content until everything has been done that can be done to send off the man who has to go with an assurance that his sacrifice is appreciated, and that it will be minimized as much as possible. But let us fix our eyes for a time on the prize to be won instead of the difficulties in the way.

The prize to be won is the proud satisfaction that the medical profession shall have succeeded in providing all the doctors needed by the army of its own free will and by its own efforts. When this war is over there will be a reckoning up. The public knows that the profession has come forward well; it does not realize perhaps how well and at what sacrifices. But when the day of reckoning comes, there are those hanging back now who will wish that they had done more to help their country. The medical profession has much to be proud of in its war record, but the next few weeks will show whether it is to have the distinguished honour of so organizing itself to meet the needs of the army and the civil community that the War Office, when it needs medical men, will only have to ask with the certainty of obtaining as many as are required.

The opportunity is indeed very great. Let us suppose that at this time some organization could approach the Prime Minister and the Secretary of State for War with an offer to relieve all their anxieties as to getting the number of men required for the army. Would not its offer be sure of ready, even enthusiastic, acceptance? But if that same organization was able not only to undertake to provide the men but to do so in such a way as to embarrass as little as possible the civil community, would it not receive the fervent thanks of the whole country? So far as the medical service of the army, to which it owes its first duty, is concerned, the profession is at the present time within reach of being able to make such an offer. The enrolment scheme of the Central Medical War Committee will provide a reserve of medical men of military age from which all the requirements of the army can be met with the minimum disturbance of civil arrangements and the minimum inconvenience and loss to the medical men

who go. It is a magnificent opportunity, of which the profession must not fail to take advantage. What is the alternative?

It may be taken for granted that the Government will see that the army gets all the doctors it needs, and will, if necessary, use compulsion. There is, we know, a feeling among some medical men in favour of compulsion, on the ground that by it all unfairness would be eliminated. But the success of the enrolment scheme will eliminate all possibility of unfairness, and the result will have been achieved by the efforts of the profession alone. The next few weeks will show whether the profession has sufficient imagination to win for itself this unique distinction. It is the more to be desired that the voluntary enrolment should be successful because the difficulties of the situation, so far as the medical profession are concerned, would be little, if at all, diminished by compulsion. It is true that compulsion would prevent any medical man from hanging back, but all the other difficulties of the situation would remain. It would be no easier to protect the practice of the man who is compelled to go, and compulsion would in no way lessen the difficulties of distributing the work among the men who remain. The chief merit of the enrolment scheme is, as the *Times* pointed out last week, that "it gives full weight to professional opinion. It is no hard-and-fast system of conscription, but a system designed to secure fair treatment and adequate compensation. Doctors will be relieved of the difficulty of deciding whether they should go or stay in civil practice; those who go will have their interests looked after; those who stay will still be afforded full opportunity of serving their country." Undoubtedly it is an essential part of the scheme that those who go shall have their interests looked after; this can only be carried out through the formation of strong local opinion in every district, first in the profession and afterwards among the public. In some areas local war committees have made very careful collective arrangements for protecting the interests of the men who have gone or who may have to go. In other areas men who have gone have made their own arrangements with their neighbours or with locumtenents.

However well private arrangements may have been planned, the fact remains that the man who goes will feel greater confidence that they will continue to be satisfactory if he knows that there is a representative body of his own profession exercising general supervision, and ready at any time to come to the rescue in the event of an unexpected breakdown, due, for example, to the illness of his deputy.

Let it be repeated that the profession now has the opportunity of making a unique gift to the country. If, as there seems good reason to hope, it makes enrolment a success, it will be able to offer to the nation a profession organized for the purpose of both civil and military service. Nothing less ought to satisfy us.

EPIDEMIC JAUNDICE.

EPIDEMIC catarrhal jaundice is a commonplace in the textbooks of medicine, but probably rare in the experience of most British practitioners, although several limited outbreaks have been recorded in this country. Owing to the fact that Weil gave the first thorough description of an epidemic type in 1886, the name Weil's disease is often applied to all forms of infectious jaundice, but it is in the highest degree probable that epidemics of jaundice may be

due to more than one type of infection.¹ The War Office memoranda to which reference is made at page 500 distinguishes three types associated with infection—(a) the catarrhal, accompanying and complicating infective conditions; (b) toxic, or so-called camp jaundice, also commonly known as epidemic or infectious jaundice; and (c) “the so-called Mediterranean yellow fever, or Weil’s disease,” which, it is added, may be regarded either “as a form, and sometimes a malignant form, of toxic jaundice, or better perhaps as a disease *sui generis*, the etiology of which is obscure.”

A disease which agrees clinically with Weil’s description is both endemic and epidemic in western Japan, and quite recently its etiology has been established by the prolonged and painstaking experimentation of a number of Japanese physicians and pathologists.²

In Japan the disease takes the form of a febrile jaundice with congestion of the conjunctivae, muscular pains, albuminuria, and a tendency to haemorrhage. In 1914 an epidemic of 178 cases was observed near Tokyo, in the eastern part of Japan. The disease is due to infection with a new organism, the *Spirochaeta icterohaemorrhagica*. The authors appear to assume that Weil’s disease in Europe is identical with the febrile jaundice observed in Japan, although, as they point out, certainty here will depend on the discovery of the Japanese *Spirochaeta icterohaemorrhagica* in the blood and tissues of the European patients. They also believe that Griesinger’s “bilious typhoid fever” may be identical with Japanese Weil’s disease, although the mortality in the former is 60 or 70 per cent., while it is but 32 per cent. in the latter; it is natural to believe that Weil’s disease may vary widely in severity at different times and in different places.

The discovery of the new spirochaete was announced a year ago. Various animals were inoculated with the blood of patients taken during the first week of the illness; it was found that the guinea-pig developed an acute jaundice with albuminuria, haemorrhages, and conjunctival haemorrhages. The same organism, a spirochaete, was recovered both from the patients and the experimental animals that took the disease. After the seventh day of the disease the patient’s blood often seemed to be free from the spirochaetes; the guinea-pigs developed the jaundice after an incubation period of from six to thirteen days, usually a week. The infection could be transmitted also from one guinea-pig to another; the oldest of the authors’ strains has long passed its fiftieth transmission. The transmission could be effected by intraperitoneal, subcutaneous, or oral injection, and even by inoculation through the shaved but otherwise uninjured skin. Rabbits were found to be comparatively insusceptible to the disease, while guinea-pigs appeared to be more susceptible to it than man. Microscopical examination showed that the spirochaetes occurred in the blood and phagocytic cells of the guinea-pig; in man they were also to be seen in the liver cells, a fact that may explain the occurrence of bactericidal substances in the blood of human beings with Weil’s disease after the second week.

It appears that the new spirochaete, like that of recurrent fever, is an organism living in the blood; it is also seen in the interstitial tissues. In length it measures from 4μ to 25μ , averaging 6μ to 9μ in the blood and 8μ to 9μ in the liver cells of man. The

thickness is probably 0.25μ . The ends are sharp and in most cases hooked; the undulations are irregular, with two or three large and four or five smaller waves. No membrane has been seen nor have flagella been recognized. Staining may be effected with Giemsa’s solution or by Loeffler’s method; when unstained the spirochaetes are invisible except under dark-field illumination. When present in large numbers, some appear to be filter passers, using Berkefeld candles. Their mode of multiplication is as yet uncertain, but this probably takes place by transverse segmentation. They can be cultivated by Noguchi’s method, using guinea-pig instead of rabbit kidney; the optimum temperature is 22° to 25° C. The cultures are odourless and clear, and contain the spirochaetes uniformly disseminated throughout the ascitic fluid; the cultivated organisms resemble those obtained directly from the animal body.

Discussing the mode of infection in Weil’s disease, the authors put forward the interesting and novel view that it often takes place through the skin rather than through the alimentary tract, as Weil believed, or by means of the bites of insects. This method of infection would explain the fact that the disease is readily picked up by Japanese workers in wet coal mines, with or without abrasions of the skin. The clerks working outside the mines, the workers occupied in dry mines, and the inhabitants of the workers’ barracks do not seem prone to the infection. As for the way in which the spirochaetes are excreted by the patients, it is found that these organisms appear in the urine at an early stage of the disease, diminishing in numbers after three or four weeks, and disappearing before the fortieth day.

Examination *post mortem* in twelve fatal cases showed that the spirochaetes were always present in the kidneys in large numbers, but were fewer in the liver and other organs and tissues. There were many more organisms in the tissues of the experimentally infected guinea-pigs than were found in the human subject. It therefore appears desirable to regard the urine as the chief source of infection in Weil’s disease, a matter of great importance from the point of view of prophylaxis. So far as treatment is concerned, both salvarsan and the serum of immunized goats and horses give good results in the guinea-pig infected with the spirochaete, so that there is a sound experimental basis for the clinical use of these substances in human beings with Weil’s disease.

It is always satisfactory to have a severe infectious disorder of unknown etiology, such as Weil’s disease has hitherto been, removed from this large category and put into the list of acute specific fevers of known causation. The authors of the paper now before us appear to have effected this transposition very thoroughly, and to have produced ample experimental evidence of the correctness of the decided views they express. Their *Spirochaeta icterohaemorrhagica* may be accepted as an important addition to the list of organisms producing specific infectious disorders; not the least important part of their work is that illuminating the treatment of the patients stricken with Weil’s disease.

THE TOXICOLOGY OF SALVARSAN.

THE arsenical derivative of benzene¹ introduced for the treatment of syphilis by the late Professor Ehrlich in 1910, and named by him salvarsan, together with its chemical congeners neo-salvarsan, invented in 1912,

¹ On this point reference may be made to the report of a discussion on jaundice at Alexandria published in the BRITISH MEDICAL JOURNAL of February 26th, p. 320.

² B. Inada, Y. Ido, R. Hoki, R. Kaneko, and H. Ito, *Journ. Experim. Med.*, New York, 1916, xxii, 377.

¹ Dr. Willcox uses the word “benzol,” which is, we believe, a German form not generally accepted by English chemists.

and sodium-salvarsan, in 1913, are now generally recognized as the most rapidly acting and most powerful of the drugs at our disposal for curing that disease. So far as this country is concerned, the import of these drugs came to an end with the outbreak of the war in 1914. The result has been that the manufacture of salvarsan has been undertaken here, and the attempt has met with success; the British drug of the same chemical constitution as salvarsan has satisfactorily passed stringent chemical, physical, physiological, and toxicological tests; it has received the sanction of both the Board of Trade and the Medical Research Committee, has been placed on the market under the name "kharsivan," and has been widely employed in this country during the last few months. Most of its users will agree with the opinion expressed by Lieutenant-Colonel Willcox, after the elaborate investigations recorded in his important paper printed on another page of this issue, that it is "practically identical in its physiological and therapeutic effects with salvarsan." Naturally, however, one may expect to find differences of opinion here, the more so because "substitutes" that are "just as good" as the original article are looked upon with disfavour in this country. In addition there is among us an ingrained tendency, which is wholly unjustifiable, to regard the German chemists as superior in ability to our own in the manufacture of synthetic drugs. It is therefore highly satisfactory to find a physician and toxicologist with the experience of Lieutenant-Colonel Willcox making so definite a statement in favour of our home-produced drug kharsivan, as the result of experiments made by himself.

Salvarsan has always been a drug of the proprietary class, made in an atmosphere of mystery under a patent giving a misleading account of its preparation, produced at a small cost and sold at a very high price. It is, therefore, a matter of no little interest to read the chemical tests for its purity described by Lieutenant-Colonel Willcox. The doses tolerated by various animals have been worked out very thoroughly by Hata, Castelli, and others, for both salvarsan and neo-salvarsan. The mode in which the drugs act is implicit in the words "organotropic" and "parasitotropic," and may be illustrated by Ehrlich's experience with the drug atoxyl, the sodium salt of para-aminophenyl arsenic acid, with which, following Koch, he began to work in 1902. It was found that some varieties of trypanosomes were abnormally resistant to atoxyl or "atoxyl-fast"; while, on the other hand, numerous human beings were abnormally sensitive to its action, so that atoxyl was organotropic—or, more precisely, neurotropic—when administered to them, anchoring itself to the patient's nervous tissues rather than to the parasites infecting him, and producing atrophy of the optic nerve. Ehrlich, as is well known, held strongly to the maxim that drugs act only on the tissues with which they are chemically combined, and illustrated his view by the somewhat coarse mechanical analogues represented in his side-chain theory. There is a tendency on the part of physical chemists to replace his chemical conceptions by physical notions, processes of colloidal precipitation, alterations in the permeability of cells or cell membranes, and changes in surface tension or adsorptive power. The two methods of explanation, however, are not incompatible in essence, and both depend in the last resort upon Ehrlich's fundamental principle, expressed sentimentally enough in his aphorism, *Corpora non agunt nisi fixata*—"substances act only when combined."

Lieutenant-Colonel Willcox gives an admirable account of the toxic and even fatal symptoms that may result from the exhibition of salvarsan or kharsivan. As he points out, the pathogenesis of many of the fatal accidents is still obscure. They are not to be explained by anaphylaxis, and to refer them to "a profound autointoxication such as occurs in uraemia" does little to explain their occurrence. It is interesting to learn that the central nervous system is here found to be almost free from arsenic, the inference being that the death was not caused by the action of arsenic as such upon the brain or cord. It appears that the arsenic accumulates in the abdominal viscera for the most part, and to a less extent in the muscles and blood.

Professor Ehrlich himself was inclined to attribute death from salvarsan to excessive vaso-dilatation, as will be seen by reference to a letter he sent to this JOURNAL in 1914,¹ and for the treatment of the dangerous symptoms that may make their appearance after injection of the drug he recommended the immediate and repeated administration of adrenalin. He believed that even the extreme cerebral vaso-dilatation implied in the term "haemorrhagic encephalitis," with its subsequent cerebral oedema and circumvascular haemorrhages, might yield to the prompt exhibition of adrenalin, the patient recovering even from a condition of coma.

From the practical point of view perhaps the most important part of Lieutenant-Colonel Willcox's paper is that in which he gives an account of the modes of administration of salvarsan and neo-salvarsan, and the methods to be employed in combating the unpleasant symptoms, mild or severe, that may follow its use; for it is likely that these drugs will soon be employed in increasing quantities, now that the report of the Royal Commission on Venereal Diseases has been published. The dwellers in towns and cities, who are the chief victims of syphilitic infection, will no doubt receive the advantage of increased facilities for the diagnosis and treatment of their disease, because the Commission urges the necessity of encouraging existing institutions to bestir themselves in this direction, and recommends that they should be subsidized for the purpose from both imperial funds and the local rates.

THE RELATION OF THE EYES TO RIFLE SHOOTING.

A PAPER published some time ago by Dr. Roderic O'Connor,² upon the visual problems of rifle shooting, deserves careful study. To quote Mr. Roosevelt: "The shots that hit are the shots that count. The most valuable fighting man, and the one most difficult to perfect, is the rifleman." Other things being equal, the ability of troops which are armed with the rifle to inflict damage will vary directly with their shooting ability. It is therefore important to take advantage of all possible aids to an increase of the shooting ability and to avoid all hindrances to that end. The army standard of vision is not high, and many soldiers require glasses to enable them to shoot with any degree of accuracy. Of late, numerous writers have tried to prove that good shooting is possible with poor vision, one authority stating that as good shooting can be done by a man having an acuity of $\frac{1}{2}$ as by one with full acuity. He believes that as long as a man can see the front sight clearly he can be a good shot, even though the bull's-eye is blurred. Dr. O'Connor seeks to prove that this view is erroneous. In rifle shooting it is necessary to focus three points—the target,

¹ BRITISH MEDICAL JOURNAL, 1914, 1, 1044.

² Ophthalmology, July, 1915.

the front and the rear sights. It is therefore essential with the usual military sights that the soldier shall possess good power for accommodation to enable him rapidly to focus these objects in succession. When alignment has been secured, the bull's-eye is seen in focus by direct vision, the sights are seen blurred by indirect vision. A presbyope cannot shoot well because he cannot focus the rear sight, and if he use spectacles which clear the sight the target is blurred. The use of a peep-sight enables a presbyope to shoot, and makes it easier for all eyes because there are then only two objects to focus. The act of looking through the peep-sight aligns the sights automatically upon the object, and the rear sight has never to be focussed. Dr. O'Connor considers that the peep-sight close to the eye should be adopted. The aperture should be 1 mm., and the sight should be 1 in. from the eye. The peep-sight being close to the eye increases the space between the sights and so makes for accuracy in aim. It also increases the acuity of those who have errors of refraction and reduces glare. To demand with the author that combatants in the line, signal corps, and engineers shall have $\frac{3}{4}$ vision, binocular vision, normal colour perception, and good accommodation, would be, we fear—at any rate, in present circumstances—a counsel of perfection.

BROWN-SÉQUARD EPILEPSY.

In 1869 Brown-Séquard described the production of epileptic attacks in guinea-pigs by violent stimulation of the sciatic nerve. Since that time a number of cases have been recorded in medical literature in which epilepsy supervened in human beings after, and apparently as the result of, severe injuries of the peripheral nerves. A few of these have been collected by Drs. A. Mairé and H. Piéron,¹ who remark on the rarity of these cases, and add two more of their own observation. One patient, a railway employee, had his right hand crushed under the wheel of a carriage in 1886. After this he was only fit for light duty at the railway station. In 1890 he was dismissed for offences against decency in public. He went to law about it, and the medico-legal experts found he was suffering from chronic neuritis of the right arm and attacks of epilepsy. It appeared that the neuritis had been confined at first to the ulnar nerve, and had spread so as to involve the whole brachial plexus; while the epilepsy might take several forms culminating in true epileptic seizures, and could often be provoked by pressure either on painful spots on the scar left by the injury or on the tender ulnar nerve. The second patient, a soldier aged 30, was wounded by fragments of a shell in the right forearm in September, 1914. The wounds healed in December, after much suppuration, leaving extensive scars. In January, 1915, the man complained of headache, vertigo, and noises "as of aeroplanes" in the ears. Attacks of stiffness and tremor of the limbs, with loss of consciousness, occurred both by day and night. When seen in hospital at Montpellier in April the right arm was weak and wasted, and there were various areas of loss of sensibility, hyperaesthesia, and hyperalgesia. The musculo-cutaneous and internal brachial nerves were thickened and tender; other branches of the brachial plexus and cervical nerves seemed to be affected as well. There were no signs of neurasthenia. While in hospital the patient had two or three epileptic or epileptiform attacks daily, varying in degree of severity, preceded by an aura of pains in the right arm and culminating in stiffness and clonic spasms, with loss of consciousness lasting for many minutes. Minor attacks could be brought on by pressure on the musculo-cutaneous nerve. Some improvement was produced by electrical treatment. In June the brachial scars were excised under ether, but the epileptic attacks returned. In August and September treatment of the arm by prolonged hot baths was under-

taken—two hours in water at 104° F. twice a day. After three months the man was very much better; no fits had occurred after September, and the affected nerves were much less sensitive to pressure. The arm and hand were stronger, and were being treated by massage and movements. The authors consider this to be one of the rare cases of true epilepsy reflexly produced by severe peripheral irritation; the patient's family history was such as to suggest a predisposition to nervous disorders. Dr. Pierre Marie,² on the other hand, states that he has never been able to accept the convulsions described by Brown-Séquard in his experimental animals as comparable to epilepsy in human beings. He is inclined to attribute the phenomena displayed by Mairé and Piéron's second patient to hysteria or neuropathy rather than to epilepsy.

PORTRAIT PAINTING AND PATHOLOGY.

CERTAIN portrait painters of world-wide renown are famous for their pictures of pathological specimens of humanity as well as for their portraits of more normal persons. The stock example of this slightly morbid turn of the artistic mind is Velasquez, whose pictures of the various royal dwarfs kept at Court by Philip IV of Spain will be remembered by all who have visited the Madrid Museo del Prado. In the same gallery there are numerous other portraits, painted by Goya and by El Greco, to mention but two names, of pathological specimens of humanity that, to the eye of a medical man, are faithful and unmistakable delineations of mental or bodily disease. And to come down to more recent times and our own country, anyone who has visited the exhibitions of the post-impressionists, cubists, futurists, *et hoc genus omne*, in the last decade, will no doubt have been struck by the abnormality of the types of human beings often depicted. The efforts of these artists, however, are not perhaps of the same artistic importance as those of the Spanish painters already mentioned, and do not call for or deserve the same serious consideration. But even the best known, most successful, and most orthodox of our portrait painters at the present time portray, or find themselves confronted by, sitters who exhibit to the eye of the medical man and pathologist most interesting variations from the normal. In the exhibition of the National Portrait Society now open are numerous works of sterling artistic merit and worthy of the highest praise; the collection is one that should be visited by all who are interested in the art of portraiture. The attention of medical visitors will be particularly arrested by the skill exhibited by not a few of the contributing artists in depicting various pathological abnormalities. Thus, there are portraits of sitters with such banal afflictions as goitre, arrested hydrocephalus, and kyphoscoliosis; in the last instance the sitter's hands are in view, and from the absence of onychocampe and clubbing of the finger tips the pathologist is perhaps justified in concluding that in this instance the kyphoscoliosis was not secondary to pulmonary disease, as it so often is. In another gallery is a good reproduction of the *plica polonica*, or matting together of a head of hair, that is rarely seen in this country but is *ex hypothesi* common in Central Europe. There are also pictures that seem to illustrate to perfection the harmful effects that may follow alcoholic excess. Taken together they form quite a temperance sermon in oils. Other pictures illustrate diseases that are less common. There is, for example, an excellent representation of acromegaly occurring in a young man; a picture of an older man suggesting chronic methaemoglobinæmia, possibly due to the habit of taking aniline-derivative drugs in excess. Another artist has chosen to portray the sitters in a curious light that gives them all the appearances of advanced *post-mortem* decomposition, and here we are presented with a pathological problem that is insoluble for it is evident that the sitters are alive and in

¹ *Bull. de l'Acad. de Méd., Paris*, 1916, lxxv, 80.

² *Ibid.*, p. 92.

the full enjoyment of life. Another picture gives a most successful rendering of left facial hemiatrophy, coupled with a slight degree of the torticollis that sometimes accompanies this rare morbid condition. Certain common disorders are rather noticeable by their absence in this admirable exhibition of portraits. Thus visitors to the annual exhibition of the Royal Academy may always count on seeing pictures of fair English girlhood suffering from enlarged tonsils and adenoids, or from anaemia, in fairly large numbers. In the exhibition now under consideration there is but a single case of well-marked anaemia, and only one or two portraits suggesting the facial deformities associated with chronic nasal obstruction. We cannot conclude this brief review without adding a word of praise for the skill and truthfulness with which the artists concerned have depicted the various conditions described.

"PANTEUTOMANIA."

THE moving pictures of the war have passed in such quick succession before our eyes that already the manifesto issued in the autumn of 1914 by ninety-three leaders of German thought has faded into ancient history and is now almost forgotten. This is, perhaps, a pity, for the document¹ throws a fierce light on the mentality of the German "intellectual." We are glad, therefore, that the Lisbon Society of Medical Sciences is distributing an address delivered by its President, Professor Ricardo Jorge, in which he deals faithfully with the manifesto and its authors.² He describes their deliverance as showing all the symptoms of a collective madness. We need not follow the orator in the torrent of his invective. But something may not unprofitably be said as to the process of mental perversion which has taken place in Germany during the last forty-five years. This Jorge traces in a striking manner. In 1870, he says, France lived imprisoned in her own vanity; for her there was then no science, no art, no literature but her own. A German psychological physician, Karl Starck, discussed this mental condition in a pamphlet published in 1871, in which he maintained that France was really suffering from a psychosis akin to paralytic dementia, or *folie raisonnante*, with predominance of the mania of greatness. The overthrow suffered by her in 1870 produced a great change of spirit, and the disease in turn attacked her conqueror. The symptoms showed themselves very early. In his *Study of Sociology*, published in 1873, Herbert Spencer quotes a German professor as writing to him: "There is, alas! no want of signs that the 'happy contrast to French self-sufficiency' which Germany heretofore displayed is disappearing 'since the glory of the late victories.'" An "esteemed German professor of philosophy" declared that the psychical and ethical sciences would not be advanced by international communion of thought, adding that "if this were possible he did not think it desirable, as it would interfere too much with the peculiarity of German thought." Thus, said Spencer's correspondent, "the finest German characteristics are disappearing in an exaggerated Teutonomania." Another professor contended, with perfect seriousness, that "only one thing is now wanted to complete our German institution, a national costume." Jorge contrasts the attitude of Virchow with the arrogance of the present day "intellectuals" who loudly proclaim their belief that Germany can do no wrong. In 1871 he warned his fellow countrymen of the dangers to which national vainglory would expose them. He added that German scientists were almost all opposed to war—a statement which reads curiously at the present day. It is easy to guess what

the great man who made it would have thought about the "panteutomania," as Jorge calls it, from which the German people is now suffering. The Lisbon professor's address, which was delivered in December, 1914, was violently criticized by Professor C. Mense, editor of the *Archiv für Schiffs- und Tropen-Hygiene*, who speaks of him as an orator driven mad by the calumnies of the enemies of Germany and discharging his soul in a flood of injurious accusations. For this reason the *Archiv* declines further exchange with the *Medicina Contemporanea*, in which the address appeared. Jorge retorts that there could be no better proof of the truth of his view that Germany has gone mad than Mense's effusion. These professorial courtesies make one wonder what is to happen in the intellectual sphere after the war. One learned Teuton has already told the world that henceforth medicine is no longer to be cosmopolitan but wholly German. There are to be no more international congresses and no scientific intercourse between Germany and other countries. Another has declared that "Germany must and will stand alone. The Germans are the salt of the earth; they will fulfil their destiny, which is to rule the world and to control other nations for their good." But we need not be alarmed. The world will manage to get along without German medicine and surgery, for Germany depends much more for its ideas on Great Britain, France, and America than those countries do on her.

HAEMOLYTIC SPLENOMEGALIC JAUNDICE CURED BY THE X RAYS.

PROFESSOR G. JONA, of Venice, has recently described¹ the case of a youth of 18 with what he describes as a primitive acquired haemolytic acholuric splenomegalic jaundice of the Widal and Hayem type, who was cured by the x rays. The patient, when seen for the first time in 1912, was well nourished, anaemic and slightly jaundiced; the urine was free from bile pigment, but contained urobilin. The liver was soft and moderately enlarged; the spleen was enormously enlarged, reaching across the middle line and down to the fold of the groin, and the splenic dullness measured 34 by 19 cm. The faeces contained an excess of pigment; the blood examination showed 50 per cent. of haemoglobin, 2,900,000 red cells and 5,000 white cells per c.mm., with numerous nucleated red cells, anisocytosis, polychromasia, lymphocytosis, and diminished resistance to solutions of sodium chloride. In the eight examinations made of the blood, no malarial parasites were ever seen; the patient's temperature was normal during the seventy-five days he was in hospital. The blood serum contained bilirubin; Wassermann's reaction gave a negative result, and so did von Pirquet's test. After the patient had been treated for a month with Fowler's solution by the mouth and injections of green citrate of iron, without improvement, x-ray therapy was begun. A tube of moderate hardness (7-8 Benoist) was used with a current of a half to one milliampère 40 cm. from the patient, who was screened by an aluminium plate 1 mm. thick. Exposures lasted ten minutes, and were made in groups of three, the anterior, lateral, and posterior aspects of the spleen being irradiated on successive days. These three exposures were repeated at intervals of five days; twenty-one exposures were given between December 5th and January 19th, 1913. The patient's general condition improved at once, and so did his blood count; the spleen diminished in size but slowly, the dullness measuring 27 by 15 cm. in February, 1914; in August, 1915, the dullness measured 15 by 9 cm., and the spleen extended three fingerbreadths beyond the left costal margin, while the liver was normal in size. The haemoglobin reached 70 per cent. in January, 1913, 80 per cent. in February, 1914, and 100 per cent. in August, 1915, when there were still traces of urobilin in the urine.

¹ Comments on the manifesto and the replies from a number of learned bodies throughout the world will be found in the BRITISH MEDICAL JOURNAL, of October 31st, November 28th, and December 5th, 1914, and March 27th and July 24th, 1915.

² *A Guerra e o Pensamento Medico*. Portugal-Lisboa: Edição da Sociedade das Sciencias Medicas.

¹ *Il Policlinico*, Rome, 1916, sez. med., xix, 17.

Professor Jona remarks that there was still a trace of jaundice about the patient in March, 1915. He discusses the case from various points of view, and gives a number of details about the blood examinations that cannot be reproduced here. He considers that the x-ray therapy produced the same results as splenectomy would have done, though more slowly; in 1914 Mühsam collected 14 cases in which the condition had been cured by splenectomy. Professor Jona quotes 2 cases of congenital haemolytic jaundice much improved by x-ray treatment of the spleen; he has not found any case similar to his own recorded in the literature.

ECONOMY IN PAPER.

THE Royal Commission on Paper has issued a further appeal to the public drawing attention to the consequences of the restriction upon the importing of paper and paper-making materials which it has been appointed by the Government to carry out. The restriction reduces the import by one-third, and newspapers, journals, and magazines must correspondingly be reduced in size or weight, or both. The appeal is to the public to be economical in the use of paper, for the restriction of the supply of paper for printing has been for some time in force, and it has been necessary in the case of this journal, as in that of all its contemporaries, to reduce the number of pages and the weight of the paper. We would appeal to contributors to bear the fact in mind when preparing articles for publication. Our contemporary *Nature*, in its issue of March 23rd, announced that it has been found necessary to reduce the size of that valuable periodical, and made an appeal to its contributors to "confine themselves to essentials, points of prime importance, in order that our record of scientific work and events may still be as extensive as possible, though it must necessarily be less detailed." These words put the situation very well, and place the matter on a true ground. They are as applicable to medicine as to science in general. We are well aware that to be brief is troublesome, since it requires more concentration of thought and more labour in composition. It is well worth while to incur these extra pains in the interests of readers and of the advancement of science. The first draft of an essay almost invariably contains repetitions and redundancies, which can be eliminated not only with the saving of space but with increase in clearness.

It is announced from Paris that a sanitary conference of representatives of the Allied Powers has met there during this week for the discussion especially of the prevention of typhus and cholera, the destruction of rats—which are so serious a nuisance in the trenches—and of insects, and questions as to rations.

Medical Notes in Parliament.

Mesopotamia.

On March 23rd Mr. Tennant stated that the new arrangements for the control of operations in Mesopotamia came into force on February 16th, 1915. The commander-in-chief in India received instructions with regard to the military operations in Mesopotamia from the chief of the Imperial General Staff in exactly the same manner as the commander-in-chief in other theatres, but India remained the main base of the forces in Mesopotamia, which was administered by the commander-in-chief in India. Such requirements of the forces as India could not meet were supplied by the War Office from other parts of the empire so far as consideration of general policy did not render this impracticable.

Medical arrangements in Mesopotamia, Mr. Tennant also stated, were primarily under the control of the military authorities in India, but the commander-in-chief

in India had been informed that the Army Council would render him any assistance in medical personnel and equipment. All demands had been met without delay; 120 medical officers, including 40 from Egypt and 205 other ranks, R.A.M.C., had arrived or were on their way. In addition, one British general hospital of 1,040 beds and one British stationary hospital of 400 beds had been sent from Egypt. Both these units were fully equipped. Four Indian general hospitals of 500 beds each, which were in this country, had also been sent. Two of these were fully equipped, and the remaining two consisted of personnel only. From France the Lahore Indian Stationary Hospital of 200 beds and 33 medical officers were under orders. A motor ambulance convoy—50 cars with complete personnel—was nearly ready, and would leave for Mesopotamia early next month. The commission, consisting of Sir William Vincent and General Bingley, after taking evidence in Bombay, left for Mesopotamia on March 10th. Asked whether these two public servants had any special knowledge or experience of medical requirements for an Eastern campaign, Mr. Tennant said that Sir William Vincent was a man of wide administrative experience and had proved efficient in high and responsible official posts, and that Major-General Bingley had had a great deal of staff experience and was well suited for an inquiry into alleged deficiencies in the organization of supplies. These two gentlemen were, Mr. Tennant considered, amply qualified to elucidate the facts and to make a fair, complete, and judicial report upon them, having reference to all aspects of the question. They could procure any technical and expert advice they desired.

In reply to a question by Lord H. Cavendish-Bentinck, on March 23rd, Mr. Chamberlain said that he had learnt that the Joint War Committee of the British Red Cross Society and the Order of St. John, in co-operation with the Indian Soldiers' Fund, offered general assistance direct to the general officer commanding Mesopotamia in July, 1915, and repeated their offer at later dates, and that stores were sent by them to Basra in September, two motor boats in August, and another in October. In December further offers on their behalf had been transmitted. On January 31st the Committee offered to place at the disposal of the Secretary of State the organization of the two societies to supplement the provision made by the Indian Government for the care of the sick and wounded in Mesopotamia. The offer was in the widest and most generous terms. It referred in particular to the possibility of helping in the supply of stores and clothing, medical comforts, drugs and luxuries not included in the scheduled army lists; in the supply of motor ambulances, barges and other vehicles, for the transport of the sick and wounded, and in the equipment of hospitals and the provision of personnel and staff to administer such hospitals. The offer was communicated to the Viceroy, who, having ascertained that its acceptance would not conflict with the organization and arrangements of similar Indian societies, informed the India Office that the Indian Council of the St. John Ambulance Association, which from the outset had actively concerned itself with the Mesopotamia force, would gladly accept assistance. In October, 1915, the Indian Soldiers' Fund made inquiry through the India Office of the military authorities in Mesopotamia as to whether clothing and comforts were needed for the troops, and was informed in reply that for the present the supply in India was sufficient. The Fund Committee had independent evidence that there were sufficient supplies at the base at that time. An offer from the fund transmitted to the Viceroy in December to supply bandages, medical and surgical dressings, and other hospital comforts was gladly accepted, and early in January a large consignment of articles, some contributed by the Joint Committee, was despatched to Mesopotamia. Other offers of which the India Office had no direct knowledge had been made to corresponding societies in India engaged in providing comforts for the combatants and medical supplies for hospitals.

On March 28th Mr. Gwynne asked whether, when the shortage of doctors and nurses and hospital equipment in Mesopotamia was realized by the Government, any endeavour was made to transfer some of the hospital equipment in Egypt not at present being used. Mr. Tennant replied in the affirmative. Aid, he said, was offered as soon as it was realized that aid was wanted.

War.

Army Medical Advisory Board.—Sir Philip Magnus, on March 23rd, asked whether the Government would consider the advisability of reconstituting the Advisory Board to co-operate with the general superintendent in the further organization of the medical service, and, if so, whether regard would be had to the suggestion that had been made by a number of medical men that such a Board should consist of some lay representatives. Mr. Tennant said that he took note of the suggestion, but could not admit that a case had been made out for interfering with the organization as it at present existed. In reply to Mr. McNeill, who asked whether it was not a fact that the Advisory Board was in existence when the war broke out, and that the neglect to call it together was without any proper authority, Mr. Tennant said that Mr. McNeill was misinformed as to the facts, although he (Mr. Tennant) had given him a description of what had occurred at the outbreak of the war in the recent debate. It was, Mr. Tennant added, quite within the competency of the military authorities to suspend the activities of the Advisory Board as and when they might think proper.

Medical Officers with Special Experience.—On March 23rd Sir Philip Magnus asked what steps were being taken to arrange that doctors with special experience in different branches of medicine and surgery who had joined the Royal Army Medical Corps were being employed by the War Office as to utilize to the best advantage their special qualifications. Mr. Tennant replied that every effort was made to employ gentlemen who joined the Royal Army Medical Corps in such a way as to give their individual qualifications every consideration. It was sometimes not practicable to use their services exclusively in one special line of practice, as the need for special work was limited. His information was that these gentlemen willingly gave their attention to work outside their special qualifications when work of that kind was awaiting attention.

Part-time Hospital Work.—Sir Philip Magnus on March 23rd asked a question as to the utilization to a greater extent in part-time work at hospitals, or in looking after the health of troops, of the services of medical practitioners resident in the neighbourhood, so as to release a proportion of the men who had volunteered for whole-time service abroad, or who had been asked to take commissions in the Royal Army Medical Corps. Mr. Tennant replied that the policy suggested was already followed. A considerable number of medical practitioners were already employed in part-time practice, and it was anticipated that this number would be largely increased.

Tuberculous Soldiers.—In reply to Major Astor, on March 22nd, Mr. Tennant said that the number of cases of tubercle of the lung treated out of army funds in hospitals in the United Kingdom on February 29th was 632. The information available did not make it possible to distinguish those who were suffering from consumption alone from those who were suffering from consumption and wounds or other injuries directly attributable to warfare. In reply to another question by Major Astor on the same day, the Chairman of the Joint Committee of Insurance Commissioners said that approximately 2,000 cases of tuberculous soldiers had passed through the hands of the several commissions in connexion with the special arrangements made in April, 1915, for the provision of immediate residential treatment for discharged tuberculous soldiers, and had been provided with treatment. In addition, it was known that a large number of soldiers who became, on or after discharge, eligible for sanatorium benefit had made application for the benefit direct to the local insurance committees, who had afforded treatment without reference to the Insurance Commissioners. The actual number of such cases—including, of course, many cases which arose before the special arrangements were established—could not be obtained without a special return from all insurance committees in the United Kingdom.

Cerebro-spinal Meningitis.—Mr. Chancellor asked a string of questions, on March 22nd, with regard to carriers of cerebro-spinal meningitis. Mr. Tennant, in his answer, said that two cases had arisen from contact with soldiers segregated as carriers at the Fulham Military Hospital; that a carrier of disease could, as a rule, be made not to be a carrier, and that it had been proved that cases of the disease had arisen from contact with persons not themselves suffering from it. Mr. Chancellor suggested that the advice on which the alleged carriers were treated was not based on anything more substantial than an unproved theory, not only not accepted but widely disputed and denied in medical circles. To this Mr. Tennant replied that the carrier theory in this and other diseases had been fully proved, and was widely accepted by the medical profession.

Steel Helmets.—In reply to questions on March 23rd the Minister of Munitions said that reports of a very satisfactory nature had been received on the steel helmets and the necessary steps had been taken to obtain a supply sufficient to meet the requirements of the War Office. A satisfactory pattern was approved some five months ago. Changes were being made to meet the improvements suggested by experience, but already over 300,000 had been delivered. On March 28th Mr. Tennant said that all battalions in the field will shortly be equipped with helmets either of the present or of an improved pattern.

Ration Allowance to Wounded Officers.—On March 22nd Mr. Burdett-Coutts asked a question as to an order of February 28th cutting off the ration allowance of 1s. 9d. a day previously paid to wounded officers. He pointed out that in existing circumstances the homes of many of these wounded officers were broken up when they joined the army, and that therefore the ration allowance when they were home on sick leave, perhaps for a long time, was a consideration to many of them. It had to be remembered that there was no separation allowance for the wives and families of officers. The Financial Secretary to the War Office (Mr. Forster), in reply, admitted that some of the considerations which should have carried weight were not sufficiently taken into account before the allowance was cancelled. The Government proposed to reconsider the question in a generous spirit.

Bonesetters.—In reply to a question by Sir A. Markham, on March 28th, Mr. Tennant said it was true that the War Office had declined to accept the services of Mr. H. A. Barker, together with those of several other gentlemen who were not registered medical practitioners. It was not the intention of the Army Council to direct the medical authorities to employ unqualified men to treat military patients. If this were done, Mr. Tennant added, he felt certain that from no quarter would there be a louder outcry than our soldiers were not receiving the necessary skilled attention than from members of the House of Commons.

WAR PENSIONS.**N.C.O.'s AND MEN.**

The total pension receivable by a man disabled in the war or by his widow or other dependants if he is killed, may be derived from two sources—the funds administered by the Greenwich and Chelsea Commissioners which are ordinary charges on army funds, and the funds at the disposal of the Statutory Committee of the Royal Patriotic Fund Corporation, set up under the Naval and Military War Pensions Act, 1915.

With regard to the pensions paid through army funds by the Chelsea Commissioners, the Financial Secretary to the War Office (Mr. Forster) made a statement on March 22nd. He began by saying that it had been suggested that there was a prevalent belief amongst wounded soldiers that it was undesirable from their point of view to qualify themselves by skill and industry for a trade, because if they did the mere fact that they had become sufficiently skilful to earn their living adversely affected their pensions. It should be clearly understood, Mr. Forster said, that in assessing pensions it did not matter what a man earned at the moment. What was taken into account was his capacity to earn. His pension was calculated on his physical condition.

It would, therefore, be clearly realized that the pension of a man who was earning nothing would be reduced if there was nothing in his physical condition to prevent him from earning, if so inclined. On the other hand, a man earning a very considerable rate of wages might at the same time be drawing a considerable pension. When a man had lost a limb he was treated by the Commissioners of Chelsea Hospital as totally incapacitated for a certain length of time, and he got the full rate of pension of 25s. a week for at least two months after he had been fitted with an artificial limb. It took time for a man to get accustomed to his new apparatus. The man got his full scale of pension for a certain time, say, six months, at the end of which his case was reviewed, his physical condition closely examined, and if the verdict of the doctors was that his physical condition was sufficient to enable him to earn his living to the extent of, say, one-half, his pension was reduced. It did not matter how much the man was earning at that time. If his physical condition was so much improved as to permit him in the open market to earn at least half of the full living, his pension was adjusted on that account, and not on account of the particular amount of money he might happen to be earning at the moment. He wished soldiers to realize that it did not pay them, and ought not to pay them, to refuse to take employment simply for the sake of retaining their pension at the highest scale. It was assessed not by the standard of what they earned, but according to their physical capacity.

In asking for a vote of £1,000,000 to the Statutory Committee, constituted under the Naval and Military War Pensions Act, 1915, the Parliamentary Secretary to the Local Government Board (Mr. Hayes Fisher) made a statement, in which he said that the duty of the Committee under that Act was to grant pensions to supplement those granted by the Greenwich or Chelsea Commissioners and to make provision for the training and employment of disabled soldiers and sailors. The Commissioners would make grants on scales laid down by the Committee on Supplementary Pensions in cases in which a consideration of the circumstances showed that the State pensions were not adequate either to the individual soldier or sailor or his dependants, and also grant pensions in cases of great hardship in which, for one reason or another, pensions had not been given to disabled soldiers and sailors.

The number of disabled men discharged as unfit from wounds and disease who had been awarded pensions and grants by Chelsea Hospital down to March 9th, 1916, was 30,255; 5,470 had received final pensions; 1,356 provisional pensions; and 23,429 conditional pensions, to be reviewed later. Pensions or grants had been refused in 15,105 cases by the Chelsea Commissioners, but that was before the concession made recently rendering it unnecessary for a man to prove that a disease from which he suffered was due wholly or directly to military service; pensions would be given where the disease had been aggravated by military service.

The number of cases of amputation notified to the main hospital at Roehampton down to March 1st was 3,818; of these, 1,628 had already been admitted to Roehampton, and 932 had been discharged with properly fitted artificial limbs, which were a vast improvement on those which used to be served out to the victims of former wars. At present there was a waiting list of 2,027, and cases were being notified at the rate of 300 a month.

With regard to the blind, some 200 had either passed through the training school at St. Dunstan's or would shortly pass through, but it was to be feared that the number would be very much larger before the war ended, and it would be necessary to provide another St. Dunstan, either by giving help to Mr. Pearson or by direct action. For the paralysed it was not possible to do more than provide a home, and this work was being undertaken by those who had started the big hospital at the old Star and Garter Hotel at Richmond. Special provision would also have to be made for nervous cases and would have to be continued for many years after the war.

The State pensions for a widow would be a flat rate—10s. a week until she was 35; 12s. 6d. from that age to 45; and 15s. afterwards. The total number of widows of N.C.O.'s and men reported by the Army Council to March last was 41,500. The separation allowance was continued for twenty-six weeks, and was still being paid to 18,394; 23,106 were actually in receipt of pensions; only 800 had been refused pensions. The number of widows of men in the navy who had been granted pensions was 4,180; the number in receipt of separation allowance was 420, and the number who had been refused pensions 48. Cases in which pensions had been refused would be considered by the Statutory Committee, and it would also consider whether pensions granted should in any cases be increased. The Statutory Committee had come to the conclusion that the income of a widow with children should be made up to two-thirds of the pre-war income, with a maximum of £2 a week. The Statutory Committee would also consider cases of hardship in relation to the education of children or due to exceptional sickness. In addition to approximately 50,000 widows, there were dependants other than widows and orphans who also numbered about 50,000; their case, as also that of persons not now in receipt of any pension, would have to be considered by the Statutory Committee. Mr. Hayes Fisher added that he did not expect the vote of a million now asked for would be sufficient. The National Relief Committee had spent over two millions already in extra separation allowances, mainly for extra rent, and the expenditure was now about £80,000 a month. In the course of a discussion Mr. Barnes recalled the fact that the Verney Committee had recommended the Government to set apart two millions to set up farm colonies, but this, it was estimated, would settle only about 5,000 families. The vote was agreed to.

Pensions for Nurses.

In reply to a question by Mr. Burdett-Coutts, on March 22nd, Mr. Forster said that steps had been taken to institute a special scale of pensions for those nurses who were disabled either by disease or accident wholly and directly due to service, or aggravated by service.

The matter was discussed with the head of the nursing staff, the matron-in-chief, and he hoped that the House would be satisfied that the scale laid down was sufficiently generous to meet the case.

UNITED STATES.

The following notes founded upon the latest report of the Commissioner of Pensions (United States of America), for the use of which we are indebted to the courtesy of the acting commissioner through Mr. Lynn Thomas of Cardiff, are of interest in this connexion:

The (estimated) total number of individuals enlisted on the Union side during the Civil War was a little short of two millions and a quarter (2,213,365).

The number of soldiers and sailors pensioned on account of service during the Civil War was 1,156,160. Of this number, approximately 565,000, or nearly half, were pensioned on account of disability incurred during the war. The remainder were pensioned under various Acts of Congress which do not require that in order to obtain a pension the disability must have been incurred in service in "line of duty."

A claim may be made by a soldier or sailor for a wound or injury received during the execution of his duty, or by accident, or on account of disability due to disease.

It would appear that all claims are referred to the Bureau of Pensions, which is under the direction of a Commissioner, who reports to the Secretary of the Interior.

The report of the Commissioner for the fiscal year ended June 30th, 1915, shows that the number of disability pensions in respect of the Civil War was 45,611, and the amount disbursed in pensions 16,500,000 dols. In 1911 the number of pensions was 113,469, and the amount disbursed nearly 32,000,000 dollars. The death-rate among pensioners, and among pensioned dependants also, is rising rapidly, as was to be expected, remembering that the war came to an end fifty years ago, but the immense time liability of the State may continue in respect of war pensions is shown by the astonishing fact that in 1915 pensions were paid to 134 widows in respect of the war of 1812!

The report does not distinguish the nature of the disabilities in respect of which disability pensions are paid, so that the proportion of those given for wounds and for disease respectively cannot be calculated.

In settling the amount of a pension the Bureau acts on medical reports rendered by examining surgeons or boards of such surgeons appointed in every State, to the number of 4,554 altogether, including 550 "expert examining surgeons."

The amount of pension awarded is governed by an elaborate classification fixed partly by statute and partly by order of the Commissioner of Pensions.

"Disability equivalent to the ankylosis of a wrist" seems to be taken as a kind of base line, and the pension to an enlisted man for that is 8 dols. a month, or a little over 1s. a day. For the same disability the rates for army officers are for a second lieutenant 15 dols. a month, for a first lieutenant or assistant surgeon 17 dols., for a captain 20 dols., for a major or surgeon 25 dols., and for a lieutenant-colonel or officer of higher rank 30 dols.

The higher rates paid for more serious disabilities range from a maximum of 100 dols. a month for loss of both hands or both feet or of sight, to 55 dols. for the loss of a leg at the hip or an arm at the shoulder so as to prevent the use of an artificial apparatus, 40 dols. for the loss of one hand or one foot or total disability in one hand or one foot. The rate for ankylosis of the shoulder is 12 dols., for ankylosis of the elbow or knee 10 dols. The rates of pension in respect of the more serious injuries have shown a tendency steadily to increase. The rate for loss of both hands or of sight was originally only 25 dols.

It has often been alleged that politicians succeeded in abusing the pension law by means of special legislation in the interest of individuals. It would seem, however, that such abuses as were permitted to occur cannot have seriously affected the grand totals of the number of pensioners and the amount disbursed. Altogether 47,398 special pensions were granted by Acts of Congress, but most of the beneficiaries had been previously pensioned under general laws at lower rates. The number of these special pensions on the roll in 1915 was 21,648, with an annual face value of 6,500,000 dols. out of a total annual disbursement in pensions of 161,000,000 dols.

¹ "Line of duty" is a technical phrase, which is defined in the administration of the pension laws as that relation which a soldier or sailor sustains to the military or naval service of the United States when performing an act connected with any of the possible conditions or requirements of the service, or in the observance of the proper orders of his superiors, not in violation of the army or navy regulations.

THE WAR.

BEDS AND STRETCHERS.

(From a Correspondent in Northern France.)

THE BRADFORD FRAME.

THE Bradford frame mentioned several times with approval at the meeting at the Australian Hospital reported in the *BRITISH MEDICAL JOURNAL* of March 11th, p. 392, is a new introduction over here, but a familiar appliance in certain parts of the United States. It seems to have been in use in Boston for some twenty-five years, and bears the name of the medical man who devised it.

It is a kind of cross between a stretcher and a section mattress, resembling the former because a patient can

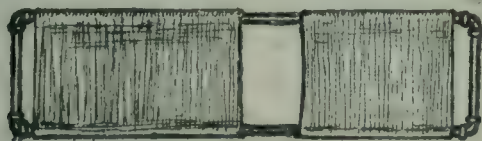


FIG. 1.—Bradford Frame.

easily be carried about on it, and the latter because he can lie on it for an unlimited period, any portion of his body being meantime accessible without disturbance of the rest.

Its construction is simple (Fig. 1): four pieces of iron piping about $\frac{3}{4}$ in. in diameter are clipped together by angle irons into an oblong frame, which is filled in by two strips of strong brown canvas. These strips pass over the lateral irons and round to the back, where they are tautened in the middle line by whipcord laces passed through brass eyelets. The whole apparatus weighs about 22 lb.; its dimensions when built for adult use are 76 in. long by 20 in. wide.

So far the description only suggests a stretcher devoid of handles or ground rests, and built of iron instead of wood; but the differences are of some importance. The lack of handles does not prevent the appliance being used like an ordinary stretcher, since the round corners of the frame afford a firm purchase for the hands of bearers, yet their absence, combined with that of ground rests, fits the appliance to be placed on a bedstead or the top of a mattress. Used thus it does not interfere with the comfort of the patient, yet enables him to be lifted off the bed and carried elsewhere at a moment's notice. The strips of canvas do not fill in the frame completely; there is a gap of some 9 in. between the lower edge of the one and the upper edge of the other. This gap occurs about the level of the patient's nates, so that by raising one end or the other of the frame a bedpan can readily be slipped into the desired position. This is the point which affords an analogy with a section mattress, and the resemblance is heightened by the movability of this gap (thanks to the lacing) and the possibility of making an additional gap by subdivision of either strip at any desired point.

This stretcher bed is regarded by those familiar with it as offering great advantages in dealing with all classes of injury, but especially those of the spine. It is also pointed out that the extension of an upper or lower limb can be secured by fixing it to the foot end and counter-extending by a perineal or shoulder band attached to the head end of the iron frame.

THE BRYAN BED.

Another apparatus mentioned at the meeting which may have been unfamiliar to some readers was the Bryan bed, devised by Captain O. W. G. Bryan, R.A.M.C., and described by him in the *Lancet* of January 1st, 1916. We are indebted to the editor of that journal for permission to reproduce two sketches by which the description was illustrated. The bed, our correspondent points out, affords a means of repeatedly dressing a severely septic compound fracture of the femur close to the hip-joint, and of attending to the nursing requirements of the patient without the degree of immobilization of parts previously obtained being in any way disturbed. It may be described as a bold extension of the Hodgett thigh splint. The latter among other things provides for the thigh a moulded bed formed

out of strips of flannel attached to a rigid wire frame running parallel with the limb but a few inches distant from it; the Bryan bed does much the same for the whole body.

Like the Hodgett, it consists of a series of slings which, if their length is duly adjusted, precisely follow the natural contour of the supported parts. In the Bryan bed the slings are attached not to a wire frame suspended from the ceiling or elsewhere, but to two sloping wooden rails standing side by side on their own feet at a distance of about 3 ft. apart (Fig. 2). These rails are kept

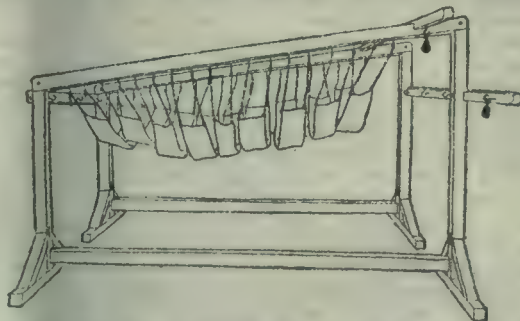


FIG. 2.—Bryan Bed, showing the flannel bands attached by chains to the wooden frame.

together by three bars, of which the two at the foot end are prolonged laterally so as to supply *points d'appui* for an extension pulley. This acts through two stirrups—one attached to the thigh, one to the leg—but only one weight is required to exercise traction on both of them because the pulley attached to the upper or thigh stirrup passes through a roller on the lower or leg stirrup. As the slope of the rails is downwards towards the head, the slope of the patient's body supplies the necessary counter extension.



FIG. 3.—Five-fold flannel bands, with rings at the corners and hooks and eyes at the sides (Bryan Bed).

The supporting bands of slings are made of fourfold strips of flannel (Fig. 3) attached to one another by hooks and eyes and to the rails by curtain rings and short lengths of steel chain; so by using one link or another the slings can be precisely adjusted to the patient's body and limbs. Similarly, any one of them can be removed altogether when it is desired to gain access to the overlying part or to release it from pressure. A folded blanket is also slung from the rails, and with the addition of any superimposed blankets can be brought close up to the patient's body so as to keep him warm, or be lowered a few inches so as to provide a support for any nursing utensil or dressing receptacle that may be in use. The wooden framework is sufficiently solid to allow of the whole apparatus—including the patient—being moved from one place in the ward to another if required.

There are many other ingenious points about this appliance which seem to be found comfortable by patients, and certainly meets the direct aim in view. It does not of course render the patient transportable, and though it is not really as complicated an appliance as the description of it might perhaps suggest, full advantage of the possibilities that it offers is not likely to be secured by a surgeon or nurse unendowed with a natural aptitude for mechanics.

[A device designed on the same or a very nearly similar principle for keeping up traction on the soft parts of an amputation stump is described by Captain Bryan in our columns this week (p. 480).]

STRETCHERS.

The wheeled stretcher-bearer mentioned by a battalion medical officer was probably the regulation pattern for

appliances of this order—a couple of rubber-tired steel-spoked bicycle wheels joined by an axle fitted with double elliptic springs on which rests a seating of suitable dimensions for a regulation stretcher. There are also hinged legs which keep the seating level and the wheels from rolling when the carrier is not being held.

But it is not the only pattern in use. The R.A.M.C. has never lacked men with an instinct for mechanics, and such men now are especially common. This is a mechanical age, and among those who have joined the R.A.M.C. for the duration of the war or belong to its territorial units are not a few men who have served their time in "shops" of a more or less engineering order.

The idea of saving labour by providing a hand-pushed stretcher carrier is in itself quite old. The hand-carts so common in Northern Europe seem to have been used largely by Larrey in dealing with the wounded in some of the later Napoleonic campaigns, and stretcher carriers—as distinct from wheeled stretchers, and of a kind closely allied to those used in the army—are to be seen in some civil hospitals built in separate blocks. But in war they have their limitations. They are not fit for work on really rough ground; they are not easy to carry about from place to place ready for instant use; and unless their supports come automatically into action when required, a patient may be thrown off the stretcher should the orderly who is pushing the vehicle stumble badly or fall. Attempts have been made, with more or less success, to eliminate the second drawback by hinging the axle so as to allow of several carriers being placed inside an ambulance, and the third can be lessened by telling off two orderlies to each carrier. Still, even if they were free from all drawbacks, their use would often be superfluous. In several parts of the front the trolley lines laid by the engineers to facilitate the bringing up of supplies can be used equally well for sending back the wounded.

But it is very much less in the direction of stretcher carriers than of stretchers themselves that activity of thought is manifest in front-line areas. As a general utility appliance the regulation stretcher would be hard to beat, but it was designed and perfected when no one dreamed of a war mainly consisting of trench fighting. It can be lowered into a trench and used to lift a wounded man out over the back parapet or parados, but for moving him about inside the trench it is almost useless. It is true that it can usually be got along a communication trench, but between that trench and the fire trenches and in the latter there are corners that cannot be negotiated by anything the length of a stretcher. The difficulty is easy to realize when it is remembered that the usual outline of a trench is very much that of a series of capital U's standing at varying distances apart but united by lines at their tops.

The attempts that have been made to meet the difficulty vary a good deal, but the resulting stretchers fall, roughly speaking, into two groups. In the one the stretcher is no longer a stretcher, but a kind of carrying chair; in the other it is a very narrow vehicle something like a flat-topped wheelbarrow, the handle end of which can be raised into the air. The patient does not fall off because half way down is a kind of saddle or perineal crutch, and at the upper end a shoulder strap. Some of these appliances have obtained a certain measure of success, but usually this has been quite local. The reason is that in point of breadth, depth, and flooring, the trenches, owing to inevitable circumstances, vary all along the line. Consequently, a stretcher contrivance which may just pass muster, or even prove excellent in one series of trenches, may be useless elsewhere.

MEDICAL DISEASES IN THE MEDITERRANEAN WAR AREA.

A SLIM volume of *Memoranda on Some Medical Diseases in the Mediterranean War Area* has been issued by the War Office.¹ It contains short articles on various diseases, and some sanitary notes, including hints on camp sanitation illustrated by drawings and sectional diagrams to scale, designed to furnish information likely to be useful to medical officers who have not had much experience in military sanitation under semi-tropical conditions. Special

attention is directed to flies in connexion with the disposal of excreta; and the necessity for strict discipline is insisted upon. Incidentally it is mentioned that 4,000 flies can emerge from one-sixth of a cubic foot of sewage trench ground, and 500 from a single deposit of human faeces. Directions are given for incineration and for the disposal of refuse and sullage. In discussing the destruction of vermin, an illustration is given of a French modification of the barrel disinfectant, which is stated to be very effective; sulphur fumes are deadly to lice, and in this apparatus fifteen men's costumes can be exposed to them at a time.

The diseases discussed include diarrhoea, dysentery, and hepatic abscess; the various forms of dysentery are discussed at some length with illustrations to assist in the microscopic examination of stools. In speaking of the differential diagnosis in connexion with bacillary dysentery, the observation is made that bilharzial dysentery must be borne in mind, and in the more chronic cases the possibility of tubercle, cancer, and syphilis. Among the other diseases the etiology and treatment of which are described are cerebro-spinal fever, which, it is stated, has occurred at Salonika within recent years, jaundice, oriental sore, and paratyphoid, phlebotomus, relapsing, typhus, and undulant fevers. A characteristic drawing is given of *Phlebotomus papatasi*, and in the section on malaria there is a plate showing the life-cycles of malarial parasites, illustrating the correspondence between the temperature variations and the stages of development.

In a section on insect pests, which are roughly classified into the wingless and the winged, illustrations are given of *Anopheles* and *Stegomyia*, and also of the sandfly, which, it is said, is likely to be met with during the spring and summer in the Balkans. There is also a striking illustration of the larva and pupa of both *Culex* and *Anopheles* shown in characteristic attitudes with their eggs. Several methods of destruction of clothes-lice are mentioned, the first place being given to the use of a suitable sterilizer, the second to sulphur fumigation, and the third to spraying with petrol, paraffin, benzene, or 10 per cent. formalin, or with the steam jet from a kettle. Menthol is mentioned as the chief constituent of powders which have been used with success for sprinkling over the body and clothes. Two prescriptions are given: one of these is menthol gr. 5-10, zinci ox. ad 3j; in the other some pyrethrum and talc are added. An ointment consisting of guaiacol and vaseline is also said to be useful for rubbing into the skin.

There is a note on cholera, of which it is said that though no cases have been reported in the Mediterranean Expeditionary Force, yet with the advent of warm weather and the extension of the campaign to Bulgaria it is more than likely that it may occur in the war area. Of plague it is said that the aggregation of ships in Eastern Mediterranean ports, the movement of Turkish and Russian troops from east to west, and the proximity to Egypt may cause it to make its appearance in the war area. Its etiology, its various types, its diagnosis and prophylaxis, are discussed. A drawing is given of the rat-flea, and also of the black rat, which, as well as the grey rat, suffers from plague. The grey rat is the usual ship rat, but the black rat is said to be the more dangerous as it lives in closer association with man. We commend the introduction of the notes upon these two epidemic diseases, because the book, it is to be expected, will be an indispensable part of the kit of every medical officer serving in the Mediterranean area; and however sanguine our hope that neither disease may attack the British forces, it will be at the moment when a suspicion first arises that the need for an authoritative statement will be most felt, and then it may very well happen that the medical officer concerned may not be able immediately to obtain either clinical or bacteriological consultation.

THE R.A.M.C. AT WORK IN NORTHERN FRANCE.

DR. GRENFELL of Labrador, who has been serving in France with the Harvard surgical unit, contributed to the *Times* last week an article on the work of the R.A.M.C., in which he paid a very high compliment to its organization. He gave a succinct account of the sanitary work, the development of which has been described by our

¹ His Majesty's Stationery Office. To be obtained through any bookseller. Price 1s.

correspondent in Northern France from time to time during the last eighteen months.

When the British took over the trenches west of Ypres, where typhoid was endemic in the villages, our allies, Dr. Grenfell says, had nearly 6,000 cases of the disease. Now, he says:

Typhoid is so small a factor that if a single case occurs anywhere in four armies it is known the same night at head quarters, and next day a rigid local inquiry is held as to the cause. Tetanus, a most terrible and fatal danger of mud associated with wounds, is being met with inoculation so soon after the event that it, too, has become an almost negligible factor in mortality. Trench-feet at first disabled thousands of our soldiers. To-day it is no longer a problem. A batch of such cases is now sent down by the medical officer in the trench with an apology and an explanation, as if it were a misdemeanour. When reference was made at head quarters to a group of 150 cases we had seen a week before coming from a section under deep snow, the Chief of Staff instantly said: "Ah, but that couldn't be helped. There was such heavy 'strafing' for two days there that the men hadn't a chance to change their boots even." It was an act of God, assisted by the Boche. The feet of one of the prisoners brought in at the same time were gangrenous.

Of the arrangements for the prompt treatment of serious wounds he says:

Hospital accommodation is provided, and trained nurses and specially selected surgeons are working, so near the trenches that many abdominal and thoracic wounds are in the operating room in two to three hours—one man was brought in just fifty-five minutes after he had been injured. It is only when one considers how long it takes in London, and also the difficulty of removing any man from the trenches in daylight (so that red crosses on white bands are largely abandoned by stretcher bearers as being rather objects to attract attention of gun-fire than to avoid it), the terrible condition of the shell-torn roads, and the hopeless mud of the sodden country, that the real significance of these magnificent results becomes apparent.

Speaking of the organization for treating wounded, he says that he has heard criticisms on the one hand that operations are entrusted to incompetent hands, and on the other that extravagant salaries are paid for illustrious names.

Neither of these statements (he says) have any truth in them. Unfit surgeons are remorselessly eliminated as soon as recognized, and the army has not paid more than the rank entitles him to for any surgeon. Yet they have permanently in France men whose skill brings them in the comfort of their own homes ten times the money for which they are serving the empire.

To us, the team work of these hospital units, each with its expert in various lines, the pathologists, the x-ray men, the diagnosticians, the therapists, the operating surgeons, and the commanding executive medical officer, suggest an ideal model for the future in civil life. The splendid special dental and eye clinics that have also come into existence are among the best evidences of progress and evolution of the R.A.M.C. in France.

Speaking of wounds of the abdomen, chest, or head, he says that the ideal would be to build a hospital over where the man fell, but adds that at least one field ambulance, so close to the line that the jolting of transport by motor car can be eliminated, has already become a special hospital, although it had to be moved back from its first place to a better shelter a few hundred yards away, because a shell came through the roof. He describes the regimental dressing station as a strongly protected dug-out, and says that the advanced dressing station is often also a dug-out. With reference to the field ambulance head quarters he says that critics forget that nearness and accessibility are far from being synonymous. The clearing stations he describes as economic sieves; rest camps have been added to them, at one of which as many as 80 per cent. are saved altogether the journey to the base and the long absence from their regiment such a journey involves. He mentions the repairing shops, and says that "mobility is preserved by this strict economy, progress is guaranteed by the encouragement which the head quarters staff gives to suggestions, efficiency by the unselfish spirit animating the doctors, nurses, and orderlies."

Dr. Grenfell concludes his article in the following words: "No profession is altogether exempt from self-seekers, disappointed men, incompetent men. Wilfully or otherwise, these men will present false impressions of any service, however noble and efficient it may be, but the British public has no reason to be anxious for their friends in the hands of the R.A.M.C."

GERMAN EXPERIENCES.

MEDICAL PROBLEMS IN WAR.

In a paper read before the Medical Society of Berlin¹ Dr. Goldscheider, consulting physician with a German army, said that the arrangements made in time of peace for the transport of the sick, as distinguished from the wounded, had proved totally inadequate. The underlying principles affecting the removal of the sick were not recognized, and every physician was left to work out a scheme of his own. Many patients suffering from heart disease, nephritis, pleurisy, etc., who succumbed to the hardships of transport could not have been expected to stand even the luxurious travelling of peace time.

Typhoid Fever.

The fate of a patient with typhoid fever was often determined by the decision for or against moving him. When the transport of these cases was inevitable it was advisable to give digitalis, but whenever it was possible, no patient suffering from typhoid fever should be moved before the end of the third week.

If bacteriology was to be of real value in the early diagnosis of typhoid fever, the bacteriologists would have to be stationed much nearer the front than had hitherto usually been the case. In the overwhelming majority of cases the diagnosis of typhoid fever was made independently of bacteriological methods. In clinically atypical cases a bacteriological examination was often indecisive, or was not decisive till the diagnosis could easily be made by other means. The war had shown that the German medical man was insufficiently equipped in the technique of examination and diagnosis, and steps would have to be taken to bridge more effectively the gap between theory and practice. He had found that the subjects of typhoid fever were often treated on the lines of blunderbuss pharmacy. Calomel, opium, quinine, aspirin, pyramidon, digitalis, and caffeine were poured into the patient. Personally he relied exclusively on cardiac remedies and small doses of pyramidon, but he did not approve the systematic administration of large doses of this drug over a period of weeks. The exaggerated claims made on its behalf had led many German physicians to regard it as a specific for typhoid fever. Dyspepsia, nausea, pneumonia, and cardiac weakness were, in his opinion, contraindications. He was not yet sure of the effect of vaccine-therapy, though under certain conditions it was beneficial, and deserved further study. The mortality from typhoid fever varied considerably in the different German armies, owing largely to the varying severity of the disease, the conditions under which transport of the sick was effected, and the facilities for obtaining proper food. The influence of these factors was so great that the mortality statistics in the various armies were no satisfactory guide to the merits of the respective methods of treatment.

Other Infectious Diseases.

At one point on the west front a large crop of cases of Weil's disease developed; its origin was obscure. The conditions under which epidemics and single cases of cerebro-spinal meningitis occurred were also obscure. Trauma and exposure to cold certainly played an important part, and in one case fracture of the base of the skull was followed in a week by symptoms of meningitis, and the meningococcus was found in the throat and cerebro-spinal fluid. Little was seen of febrile articular rheumatism in the winter; but it was relatively frequent in the spring and summer. Most of the patients suffering from muscular and articular rheumatism had already showed signs of these conditions before the war.

Heart Disease.

The frequency of symptoms referable to the heart was surprisingly great, and had increased since the development of trench warfare. They were due to muscular and nervous exhaustion, and of the two the nervous element was the more important. In many patients there were predisposing factors, including faulty development, anaemia, and neurasthenia. Many had previously suffered from nervous palpitation, while others had not been able to stand the change from a sedentary occupation to the

¹ *Berliner klinische Wochenschrift*, November 1st and 8th, 1915.

strenuous life of a soldier. Among the older classes alcohol and early arterio-sclerosis no doubt also played a part. Dr. Goldscheider distinguished three classes of heart cases: (1) Cardiac neurosis associated with general weakness, slight dilatation of the heart, an abnormally low blood pressure, cyanosis, coldness of the limbs, increased frequency of the pulse on slight movement or change of position, and irregular, weak action of the heart; (2) cases in which the symptoms were nervous only and there was no muscular weakness of the heart itself or of the body generally, but often evidence of general nervousness; (3) a large group of cases in which tachycardia was the main or only symptom. The symptoms due to over-exertion were transitory. In all three classes adventitious murmurs and muffling of the first sound were frequently observed.

Dr. Goldscheider deplored the lack of a simple functional test applicable to all these cases; the reaction to graduated exercises was a useful guide, but it often failed to distinguish between the muscular and nervous factors, which, in fact, were often so closely combined that it was wiser to use the term "functional cardiac disturbance" than "nervous or muscular disturbance." The patients in the last two classes often recovered quickly, and even in the second class many were again fit for garrison or even for active service. But some patients were no better after nine months, and the most difficult to cure were the many subjects of neurasthenia in whom cardiac and vasomotor neuroses had existed before the war. The mental factor was of enormous importance, and on this account it was considered unwise to keep the patients in hospitals or sanatoriums for long. For the same reason the slight cases were not sent home, but were employed on light work on the lines of communication. It was also found advisable to distract the patient's attention from his heart, and to treat him only for general exhaustion. When discharged from hospital, many of these patients recovered quickly.

A correct estimate of the condition of the heart of recruits or soldiers required time as well as skill. Modern methods of diagnosis had largely replaced such a simple method as percussion, yet for quick work this was indispensable. The younger generation of medical men had learnt to trust so much to the diagnosis of aneurysm of the aorta by the x rays that they had neglected the simpler tests of sight and touch. The most frequent error was the failure to distinguish between accidental and organic murmurs and arterio-sclerotic myocarditis from cardiac neurosis. In fact, the war had brought into unflattering prominence the ignorance of the medical profession of a group of symptoms with which a very large proportion of the soldiers in the German army were invalided.

BRONCHITIS AND MALINGERING.

During his work as an army physician F. Hamburger (*Der Militärarzt*, August 28th, 1915) often detected soldiers simulating bronchitis. In such cases, when the patient is told to breathe deeply, expiration is laboured and prolonged, and is accompanied by rhonchi and sibil, audible over the whole of the chest. Inspiration, on the other hand, sounds perfectly normal. When, however, the patient is told not to breathe through his mouth but only through his nose, these adventitious sounds become less loud and numerous, although they do not completely disappear. When the patient is told to breathe quietly, but deeply, the respiratory sounds are unaltered, and the patient declares that he cannot possibly breathe in any other way. In these circumstances the physician who is off his guard is apt to diagnose diffuse bronchitis, with or without emphysema. These signs are intentionally produced in the throat and transmitted to the whole of the chest. The laboured and prolonged expiration is due to the voluntary and almost complete closure of the glottis, and the effort required to overcome this obstruction calls into play all the muscles of expiration, and it is to the contraction of these muscles that some of the adventitious sounds heard on expiration must be traced. When the malingerer takes deep breaths these signs are present, and when his breathing is shallow, they cannot be heard. To distinguish between true, dry, diffuse bronchitis and the fictitious bronchitis of the malingerer, the patient is told to stop breathing, but the stethoscope is kept on the chest. When the suspect can no longer hold his breath, but thinks that he is still

expected to do so, his expiration, if he is a malingerer, is perfectly normal. As soon as he is told to breathe deeply again the signs of bronchitis recur. In some cases the patient is guiltless of deliberate malingering, his faulty expiration and consequent simulation of bronchitis being an unconscious act. Owing to the conduction of sounds from the throat and trachea to the chest, catarrh of the throat and trachea facilitates the simulation of true bronchitis.

CASUALTIES IN THE MEDICAL SERVICES.

ROYAL NAVY.

Prisoners of War.

THE Admiralty announce that the majority of the officers and crew of H.M.S. *Tara*, who were prisoners of war with the forces of the Senussi, on the western frontier of Egypt, were rescued after the recent attack on the Senussi's camp. Ten officers were rescued, including the medical officer of the ship, Surgeon Probationer John D. Arthur, R.N.V.R., and eighty-one men. One engineer lieutenant died in captivity.

ARMY.

Killed in Action.

Captain Ronald Wingrave Duncan, R.A.M.C., was reported as killed in Mesopotamia, in the casualty list published on March 23rd. He was educated in the Medical School of the Royal College of Surgeons, Edinburgh, took the L.D.S. of that college in 1906, and the Scottish triple qualification in 1907. He received a temporary commission as lieutenant on November 24th, 1914, and was promoted to captain on completion of a year's service. He was attached to the second battalion of the Leicestershire Regiment.

Assistant Surgeon Arthur Charles Marchant, Bengal Subordinate Medical Department, was reported as killed in East Africa, in the casualty list published on March 23rd. He was born on November 9th, 1885, attained warrant rank on March 4th, 1907, and was promoted to the third class on March 4th, 1912. Before the war he was serving at Magadi, in British East Africa.

We regretted to announce last week the death of Captain John Wilson, R.A.M.C. In the casualty list he was described as lieutenant, but we understand that he had been promoted to captain. We are informed that the Commanding Officer in communicating the sad news to the relatives wrote:

A message came to our medical aid post that several men were wounded in our centre trench. Captain Wilson at once volunteered to go to their assistance, although it was necessary to cross absolutely open ground swept by the fire of the hostile trenches to do so; owing to heavy shell fire all our wires were broken. However, he reached the trench, bandaged up those who required it most, and was on his way back to the shelter of the quarries, when the Germans in the front fire trench opened fire on him and a bullet struck him just about the heart. I think his death was almost painless, and it was all over in a few minutes. Captain Wilson by his energy and devotion to duty had earned the appreciation of every officer and man in the battalion; it is only ten days since I had the pleasure of recommending him for the Military Cross. He did not know what fear was, and was ready at any moment of the day or night to turn out and give assistance to the sick or wounded.

Wounded.

Lieutenant-Colonel E. A. Wraith, R.A.M.C. (T.F.), France.
Captain G. B. Ferguson, R.A.M.C. (temporary), France.
Lieutenant J. P. Musson, R.A.M.C. (temporary), France.

Died on Service.

Captain George Flett Barr, R.A.M.C., died recently in France. He was the eldest son of the late James Barr, of Thornley, Park Terrace, Paisley, was educated at Glasgow University, where he took the degrees of M.B. and Ch.B. in 1914. He received a temporary commission as lieutenant on January 22nd, 1915, and was promoted to captain on completion of a year's service.

Colonel James Harper, R.A.M.C. (T.F.), died at 25, Rosary Gardens, South Kensington, on March 25th, aged 58. He was educated at St. Bartholomew's Hospital, where he was Brackenbury scholar in surgery in 1881, and took the diploma of M.R.C.S. and the degree of M.B. Lond. with honours in obstetric medicine in 1881. He graduated M.D. in 1883. He was house-surgeon at St. Bartholomew's, house-physician at the Royal Hospital for Diseases of the

Chest, and resident medical officer and anaesthetist of the Chelsea Hospital for Women. He practised for many years in South Kensington. He was Assistant Director of Medical Services of the 1st London Division (T.F.), a member of the City of London Territorial Force Association, Esquire of the Order of St. John of Jerusalem, a member of the Order of Mercy, and a Fellow of the Royal Society of Medicine. He also held the Territorial Decoration.

Captain Robert Francis Hebbert, I.M.S., medical officer of the 107th Pioneers, died in Mesopotamia of relapsing fever on March 19th, aged 33. He was born on March 7th, 1883, the only son of the late Francis H. Hebbert, Indian Civil Service, and was educated at St. Thomas's, taking the M.R.C.S. and L.R.C.P. Lond. in 1906. He entered the army as lieutenant on September 1st, 1906, and was promoted to captain on October 4th, 1909.

DEATHS AMONG SONS OF MEDICAL MEN.

Birdwood, Herbert Frederick, Lieutenant 20th Battalion London Regiment, only son of Dr. Roger A. Birdwood, late medical superintendent Park Hospital, Hither Green, London, S.E., killed in France in an air fight over Valenciennes on March 2nd, aged 22. He was educated at the City of London School, and in 1913 entered Peterhouse College, Cambridge, where he was reading law. He took a commission in the 20th (Blackheath and Woolwich) Battalion of the London Regiment on August 26th, 1914; went to the front in March, 1915; was in the battle of Loos last September, and joined the Royal Flying Corps in December.

Captain John Arthur Graham, 7th Battalion Lincolnshire Regiment, youngest son of the late Brigade-Surgeon H. W. Graham, I.M.S., killed in France on March 20th, aged 40. He was educated at the United Service College, Westward Ho, and at Heidelberg, and was a planter in Coorg, South India. He served as a trooper in Lumsden's Horse in the South African war, gaining the Distinguished Conduct Medal and the Queen's medal with three clasps. He was for many years a member of the Coorg and Mysore Rifles (Volunteers), in which he became second lieutenant on March 6th, 1906, and lieutenant on May 1st, 1907, and held the Long Service Decoration. Coming to England for the war, he got a commission in the Lincoln on April 1st, 1915; went to France in July; was mentioned in dispatches on January 1st, 1916; and received the Military Cross on January 15th.

Morris, Colin Dwight, Second Lieutenant 9th Battalion Royal Fusiliers, only son of Dr. Dwight Morris of Parkside, Feltham, Middlesex, killed in France, on March 14th, aged 27.

Smith, Gilbert Keppel, Second Lieutenant 5th Reserve Battalion Middlesex Regiment, younger son of Dr. Harry Smith of Paddock House, Chatham, killed in France on March 13th, aged 25. His commission was dated March 20th, 1915.

MEDICAL STUDENT.

Goodfellow, E. H., Lieutenant Royal Field Artillery, killed in France on March 8th. He was born and educated in New Zealand, and entered Edinburgh University as a medical student in 1913, aged 21. In his first year he gained five class medals and a Vans Dunlop scholarship. On the outbreak of the war he enlisted in the R.A.M.C., in which he became corporal. He got a commission in the Royal Field Artillery on December 8th, 1914; went to France in February, 1915; was promoted lieutenant last autumn, and was wounded in September.

NURSES.

Dame Lucy Innes Branfoot died at No. 8 General Hospital, Rouen, on March 16th, aged 52. She was the widow of the late Surgeon-General Sir Arthur Branfoot, K.C.I.E., of the Madras Medical Service, President of the India Office Medical Board from 1903 to 1911.

Miss Jeanie Glasford Dalton, Queen Alexandra's Imperial Military Nursing Service, died at the Royal Herbert Hospital, Woolwich, on March 20th. She was the daughter of the late Joseph J. Dalton, of Kamer, Kyles of Bute.

Correction.—In recording the death of Lieutenant Neil Murphy Gavin last week his surname was accidentally misplaced.

NOTES.

AUSTRO-HUNGARIAN CASUALTIES.

The *Morning Post* recently published in a letter from its correspondent in Budapest some statistics obtained from a Hungarian statistician showing that neither Russia nor Germany has lost so many men as Austria-Hungary during the war. The figures are founded on the 320 official lists of casualties, the reports of unit commanders, monthly reports of hospitals, and other documents. It is stated that the losses during the first year of the war amounted to over 3,000,000, not including 200,000 who died of disease. It is also mentioned that the figures include the wounded who have returned to the front, in some cases two and three times; and, further, that the number of wounded can be discounted by nearly 60 per cent., as the cases of total disablement were no more than

15 per cent., while 20 to 25 per cent. who were unfit for service were fit for light or civilian duties. The figures for the three main fronts come down to February 15th or 1st, 1916. Certain casualties in Belgium, where some Hungarian Hussar and artillery regiments served in 1914, are added.

Eastern Theatre.

	Killed.	Sick and Wounded.	Prisoners.
To January 1st, 1915	124,300	500,900	110,000
To August 1st, 1915	307,500	1,240,600	470,000
To February 15th, 1916	108,500	370,000	68,000
Total	540,300	2,111,500	648,000

S.E. Theatre (Balkans).

	Killed.	Wounded.	Prisoners.
To January 1st, 1915	47,500	90,000	78,000
To August 1st, 1915	2,900	5,900	—
To February 1st, 1916	67,500	170,000	2,000
Total	117,900	265,900	80,000

S.W. Theatre (Italy).

	Killed.	Sick and Wounded.	Prisoners.
To August 1st, 1915	17,200	73,700	13,500
To February 1st, 1916	46,500	145,000	17,000
Total	63,700	218,700	30,500

Western Theatre (Belgium).

	Killed.	Sick and Wounded.	Prisoners.
To January 1st, 1915	1,600	4,000	600
Grand total	723,500	2,600,100	759,100

FRENCH WOUNDED FROM VERDUN.

We understand that the British Red Cross sent some fifty ambulance cars to assist in the evacuation of the wounded from the Verdun district. This convoy supplements the unit of twenty-five cars which has been working with the French troops for a year or more. When the German attacks on Verdun began the French found it necessary to transfer the wounded from the hospital to the cellars of the Archbishop's house. Later on they were all moved to Bas le Duc and hospitals further in the rear. The manner in which the evacuation was carried out has been commended in dispatches.

MEDICAL OFFICERS WANTED.

3/2nd East Anglian Field Ambulance.

Medical officer required for this unit, possibly going overseas. Pay and allowances as in regulars. Applications to the Officer Commanding, Halton Park, Tring.

2/1st Highland Mounted Brigade Field Ambulance.

Three medical officers are required to complete establishment of the 2/1st H.M.B. Field Ambulance. Also regimental medical officer for the 2/2nd Lovat Scouts. Applications to Major Mowat, Officer Commanding, 49, Northgate, Beccles, Suffolk.

2/1st North Midland Field Ambulance.

Two or three medical officers are required for this unit to complete establishment for service overseas. Apply Lieutenant-Colonel Dawson, Officer Commanding, Harpenden.

Scotland.

A CONSCIENTIOUS objector of the most pronounced kind was disclosed at a meeting at Oban of the tribunal for the Lorn district in the person of the assistant county medical officer and tuberculosis medical officer. According to a report quoted from the *Oban Times* in the *Edinburgh Evening News* the applicant, believing war to be morally wrong and indefensible, was determined to have absolutely nothing to do with it, either as a combatant or non-combatant, and was unwilling to serve in the R.A.M.C. The tribunal refused the application.

CRIPPLED AND MAIMED SOLDIERS AND SAILORS.

A meeting of the committee of the hospital proposed to be established in the West of Scotland for soldiers and sailors who have lost limbs in the war was held in the City Chambers, Glasgow, on March 23rd. The Lord Provost said that the arrangement mentioned in the *Journal* of March 11th (p. 395) had been confirmed by the military authorities. The hospital will be quite independent of the Queen Mary Auxiliary Hospital at Roehampton, and will receive the same recognition and privileges from the military authorities. It will be available for all Scottish cases sent to it by the authorities, and the committee is making arrangements for an adequate supply of artificial limbs to be manufactured in Scotland. A suitable house in the

vicinity of Glasgow has been secured. Several substantial contributions towards the fund for the equipment of the hospital have been received, including two of £1,000 each.

NEONATAL MORTALITY IN EDINBURGH.

On March 25th Dr. J. W. Ballantyne gave an address on neonatal mortality to the voluntary health visitors in the Council Chambers, Edinburgh. He first contrasted the health conditions of Edinburgh in 1913 and in 1915. The marriages in 1915 had risen by about a thousand, but various causes had doubtless been at work, and no deductions could safely be made. On the other hand, the number of births in 1915 had decreased by about 400, bringing the birth-rate down to the unprecedented level of 17.8; it was a dangerous level, too, for the number of deaths had risen by about 800, giving a death-rate of 16.4. The natural increase of the population in the year 1915, therefore, was only 432, and since the deaths of Edinburgh soldiers at the war were not included, it probably meant that there was no increase at all in the number of persons in the city. The increase in the death-rate, further, was not due, as so often in the past, to a sudden zymotic rise in childhood, but seemed to affect all ages and to have many causes. At the same time the infantile mortality had risen, for 774 babies died in the first year of life in 1915 (an infantile rate of 132 per 1,000), as against 631 in 1913 (101 per 1,000). It was a striking fact that one-seventh of all the deaths which had occurred had been in the first year of life. Just as the first year's deaths were more numerous than those of any succeeding year, so those of the first month of that year were more numerous than those of any succeeding month, and those of the first week than of any succeeding week. The deaths in the first month constituted a third of those of the entire year (257 out of 774). Dr. Ballantyne thought that deaths at this period ought to be considered by themselves in all vital statistics, under the name of the neonatal death-rate. If the neonatal rate had persisted in Edinburgh during the whole of the first year of life there would have been in 1915 not 774 deaths but 3,086, and if the rate in the first week (when 155 perished) had been continued in the other fifty-one weeks, the total infantile deaths for the year would have been 8,060 instead of 774. To look at the matter from the opposite side. If the deaths in the first month had been at the same rate as in the other months, not 257 but only 47 lives would have been lost in that first month, whilst if the rate in the first week had been as the average of the remaining weeks only 12 instead of 155 would have died in that week. The neonatal deaths, therefore, represented death's most successful "thrust" against young life; and the conditions under the war seemed to have made this thrust more successful, for if the 1913 rate had been maintained in 1915 a smaller number than 257 would have been lost. It had at the same time to be recognized that the war conditions had not apparently so marked an effect upon the deaths in the first as upon those in the later months.

The lesson to be learnt was that the health visitors ought to concentrate their attention specially upon the first month of life. They need not, however, as a rule, pay much attention to the first ten days, for during that time the doctor or midwife was in attendance, and presumably was watching over the young life; but after the doctor or midwife ceased attending—namely, in the last two-thirds of the first month—their help and advice would be most helpful in checking the fatalities among the babies. The Royal Maternity Hospital was trying to counteract some of the dangers by its weekly baby clinics for the children of women who had been confined in connexion with the indoor and outdoor departments, but there were still many neonatal lives in Edinburgh to be watched over and reported upon. Further, the health visitors ought to direct their visits chiefly to those parts of the city in which the neonatal death-rate was highest. There should be in the plan of campaign two concentrations therefore—one as to age and the other as to locality.

When the causes of the neonatal deaths were scrutinized and classified it became clear that by far the larger number were in action before birth. Above 60 per cent. were either wholly or partly antenatal in origin; indeed, careful analysis, with all the facts in view, would probably raise the percentage to 70. The obvious lesson was that no care would be sufficient to meet entirely the neonatal risks which did not take cognizance of the mother's health

in her pregnancy. In order to conduct a successful neonatal campaign, the visitors would require to begin with the expectant mothers.

Correspondence.

THE SOLDIER'S HEART AND THE STRAINED HEART.

SIR,—In a letter in your columns on March 11th, p. 396, it is suggested that all cases of "irritable heart" among soldiers may possibly be classified under "tobacco heart" or the "strained heart" due to athletics in boyhood.

That all cases are not due to these causes is shown, I think, by the frequent occurrence of "irritable heart" among the Indian soldiers who have been in hospital in this country. Athletics, if practised at all by Indians in their boyhood, are not carried to the point of strain by the rural classes from which soldiers are drawn, while the use of tobacco in any form is forbidden by their religion to the Sikhs, who suffered in as great a proportion from "irritable heart" as the other races composing the Indian army.—I am, etc.,

R. D. MACGREGOR,
Captain I.M.S. (ret.).

London, W., March 14th.

THE PHYSICS OF A SURGICAL DRESSING.

SIR,—I cannot agree with the objections made to the use of wet dressings with oil-silk. If the gauze in contact with the septic wound is kept moist it absorbs a great deal of pus, which is partly disinfected by the antiseptic in the gauze, whereas with a dry dressing a little is absorbed and cakes, forming a natural impermeable covering, the wound itself being a perfect well of pus. In dealing with acute abscesses a wet dressing with oil-silk tends largely to prevent a secondary infection—a very important point.

Recently I have been using dilute Dakin's solution for treating septic wounds—cyanide gauze saturated with the solution and covered with jaconet. The results so far have been quite satisfactory.—I am, etc.,

OLIVER CARLYLE, F.R.C.S. Edin.,
Lieutenant R.A.M.C.

France, March 8th.

METRIC PRESCRIBING.

SIR,—There can be no disputing the fact that the metric system has come to stay, and as it has been adopted throughout the latest edition of the *British Pharmacopoeia*, the sooner we give our attention to it the better, for that we shall have to do so sooner or later is inevitable. Some practitioners hesitate to put the new system into practice in prescribing, labouring under the impression that it would require a great deal of calculation, and so waste time. But this is a mistake. By the following mode of proceeding very little, if any, calculation is required. Say $7\frac{1}{2}$ grains is the dose we wish to give; write it down as 7.50 grams, and we at once have sixteen doses (the gram being taken at its approximate equivalent), and we substitute metric for old measures at one stroke. The same with minims, bringing them to "mils" (or more correctly "millis"). We can then proceed to divide the amount, or multiply it, to any number of doses we wish to prescribe, and so adapt them to the sizes of bottles as at present manufactured. When the time arrives that metric bottles are made, we shall be as familiar with the new as with the old system. Where fractions or submultiples are concerned—as in pills—it necessitates greater exactitude. If the dose should happen to be $\frac{1}{4}$ the proceedings may be as above; but if not, I find the easiest way is to divide 0.65 (= one grain) by the denominator, thus: gr. $\frac{1}{4}$ = .013 (13 mg.), gr. $\frac{1}{5}$ = .00108 (108 c.mg.), and so on. And to prescribe ten pills we simply move the decimal point one place to the right, thus: .13 and .0108.

Metric measures or rules for sight-testing purposes may be obtained from the Decimal Association, Finsbury Court, Finsbury Pavement, E.C. It may interest your readers to know that this association is now engaged in preparing a scheme for the decimalization of our monetary system, taking the florin as the unit, and introducing two new coins of nickel with scalloped edges, of the value of 5 and 10 cents.—I am, etc.,

London, S.W., March 18th.

W. W. HARDWICKE, M.D.

MATERNITY AND CHILD WELFARE.

SIR.—On reading the commentary on the official scheme I was struck by the expression, "Educating the mothers"; what about educating the fathers? As a general medical practitioner I have found it very uphill work to get certain husbands to believe that the wife required rest. The primiparae, as a healthy class, do not require much care, whereas the multipara is beginning to feel that life is almost too much for her. The legs of some of these women are a disgrace to humanity. One sees them accidentally, and if as a sympathetic creature one advocates rest, the patient says, "It is all very well speaking, doctor; my husband thinks there should never be anything wrong with me."

From my past experience as a busy general practitioner (married and pregnant), attending to all medical duties during the first six months—midwifery cases included, with instrumental interference as well—I hold that to give every pregnant woman three months' freedom from worry and partial rest before her child is born, and three months after (if she nurses the child), would get rid of the weak infants that have no vitality to begin this life.

What a good time the cow and the mare have at this time! Are the mothers and children not of as much importance?

I rejoice in the National Insurance at present, as there is some assurance of rest (free from worry) for the pregnant woman. A patient of mine had been warned by her doctor to delay her marriage as she was too delicate; but at length she did marry. During her pregnancy she was in a very serious state, but with care and several months' rest, instead of chloroform and forceps as I had anticipated she would require, her child was born quite easily after she had been in labour for about eight hours. The baby was a good-sized, healthy child. I am quite sure that even with the best medical interference, *minus* the rest, she would not have lived through it, and certainly would not have brought forth a child such as she did.

Do not spend money on notifications, but let the women be the recipients of it.—I am, etc.,

Portobello, March 8th.

MARGARET W. CAMERON.

Universities and Colleges.

UNIVERSITY OF DURHAM.

The following candidates have been approved at the examination indicated:

THIRD M.B. (*Materia Medica, Pharmacology and Pharmacy; Public Health; Medical Jurisprudence; Pathology and Elementary Bacteriology*).—P. V. Anderson, R. V. Brew, H. J. Dingle, D. Honedan, W. A. Howison, C. G. Irwin, G. M. Kerry, J. K. R. Landells, S. A. Shehid, I. Soliman, H. I. Sterne-Howitt.

UNIVERSITY OF EDINBURGH.

The following candidates have been approved at the examination indicated:

FINAL M.B. AND CH.B.—K. P. Brown, C. A. E. I. Brownlee, *A. J. Caird, B.Sc., Yun Yin Chan, F. W. Clark, G. T. I. Clarke, A. Cleland, J. A. Crawford, R. C. Crawford, H. J. Davidson, J. Dickson, *A. V. Dill, Th. Doe, W. H. Ferguson, G. H. Fraser, L. B. Gadinil, J. A. C. Guy, C. Harris, C. E. Hill, J. M. Johnstone, E. B. Kelley, J. B. P. McLaren, J. Manuel, G. Morris, M. S. N. Panikkar, *D. H. Paterson, P. A. Rostad, J. J. Shannon, N. H. Smith, D. R. Thomas, A. F. de Waal, Gladys Ward, J. M. Watt, H. D. Wright.

* With distinction.

UNIVERSITY OF ST. ANDREWS.

The following candidates have been approved at the examinations indicated:

SECOND M.B., CH.B. (*Physiology*).—J. M. Craig, C. B. Dyson, Janet M. MacMillan, Florence B. Mason, Phyllis Montford, W. G. Robertson, Gladys J. C. Russell, J. N. D. Smith, J. C. McGregor, N. MacVicar.

THIRD M.B., CH.B. (*Pathology*).—J. MacD. Clark, J. C. Coutts, J. Ferguson, J. C. McGregor, J. K. T. Mills, J. M. Orkney, G. R. Ross, G. R. Tadhope.

FIRST D.P.H. (*Bacteriology*).—E. E. Cassidy, D. M. McGillivray.

SOCIETY OF APOTHECARIES OF LONDON.

The following candidates have been approved at the examinations indicated:

SURGERY.—*J. M. Dwyer, *J. Fox-Russell, *H. M. Gray, *R. Milne. MEDICINE.—*M. Dwyer, *E. N. Glover, *R. Milne.

FORENSIC MEDICINE.—C. G. Bunn, M. Dwyer, E. N. Glover, R. Milne, R. H. Pottersson, J. M. Wall.

MIDWIFERY.—R. Milne, L. F. Pain, A. E. Pollitt.

* Section I.

† Section II.

The diploma of the society has been granted to the following: J. Fox-Russell, H. M. Gray, and R. Milne.

Obituary.

STAMFORD FELCE, M.R.C.P. EDIN., M.R.C.S. ENG.

THIS veteran in the profession died at his residence at Burgess Hill, Sussex, on March 20th, in his 81st year. Dr. Felce was born in Huntingdon on October 7th, 1835, and received his medical education at St. Mary's Hospital. He took the diploma of M.R.C.S. Eng. in 1859, in which year he became resident medical officer at St. Mary's. In the following year he took the diploma of M.R.C.P. Edin. After holding the appointment of resident house-surgeon to the Western General Dispensary he commenced private practice in Launceston at the end of 1860, and became a member of the Cornwall Branch of the British Medical Association. In 1868 Dr. Felce returned to London, and became a member of the Metropolitan Counties Branch. He took up his residence in Paddington, where he remained until his retirement from practice in 1903. Members of the Association who were present at the annual meeting in 1896 held at Carlisle will remember how Mr. Lawson Tait suggested that a committee of inquiry should be appointed for the purpose of reporting on certain desired reforms. Dr. Felce took part in the discussion, and was made in October, 1896, a member of the Committee on the Constitution of the Association, of which the chairman was Dr. Robert Saundby, the treasurer Dr. C. Parsons, the other members, besides Dr. Felce, being Lord Ilkeston, Mr. Waid Cousins, Dr. Leonard Sedgwick, Dr. Markham Skerritt, Mr. Lawson Tait, Mr. Walter Whitehead, and Dr. Woodcock. Dr. Felce was very active in discharging other public duties connected with the profession. He was for many years honorary secretary of the Royal Medical Benevolent Fund, and became vice-president of that institution, as well as of St. Mary's Hospital and Epsom College. He was president of the Medical Defence Union, honorary secretary and treasurer to the Charles Bailey Charity (1890-1912), and member and chairman of the Paddington Board of Guardians. He was for many years a member of the Metropolitan Asylums Board, chairman of its North-Western Hospital (1885-1896), and chairman of the Darent Asylum. Dr. Felce was instrumental in bringing about the building of St. Peter's Church, Paddington, of which he was a trustee and for seventeen years vicar's churchwarden. At the age of 71 he visited a son in India and at the age of 76 underwent amputation of the leg. Dr. Stamford Felce married in 1861, and his widow, three sons, and four daughters all survive him.

MARY CHARLOTTE MURDOCH, L.R.C.P.,

L.R.C.S. EDIN., L.F.P.S. GLASG.

SENIOR PHYSICIAN, VICTORIA HOSPITAL FOR SICK CHILDREN, HULL.

DR. MURDOCH, the first woman to practise medicine in Hull, died at the age of 50, on March 20th, of an acute attack of influenza. She was the youngest daughter of Mr. William Murdoch, solicitor, of Elgin, and was educated at Edinburgh, Lausanne, and London. She studied at the London School of Medicine for Women, and was in 1892 curator of its museum. She took the Scottish triple diplomas, and in 1893 was appointed house-surgeon to the Victoria Hospital for Children, Hull. An attack of an illness, from which she had suffered when a student and which often recurred throughout her working life, brought about her resignation, but on convalescence she was selected medical officer to the North-East London Fever Hospital, South Tottenham. Dr. Murdoch often spoke in after-life of how much she owed to the chief medical officer, Dr. Birdwood, from whom she learnt much as to diagnosis and prognosis in acute infectious diseases, for skill in which she became well known. Meanwhile she was frequently urged to return to Hull, and in 1894 she set up in private practice there—a venture which met with immediate

success. In 1894 she was appointed honorary assistant physician and in 1897 senior physician to the Victoria Hospital.

Dr. Murdoch joined the British Medical Association in 1894, and was vice-president of the East York and North Lincoln Branch in 1909. She was also vice-president of the Association of Registered Medical Women. Dr. Murdoch took much interest in national, political, and philanthropic work of various kinds. She founded a local branch of the National Union of Women Suffrage Societies, of which she became president, only retiring when she undertook the presidency of the Hull branch of the National Union of Women Workers. She attended meetings of the International Council of Women at Toronto, the Hague, and Rome, at each of which she was one of the principal speakers. Dr. Murdoch, who was a vivacious and arresting speaker, took a lead in the purity campaign, and was an honorary medical officer of the Central Nursing Division of the St. John Ambulance, lecturing to the police force and to the North-Eastern railway men. In short, Dr. Murdoch was a very vigorous professional woman. Unfortunately she overtaxed her strength, and was greatly distressed because only a few weeks ago the infants' ward at the Victoria Hospital for Children had to be closed for lack of funds, and she had already, just before her decease, undertaken to raise £250, the sum necessary to reopen it.

A Requiem Mass was celebrated at St. Francis's, Hull, on March 24th, and later in the day thousands of the inhabitants of the city followed the funeral procession first to All Saints' Church, then to the Crematorium, and later to the deposition of the urn in the Lady Chapel of All Saints.

ALDERMAN THOMAS UNDERHILL died at his residence in Bromwich on March 10th, just after celebrating his ninety-second birthday. Born in Tipton, Staffordshire, on February 3rd, 1824, the son of a surgeon in that town, he studied medicine at Birmingham, and took the diplomas of M.R.C.S. and L.S.A. in 1845 and that of L.R.C.P. Edin. in 1859. He graduated M.D. St. Andrews in 1871. When his father, Dr. Thomas Underhill, retired from professional work he and his brother William continued the practice in Tipton. In 1873 he went to West Bromwich. He became president of the Birmingham and Midland Branch of the Association and member of the Council of the Birmingham Medical Institute. Dr. Underhill took great interest in public work in West Bromwich; in 1882, when that town secured the charter of incorporation, he was elected one of the first aldermen, and was the second to occupy the office of mayor (1884-5). He was already among the oldest of the county magistrates, and when living at Tipton he was one of the pioneers of the movement for the erection of the Dudley Guest Hospital, and was afterwards honorary surgeon for sixteen years. When he celebrated his golden wedding some years ago a cheque for £1,000 subscribed by his many friends was presented to him. The funeral took place at Tipton Parish Church on March 16th.

DR. ROBERT JAMES HORN of St. Faith's, Norwich, died on March 22nd rather suddenly, although some of his friends and professional brethren were aware that for many years past he had not enjoyed perfect health. Dr. Horn studied medicine at the Middlesex Hospital, and took the diplomas of L.R.C.P. Edin. and L.F.P.S. Glasg. in 1881. Seven years later he settled at St. Faith's, Norwich. In addition to an extensive private practice, he held several Poor Law appointments, and for some years was chairman of the parish council, where he distinguished himself by actively opposing unnecessary expenditure. He was also a searching and painstaking school manager. Dr. D. G. Thomson of the Norfolk County Asylum writes: "Ever since the reconstitution of the British Medical Association Dr. Horn has been my most trusty lieutenant—in the early days especially. He would never take office in the Division as president or secretary owing to his health, but he was on all committees, represented the Division on the Branch Council, and was a member of the Panel and Local Medical Committees for Norfolk; his death is a great loss to the Division."

COLONEL RICHARD PATRICK FERGUSON, R.A.M.C.(ret.), died at Southsea on March 10th. He was born on

March 13th, 1839, educated in the school of the Royal College of Surgeons, Ireland, and took the diplomas of L.R.C.S. and L.R.C.P. Edin. in 1860. Entering the army as assistant surgeon on March 1st, 1862, he became surgeon on March 1st, 1873, surgeon-major on March 1st, 1874, and surgeon-colonel on September 6th, 1892, retiring on March 13th, 1899. He served in the Bhutan war of 1864-65, and was present at the assault and capture of Bala, receiving the Indian frontier medal with a clasp; in the Afghan war of 1878-79; in the second division with the Peshawar Valley field force, medal; and in Egypt in 1882, medal and Khedive's bronze star.

DR. WILLIAM LOUIS ROBBAN, president of the American Medical Association, died in Philadelphia on March 8th in his fifty-eighth year. He graduated at Jefferson Medical College, Philadelphia, in 1879, and, after serving in the United States army for two years, he was demonstrator of surgery in the University of Louisiana from 1885 till 1893, and afterwards was professor of surgery in the Medico-Chirurgical College, Philadelphia, and in the Woman's Medical College of Pennsylvania. He was the author of numerous contributions to surgical literature.

DR. LUIS COMENGE, who died recently aged about 60, was head of the health service and director of the municipal laboratory of Barcelona, and did valuable work in epidemics of cholera and bubonic plague in Spain and the Canary Islands. He enjoyed a considerable reputation among his fellow-countrymen as a writer on medical history and antiquities and the social and literary aspects of medicine.

DR. ACHILLES ROSE, of New York, who died on January 10th, aged 76, was born at Ruhla in Thuringia in 1839. After studying at Zurich and Jena he went to the United States, and graduated in medicine at the New York College of Physicians and Surgeons in 1872. He was an accurate scholar who included not only classical, but Byzantine and modern Greek in his range of study. He was well known by his advocacy of modern Greek as the right source of medical terminology whenever no suitable ancient root could be found. He was carried so far by his enthusiasm that he urged the adoption of Greek as the language of medical science; in this, however, he was a voice crying in the wilderness. Dr. Rose had for some years been engaged in the preparation of a new medical lexicon based on those principles. For his work in this field he was elected an honorary member of the Athens Academy of Medicine, and in recognition of his interest in the Greek language and history he received a decoration from the King of the Hellenes. Dr. Rose was the author of several works on modern Greek and medical onomatology; of a book entitled *Napoleon's Campaign in Russia, Anno 1812*, and of other works on the treatment of fever by continuous bathing and other therapeutic subjects.

DEATHS IN THE PROFESSION ABROAD.—Among the members of the medical profession in foreign countries who have recently died are Dr. Rudolf Dohrn, for many years professor of obstetrics at Königsberg and head of the gynaecological clinic of that university, aged 79; Dr. C. Townsend Dade, consulting dermatologist to the Manhattan State Hospital, the Roosevelt Hospital, and other public institutions of New York, aged 56; Dr. Lajos Makara, professor of clinical surgery in the University of Klausenburg, aged 53; Dr. Boleslaw Wicherkiewicz, professor of ophthalmology in the University of Cracow, aged 68; Dr. Alexandre Moutier, of Paris, author of numerous writings on the application of d'Arsonval's discoveries on high-frequency currents in medical practice; Dr. Edmond Heckel, professor in the Medical School of Marseilles, founder and director of the Marseilles Colonial Institute, a corresponding member of the Institute of France, and a member of the Paris Academy of Medicine; Dr. Alzheimer, professor of psychiatry in the University of Breslau, author of many contributions to the pathology of mental diseases, and joint founder with Lewandowsky of the *Zeitschrift für die gesamte Neurologie und Psychiatrie*, aged 52; and Dr. T. Langhans, whose name is associated with the discovery of the giant cell, till recently professor of pathological anatomy at Berne, aged 76.

Medical News.

ON St. Patrick's Day the Irish Medical Schools' and Graduates' Association presented the Arnott gold medal to Captain W. Loughnan, R.A.M.C., of Dublin, for conspicuous gallantry in the field.

COLONEL CHARLES STONHAM, senior surgeon to the Westminster Hospital, left estate of the gross value of £24,865.

THE tenth triennial session of the Congress of American Physicians and Surgeons will be held at Washington on May 9th and 10th under the presidency of Professor W. S. Thayer.

A DISCUSSION on the rationale and practice of chemotherapy will be opened by Mr. J. E. R. MacDonagh in the Section of Dermatology of the Royal Society of Medicine on Thursday, April 13th, at 5 p.m., when a number of leading chemists are expected to be present.

A DENTAL department has been organized at the Angell Memorial Hospital of the Massachusetts Society for the Prevention of Cruelty to Animals at Boston. Treatment is to be provided for animals suffering from defective teeth.

THE publication of a new quarterly periodical entitled *Journal of Cancer Research* is announced. It is the official organ of the American Association for Cancer Research and is edited by Dr. Richard Weil of the Cornell University Medical School.

THE Women's Imperial Health Association, 7, Hanover Square, London, W., has printed a leaflet founded upon the memorandum on measles issued by the Local Government Board. It seeks to impress upon parents the importance of the proper medical treatment of measles in view especially of the complications and after-effects.

THE 150th anniversary of the foundation of the medical school of the University of Pennsylvania was celebrated by a dinner given by the Society of the Alumni of the school on February 4th. The school was founded by Dr. John Morgan in 1765, an event which marks the beginning of medical teaching in the United States.

WE learn from the *Medical Journal of Australia* that in consequence of the failure of attempts to obtain Government help in the furtherance of the scheme, a company has been formed by the members of the Cremation Society of New South Wales for the erection of a crematorium in the neighbourhood of Sydney. Among the provisional directors are the Hon. Dr. J. M. Creed, Dr. Foreman, and Dr. A. L. Kerr.

DR. SIMON FLEXNER was elected president of the American society for experimental pathology for 1916 at a meeting recently held in Boston. The society will hold its next meeting in New York in December next in combination with the other constituent organizations of the federation of American societies for experimental biology.

THE Physiological Society will issue next week the first number of a monthly number, the scope of which is sufficiently indicated by its title—*Physiological Abstracts*. It will contain abstracts of papers on physiology, comparative physiology, and biochemistry. It will be edited by Professor Halliburton, King's College, Strand, W.C., to whom reprints of papers should be sent. It will be published by Messrs. H. K. Lewis and Co., Ltd., 136, Gower Street, W.C., at an annual subscription of 25s., post free.

THE Natural History Museum, South Kensington, is now open to the public in part. The sections open daily are the central hall, containing special exhibits, including the large models of mosquitos, tsetse flies, and the parasites they convey; the north hall containing domesticated animals, and the galleries for birds, mammals, shells, and botany; most of these parts are also open on Sundays. Other galleries are open on alternate days; the reptile and insect galleries on Tuesdays, Thursdays, and Saturdays. On week-days the public is admitted to the parts named at 10 a.m. to 6 p.m. (April to August inclusive); on Sundays the hour of opening is 2 p.m.

THE Local Government Board has issued a circular letter dated March 23rd to boards of guardians setting out methods of applying the general principle adopted, in conjunction with the Army Council, in regard to the payment of compensation in respect of Poor Law institutions wholly, or in part, made use of for military purposes. The Army Council will not pay rent, or make any contribution in respect of existing capital charges, but will reimburse the guardians the whole of their authorized expenditure upon the occupied premises during the period of the military

occupation, including the remuneration of all officers and servants employed in and about those premises.

THE present dearth of chauffeurs, coupled with the fact that 1,500 new motor vehicles are put on the road every month in the United Kingdom, has led the British School of Motoring, Limited, to transfer its instruction premises (formerly at Peckham Rye) to South Kensington. Among the speakers at a luncheon which preceded the formal opening was Sir W. Arbuthnot Lane, who laid stress upon the physical value of motoring as a profession for women. Motoring, with the varying positions it demanded, brought into play muscles which otherwise were often allowed to remain unexercised. He suggested that motoring would go some way towards solving the problem presented by the increase in the numbers of women who must necessarily remain unmarried.

AT the opening of the Italian field university (*Università castrense*) at San Giorgio di Nogaro, some four hundred medical students were present. The Rector (Professor Tusini) explained that its object is to give advanced students actually serving with the army the opportunity of continuing their studies in medicine and surgery. The university has its head quarters in the communal palace, the council chamber being used as a lecture room. There is a theatre for anatomical and surgical work with accommodation for five hundred students and a fully equipped post-mortem room. The teaching installation is completed by a separate building for instruction in mental diseases, and laboratories of bacteriology, stomatology, etc. The students are lodged in barracks.

A. N. RACHMANOW has reported (*Medizinskiye Obosreniye*, 1915, Nos. 1-2) 2,586 cases of abortion observed by him in a lying-in home in Moscow. In comparatively aseptic cases all methods of treatment gave the same good results, with a slight advantage for instrumental interference. Quite different were the results in the infected cases. Those in which the ovum was removed manually suffered least; while those not interfered with suffered more, and most of all those submitted to instrumental treatment. That manual interference, and not expectant treatment, gave the best results appeared to depend not on the fact that the defending granulating surface was undisturbed, and a wide way opened for infection, but was due to the circumstance that with an instrument even the most experienced gynaecologist might leave some infected pieces of membrane behind, as an energetic curettage was always attended by the risk of rupturing the uterus. The author prefers manual treatment because much was learnt by the sense of touch in the finger, and because it rendered necessary greater dilatation, which provided better opportunities for drainage. He therefore recommends not aiming at scientific researches the following rational method of treatment to all persons and institutions: In non-infected cases shorten the process of abortion by operative treatment; in infected cases dilate to the maximum, and remove manually the ovum or its remains. The spoon should be used only when dilatation of the cervix for the admission of a finger is impossible.

THE *Chinese Recorder*, which is the monthly periodical of the American Presbyterian Mission Press, and is published in Shanghai, devoted its issue for November, 1915, to the subject of medical education in China. It contains articles on the Rockefeller Foundation and medical education in China, by Dr. E. W. Merrius; on the China Medical Board, by Mr. Roger S. Green; on union medical work in Canton by Dr. Andrew H. Woods, and in Peking by the President of the Union Medical College, Dr. J. G. Cormack; on medical education in Nanking by Dr. Nathan Worth Brown, in Shanghai by Dr. J. C. McCracken; on the Union Medical College, Tsinanfu, by Dr. H. Balme; and on the Hunan-Yale Medical College as a Co-operative Institution with the Chinese, by F. C. Yen, M.D. These articles do not cover the whole ground, for there are at present 29 medical schools in China, 16 of which are missionary enterprises, 8 belong to the Chinese Government, and 5 are maintained by non-missionary foreigners. The editor, indeed, claims that the schools treated in this part of the *Recorder* are "sufficient to give an all-round view of the general problem of medical education"; but since the C.M.S. work at Hangchow, the enterprise of the U.F. Church of Scotland and of the Irish Presbyterians and Danes at Moukden, and the colleges at Hankow and Foochow are practically unconsidered, it is difficult to accept his assurance in full. One of the problems discussed is the language medium in which instruction is to be given—Chinese or English; but it seems to be more reasonable that a few English-speaking teachers should learn Chinese in order to instruct the many Chinese students than that all the latter should be compelled to learn English that they may understand their teachers.

Letters, Notes, and Answers.

Authors desiring reprints of their articles published in the *BRITISH MEDICAL JOURNAL* are requested to communicate with the Office, 429, Strand, W.C., on receipt of proof.

CORRESPONDENTS who wish notice to be taken of their communications should authenticate them with their names—of course not necessarily for publication.

THE telegraphic addresses of the *BRITISH MEDICAL ASSOCIATION* and *JOURNAL* are: (1) EDITOR of the *BRITISH MEDICAL JOURNAL*, Aitology, Westrand, London; telephone, 2631, Gerrard. (2) FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), Articulate, Westrand, London; telephone, 2630, Gerrard. (3) MEDICAL SECRETARY, Medisecra, Westrand, London; telephone, 2634, Gerrard. The address of the Irish office of the *British Medical Association* is 16, South Frederick Street, Dublin.

Queries, answers, and communications relating to subjects to which special departments of the *BRITISH MEDICAL JOURNAL* are devoted will be found under their respective headings.

QUERIES.

INCOME TAX.

T. A. B. H. has bought a practice, paying one-eighth of the premium down and the rest by quarterly instalments. He inquires whether income tax should be deducted from the quarterly payments.

* If these payments constitute instalments of a pre-determined purchase price, our correspondent has no right to deduct income tax; on the other hand, if the agreement for purchase of the practice provided in terms for payment of a lump sum and of an annuity for a period payable in quarterly amounts, then income tax is deductible. From the particulars furnished by our correspondent the case appears to fall into the former class. Land tax is payable unless it can be shown that it has been "redeemed" by payment of the capitalized value. The authorities usually require production of the redemption certificate as evidence of non-liability. "Exemption" is granted if the total income of the owner does not exceed £160.

LETTERS, NOTES, ETC.

LIEUTENANT T. B. JOBSON, R.A.M.C., War Hospital, Dartford, is anxious to obtain some human bones for use at a training school for R.A.M.C. men.

DR. JEPSON—and in this he supports the view expressed by the Health of Munition Workers Committee—writes to recommend that in every department or section of works where girls are employed there should be a woman head, and that it should be her duty to make a note about each girl under her, and in particular to arrange that they should have periodical periods of rest at the menstrual periods. He considers that lady doctors and women's societies might do even more for their own sex than they are.

LEPROSY AND FISH EATING.

DR. G. ARBOUR STEPHENS (Swansea) writes: James Howells, in one of his *Familiar Letters*, written on April 10th, 1622, from Treve, states: "We are now in North Holland, where I never saw so many, among so few, sick of leprosy; and the reason is, because they commonly eat abundance of fresh fish." According to this letter, Sir Jonathan Hutchinson seems to have been corroborated as early as 1622.

MAGNESIUM SULPHATE LOTION IN CELLULITIS.

DR. ALBERT E. MORISON (Sunderland) writes: Lieutenant S. A. B. Paymaster has drawn attention to the above in the *JOURNAL* of March 11th. His findings corroborate those published by Dr. Tulloch and myself on the treatment of all septic wounds by this salt. The treatment of erysipelas by magnesium sulphate is of very old standing, and is mentioned in several textbooks on surgery published before the dawn of the Listerian era of antiseptic surgery. It was, of course, at that time used empirically; now we know as a result of the researches of Dr. Tulloch that its action is due not only to its hypertonic action on the tissues, but to the power it possesses of inhibiting the growth of streptococci and most of the granulated-negative forms of bacilli found in wounds. I would, however, suggest that the effect of the treatment is very much hastened and more efficacious, and the change of dressings is less frequently required, if a saturated solution of magnesium sulphate with 10 per cent. glycerine is employed. This we have found by numerous experiments gives the best results in septic wounds and infective conditions.

TRACHOMA IN U.S.A.

THE United States Public Health Service has established five hospitals for the treatment of trachoma in the three States of Kentucky, Virginia, and West Virginia. In the past fiscal year 12,000 cases have been treated, most of which have been cured; those in which a cure was not effected were so far

improved as to be made harmless to other people. In addition to the hospital work, doctors and nurses have visited patients at their homes and given instruction as to the means of preventing the development and recurrence of the disease. Surveys were made in sixteen counties in Kentucky, especially among school children. Of 18,016 persons examined, 7 per cent. were found to have trachoma. Similar inspections in certain parts of Arizona, Alabama, and Florida showed that from three to six in every hundred children were affected.

PEPPER IN THE PROPHYLAXIS AND TREATMENT OF FILARIASIS.

MR. T. A. R. AIYAR, L.R.C.P. and S. Edin., L.F.P. and S. Glasg. (Sitiawan, Lower Perak, F.M.S.) writes: All classes of Indians indulge in pepper, and I can hardly imagine even a single class that does not consume it in some form or other. Notwithstanding this, filariasis is not an uncommon affection among them. This malady existed some three decades ago to an alarming extent, chiefly in seaport towns, where the sanitary conditions were very imperfect, and elephantiasis of the scrotum, leg, etc., was quite common. With improved sanitary conditions the disease has been practically stamped out from these towns. Still, in some rural areas *Filaria medinensis* is quite a common parasitic affection, and the sufferers here all partake of pepper. I have had some hundreds of cases of guinea-worms under my care and personal observation. In one case of the worst form of chyluria the sufferer was an Indian, who was ingesting pepper every day as a part of his daily rations. This man eventually died, and necropsy revealed obstructions of the various lymphatic channels with the ova of the mature parasites. I therefore conclude that pepper has no place in the armamentarium of drugs either as a prophylactic or remedial agent in this particular form of ailment.

HERPES OF THE PENIS.

MAJOR M. S. IRANI, I.M.S., writes: I have under treatment for the last six years a very obstinate case of neuralgic herpes of the genitals similar to one described by your correspondent in the *Far East* in the *BRITISH MEDICAL JOURNAL* of January 22nd, 1916. The patient is a well-built young man, aged 37, in good health, of active habits, a total abstainer, a non-smoker, and free from any specific disease or any hereditary taint. The complaint commenced over six years ago in a very insidious manner, the earlier attacks being very mild and very short. The neuralgic attacks came on at irregular intervals, at first once or twice a month but later more frequently, often two or three times a week, apparently without any cause or provocation; they lasted from a couple of hours to twelve, or on some occasions over twenty-four, hours. The patient's attention was first drawn to the condition by the appearance of a small vesicular eruption on the prepuce. The severity of the attacks varied from slight hyperaesthesia or mild burning sensation to very severe neuralgic pains in the following sites—the skin of the scrotum, prepuce, the skin of the upper and inner part of either thigh, right gluteal region, and, on rare occasions, left heel; nerves affected—ilio-inguinal, genito-femoral, anterior cutaneous and medial calcaneal. More than one place was rarely affected simultaneously; the pain commencing in one place shifted to another within a short time, or it remained localized in one spot until it disappeared. The most peculiar feature of the case is that a day or two after the attack leaves the patient a very small crop of herpes appears, always on the prepuce without any regard to the site or sites attacked by neuralgia. It consists of not more than three or four small vesicles on an inflamed hyperaemic base, which ulcerate, producing small round ulcers with clean cut margins. In the earlier stages of the complaint these took two to three weeks to heal but latterly they heal in a week. The eruption is not painful. The attacks of late have become less frequent, there being often an interval of two months, and the severe type is less common. Medicinal treatment has made no difference in the frequency, duration, or severity of the attacks. The patient had met with a riding accident about eighteen months before he noticed this complaint. He was badly shaken but did not sustain any damage to any bones or organs, and was not incapacitated from work for more than three or four days. I should be very grateful if any of your readers would make any suggestions for treatment or give information as to the pathological lesion, and references to literature on the subject.

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

	£	s.	d.
Seven lines and under	...	0	5 0
Each additional line	...	0	8 0
A whole column	...	3	10 0
A page	...	10	0 0

An average line contains six words.

All remittances by Post Office Orders must be made payable to the *British Medical Association* at the General Post Office, London. No responsibility will be accepted for any such remittance not so safeguarded.

Advertisements should be delivered, addressed to the Manager, 429, Strand, London, not later than the first post on Wednesday morning preceding publication, and, if not paid for at the time, should be accompanied by a reference.

NOTE.—It is against the rules of the Post Office to receive *post restante* letters addressed either in initials or numbers.

PENETRATING WOUNDS OF THE ABDOMEN.

BY

CAPTAIN JOHN FRASER, M.D., M.Ch., F.R.C.S.E.,

R.A.M.C.,

ASSISTANT SURGEON, ROYAL HOSPITAL FOR SICK CHILDREN,
EDINBURGH;

AND

CAPTAIN H. T. BATES, B.A., M.B., CH.B. DUBL.,

R.A.M.C.(T.),

BRITISH EXPEDITIONARY FORCE.

(Report to the Medical Research Committee.)

We have lately had an opportunity of observing the operative results of a number of cases of penetrating wounds of the abdomen. So much debate has centred around the treatment of these cases that we believe it may be of interest to record some of the observations which we have made.

PENETRATING ABDOMINAL WOUNDS CONSIDERED LOCALLY.

WOUNDS OF STOMACH.

We have had a total number of six cases, and they illustrate wounds of almost every possible portion of the stomach.

Morbid Anatomy.

The degree of damage which is sustained depends on two factors—the nature of the projectile, whether shell fragment, bullet, or bomb, and the part of the stomach which is injured. In regard to the first qualification, shell fragments produce almost invariably the most extensive destruction, for combined with the irregularity in their shape there is a high degree of velocity in the speed with which they strike the part. These facts are illustrated both by text and diagram in Case v. Bullets generally behave as they do in other soft tissues, that is with a small entrance wound and a larger wound of exit, but, as will be shown later, the amount of damage produced by a bullet is very closely related to that part of the viscus which is struck—for example, bullet wounds of the pylorus are more extensive than bullet wounds of the body of the stomach. Bomb wounds in their degree occupy a position which is midway between the shell and the bullet wound; the bomb fragment has the irregularity of the shell fragment, but its velocity is comparatively small. The region of the stomach which is injured is all-important, and these remarks apply to bullet wounds, as shell and bomb wounds do not appear to be so much influenced by position. Bullet wounds in the centre of the body of the stomach have a comparatively small entrance and a slightly larger exit wound. A bullet wound in the region of the pylorus has a relatively small entrance wound, but the exit wound is usually large and pouting. The greater degree of severity would appear to depend on the fact that the projectile passes through the thicker musculature in the neighbourhood of the pylorus (see Case vi).

Bullet wounds involving the greater or lesser curvature are always extensive; the lines of force are such that accompanying the actual wound there is extensive splitting and tearing of the musculature of the stomach wall (see Case v).

The haemorrhage is not severe unless the wound has actually involved one of the larger vessels (coronary or gastro-epiploic), and in this respect stomach wounds differ from wounds of small intestine.

There is usually haemorrhagic infiltration of the peritoneal and muscular coats, and it is important to notice that there are points of tissue separation and actual tissue necrosis for a considerable distance around the wound.

Clinical Features.

Wounds of the stomach demonstrate the clinical features which one associates with wounds of the hollow viscera of the abdomen generally—there is pain, sickness, collapse, rigidity of the abdominal wall, with tenderness on pressure; but, in addition to these general features, there are certain distinctive signs. Sickness is usually more pronounced than in wounds of the other abdominal viscera, and in the vomited matter it is rarely that one fails to

find the presence of blood. The degree of collapse is less marked than that found in intestinal injuries, but, whether or not this is related to the comparatively smaller amount of haemorrhage one cannot say.

It is interesting to note that, while the pulse and respiration rates are both increased, the respiration-rate has proportionately increased more rapidly than the pulse-rate. The degree and the variety of the clinical features are influenced considerably by the situation of the lesion. Pain would appear to be more intense when the cardiac or pyloric ends of the stomach are involved; it is correspondingly less so when the wound is related to the body of the stomach.

Wounds of the curvatures of the stomach, with the greater destruction which invariably accompanies them, are associated with severe symptoms of collapse. The clinical features are also influenced by the condition of the stomach at the time of injury; if the stomach contains a quantity of food the wound is followed by more intense clinical features than if the organ had been empty.

Treatment.

These remarks are of course confined to operative treatment. If by examination we are confident that the stomach is injured, we have found it advisable to employ a left rectus incision, either splitting or retracting the muscle; this incision gives good approach to any part of the organ, occasionally it is necessary to enlarge it laterally. When the situation of the wound is doubtful we have used an incision parallel to the left costal margin. After exposure an examination is made of the anterior surface and lesser curvature of the stomach, and of the region of the cardiac orifice. The anterior layer of the great omentum is torn through, and the greater curvature and the posterior surface are thoroughly passed in review. We have met with conditions which called for three different lines of treatment, either singly or combined, the different lines of treatment being: (1) Simple suture (Cases i and ii); (2) gastro-enterostomy (Case v); (3) pylorotomy or resection of a portion of the stomach, usually combined with a gastro-enterostomy (Case vi).

In regard to simple suturing some situations are infinitely more difficult of access than others—for example, in a wound at the cardiac end of the stomach and near the lesser curvature we have experienced extreme difficulty in closing the opening. It has been our principle to excise the wound edges, thus preparing a more suitable surface for suturing and healing, afterwards closing the wound with a primary approximating and a secondary invaginating linen thread suture. Gastro-enterostomy is indicated when there is an extensive wound of the dependent part of the greater curvature of the stomach; the anastomosis may be done on the principle introduced by Kocher, but more usually the position and type of anastomosis will have to be modified by the existing conditions. Wounds of the pyloric end of the stomach are often so extensive that it is necessary to remove the damaged portion of stomach with closure of the open ends, and a secondary gastro-enterostomy.

If the peritoneal surface has been grossly soiled with stomach contents, we have washed out the cavity, draining it suprapubically with a Koith's drainage tube. In perforation of the posterior wall of the stomach with infection of the cavity of the lesser sac of the peritoneum we practise drainage of this space by a tube passed posteriorly above the pancreas.

Synopsis of Cases.

CASE I.

Pte. B. H., West Riding Regiment. Wounded with a rifle bullet at 10.30 a.m.; he was admitted to hospital at 2 p.m., and was operated on within four hours of receiving the wound. The entrance and exit wounds were in the left epigastrium and left loin. There was pain complained of, and sickness containing blood-stained matter; there was the usual accompanying abdominal rigidity. The general condition was good, and there was no marked collapse. The abdomen was opened in the left rectus line; perforations were found through anterior and posterior walls of the body of the stomach; in addition, the jejunum was perforated just beyond the duodeno-jejunal flexure. The perforations were closed with sutures, and the usual drainage was established. The patient made an uninterrupted recovery, and was discharged to the base.

CASE II.

Pte. A. F. H., Royal Engineers, was wounded by a rifle bullet at 6.30 p.m. on August 28th, 1915, and admitted to

hospital at 11 a.m. August 29th. The entrance and exit wounds were in the left epigastrium and left loin; great abdominal pain was complained of, and the patient was practically pulseless. The abdominal cavity contained a quantity of blood, and there was an effusion of blood into the left pleural cavity. So complete was the collapse that operation was delayed for three hours, and during that period various restorative measures were carried out. When operation was performed access was gained to the abdominal cavity by an incision parallel to the left costal margin. The abdominal cavity was full of blood; there was a wound of the stomach where the lesser curvature joins the oesophagus, and from it stomach contents were escaping; the profuse haemorrhage had apparently originated from a branch of the coronary artery. With great difficulty the perforation was sutured; the peritoneal cavity was washed out, and drainage secured. The patient died about two hours after the completion of the operation. *Post-mortem* examination showed that in addition to the wound of the stomach the lower lobe of the left lung was perforated, while the pleural cavity contained a large quantity of blood.

CASE III.

Pte. B. W., King's Royal Rifles. Wounded at 7 p.m., September 11th, he was admitted to hospital at 10 p.m. of the same date. There were entrance and exit wounds in the left back and loin. There were the usual signs of injury to the abdominal viscera; there was a considerable degree of collapse, the pulse-rate on admission being 130. The abdomen was opened by an incision running parallel to the left costal margin. It was found that the projectile had grazed the left end of the greater curvature of the stomach; in addition there was a perforation of the splenic flexure of the colon. The perforations were closed with sutures and drainage established. On the sixth day a faecal fistula developed from the colon wound, but otherwise a good recovery was made.

CASE IV.

Pte. H. W., Rifle Brigade, wounded at 10 p.m., August 29th, 1915. He was admitted to hospital at 2.30 a.m. of the following day. On admission it was found that the collapse was so intense that any operative procedure was entirely out of the question; he died a few hours after admission. *Post-mortem* examination showed that there was a large tear in the greater curvature of the stomach; in addition the bullet had passed through the left lung, and the pleural cavity contained a quantity of blood. This case was not operated on, but we have included it to show the greater degree of severity and collapse which follows wounds of the greater curvature of the stomach. The patient was admitted about four hours after sustaining his wound, but even at that early period he was entirely beyond operative aid.

CASE V.

Pte. G. H., Yorks and Lancs. There was a shell wound of the left hypochondriac region sustained at 8 a.m. of September 23rd, 1915; he was admitted to hospital at 4.30 p.m. of the same day. There were all the signs of injury to the abdominal viscera, and, in addition, it was obvious that the patient was bleeding profusely internally. The abdomen was opened through the left rectus; it contained a large amount of free blood mixed with gas. Along the greater curvature of the stomach there was a wound about two and a half inches long; the position of the wound was such that it permitted of a gastro-enterostomy being done between the open wound and the jejunum. The edges of the stomach wound were excised. In addition to the stomach wound there were seven perforations in a two and a half feet length of small intestine, necessitating resection and lateral anastomosis. The patient survived the operation for about eight hours and then died of collapse. The case demonstrates the suitability of a gastro-enterostomy under certain conditions.

CASE VI.

Cpl. A. C., King's Royal Rifles. Wounded at 6 p.m., September 24th, 1915. He was admitted to hospital at 1.30 a.m. of the following day. On admission there were all the signs of

injury to the abdominal viscera, but the collapse was too great to permit of immediate operation; operation was therefore delayed for two hours. Upon opening the abdomen it was found to contain a large quantity of blood, there was a perforation through the antrum pylori with a small entrance, and a large blown-out exit wound; in addition there were five perforations in the upper end of the jejunum. The damaged portion of stomach, the pylorus, and a portion of the body of the stomach, were removed, the open ends were closed, the damaged loop of intestine was resected, an anastomosis done, and a gastro-enterostomy performed between the body of the stomach and a loop of jejunum. This patient lived for twenty-four hours; during that period his pulse remained good and there was no sickness. He died eventually with extreme suddenness. This case illustrates the occasional necessity of removing a portion of the stomach.

Results of Stomach Cases.

Total cases, 6.	
Bullet wounds	5
Shell wounds	1
Suture	3
Gastro-enterostomy	1
Resection	1
Complicated with injured gut, etc.	6
Lived	2
Died	3
Unoperated on	1

WOUNDS OF SMALL INTESTINE.

Under this heading we have a total of twenty-one cases to consider.

Morbid Anatomy.

Among the series we have had cases of bomb, bullet, and shell wounds, and each of these varieties have distinctive features. Bomb fragments produce small and multiple wounds with slight evagination of the edges, but with a marked tendency to surrounding ecchymoses and haemorrhage (Cases XI and XXIII).

Bullet wounds, when caused by a projectile travelling at a great velocity and fired at a comparatively short range, are small perforations, with slightly larger exit than entrance wounds (Case XXII). Bullets travelling at a lower velocity result in considerable destruction of the gut wall.

When the projectile passes across the long axis of the gut it may pierce it through and through, but sometimes it tears it open as though it had been cut by a knife (Case XXIV). Bullets passing obliquely through or in the long axis of the gut produce extensive injuries; if in the long axis of the gut the bowel is torn completely open (Case XIII); if the intestine has been struck

obliquely there are two large perforations, one on each side, with an intervening bridge of tissue (Case XIV).

The damage produced by shell fragments is usually very extensive (Case XV), but if the force of the fragment is nearly spent, our experience has been that the wound is no larger than the fragment which caused it—in one

instance we have found the fragment of shell embedded in the gut wall (Case XVIII).

As regards position, wounds of the free edge of the gut are more extensive than those which occur at the mesenteric border. Correspondingly, wounds of fixed parts of the small intestine—for example, duodeno-jejunal flexure and the ileo-caecal junction—are less extensive than wounds of the freer portions of the gut.

Haemorrhage from small intestine is, as a rule, severe, especially when the wound has occurred in the jejunum. It is remarkable how rarely there is a massive escape of contents from the lumen of the gut—we have never seen it occur to any marked degree—apparently there is a complete inhibition of peristalsis for some time subsequent to the injury. Further, the less the damage to the gut and



Fig. 1 (to illustrate Case IV)—Bullet wound of the greater curvature of the stomach.

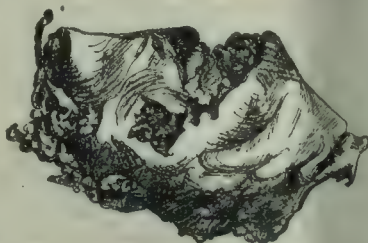


Fig. 2.—Anterior view of the pylorus, showing the small entrance wound.

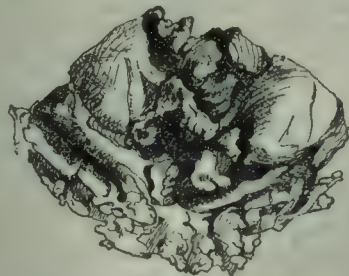


Fig. 3. Posterior view of the pylorus, showing the large exit wound.

Figs. 2 and 3 (to illustrate Case VI).

the fewer the number of perforations, the more likelihood is there of extensive peritoneal soiling. We believe the converse holds good.

When the gut is injured it is rarely that the mesentery escapes, and one is exceedingly apt to overlook a wound in this region. When a large mesenteric vessel is cut the haemorrhage is rapidly fatal; but even in division of a



FIG. 4 (to illustrate Case xxii).—Four feet of gut containing perforations from a machine gun bullet. The bullet has passed with a high velocity through various coils of gut, passing across the long axis of the gut. The resulting damage is not extensive.

comparatively small vessel or series of vessels the haemorrhage is progressive, a characteristic which is curiously peculiar to intra-abdominal bleeding. When the blood vessels in the mesentery are damaged, one is faced with the question whether the viability of the associated gut is or is not interfered with. In this relation we have observed that while interference with the mesenteric blood may not actually endanger the viability of the gut that portion of gut is particularly liable to a subsequent distension which may pass on to an actual paralysis.

There is nothing characteristic about the superficial wound. Unless one is prepared for it, one is at first apt to overlook the fact that bullet wounds of the buttock are liable to be followed by evidences of injury to the abdominal viscera.

Clinical Features.

The clinical features are those of commencing peritonitis coupled with the evidences of a rapid and progressive haemorrhage. The facial expression is one of intense distress, pallor may become evident and deepen. The pulse becomes progressively and rapidly quicker and weaker. General abdominal pain is complained of, the pain being accentuated at intervals. There is frequently retention of urine. Sickiness comes on, and during the attacks of vomiting the abdominal pain is intensified. The temperature at first falls, and after some hours begins to rise. As a rule there is fixation of the abdominal wall, and the respirations are largely thoracic in type. Palpation elicits general tenderness, and palpation confirms the muscular rigidity which exists. Under the influence of morphine, and sometimes when the intra-abdominal bleeding is profuse, we have seen the muscular rigidity of the abdominal wall almost disappear. By percussion it is frequently possible to demonstrate the presence of dullness in the flanks and the diminution of liver dullness.

In later and untreated cases the clinical features are those of acute general peritonitis.

Treatment.

Later there are described measures which we have carried out preliminary to all abdominal operations for this class of case—measures which are intended to antagonize the shock and loss of blood which occurs. As a preliminary to operating for perforating wounds of the small intestine these precautionary methods are of the highest practical importance, as the amount of shock and the loss of blood in these cases are often exceptionally severe.

To open the abdominal cavity we have almost invariably used a middle-line incision; it is important that there should be no hesitation in making the incision one of considerable length. In localizing the sites of injury we have followed a well-defined routine. After opening the abdomen the caecum is identified, and from it the small intestine is traced upwards, beginning with the lower end of the ileum. As each perforation of the gut is exposed it is wrapped up in a small moist swab; to one side of the swab a length of tape is stitched; this is slipped through the mesentery and doubled twice round the gut covered by the swab; in this way each perforation is marked and at the same time there is less chance of a massive infection from the injured part. The whole length of the small intestine must be examined before any decision as to treatment is arrived at; there is nothing more disconcerting than to deal with a perforation by resection and to find that a few inches further on there is another perforation which could have been included in the same procedure. When the degree of damage to the gut has been brought under review there are three varieties of operative treatment which may be followed; these are: (1) Simple suture of the perforations; (2) resection of the damaged intestine, followed by a lateral or end-to-end anastomosis; (3) resection of the damaged intestine, with an accompaniment of a temporary enterostomy.

1. Simple Suture of the Perforations.

In the series of cases which came under our notice a small minority proved suitable to be dealt with by simple suture. In order to be suitable it is essential that the wound is small, without damaged edges and with an intact mesentery. Bomb fragments cause wounds which are most ideally suitable for suture.

The method has the obvious advantages of speed and simplicity of technique. There are certain distinct disadvantages: the suture may result in considerable narrowing of the gut lumen, and when there are a number of similar sutures within a short distance of each other the multiple narrowing becomes a very real objection. The second objection is that a suture, unless very complete, is apt to be followed by a local sloughing of the part. The edges of the perforation are devitalized and the microscope has shown that actual necrotic changes can be distinguished in the tissues for some distance around the wound.

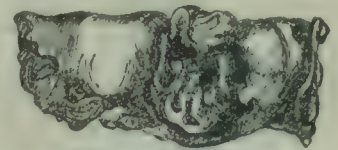


FIG. 5 (to illustrate Case xxii).—This illustration demonstrates the pouting appearance of the mucous membrane at the point of exit.

In the suture operations which we have done we have not excised the wound edges and we have used linen thread as the medium for stitching (Cases VII, VIII, IX, X, and XI).

2. Resection of the Damaged Intestine followed by Lateral or End-to-end Anastomosis.

There are certain indications which necessitate this method of treatment: multiplicity of the perforation, extent of the degree of the perforation, and involvement of the related mesentery. We have distinctly favoured this method of treatment and we have preferred it at times when another method might have been chosen. Two disadvantages have been quoted—the complexity of the technique and the time which the operation entails. In regard to the second objection, we question if it takes any longer to complete a resection and anastomosis of gut than to do a multiple suture operation. The advantages are very great: the operation is a complete and a thorough one, the risk of damage following a mesenteric involvement is minimized; there are not the possibilities of local areas of sloughing as are so apt to occur in suture operations, and there is less possibility of subsequent stricture. Having weighed the choice of the operation, the question next

arises whether the anastomosis is to be a lateral or an end-to-end one. When we began this work we favoured and used an end-to-end anastomosis, on the ground that it could be accomplished in a shorter period of time than the lateral anastomosis. We discovered that this method was apt to be followed by a certain degree of paresis in the proximal segment with subsequent distension and eventual obstruction. On one occasion we had to perform a second short-circuiting operation to overcome the obstruction (Case xii).

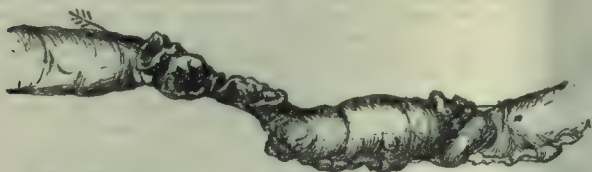


FIG. 6 (to illustrate Case xii).—Eighteen inches of gut injured by rifle bullet. A portion of the lumen of the gut is torn widely open where the bullet has passed in the long axis of the intestine. The arrows illustrate the course of the bullet.

The gut appears to be predisposed to the distension from various causes: the general degree of nerve shock and more especially of sympathetic nerve shock; the paresis of Auerbach's plexus as a result of the blow; the presence of blood in the peritoneal cavity, and the degree of peritonitis which invariably is present. As a result of this disadvantage we began to employ a lateral anastomosis, and from it we have had undoubtedly greater satisfaction and better results. In point of time the lateral anastomosis takes a few moments longer in so far as it involves closing the open ends of the gut, but it apparently largely overcomes the possibility of distension of the proximal segment. We do not intend to enter into any details of the operation beyond mentioning that when the resected gut involves the extreme lower end of the ileum we have anastomosed the proximal bowel to the centre of the transverse colon. Short-circuiting, so to speak, by a unilateral short circuit the caecum, ascending colon and hepatic flexure, there are obvious mechanical advantages related to this method (Case xiv).

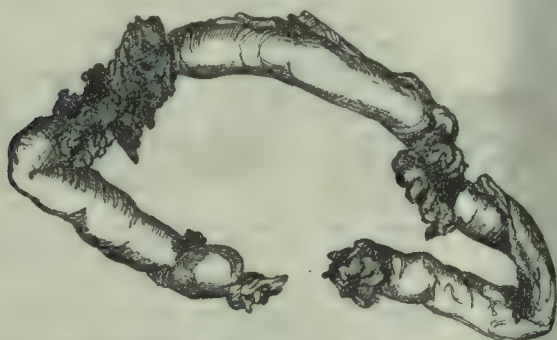


FIG. 7 (to illustrate Case xiv).—Two feet of the lower ileum injured by rifle bullet. Two portions of the gut have been entirely destroyed by the projectile.

3. Resection of the Damaged Intestine with the Accompaniment of a Temporary Enterostomy.

Fortunately we have only had occasion to have recourse to this most unsatisfactory procedure in one instance (Case xxv). It is justified when rapidly developing collapse necessitates that the operation be finished as quickly as possible; the damaged bowel is cut away and the open ends are sutured to the skin wound.

When there is gross soiling of the peritoneal cavity we have washed out the abdominal cavity with hot saline solution, draining subsequently suprapubically with a glass Keith's tube.

Synopsis of Illustrative Cases.

CASE VII.

Pte. B. T., Middlesex. There was an entrance wound in the left umbilical region; there was no exit wound apparent. There were signs of injury to the abdominal viscera, but the general condition was good. From the wound a coil of small intestine was prolapsed. At the operation the wound was enlarged; two perforations were found in the lower end of the ileum; the perforations were closed with purse-string and inverting sutures. Beyond a subsequent slight infection of the

retroperitoneal tissues, which required drainage, the patient made a good recovery.

CASE VIII.

Pte. B. H., West Riding Regiment. Entrance and exit wounds were sustained by a bullet received four hours before admission; the general condition was good. Operation revealed two perforations of the jejunum just beyond the duodeno-jejunal flexure. These were closed with purse-string and invagination sutures. This case in addition showed two perforations of the stomach. Drainage was secured. The patient made a good recovery.

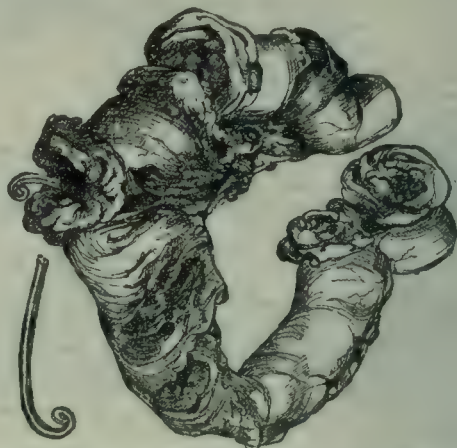


FIG. 8 (to illustrate Case xxiv).—The gut has been divided almost entirely across in four different places. All these injuries have been caused by a single rifle bullet. The round worm shown *in situ* was divided by the bullet.

CASE IX.

Pte. P. H., Northumberland. This patient was wounded on the 26th of the month, but owing to military exigencies it was the evening of the 29th before he was admitted for operation; there was then an entrance wound below the umbilicus, together with all the evidences of extensive general peritonitis. It was doubtful whether operation was advisable, but it was decided to attempt it. A single perforation was found in the lower end of the ileum; this was sutured and drainage was secured. Subsequent to the operation the patient improved considerably; he apparently was on the road to recovery, the bowels moving well, when, a week after the operation, he died suddenly from what apparently was heart failure.

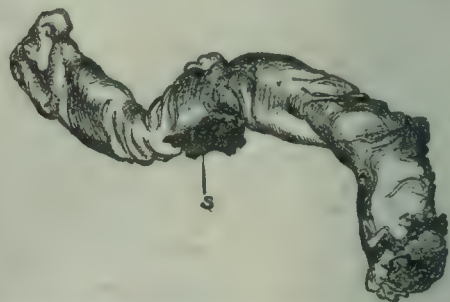


FIG. 9 (to illustrate Case xviii).—A length of jejunum removed for injury by a fragment of shell. The intestine showed six perforations, and a fragment of shell was found embedded in the wall of the gut. s. Shell fragment.

CASE X.

Pte. T. S., East Lancs. There were entrance and exit wounds, the bullet having entered the right buttock and come out anteriorly below the umbilicus. There were the usual evidences of injury to the abdominal viscera, and the general condition was fair. Operation showed a single perforation in the upper end of the ileum; there was extensive soiling of the peritoneal cavity and a commencing general peritonitis. The perforation was closed by suture. Four days after operation the patient succumbed to the general peritonitis which was present.

CASE XI.

Pte. A. H., Black Watch. This man was wounded by a bomb explosion, and there were a number of entrance wounds in the left flank. There was intense shock, the pulse being 150. A number of fragments had entered the abdominal cavity and there were all the signs of injury to viscera. In addition two fragments had entered the left lung and a third entered the spinal cord, producing complete paraplegia below the eighth dorsal segment. After waiting some hours for a possible improvement operation was carried out. The abdomen contained a large amount of blood. There were four perforations

in the jejunum about 8 in. below the duodeno-jejunal flexure; each was closed with suture. In addition the transverse colon was perforated at its centre; in the descending colon there were six through-and-through perforations; these wounds were sutured. The abdomen was washed out and drained suprapubically and in the left flank. As far as the abdominal condition is concerned, we believe we are justified in looking on this case as a success; his eventual history, however, shows that he ultimately died of a gradual ascending spinal meningitis secondary to the infected wound of the spinal column.

The above cases are illustrative of the suture operation.

CASE XII.

Pte. G. H., Yorks and Lancs. In this case the injuries were the result of a shell wound. There was intense collapse. The abdominal cavity was filled with blood; there were seven perforations in a two and a half feet length of small intestine (upper end of ileum); practically all of the perforations were very large wounds. Three feet of small intestine were removed and a lateral anastomosis completed. In addition, the stomach was extensively torn, necessitating a gastro-enterostomy. The patient survived for eight hours and died of collapse.

CASE XIII.

Pte. W. G., Seaforth Highlanders. On admission the patient was collapsed; there was progressive haemorrhage from both superficial wounds and general abdominal rigidity. The operation was performed under spinal anaesthesia. The deep epigastric artery of the left side was severed, hence the superficial bleeding; the abdominal cavity was full of blood. In the upper end of the ileum there were three perforations—two small and one exceedingly large—opening up the gut for about one and a half inches. Nine inches of gut were removed and an end-to-end anastomosis completed. Forty-eight hours later signs of obstruction developed and the abdomen was again opened under spinal anaesthesia; the proximal segment of gut at the anastomosis was distended, and there was a large effusion of blood into the mesentery of this portion of the gut. A lateral anastomosis was done, short-circuiting the end-to-end suture. The patient made an uninterrupted recovery; two months later we have heard from him as being in excellent health.

CASE XIV.

Pte. L. T., Black Watch. This man was wounded in the right buttock, and six hours after having received the wound he was admitted to hospital; there were all the signs of injury to abdominal viscera. The operation was done under spinal anaesthesia. When the abdomen was opened a perfect fountain of blood escaped; in the lower two feet of ileum there were six perforations—in two instances the gut was shattered to pieces. The damaged intestine was removed and a lateral anastomosis completed between the ileum and the centre of the transverse colon. The patient made an uninterrupted recovery, and three months later he informed us that he was enjoying excellent health.

CASE XV.

Cpl. A. C., King's Royal Rifles. Seven and a half hours elapsed since receipt of a bullet, which had passed through the abdomen from side to side. There was intense collapse, and operation was delayed for two hours. At operation there were found to be five large perforations in the upper part of the jejunum. In addition the transverse colon was torn across and the stomach was almost divided in two places. The damaged loop of small intestine was removed and a lateral anastomosis completed; the stomach wounds were repaired and a gastro-enterostomy done; the damaged colon was brought out, and a colostomy completed. The patient stood the operation remarkably well, and he survived for over twenty-four hours; during that time there was no sickness and his pulse remained good. He then suddenly collapsed and expired.

CASE XVI.

Pte. E. H., King's Royal Rifles. The wound had been sustained in the right loin, and the bullet had taken an oblique path, being embedded below the left costal margin. Fifteen hours had elapsed since receipt of the injury, and the collapse was intense. After waiting some time, and taking measures to overcome the collapse, it became obvious that there would be no improvement, and that the patient was bleeding rapidly inter-

nally. The abdomen was opened; 18 in. from the duodeno-jejunal flexure the gut was torn across in three places; there was profuse bleeding from a large branch of the mesenteric artery. The damaged gut was resected, and the bleeding arrested. The patient died thirty-six hours after operation. *Post-mortem* examination showed no other lesion, and death was due to haemorrhage and collapse.

CASE XVII.

Sergt. S. P., Worcesters. The entrance and exit wounds were in opposite flanks. There was complete collapse, seventeen hours having elapsed since the receipt of injury. There were all the evidences of general peritonitis, and the abdominal cavity contained a quantity of fluid. Operation was conducted under spinal anaesthesia. The peritoneal cavity was found to be full of blood. In 2½ feet of small intestine (lower end of jejunum) there were seven perforations, several of them tearing the gut entirely across. During the operation there was progressive bleeding from the retroperitoneal tissues; its source could not be found. After the operation the patient steadily sank, and died ten hours later.

CASE XVIII.

Pte. A. H., Lincolns. Shell wound. There were entrance and exit wounds in the right epigastrium and left flank. There were all the signs of injury to the abdominal viscera, but the degree of collapse was not marked. Operation revealed the abdomen to be full of blood and gas. Twelve inches of jejunum were extensively damaged by six perforations. In the wall of the gut the fragment of shell was embedded. The transverse colon was torn across at its centre. The damaged small intestine was removed, and a lateral anastomosis completed. The perforated transverse colon was converted into an efficient colostomy. The patient made an uninterrupted recovery.

CASE XIX.

Pte. H. B., Rifle Brigade. On admission this patient showed entrance and exit wounds from the right buttock to the left hypochondrium. There was profuse external haemorrhage. The man was practically pulseless, but he improved somewhat after the intravenous transfusion of saline. There were all the signs of a generalized peritonitis. Operation was conducted under spinal anaesthesia, but the patient succumbed before any operative procedure could be carried out. Subsequent investigation showed that there were ten wounds throughout the small intestine, nearly all of which had torn the gut entirely across. For a distance of 6 in. in one part the lumen of the gut was entirely destroyed. In addition, the iliac colon was divided and the internal pudic artery was severed as it lay in Alcock's canal.

CASE XX.

Pte. H. C., Wiltshire Regiment.

The entrance and exit wounds were from side to side of the abdomen, and from the exit wound there was a considerable protrusion of omentum. On admission the general condition was good, but there were all the evidences of injury to the abdominal viscera. When the abdomen was opened the cavity was found to be filled with blood; there were seven perforations in the upper four feet of jejunum, and in two instances the gut was shattered to pieces. The damaged gut was removed, and as the proximal portion was too fixed to permit of a lateral anastomosis, an end-to-end suture was carried out. The patient died forty-eight hours after operation. *Post-mortem* examination revealed an intense peritonitis, especially in the upper part of the abdomen, and this apparently was the cause of death.

CASE XXI.

Cpl. B. A. E., Durham Light Infantry. There was an entrance wound in the left buttock; there were the signs of injury to the abdominal viscera, together with symptoms of intense collapse, pulse being 130. Ten hours had elapsed since the injury was received. The abdomen was opened in the middle line under spinal anaesthesia. There was an immense effusion of blood. Three feet of the ileum was found to be extensively damaged and torn with eight perforations. The damaged gut was removed and a lateral anastomosis completed. The patient succumbed a few hours after operation.

CASE XXII.

Pte. R. J. W., Irish Guards. The patient was shot at close range by a machine-gun bullet. He was operated on within two

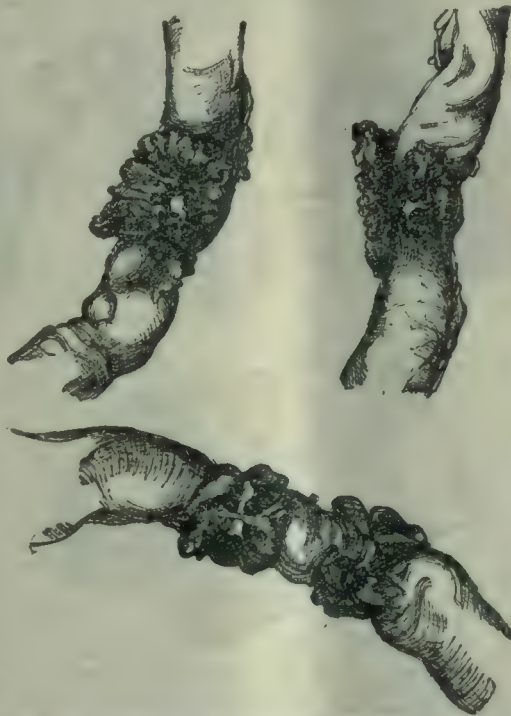


FIG. 10 (to illustrate Case XII).—Wounds of small intestine caused by a fragment of common shell. Note the very extensive degree of the injury in each case.

hours of receiving the injury, and his general condition was good; there were all the signs of injury to the abdominal viscera. Operation showed that the abdominal cavity contained a large quantity of blood. There were eight perforations in the lower end of the jejunum, and it was necessary to remove four feet of intestine. This was done and a lateral anastomosis completed. The ureter was also injured. The patient made a complete and uninterrupted recovery.

CASE XXIII.

Pte. McJ., Black Watch, was wounded in a bomb explosion, and there were at least five penetrating wounds of the abdomen. When admitted he was very collapsed, the pulse being 150. Operation was delayed for some time and then performed under ether anaesthesia. There was a great amount of effused blood. Tracing the small intestine, there were fourteen perforations in the lower end of the jejunum, and it was necessary to remove six feet of gut; a lateral anastomosis was completed. There were four perforations in the descending colon, and these were closed with suture; a single large perforation in the transverse colon was converted into a colostomy. The patient passed a comfortable night and was remarkably well throughout the following day. He died somewhat suddenly on the second morning after operation.

CASE XXIV.

Pte. C. R., Seaforth Highlanders. There was a single entrance wound in the left buttock. It was interesting to note that there was no rigidity on palpation, but pain was complained of. Collapse was so intense that immediate operation was impossible. After some hours there was a slight improvement and operation was then performed under ether. There was an enormous quantity of free blood in the peritoneal cavity. There were four large perforations of the lower end of the ileum, three of them tearing the gut completely across; in addition there were three extensive bruises of the gut and two tears in the mesentery, which were bleeding profusely. Eighteen inches of small intestine were removed. The iliac colon was so damaged that it was necessary to perform an inguinal colostomy. The patient died of shock eight hours after operation.

The above cases are illustrative of the operation of resection and anastomosis of the intestine. In discussing the treatment of perforating wounds of the intestine we mentioned the possibility of having in some cases to do a resection of intestine, with the formation of a temporary enterostomy. It is an unsatisfactory operation, and fortunately we have had to resort to it in only one instance. That instance we now quote:

CASE XXV.

Pte. W. J., Black Watch. There was an entrance wound below the umbilicus, and there were evidences of injury to the abdominal viscera; in addition there was extreme collapse. On opening the abdomen there were found to be four perforations in the small intestine; in addition the rectum and the bladder were perforated. A suprapubic cystotomy and a colostomy were performed; there was no time to carry out an anastomosis of the gut, and the open ends of the intestine were stitched to the skin edges, after cutting away the damaged gut. The patient succumbed from shock a few hours after operation.

In conclusion we quote two cases the seriousness of whose general condition precluded any possibility of operative treatment:

CASE XXVI.

Pte. T. H., Cheshires. There was an entrance wound in the left buttock. The collapse was so intense that death ensued about one hour after admission. Examination showed eight perforations in the lower end of the ileum, two perforations in the lower end of the jejunum, and a complete severance of the iliac colon. There was a quantity of loose bone in the abdominal cavity.

CASE XXVII.

Sapper H. J., Royal Engineers. This man was wounded with shrapnel, and there was a large entrance wound in the left

flank. When admitted the patient was pulseless and unconscious, and he died one and a half hours after admission. Examination showed eight perforations in the lower end of the ileum with extreme destruction of the gut.

Results of Small Intestine Cases.

Total cases, 21.

Bullet wounds	...	...	17
Shell wounds	...	...	2
Bomb wounds	...	...	2
Suture	...	...	5
Resection	...	...	13
Enterostomy	...	...	1
Complicated cases	...	...	10
Recoveries	...	...	7*
Died	...	...	12
Unoperated	...	...	2

* One case eventually succumbed to an ascending spinal meningitis.

WOUNDS OF COLON.

We have a series of twelve cases to record, but several of these have been already mentioned in dealing with stomach and small intestine injuries. The general remarks one would make are very similar to those we have already mentioned in relation to small intestine, but there are several points which are more or less peculiar, and these will be dealt with.

Morbid Anatomy.

The effects of shell, bullet, or bomb vary exactly as they do in small intestine. Very similarly also the damage appears to vary according to whether the colon is fixed or free—for example, the transverse colon and the free loop of the iliac colon are frequently torn entirely across, while in the more fixed points simple perforation is the rule.

Effusion from a wound of the colon has a liability to be shut off and localized, more especially when the wound occurs in the ascending or the descending colon; it is quite common to meet with a collection of faecal and semi-purulent matter entirely shut off and opening into the underlying colon

(Case XXVIII). It is, of course, an established fact that if the infection does not become localized, the peritonitis from a large intestine wound is intensely virulent.

Clinical Features.

The clinical features are very similar to those of small intestine injury. They are, primarily at least, not so widespread, and early sickness as a rule is absent.

Treatment.

We have drawn attention to the liability which colon wounds have of becoming localized, and this fact has a bearing on the operative treatment which one employs. The bearing is that if the patient comes under treatment at a period longer than twenty-four hours after the receipt of the injury it is a wise principle, primarily at least, to enlarge the original wound on the possibility that the infection is becoming localized. At an earlier period than twenty-four hours it is probably better to open the abdomen through a separate incision.

We have been impressed with the risk which one runs of overlooking injuries to the colon, and in one instance we have made this mistake (Case XXV). The risk is greatest when the wound lies in one or other of the flexures of the gut.

The actual operative treatment may be summarized in two methods: (1) Simple suture; (2) simple suture with



FIG. 11 (to illustrate Cases II and XXIII).—Bomb wounds of the small intestine. Note the comparatively small size of the wounds, the surrounding ecchymoses, and the suitability of such cases for suture.

colotomy. The operation of resection may be left out of account; it is rarely advisable to practise it in this type of surgery. We have favoured the use of a colotomy in combination with the operation of suture; there are the obvious advantages that it increases the safety of the suture, while it obviates the passage of faecal matter through the damaged gut.

In wounds of the ascending and the descending colon we have been impressed with the advisability of draining the retrocolic space by a tube passing into the loin.

CASE XXVIII.

Sergt. B. A. The wound had been sustained with a fragment of shell about twenty-four hours previously. His general condition was good, and local signs pointed to the fact that the injury and infection were limited to the neighbourhood of the wound. The original wound was opened up, exposing a small collection of faecal and semi-purulent matter; the containing cavity communicated with a wound in the ascending colon. The cavity was drained, and a faecal fistula developed. Recovery.

CASE XXIX.

Pte. B. W., King's Royal Rifles. The entrance and exit wounds were in the left loin; there were the signs of injury to the abdominal viscera, and a considerable degree of collapse. The abdomen was opened parallel to the left costal margin. There was a wound in the outer side of the splenic flexure of the colon; the wound was closed with suture and drainage established in the flank. A faecal fistula developed on the fourth day. Recovery. In this case the stomach also was injured.

CASE XXX.

Pte. O. H., Lincolns. This man was wounded with a fragment of shell. Opening the abdomen, in addition to wounds of the small intestine, it was found that the transverse colon was divided at its centre. The transverse colon was brought out, and so repaired that a single Paul's colotomy tube was fastened into the gut lumen at the site of injury; a length of small intestine was resected. Recovery.

CASE XXXI.

Rifleman P. F., Rifle Brigade. There were entrance and exit wounds in each loin respectively, with complete abdominal rigidity. The general condition was good. The abdomen was opened in the middle line. There was a large quantity of free blood in the peritoneal cavity. Two large perforations were found in the ascending colon; a local colotomy and repair was done. The bullet in its course had passed through the spinal column, but without damaging the spinal cord. He remained well until 6 a.m. of the following day; his pulse then suddenly failed, and he died an hour later. Death was apparently due to peritonitis and shock.

CASE XXXII.

Pte. S. J., North Staffords. The injuries were the result of shell wounds. There were three entrance wounds on the outer side of the hip. The patient was practically pulseless. Operation was delayed for two hours and restorative means were applied. Operation was finally carried out under spinal anaesthesia. There was a large perforation of the iliac colon immediately above the loop; at a higher level the posterior wall of the descending colon was torn. Repair and colotomy were done. Death from shock ensued twelve hours later.

CASE XXXIII.

Cpl. H. J., Royal Irish Rifles. A bullet wound had been sustained twenty-four hours previously. There was a much greater degree of collapse than seemed compatible with the injury. The entrance wound was enlarged; the iliac colon was perforated in two places; there was no evidence of injury to other viscera. Repair and colotomy were performed. Throughout the first and second days following operation the patient steadily improved; on the third morning he was exceedingly well, when suddenly about midday he developed an extensive secondary haemorrhage. At this point the case passed out of our hands, and we are unaware of his further history. (We have since heard that the patient died.)

CASE XXXIV.

Pte. T. H., North Lances. There were entrance and exit wounds in opposite loins; the exit wound admitted two fingers. There were all the signs of injury to the abdominal viscera. On opening the abdominal cavity it was found to contain a large quantity of blood; there was a large wound of the postero-external surface of the hepatic flexure, and there was also an extensive tuberculous peritonitis. With difficulty the wound in the colon was sutured. The patient died nine hours later. Post-mortem examination showed the presence of a generalized tuberculosis.

CASE XXXV.

Pte. B. A., D.C.L.I. This patient was admitted suffering from a bayonet wound of the abdomen, the weapon having entered below the left costal margin. There were no evidences of abdominal infection, but the abdominal cavity was opened. No perforation was found, and there was neither free blood nor evidence of infection. The following day there was all the evidence of a general peritonitis; investigation showed that we had overlooked a small perforation below the splenic flexure. The patient later succumbed to the peritonitis.

This last case illustrates the liability of overlooking small wounds of the colon when they are situated in out of the way places, such as the hepatic and splenic flexures.

CASE XXXVI.

Pte. F. A., Worcesters. This patient was admitted suffering from a bullet wound of the left loin. Operation showed that the bullet had grazed the outer wall of the descending colon; it had not penetrated the mucous coat of the gut. The damage was repaired and local drainage was secured. On the second day after operation there was a suspicion of a faecal fistula, but this disappeared. The patient made a complete recovery.

CASE XXXVII.

Pte. M. H. W., R. W. Fusiliers. A fragment of common shell had passed through the left iliac fossa; the pelvis was fractured, and omentum was protruding from the wound. Operation showed that about one inch of the sigmoid flexure was entirely destroyed. A colotomy was performed and drainage secured. The patient made a good recovery.

Synopsis of Colon Cases.

Total cases, 12.*

Bullet wounds	...	...	...	...	4
Shell wounds	...	...	...	...	5
Bomb wounds	...	...	...	...	2
Bayonet wound	...	...	...	...	1
Suture	...	...	...	...	6
Suture with colotomy	...	...	...	...	5
Complicated	...	...	...	...	4
Recovered	...	...	...	...	6
Died	...	...	...	...	6
Ultimate history untraced	...	...	...	...	1†

* This total includes two cases of multiple perforation of the colon from bomb wounds; they were complicated with wounds of small intestine, and they have been dealt with under that heading.

† We have since learnt that this patient died.

WOUNDS OF SPLEEN.

In two cases damage to the spleen rendered it necessary to perform the operation of splenectomy.

Morbid Anatomy.

In one case a bullet was responsible for the damage; it had passed through one pole of the spleen, tearing it into two portions and splitting it in all directions. One portion of the spleen could not be recovered from the abdomen at operation; it appeared later from the wound as a small slough. In this instance the kidney was badly damaged (Case xxxviii). The second case was of even greater interest than the first, because apparently the injury to the spleen was not a primary but a secondary result.

The bullet had passed comparatively superficially through the left flank, fracturing the lower ribs in its passage; the sharp fragments of ribs had been drawn inwards, and these fragments were responsible for the damage to the spleen. The movement of the spleen with each respiration had increased the damage until at the time of operation the organ was reduced to pulp. This is the second instance we have seen of this form of injury to the spleen; the first was not under our immediate care.

Clinical Features.

The first case was observed about six hours after the injury was sustained. The general condition was wonderfully good, pulse being only 88 per minute; there was some muscular rigidity along the left side of the abdomen; the abdominal cavity contained a quantity of free fluid; the temperature was normal. These, together with the entrance and exit wounds, were the only clinical evidences. The second case was different in so far as forty-eight hours had elapsed since the receipt of the injury; during that time haemorrhage had been continuous. When admitted the patient was pulseless, there were all the evidences of intense haemorrhage, the abdomen was distended, rigid, and contained a large amount of fluid.

Treatment.

In both cases we found it necessary to remove the damaged organ; the idea of suturing could not be entertained. We made use of an incision parallel to the costal margin, and no difficulty was encountered in removing the part. Drainage was secured in the flank and a Keith's tube was passed through a suprapubic opening into the pouch of Douglas. In the three cases which we have observed the injury to the spleen was complicated in two cases by damage to one of two other organs, the left kidney and the splenic flexures of the colon.

It is advisable that care be taken during operation that these complicating injuries be not overlooked.

Synopsis of Cases.

CASE XXXVIII.

Cpl. S. C., Royal Engineers. There was an entrance wound over the spinal column, and an exit wound in the left loin; there was left abdominal rigidity and evidence of internal haemorrhage. The abdominal cavity was opened; it was found to contain a large amount of blood. The spleen was shattered;

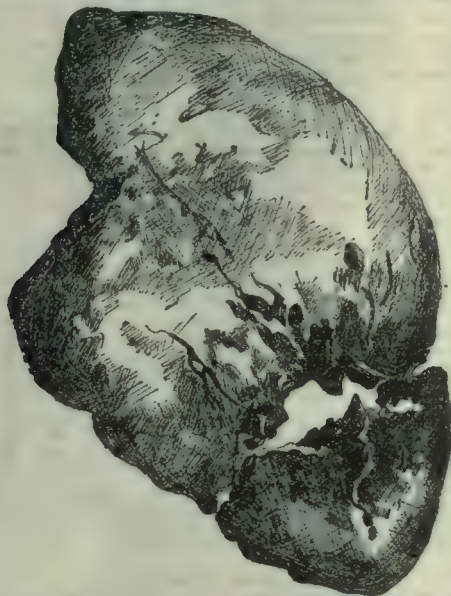


FIG. 12 (to illustrate Case XXXVIII).—Injury to spleen caused by rifle bullet. The lower portion was entirely detached and could not be recovered at operation; it was, however, recovered later.

its pedicle was ligatured, and the remains of the organ removed. The left kidney was so extensively damaged that its removal was also necessary. Uninterrupted recovery.

CASE XXXIX.

Pte. B. A., Grenadier Guards. This man was wounded forty-eight hours before admission in the lowest ribs at the posterior axillary line; the wound was produced by a rifle bullet. On admission the patient was pulseless, obviously suffering intensely from haemorrhage; the abdomen was distended and rigid. Upon opening the abdomen its cavity was found to be full of blood, the spleen was disorganized into a mass of bleeding pulp, the lower ribs were fractured, and their sharp ends had been driven into the spleen. The spleen was removed,



FIG. 13 (to illustrate Case XXXIX).—Injury to spleen caused by rifle bullet. It is probable that much of the resulting destruction was due to the viscus being torn by the indriven and fractured ribs.

and the sharp bone fragments excised. Drainage was established in the flank and suprapubically. The patient died on the seventh day after operation; he apparently succumbed from heart failure.

Results of Spleen Wounds.

Total cases, 2.

Primary damage by bullet ...	...	1
Secondary damage by broken rib ...	...	1
Recoveries ...	...	1
Died ...	...	1

WOUNDS OF LIVER, GALL BLADDER, AND DUCTS.

In discussing wounds of this region we shall bring a series of fourteen cases under review, but it must be understood that only a relatively small proportion of these required operation.

Morbid Anatomy.

Our knowledge of the morbid anatomy of these cases is based entirely on operative experience; we have had no post-mortem experience.

The close relationship of the right pleura and lung to the right lobe of the liver is responsible for the fact that a wound of the liver is very frequently accompanied by damage to the overlying lung or pleura. This fact is important, as the latter condition is apt to be overlooked. We have seen a case in which the lung wound had been unnoticed until the degree of fluid in the right pleura actually endangered the patient's life. It would appear to be unusual to have much destruction or disruption of the liver tissue; probably for this reason the occurrence of a post-traumatic jaundice is uncommon. There is generally an escape of blood into the peritoneal cavity, and occasionally it can be demonstrated in the retroperitoneal tissues.

We have only one instance to record of a wound of the ducts—a case in which the cystic duct was divided close to its entry into the gall bladder. Duct wounds are so frequently accompanied by injury to large vessels that the result is generally fatal before they can be given surgical assistance.

Clinical Features.

The clinical features may be remarkably scanty. If the wound has involved the lung and pleura the pulmonary signs frequently disguise the abdominal features. Generally there is pain complained of over the liver and beneath the right scapula. The pulse, temperature, and more especially the respiration, are increased. There is usually some rigidity of the upper part of the abdominal wall; we have observed that the rigidity is increased and becomes more generalized when there is a considerable effusion of blood into the peritoneal cavity. By percussion an effusion can sometimes be demonstrated in the right iliac fossa. One would expect greater interference with the excretory function of the liver than is actually the case. On only one occasion have we seen a large effusion of bile into the peritoneal cavity (Case XLV). Post-traumatic jaundice is exceptional, and when it occurs it generally indicates a septic change secondary to the wound. There is no alteration in the bile contents of the faeces, and the urine is free from bile.

Treatment.

We have only operated on such cases as showed progressive haemorrhage, or which, from the clinical features, we suspected to be complicated by wounds of other viscera.

In one instance we operated for a wound of the cystic duct (Case XL). In another instance a late operation was necessary on account of the accumulation of bile in the peritoneal cavity.

We have employed a Kocher's paracostal incision or the angled incision recommended by Mayo Robson; both incisions have given excellent access. The operation has generally been confined to investigation, plugging, and drainage.

Synopsis of Cases.

The following cases were operated on. It is unnecessary to give details regarding the cases which were unoperated on.

CASE XL.

Sergt.-Major P. W., Connaught Rangers. There was an entrance wound below the costal margin with an exit wound behind. There was general abdominal rigidity, an increasing area of dullness in the right flank, and evidences of general collapse. The abdomen was opened through an angled incision; it contained a quantity of blood and bile. The gall bladder was collapsed and the cystic duct was divided close to its entrance into the gall bladder. No other injury could be found beyond some scoring of the under surface of the liver. The divided duct was drained with a "dressed" rubber tube.

For two days there was a profuse discharge of bile; after that date it diminished and disappeared. Two months later the patient was in perfect health.

CASE XLII.

Pte. G. A., Royal Field Artillery. This man was wounded by a shrapnel bullet immediately above the right costal margin. His condition on admission was good, but some hours after admission signs of general peritonitis developed. The abdomen was opened; it contained a quantity of blood, and the upper surface of the liver was torn. The wound in the liver was drained with a dressed rubber tube. The patient made an excellent recovery.

CASE XLIII.

Rifleman R. J., Rifle Brigade. There were entrance and exit wounds below the right costal margin and in the right loin, with general abdominal rigidity. The abdomen was opened and found to contain a quantity of blood. The under surface of the liver was torn and fissured. Drainage was secured with a dressed rubber tube. An uneventful recovery was made.

CASE XLIII.

Pte. J. J., King's Royal Rifles. There were entrance and exit wounds in the right axilla and over the right kidney; the entrance wound was small, but the exit wound was large and admitted three fingers. The bullet had penetrated the liver, opened the extreme lower limit of the pleura, and passed through the extreme outer edge of the kidney. The wound was drained. For two days there were evidences of a urinary fistula. The discharge then ceased, and an uneventful recovery was made.

CASE XLIII A.

Pte. D. A., East Lancs. There was a large entrance wound over the tenth rib, caused by a fragment of common shell. The wound was enlarged, neighbouring ribs being resected. The fragment had opened the pleural cavity, torn the diaphragm, passed through the right lobe of the liver, and was removed from the muscles of the posterior abdominal wall. It measured 1½ in. by ¾ in. Efficient drainage was established, and an uneventful recovery was made.

CASE XLIV.

Cpl. C. H. W., Royal Berks. There was an entrance wound over the right scapula caused by a shrapnel bullet; the bullet could be felt beneath the skin, over the right costal margin. The projectile had obviously traversed the liver, but there being no abdominal symptoms, no operation was done. Two days later slight jaundice developed, and there was free fluid to be made out in the abdominal cavity. The following day the jaundice had deepened, and the amount of free fluid had increased; the abdomen was therefore opened. The abdominal cavity contained a large amount of free bile. Drainage was established, and the discharge eventually ceased.

Cases XLV to LII were unoperated on.

Results of Liver, Gall Bladder, and Ducts Cases.

Total cases, 14.

Bullet wounds	...	...	...	...	7
Shell wounds	...	...	...	...	6
Shrapnel bullet wounds	...	...	...	...	1
Pure wounds of liver	...	...	...	...	8
Liver wounds complicated with pleural wounds	...	...	...	...	5
Duct wounds	...	...	...	...	1
Recovered	...	...	...	...	14
Died	...	...	...	...	0
Unoperated on	...	...	...	...	8

WOUNDS OF KIDNEY AND URETER.

We have experienced three cases of wounds involving the kidney and one case in which the ureter was damaged.

Morbid Anatomy.

In regard to the kidney wounds, in two cases the injury was comparatively slight, necessitating only a simple drainage. In the third case the kidney was so badly damaged that nephrectomy was necessary. But the apparent triviality of the kidney wound is sometimes no guide to the organic disintegration which occurs. Even in the slightest wounds the organ shows extensive microscopical changes of minute necrosis and haemorrhage.

Clinical Features.

In each of our cases we got our first indication of the kidney being damaged from the position of the wound. One would reasonably expect haematuria to occur; blood was present in the urine in the two comparatively slight cases with which we had to deal; in the severe injury the remainder of the pelvis of the kidney was blocked with blood clot, and there was no indication of haematuria.

Treatment.

Generally speaking, there are three possible operative procedures which one may be called upon to perform:

(1) Simple drainage; (2) suturing the kidney; (3) nephrectomy. We employed the first procedure in the two instances in which the damage was slight; a "dressed" tube was passed down to the kidney wound, and gauze was loosely packed around it. This method gave every satisfaction. We have had no suitable case in which to employ the second procedure.

One case demanded the operation of nephrectomy (Case LV). In this instance the spleen was removed in addition to the kidney; the operation was carried out transperitoneally.

In the majority of instances the operation will be done through an anterior incision, by reason of the fact that it is necessary to examine not only the kidney but also the general abdominal viscera.

Synopsis of Cases.

CASE LIII.

Pte. G. F., Rifle Brigade. Wounded by a bullet in the left loin; the projectile passed across the back without damaging the spine and emerged on the opposite side. The left posterior wound was enlarged. The descending colon had been stripped forwards from the kidney, and the projectile had grazed the outer border of the kidney. Drainage was secured, and the patient made a good recovery.

CASE LIV.

Pte. J. J., King's Royal Rifles. There was a small entrance wound in the right posterior axillary line; there was a large exit wound over the right kidney. The posterior wound was enlarged and the eleventh and twelfth ribs removed. The bullet had opened the pleura, damaged the liver, and passed through the outer edge of the kidney. Drainage was established; for two days there was a slight discharge of urine. Eventual recovery.

CASE LV.

Cpl. S. C., Royal Engineers. There was an entrance wound over the spine and an exit wound in the left loin. There was left abdominal rigidity and evidences of internal haemorrhage. The abdominal cavity was opened, and was found to contain a large amount of blood. The spleen was found to be shattered to pieces; it was removed; palpating the left kidney, it likewise was found to be in pieces. The peritoneum to the outer side of the colon was divided and the gut separated inwards; the remains of the kidney were removed; drainage was established in the flank. Recovery.

Wound of Ureter.

We have had a single instance of this injury, and we offer no comment beyond briefly describing the case.

CASE LVI.

Pte. R. J. W., Irish Guards. He was shot at close range in the abdomen, by a machine-gun bullet. On operation there were found to be eight perforations in the small intestine. In addition to blood, the abdominal cavity contained a quantity of urine; this was found to have escaped from a wound of the left ureter, where it passed into the pelvis. As the patient's general condition was grave, no attempt was made to repair the ureter wound, but a drainage tube was sutured in position, and drainage also established in the flank. In addition a resection of small intestine was performed. After the second day there was no discharge of urine, and the patient made an uneventful recovery.

Results of Kidney and Ureter Cases.

Total cases, 4.

Bullet wounds	...	...	...	...	4
Shell wounds	...	...	...	...	0
Drainage	...	...	...	...	3
Nephrectomy	...	...	...	...	1
Recoveries	...	...	...	...	4
Died	...	...	...	...	0

WOUNDS OF BLADDER.

We have had the opportunity of dealing with four of these cases; three of them were examples of intraperitoneal rupture, the fourth was an example of an extraperitoneal wound.

Morbid Anatomy.

There were two facts which impressed themselves upon us. The first was that an intraperitoneal wound of the bladder is in nearly every instance complicated by wounds of other viscera, usually rectum and small intestine. The second fact is illustrated by Case LIX, in which a non-penetrating wound of the abdominal wall, sustained by a man with a full bladder, may produce a rupture of the bladder; details of the case are added.

Clinical Features.

The clinical features which are observed were complicated by the symptoms of other wounded viscera, except in one case (Case LIX).

The features were those of a somewhat slowly developing general peritonitis, with at first local pain over the bladder, and afterwards diffuse pain. In the intraperitoneal rupture the presence of free fluid in the abdomen could be demonstrated; in the extraperitoneal rupture there was a wound in the perineum, from which urine mixed with blood was escaping. In the uncomplicated case the degree of shock was less than in intestinal injury.

Treatment.

In the intraperitoneal rupture we adopted the operative procedure of a suprapubic cystotomy; in the extraperitoneal variety it was found to be sufficient to drain the bladder per urethram, while a local drain was established in the perineum.

Synopsis of Cases.

CASE LVII.

Pte. W. J., Black Watch. There was an entry wound immediately above the symphysis pubis; there was no exit wound. There were all the signs of extensive damage to the abdominal viscera, and shock was intense. Eight hours had elapsed since the injury. Operation showed a perforation of both walls of the bladder, five perforations in the lower end of the ileum, and a tear of the large intestine at the junction of iliac colon and pelvic colon. The bladder wounds were closed and a suprapubic cystotomy done; the colon wound was sutured and a colostomy performed above; a length of two feet of small intestine was resected. The patient died of collapse about ten hours after operation.

CASE LVIII.

Pte. H. B., Manchester Regiment. This man was wounded by a revolver bullet above and slightly to the left of the symphysis pubis; there was no wound of exit. There were the usual evidences of injury to the abdominal viscera. Operation showed a perforation of the bladder on its left lateral aspect, eight perforations of small intestine, and a perforation of the iliac colon. A suprapubic cystotomy was done, the small intestine was resected, and the wound of the colon treated by suturing and colostomy. The patient succumbed on the following day.

CASE LIX.

Cpl. O. L., 20th Infantry Brigade (German). This case is of special interest because we believe it to be an example of the rupture of a full bladder secondary to a superficial non-penetrating wound of the abdominal wall. There were entrance and exit wounds immediately below the umbilicus. Examination showed that these wounds communicated and were not perforating. There were, however, distinct evidences of infection inside the abdomen. There was no other evidence of wound or contusion. The abdomen was opened; it contained a large quantity of urine. The bladder wall was split on its antero-lateral wall, and the wound was partly extraperitoneal and partly intraperitoneal. A suprapubic cystotomy was performed and intra-abdominal drainage secured. Unfortunately a virulent peritonitis developed, to which the patient succumbed.

CASE LX.

Lance-Cpl. F. J., Royal Engineers. This man, while bending forwards, was hit by a rifle bullet in the perineum; the projectile emerged above the crest of the ilium on the left side. There was a considerable degree of collapse. The abdomen was rigid in its lower part; the patient had passed some blood-stained urine, and blood was escaping from the rectum. Operative measures were carried out under spinal anaesthesia. The abdomen was opened in the middle line; there was a perforation of the mesentery of the iliac colon; the gut was not damaged. The bladder contained a quantity of dark-coloured fluid—urine mixed with blood—but there was no intraperitoneal perforation. The abdominal wall was closed. The patient was now placed in the lithotomy position. A full incision was made in the left side of the perineum and the wound opened up along the lateral aspect of the rectum and bladder. Drainage tubes were placed in position by the side of each organ. A large catheter was passed into the bladder per urethram; the bladder cavity was washed out and the catheter fixed *in situ*. The bullet in its progress had fractured the lateral wall of the pelvis. For two days the lateral bladder tube discharged freely; the discharge then ceased and the tube was removed. The urethral catheter was kept in position for five days. After fourteen days this man was discharged to the base.

Results of Bladder Cases.

Total cases, 4.	
Bullet wounds	3
Secondary rupture... ..	1
Intraperitoneal	3
Extraperitoneal	1
Recoveries... ..	1
Died	3

WOUNDS OF THE RECTUM.

Under this heading we only include those cases in which injury was sustained by that portion of the large intestine

which extends from the level of the third sacral vertebra to the anal canal.

Morbid Anatomy.

We have experienced two cases representative of this type of injury. In both instances the wound had been sustained in the left buttock; the bullet had at first pierced the gut extraperitoneally, then, emerging intraperitoneally, it had produced further extensive damage in the small intestine. In both instances the lateral wall of the pelvis was fractured, and there was most profuse bleeding from the bone and the pelvic veins.

Clinical Features.

There were all the features which one associates with injury to the abdominal viscera; in addition, recent haemorrhage was escaping from the rectum. As a rule in these cases there is retention of urine, and if urine is voided pain is complained of in the region of the bladder. We have had no means of judging the degree of shock which such a wound by itself would produce, as both cases were complicated by extensive damage to the small intestine.

Treatment.

We at first proceeded to open the abdomen. The wound in the rectum was sutured and an inguinal colostomy performed; any repair of small intestine which was necessary was carried out. In both instances we further attempted to drain the extraperitoneal wound of the rectum by enlarging the entrance wound and passing a tube to the damaged wall of the gut.

Both cases unfortunately ended fatally; the shock produced by the damage to small intestine was apparently the cause of death.

Synopsis of Cases.

CASE LXI.

Cpl. H. J., Seaforth Highlanders. There was an entrance wound of the left buttock, and, in addition, there were the signs of injury to the abdominal viscera. There was no exit wound; the entrance wound was bleeding profusely. The abdomen was opened; there was a relatively small wound in the right wall of the rectum; there were six perforations in the lower end of the ileum, and the abdominal cavity contained a large quantity of blood. The wound of the rectum was sutured and a colostomy performed; the damaged loop of small intestine was resected; the entrance wound was opened up and as far as possible an extraperitoneal drainage of the rectum established.

CASE LXII.

Private S. W., Connaught Rangers. There was a small entrance wound immediately below the left buttock; great abdominal pain was complained of, and there was general abdominal rigidity. The abdominal cavity was opened; the right lateral wall of the rectum was perforated, and there were several perforations in the lower end of the ileum. The rectal wound was closed with sutures, and an inguinal colostomy was done; the damaged portion of small intestine was resected.

Results of Rectal Wounds.

Total cases, 2.	
Bullet wounds	2
Simple wounds	0
Complicated wounds	2
Recoveries... ..	0
Died	2

GENERAL REMARKS.

We are convinced that in the vast majority of cases of penetrating wounds of the abdomen operative measures offer the best chance of success. We would qualify the statement by excluding from the category uncomplicated wounds of the liver, and certain wounds of the kidney. When the wound affects the hollow viscera of the abdomen, we are satisfied that it is only as the rarest exception that a spontaneous recovery occurs.

When these cases arrive in hospital they are almost universally in a state of intense collapse. We have therefore found it advisable to wait for a period of from one to two hours, until the increased shock of the journey has subsided.

To this rule we make one exception—those cases which show evidences of rapid and progressive haemorrhage; in such cases the risks attendant on immediate operation are taken.

During the interval of waiting it is difficult to decide whether or not active stimulant measures should be adopted. These cases are generally complicated by some degree of haemorrhage, and stimulant measures in all

probability tend to increase the bleeding; we therefore limit the pre-operative stimulation to getting the patient thoroughly warm and administering 1 c.cm. pituitary extract.

During the operation every precaution is taken to minimize the degree of shock; the theatre is thoroughly heated, the table is provided with a hot-water bed; lately we have found it advantageous to operate on these cases while they are in the Trendelenburg position.

Immediately before the operation commences the administration of subcutaneous saline by a Lane's bag is begun, and it is continued throughout the operation; three to four pints of fluid are frequently given in this way. We have tried several different methods of anaesthesia. We have had good results from the use of spinal anaesthesia, but there is difficulty in obtaining the freshly prepared anaesthetic, and it would appear that this is an important detail. In two instances we have had patients collapse suddenly after the administration of this anaesthetic. More lately, and on the suggestion of a paper by Yandell Henderson, we have employed closed ether anaesthesia. The paper above mentioned adduces evidence to show that by this method of anaesthesia shock is considerably lessened.

The method has given us great satisfaction. Briefly the operative technique which we have employed is as follows:

The abdomen is opened in what would appear to be the most suitable situation, and generally in the middle line. A large incision is employed. If the abdominal cavity contains a large quantity of blood, sufficient of this is rapidly swabbed away with a long roll of dry gauze to clear the view. A systematic examination of the various viscera is now carried out. We begin by picking up the caecum and recognizing the ileo-caecal junction; we work back rapidly along the whole length of small intestine, examining not only the gut but also its mesentery. The large intestine is reviewed, special attention being paid to the various flexures. If necessity arises the stomach on both aspects, the duodenum, the liver, and spleen are examined. It is a wise precaution to palpate both kidneys, especially the left kidney, in cases of damage to the spleen. The pancreas is reviewed during the examination of the posterior wall of the stomach. The pelvic viscera are examined last, and to facilitate their examination the residual haemorrhage is more completely cleared away. The question arises whether or not the abdominal cavity should be washed out. In early cases with extensive soiling of the peritoneal cavity we have done so; in later cases, and in those which showed evidences of peritonitis we have not done so. We have found it sufficient to establish drainage by a single Keith's tube, passing into the pouch of Douglas. In special instances such as have already been mentioned we have found it necessary to drain locally or in the flanks.

We invariably close the abdominal wall with through-and-through sutures of silkworm gut, guarded where they pass over the wound junction with small pieces of capillary rubber tubing. A Doyen's handled needle is the ideal instrument for inserting these sutures.

Throughout the operation speed is an important factor, coupled with every possible avoidance of shock.

As regards the post-operative treatment, there is very little which we wish to add; it is similar to that of every other abdominal operation. Special attention is paid to the administration of fluids—for choice by the administration of continuous rectal salines and by subcutaneous infusions.

One is frequently asked regarding the prognosis of these cases. There is this fact to be recognized, that one must be prepared for repeated most bitter disappointments, but when one comes to view a series of cases, the gains seem infinitely greater than the losses. The prognosis, of course, very largely depends on the degree of the injury sustained, but an even more important factor is the length of time which has elapsed since the injury was sustained. Early operation offers the best and surest chance of ultimate success. In reviewing the statistics of the results of such operations as these it is impossible to consider the question *en masse*. Each individual case must be considered, for the chances of success depend upon so many factors that it varies enormously in different instances.

We wish to acknowledge our indebtedness to Colonel Cuthbert Wallace, R.A.M.C., for his encouragement and

advice; also to Lieutenant-Colonel Wear, C.M.G., R.A.M.C.(T.), for permission to record these cases. The illustrations are the work of Sergeant Wilson and Private Warr, R.A.M.C.(T.).

A METHOD OF TREATING GENERAL PERITONITIS WITH OBSTRUCTION, AND ITS APPLICATION IN MILITARY SURGERY.

By W. SAMPSON HANDLEY, M.S., F.R.C.S.,

Captain R.A.M.C.(T.); Surgeon with Care of Out-Patients to
The Middlesex Hospital.

My interest in the subject of obstruction secondary to peritonitis dates back for ten years. During this period I have been collecting cases in which, as the result of peritonitis confined to the pelvis, obstruction has supervened. My conclusions were presented in a Hunterian Lecture last year. I showed that the guts below the horizontal level of the symphysis were paralysed, while the bowels above, though distended, retained their contractile power. As the pelvis contains both a length of large and a length of small intestine, there are two obstructions to be dealt with, and the name "ileus duplex" was suggested for the condition.¹

The success of the treatment I adopted in cases of ileus duplex led me to attack on the same lines the more difficult problem of paralytic obstruction in cases of general peritonitis.

It must here be remarked that not all cases of general peritonitis go on to the stage of obstruction. This is especially the case in children, and I have operated upon a boy of 12 with absolutely universal peritonitis extending up to the diaphragm in whom no sign of obstruction was present. Recovery followed free drainage of the peritoneal cavity. Furthermore, in the early stages of general peritonitis peritoneal drainage is often successful in arresting the spread of the peritonitis and in preventing the onset of obstruction. There are, too, numerous cases of mild paresis of the bowel in peritonitis which can be successfully treated by subcutaneous injections of eserine, by turpentine or ammonia enemata, or by purgatives. This paper deals exclusively with cases in which the accepted modes of treatment have failed to avert or relieve paralytic obstruction of the bowels.

If there is a condition in surgery which is stamped with the word hopeless, it is that stage of a general peritonitis where, in spite of pelvic drainage, cessation of the passage of flatus and persistent foul vomit indicate that complete obstruction has supervened. The rigid abdominal muscles have been forced to yield by the pressure of fluid poured out into the paralysed intestine, and the abdomen is uniformly and tightly distended like a drum. The pulse becomes running, the extremities cold, and the patient, measuring his condition by the abnormal clearness of his faculties, only within a few hours of the end realizes with a horrible certainty that he is in the inexorable grasp of death.

This would be accepted as a true clinical picture of the later stages of general peritonitis. But in abdominal surgery typical "clinical pictures" are of pathological interest only. They imply that the surgeon's chance has gone.

Is it inevitable that cases of general peritonitis should reach the condition thus depicted? There is a preceding stage in which the obstruction is complete, but the pulse is still relatively good, and the vomit has not become offensive. The abdomen is generally distended, but it is absolutely rigid only below the umbilicus. The upper half of both recti is softer than the lower half, and above the umbilicus slight respiratory excursions of the abdomen can still be seen.

This is a stage of general peritonitis which is not recognized in the textbooks, but is known to all surgeons of much clinical experience. It is the stage of the clinical sketch, not of the clinical picture; the stage of deadly struggle, not yet of decisive defeat.

Is the problem presented by such cases really hopeless of solution? By the present methods of surgery it

certainly is. There are, however, certain indications that it may not prove insoluble. Let me tabulate these hopeful indications:

1. General peritonitis is rarely universal.
2. General peritonitis usually begins at the lower limit of the peritoneal cavity and spreads gradually upwards.
3. The persistent vomiting indicates that the stomach and upper bowel retain their contractile power to a late stage.

General Peritonitis rarely Universal.

What is meant by the term "general peritonitis"? The term is loosely used. It is quite certain—and here I speak from my own experience in the operating theatre—that in cases presenting the clinical features of general peritonitis universal peritonitis is rarely found. Any widespread peritonitis unlimited by adhesions is included under the clinical term "general peritonitis." If as a rule the peritonitis involved the upper part of the abdomen, it would avail little that its distribution is rarely universal, for in these circumstances the treatment I am about to suggest would be impossible. Fortunately, however, general peritonitis, whatever the point at which the infection reaches the peritoneal cavity, usually begins in the pelvis and spreads upwards.

In cases of general peritonitis due to appendicitis the infection of the peritoneum invariably starts in the pelvis. It is the rule, even in cases where the source of infection—for example, a gastric ulcer—is in the upper part of the abdomen, that an unlimited peritonitis is at its maximum in the pelvic region, and that it spreads from below upwards through the abdomen. This of course depends upon the fact that gravity carries most of the irritating material down to the lowest point of the abdominal cavity. Moreover, if the rupture is on the anterior wall of the stomach, the great omentum shields the small intestine. If the rupture is on the posterior wall, the contents of the stomach reach the pelvis by way of the right kidney pouch, and do not much affect the small intestine. But there are exceptions. If there is very extensive fouling of the peritoneum, as by the escape of a large quantity of stomach contents through a perforation, or by multiple wounds of the intestine, a true universal peritonitis may be set up. Wallace records death from peritoneal inflammation within twenty-four or thirty-six hours of a gunshot wound. Such cases are, however, exceptional, and it may be stated, broadly speaking, that a so-called general peritonitis is an unlimited peritonitis commencing in the pelvis and spreading gradually upwards, so as to involve a larger and larger area of the peritoneal cavity. This statement is based upon inspection of the abdominal cavity during life in a large number of cases. I am convinced that in the vast majority of cases of general peritonitis a cautious investigation of the upper abdomen would show it to be uninvaded. Among some hundreds of cases of appendicitis with peritonitis I only recollect a single one in which a true universal peritonitis, affecting every district of the peritoneum, was present.

Persistence of Contractile Power in the Stomach and Upper Bowel.

It may seem paradoxical to include the symptom of persistent vomiting among the hopeful indications. There is, of course, a last stage where the vomiting is the mere mechanical overflow along the oesophagus from the over-distended stomach and intestines, and is similar to the gush of stomach contents from the mouth which may be produced by pressure upon the abdomen of a corpse. But in the stage prior to this the vomiting is due to active contractions of the stomach and the small intestine.

That is to say, the vomiting indicates persistence of peristaltic power in the stomach and upper intestine up to within a short period of death.

We have now reached important conclusions which will guide us in attempted treatment: (1) In general peritonitis which, in spite of drainage, has produced signs of intestinal obstruction, which has reached, that is to say, a stage now regarded as hopeless, we can still rely for a time on the functional activity of the muscle of the stomach and of the upper part of the small intestine. (2) In such cases

the upper part of the abdomen, roughly speaking that part of it lying above the umbilicus, may be regarded as for some time longer free from peritonitis. In this district we may provisionally assume that surgical operations may be undertaken which postulate the power of repair, such operations, for instance, as intestinal anastomosis. The intestine in this region will be distended because of the obstruction below; it will be inflamed, if at all, only just before the approach of death.

We are now in a position to discuss the indications for operative treatment. It is fairly obvious that any treatment adopted must not involve unduly prolonged manipulation or exposure, and must not add to the shock which is already present. Any method which fails to fulfil these conditions will simply hasten death. It is for this reason partly that the emptying of the paralysed intestine by threading a tube through it has given such unsatisfactory results. Moreover, the emptied intestine still remains flaccid and powerless, and the obstruction consequently persists.

In discussing this question of treatment I must return to the subject of ileus duplex—paralytic obstruction due to pelvic peritonitis. Here, in my opinion, is to be found the key to the treatment of general peritonitis, for I found that recovery could be secured in such cases by anastomosing the suprapelvic ileum to the ascending colon, and then opening the caecum by a caecostomy.

The principle involved might be stated generally in the following terms:

In cases of peritonitis involving the lower part of the peritoneal cavity up to the level of the pelvic brim, when obstruction supervenes, it can be treated successfully by the improvisation of a shortened but complete alimentary canal above that level. The simplicity of this statement gives it the air of a truism, nevertheless I believe it represents a marked advance in abdominal surgery.

We have now to consider whether this principle, which has proved to be successful in cases of pelvic peritonitis, can be extended to the more difficult case in which the peritonitis is general.

In peritonitis limited to the pelvis, the intestinal paralysis affects exclusively the portions of gut contained in the pelvic basin, namely, the lower portion of the ileum, and the pelvic colon and upper portion of the rectum. In so-called general peritonitis, at the time intestinal obstruction supervenes, the line separating the inflamed and uninfamed districts of the peritoneum is, as we have seen, roughly a horizontal line drawn through the umbilicus. Below this line lies paralysed intestine, above it intestine which is still functionally active.

Thus in clinical "general peritonitis" the conditions are not dissimilar in kind from those present in ileus duplex, but the level separating the inflamed district of the peritoneum from the upper uninfamed portion is situated higher up. A much more considerable length of the small intestine is paralysed, and perhaps (a) the whole of the ileum may be assumed to be out of action; (b) the caecum and ascending colon will be paretic or actually paralysed, so also will be (c) the descending colon and the pelvic colon. This stage of peritonitis may be described as the stage of hypogastric ileus. I suspect that nearly all cases of general peritonitis pass through this stage, and that in many of them the stage lasts long enough to allow of hopeful surgical treatment on the lines now to be described more in detail.

The parts of the alimentary canal which are still unparalysed, and therefore available for constructing the suggested emergency alimentary canal, are the stomach, the jejunum, and probably the transverse colon, which lies on the boundary line of the inflamed district. All the rest of the intestine, small and large, is paralysed.

Is Jejunostomy a Satisfactory Treatment?

Under these conditions a jejunostomy might be tried, according to Bonney's suggestion. It would re-establish the current in the unparalysed portion of the intestine. It also might be arranged so as to cut off the reflux tide of septic material passing up to the stomach. It might thus conceivably save the patient's life, but as it would cut off the supply of fluid to the greedily thirsty mucosa of the large intestine it would probably fail, for patients with peritonitis are already starved of fluid.

Treatment by Jeuno-transverse-colostomy with Caecostomy.

If a jeuno-colostomy is made between the jejunum low down and the middle of the transverse colon, uncontaminated fluid taken into the stomach is passed along the unparalysed jejunum into an unparalysed portion of the large intestine, where it can be absorbed. But the caecum and the rest of the colon are paralysed, and there is no outlet from the transverse colon. Distension of the caecum would follow the operation, and rupture of this viscus might be expected. Here, as in ileus duplex, temporary provision must be made for draining the caecum until the inflamed large bowel has recovered its peristaltic power.

My scheme of treatment, then, is as follows:

(1) For pelvic peritonitis and intestinal obstruction (ileus duplex) consequent thereon—ileo-colostomy to the ascending colon with caecostomy (Fig. 1).

(2) For so-called "general peritonitis"—that is, unlocalized peritonitis, extending roughly up to the level of the umbilicus, with intestinal obstruction (hypogastric ileus)—jeuno-colostomy to the transverse colon, with caecostomy (Fig. 2).



FIG. 1.—Ileus duplex (paralytic obstruction secondary to pelvic peritonitis). Treatment by ileo-colostomy and caecostomy.

In all cases pelvic drainage must be provided.

The advantages gained by such an emergency alimentary canal—consisting of stomach, jejunum, transverse and ascending colon and caecum—are numerous. The normal intestinal current is restored, vomiting ceases, the stomach is not fouled by a reflex of septic intestinal fluid, and becomes once again a clean vessel apt for the digestive processes. For it is clear that fluid regurgitating from the lower intestine will rather pass through the jeuno-colostomy opening into the colon than face the tortuous and active resistance of the jejunum. The jejunum itself receives only the uncontaminated products of digestion from above, and intestinal digestion and absorption can take place unhindered. It is true that the colon will still contain septic fluid regurgitated from below, but the absorptive power of the colon for aught but water is negligible. The colon can perform its important function of water absorption even when its contents are laden with bacteria—their normal condition.

Thus provided with clean food and fluid—the things he most requires—the prospects of the patient's fight with his peritoneal infection are vastly improved.

It may be objected that the steps taken to re-establish the intestinal current will be defeated by the continued upward spread of the peritonitis. In a proportion of cases where the peritoneal infection is virulent this objection is doubtless valid. But it omits to take into account the probability that in many cases intestinal paralysis is the main factor determining the continued spread of the peritonitis. It is well known that distension of a hollow viscus interferes with its blood supply, impairs its nutrition, and renders its walls pervious to the bacteria within. There is every reason to hope that in many cases the relief of the distension in the upper gut will turn the scale in the patient's favour by arresting the further upward spread of the peritonitis. Strong evidence in favour of the supposition is provided by the success of similar treatment in arresting the upward spread of pelvic peritonitis in cases of ileus duplex.

Technique of Jeuno-transverse-colostomy.

The operation of jeuno-colostomy can be quickly and easily carried out without evisceration of the intestines and practically without shock. An incision 4 in. long and extending down to a point 1 in. below the umbilicus, is made through the middle of the right or left rectus muscle. The lower border of the transverse colon is exposed and identified and pulled forward. The great omentum is torn through just below the gut, and two fingers are introduced through the rent to seek for a suitable coil of jejunum. The coil selected, like all the small intestine, will be distended, and may be congested, but it should not have lost its lustre or its resilience. It is drawn forwards into the wound, where it lies just below the fold of transverse colon, which has also been withdrawn. Clamps are applied to the two selected pieces of gut, and a lateral anastomosis is made in the ordinary way. The anastomosis can be strengthened subsequently, if desired, by sewing down the great omentum to the surface of the jejunum. The bowel is returned, the incision is sewn up, and a caecostomy is performed in the ordinary way through a separate incision. It is well to tie



FIG. 2.—Hypogastric ileus (paralytic obstruction of early general peritonitis). Treatment by jeuno-transverse-colostomy and caecostomy.

a Paul's tube in the caecum, but experience may show that a large rubber catheter does equally well.

A Case where the Treatment was Successfully Applied.

An opportunity was lately presented to me, in a case now to be described, of testing the validity of the chain of reasoning I have laid before the reader.

Miss H., aged 30, had for some months complained of vague abdominal pain at intervals, but had not sought medical advice.

On December 29th, 1915, she was taken ill with what was supposed to be a chill on the liver. She kept at her work, and did not consult a doctor. The following day vomiting began, and was repeated soon after she took a purgative. The abdominal pain, of a colicky character, was situated in the lower part of the abdomen. On December 31st she went to town as usual, but was sick and ill, and the pain persisted. On January 1st she was worse, and was then first seen by Dr. A. J. Hogg, of Ealing. He found that she had general severe abdominal pain and tenderness, worse on the left side. There was little movement of the abdomen on breathing. The vomiting had been bilious, and the temperature was 100°, the pulse about 90. At 6 p.m. on the same day the pulse was quicker and the temperature higher. There was great pain in the lower part of the abdomen, and she lay on her back with her legs drawn up. On this day for the first time there was pain on micturition, and in the evening Dr. Hogg asked me to see her with him with a view to operation. About 10 p.m., when I saw her, her pulse was 120, her colour good, and she did not appear to be in much distress. There was slight general abdominal distension, and the abdomen moved to a certain extent with respiration. There was no true abdominal rigidity. In the right iliac fossa an indefinite resistance could be felt. On pelvic examination there was extreme tenderness in the region of the pouch of Douglas, with fixation of the uterus, thickening of the right utero-sacral fold, and some resistance of the right broad ligament. The periods were regular, the last one having ceased a fortnight previously. The patient's statements as to the passage of flatus were rather vague, but she did not appear to have passed it more than once in the preceding twenty-four hours.

In view of the early colicky hypogastric pain, of the signs on the right side of the pelvis, and of the pain on micturition, together with the absence of abdominal rigidity and the presence of resistance in the appendix region probably due to swollen ileo-colic glands, we arrived at the conclusion that the

patient was suffering from pelvic appendicitis. It was thought, in view of the continued vomiting, that intestinal obstruction was likely to complicate the case.

First Operation.

Immediate operation was decided upon, and a median hypogastric incision was made. On opening the peritoneum a certain amount of clear fluid escaped. The omentum was adherent in the pelvis, and on separation it was found to be sloughing at its tip. The coils of small intestine, which now came into view, were rather congested, but had not lost their lustre. The pelvis was packed off from the rest of the abdomen, and on passing the hand down into it, some ounces of thick pus escaped, and a mass was found which on extraction proved to be a swollen and gangrenous appendix containing two large concretions. There was superficial sloughing of a portion of the caecum near the base of the appendix. All the intestines in the lower abdomen were distended by flatus and rather congested, but there were no areas of oedematous, collapsed, and deeply-congested intestine such as are seen in typical cases of ileus duplex. The condition appeared to be general paresis of the pelvic and suprapelvic intestines without actual paralysis, and it seemed likely that eserine and pituitary extract would maintain peristalsis in the damaged gut, but it appeared safer to tie a catheter into the caecum and bring it out through the median wound. The pelvis was drained by two large tubes.

After the operation the patient was placed in the Fowler position, saline was administered subcutaneously to the extent of about six pints for the first twenty-four hours, and injections of eserine salicylate were given every six hours in order to produce intestinal contractions. The catheter, either because it was blocked, or because there were no contractions in the intestine, did not act. Turpentine enemata were given, but only produced a little faecal-stained fluid, and no flatus passed per anum. A purgative failed to act, and forty-eight hours after the operation the condition of the patient was most alarming. The abdomen up to the umbilicus was rigid, hard, and tensely distended like a football. Above the umbilicus the distension was not so marked; rigidity was absent, and there was some abdominal movement with respiration. The pulse had risen in frequency. The patient was not sick, but was troubled by constant feelings of nausea which made her unwilling to take nourishment.

Second Operation.

Since I have never seen a patient recover from a similar condition of general peritonitis with complete obstruction, I told the friends that recovery was improbable in any circumstances, and certainly impossible unless something further was done. It appeared certain that the peritonitis had extended as high as the level of the umbilicus, and that the whole of the ileum and the lower colon were suffering from paralysis the result of the peritonitis. The condition of the abdomen above the umbilicus showed, however, that the upper part of the small intestine—say, roughly, the whole of the jejunum—was still capable of normal peristalsis. Though the ascending and descending colon were probably paralytic, the transverse colon lying at the upper limit of the peritonitic area might be presumed still to retain its contractile power. A lateral anastomosis between the lower jejunum and the transverse colon seemed, therefore, to be the rational method of treatment if combined with a caecostomy to afford a free exit for the contents of the large intestine.

The friends of the patient consented to further operative measures, and through an incision 4 in. long situated $1\frac{1}{2}$ in. to the right of the middle line and extending downwards to an inch below the umbilicus, I reopened the abdomen.

The incision exposed the lower border of the transverse colon, which was distended by flatus and apparently not inflamed. Just below the transverse colon I tore through the great omentum and thus obtained access to the upper small intestine. The first coils it presented (belonging probably to the upper ileum or lower jejunum) were too much distended and inflamed to permit of their use for the lateral anastomosis, a proof that the peritonitis had actually extended up to the umbilicus. Two fingers introduced in a direction upwards to the left succeeded in withdrawing a higher coil, which though distended was not inflamed. This coil was brought forward in the opening in the great omentum and clamped. A clamp was next applied to the closely adjoining portion of the transverse colon, which also had been brought out into the wound. The area was packed off, and a lateral anastomosis was made in the usual way. Since the small intestine, owing to distension and slight oedema, did not hold stitches well, a portion of the great omentum was drawn down over the suture line so as to strengthen it. The bowel was returned and the abdominal incision was sewn up. The caecum was next sought in the original wound at the point where the catheter was tied in it, and here a Paul's tube was inserted.

After-History.

The patient bore the operation well, and her pulse at the end of it was about 120. It should be added, as indicating the virulence of the bacteria present, that the whole of the surfaces of the original incision were at this time covered by a superficial grey slough. The result of this operation was most satisfactory. It was followed by the administration of a purgative, and the following day the colotomy had acted well. A certain amount of fluid material together with flatus had also passed by the anus. The lower abdomen, though still tender, had lost its tension, and the rigidity was less marked. Three days

after the operation a tender swelling developed in the right iliac region. There was also some suppurative of the incision of the second operation. The right iliac swelling was opened two days later, and proved to be an abscess in the abdominal parietes, probably due to extension of infection from the region of the second operation. No leakage took place at the lateral anastomosis. When the Paul's tube came out there was a considerable escape of semifluid intestinal contents from the caecostomy, and the bowels also continued to act per anum. The patient's temperature fell, the wound assumed a healthy aspect, and her appetite returned. For some time after the operation a fluid action of the colotomy wound followed each meal. Nutrition rapidly improved and strength returned. The caecostomy wound has contracted, and will no doubt soon close.

The anaesthetics were given by Mr. Herbert Charles. I am indebted to Drs. A. J. Hogg and W. B. Stanford for their unremitting care in the after-treatment, which alone rendered recovery possible.

Conclusion.

The condition of a patient suffering from general peritonitis which is spreading upwards through his abdomen may be compared with the predicament of a house invaded by a rising flood. The householder can only survive the crisis if he retires upwards to the first floor. There he must improvise arrangements for carrying out in a rudimentary fashion the primary needs of existence. There he must cook, eat, and sleep until the flood subsides. The essence of this paper is a suggestion that a similar policy may save patients attacked by the rising flood of a general peritonitis.

Treatment of Gunshot Wounds of the Abdomen.

Colonel Cuthbert Wallace² tells us that men shot through the abdomen die mainly from one of three causes: haemorrhage, peritonitis, or intestinal obstruction following peritonitis. Most of the deaths from haemorrhage will take place before the hospital is reached. In the survivors an early operation for suturing or resection of the bowel may avert the dangers of peritonitis and obstruction. It is a triumph of surgery, and still more of organization, that operations of this character are now relatively successful. In wounds of the small gut, when the patient arrives in a condition that permits operation, Colonel Wallace³ and his colleagues have secured about 50 per cent. of recoveries, a remarkable result when it is borne in mind that the mortality of expectant treatment is 100 per cent.⁴ It is an unsolved problem how many of the residual cases die after operation from the mere intensity of the peritoneal inflammation. It seems likely that some of these cases are capable of recovery from the peritonitis alone, but that their chance is spoilt by the onset of obstruction. To such cases the method suggested in this paper is clearly applicable, and possibly with success.

But, though its hypotheses have been stated dogmatically for the sake of emphasis, my paper is to be regarded as suggestive only. I hold no brief for my conclusions, and only ask that they should be tested. It is unnecessary to offer a defence against the charge of premature publication, for at the present crisis many rules, usually salutary, must be suspended in the public interest for the duration of the war.

REFERENCES.

¹ *British Journal of Surgery*, vol. iii, No. 10, 1915. ² *Lancet*, December 18th, 1915. ³ *Lancet*, March 4th, 1915. ⁴ Delore, *Lyon Chirurgica*, September, 1915.

THE United States Bureau of the Census is, we learn from the *Boston Medical and Surgical Journal*, about to issue a monograph on deaths from cancer in the United States during the year 1914. It will consist of tables showing the deaths from cancer, according to the site of the disease, age, sex, colour, nativity, and marital condition, for the registration area, the several registration States, and the usual subdivisions. The seven titles for cancer in the international list of the causes of death are subdivided into twenty-nine headings referring to the exact site of the disease. It is proposed to tabulate separately the returns in which the diagnosis was "reasonably certain" and those in which it was "uncertain." In arriving at this distinction, a report is classed as "certain" if the diagnosis was confirmed by microscopic examination of tissues, by surgical operation, or by autopsy. All cases of internal cancer in which the diagnosis was based on clinical observation alone are classified as "uncertain."

"TRAUMATIC GASTRIC ULCERS."

BY

T. R. ELLIOTT, F.R.C.P., F.R.S.,

TEMPORARY MAJOR R.A.M.C.,

AND

HERBERT HENRY, M.D.,

TEMPORARY CAPTAIN R.A.M.C.

SURGICAL work with the army in France during the last six months has proved conclusively the value of early operation in gunshot wounds of the abdomen. In his admirable summary¹ of the experience gained by the careful observations of several workers in one army area, Colonel Cuthbert Wallace states the clear rule that a perforating wound of the intestine cannot be healed by spontaneous closure, and that such injuries of necessity must be treated by operative procedures at as early a moment as is possible. With regard to wounds of the stomach there is still doubt, because there are some grounds for the belief that such lesions are capable of cure by natural processes, and because it is certain that the wounds will often be found to lie in areas which are difficult for the surgeon to reach.

Surgeon-General Sir George Makins has discussed this latter question briefly,² and his conclusion is that on the whole it is unwise to open the abdomen in cases in which only the stomach is supposed to have been wounded. The advice is confessedly a conservative choice, in view of the lack of sufficient pathological evidence to justify a reasoned conclusion one way or the other. Colonel Cuthbert Wallace admits the probability that some stomach wounds may heal without operation, but none the less he decides that "it is wise to make no exception in the case of the stomach, but to operate on principle," the principle being that any gunshot wound of the intestinal tract is less likely to be fatal if repaired by immediate surgery than it is when left to rest and nature.

With perforations of the intestine the chief danger to life arises in the development of peritonitis. In the case of stomach wounds, peritonitis is perhaps rather less to be dreaded since there is undeniably a chance that the aperture may be sealed by adhesions, and since the gastric contents, which may leak out before such adhesions can be cemented, are not very septic. But here a fresh risk appears. The injured tissues are liable to be eroded by the gastric juice, and if a vessel is opened up in this process the wounded man may be in serious danger of losing his life by secondary haemorrhage from what is practically a traumatic gastric ulcer. It is this particular point of ulcer formation which the cases described in this paper have been chosen to illustrate.

Haematemesis and melaena are not often seen as an immediate result of wounds of the abdomen, for the early bleeding in these cases is chiefly from vessels which leak into the peritoneal cavity or into the retroperitoneal tissues. But these symptoms do occasionally appear about the second week, and at that date they are generally to be interpreted as evidence of an extending ulcer in the stomach or duodenum. This ulcer may be developed in a previously healthy mucous membrane as the result either of direct perforation or of contusion, or even, as in the rare case described by Captain Kelly, as the outcome of septic processes which are active at a considerable distance elsewhere in the body. To the naked eye such an ulcer looks very similar to the ordinary non-traumatic acute perforating ulcer of civil life. It commences in the internal mucous membrane, and may extend therein over a much wider area than is shown by the thin, sharply-cut edges of the external perforation. It may have the same

result in leading to perforative peritonitis, or to sudden haemorrhage when a vessel is eroded; but it is more liable than is the non-traumatic ulcer to form a gastric fistula, since it may open up the track of the injury first produced by the missile.

CASE I.

No. 229. Under the care of Captain A. Bradford.

December 29th, 1915. Shell wound; a tiny hole over the seventh left intercostal space in the anterior axillary line. No abdominal pain or vomiting, and in consequence the patient was evacuated to the base as being simply wounded in the chest.

Third day: Arrived at base hospital in Boulogne. Vomiting of green fluid commenced and continued until the fifth day.

Sixth day: Melaena appeared with diarrhoea.

Seventh day: Very blanched and thirsty. Moribund and semi-delirious. Pleurisy in left axilla, and physical signs of left haemothorax of moderate size. Nothing abnormal found in abdomen, which was soft and moved freely. Gastric ulcer diagnosed, and food withheld. Patient too ill for operation.

Ninth day: Died.

Post-mortem Examination.

Left haemothorax containing 30 oz. of fluid defibrinated "blood"; lower lobe partly collapsed and coated with granular fibrin. Hole through left diaphragm 5 mm. in diameter. Some thin bile-stained fluid free in the peritoneal cavity, but no evidence of peritonitis.

On the anterior wall of the cardiac fundus of the stomach a round hole 2 cm. in diameter, and nearer to the pylorus on the posterior surface a much smaller hole about 8 mm. across. The stomach contained very little fluid, but a small flake of shell, about 5 mm. long, was found within it, embedded in mucus. Between the stomach and the spleen was a localized collection of several ounces of viscid bile-stained fluid, which did not appear to be purulent and of which the reaction was not tested. This pool of fluid was contained by light adhesions springing from the anterior surface of the stomach, and an outlet from it appeared to be spreading forward by a narrow track along the anterior surface of the left lobe of the liver. The outer wall of the cardiac fundus, where it was submerged in the pool, had been partly digested away, but showed no evidence of gangrene or other injurious process. The perforating ulcer was circular in outline with smooth edges, and it was very much larger than the holes made in the chest wall or in the diaphragm, which corresponded roughly to the size of the piece of shell. All around it the peritoneal coat had vanished over an area nearly 10 cm. across, and the



FIG. 1.—Stomach showing traumatic gastric ulceration (Case I in text). A. The anterior perforation. E. The terraced edge limiting the spread of the external ulceration, which had denuded the peritoneal coat. P. The posterior perforating ulcer. (Specimen in War Office collection.)

circular muscle fibres of the stomach wall beneath were naked and transparent. A white terraced edge marked the transition from this external ulceration to the normal peritoneum at the attachment of the adhesions. (See drawings; specimen in War Office collection.) The posterior ulcer was closely limited by adhesions, and it did not display a similar external spread. Apparently the haemorrhage had been derived from vessels underlying this ulcer.

The patient died simply from gastric haemorrhage, which commenced about the sixth day. The anterior perforation, had time allowed, would doubtless have led to a subphrenic abscess. The posterior ulcer may have developed out of a perforation or only from an area of contusion in the stomach wall, for the momentum of the small shell fragment was spent when it reached the back of the abdomen. The destruction of the outer wall of the living stomach by the gastric juice, which had escaped from its interior, was a very remarkable fact in this case.

CASE II.

No. 16,502. Originally under the care of Captain R. Charles, who kindly transferred to us the full clinical notes of the case.

January 4th, 1916. Wounded by a bullet with slightly deformed nose, which entered the left epigastrium close to the subcostal triangle. Abdomen opened five hours later; free blood swabbed out of the peritoneal cavity; hole through left lobe of liver sutured and packed. The bullet had subsequently passed through the left sac, and it was found close to the duodeno-jejunal flexure, half in the less sac and half projecting through into the greater peritoneal cavity. Slight bleeding near tail of pancreas. A branch of the coronary artery on the less curvature of the stomach had been wounded by the missile, and this required ligature. At the time there was certainly no perforation of the stomach. Gauze drains were passed down to

the liver wounds, and also to the pancreas through a fresh hole in the mesocolon, while a tube was placed in Douglas's pouch.

Eighth day: Abscess opened in anterior abdominal wall, from which a considerable quantity of clear fluid and thin pus came away.

Tenth day: Again evacuation of pus and of at least one pint of clear fluid. An accident prevented the reaction of this fluid from being tested.

Twelfth day: Severe haematemesis and melaena.

Twenty-eighth day: Chest explored by needle but nothing found. Transferred to base hospital at Boulogne, since the general condition had improved.

Thirty-sixth day: Died.

Post-mortem Examination.

Empyema on left side and purulent pericarditis. Small collections of pus were loculated everywhere between the coils of intestine. No intestinal obstruction.

A blind fistula with yellow-stained walls led down from the anterior surface of the left lobe of the liver into its substance. Close to this a fistulous track ran below the lower edge of the liver and through the gastro-hepatic omentum to a gaping circular ulcer situated on the less curvature of the stomach, half-way between the pylorus and the cardiac orifice. There was no obvious inflammation around this, and no cicatricial deformation had been produced. Within the stomach the ulcer extended over a wider elliptical area along the less curvature, and was much larger than the perforation on the external serous surface. The silk ligature, which had been knotted around the bleeding vessel at the operation, lay in fibrous tissue on the outside of the stomach wall at the edge of the perforation. Bleeding had ceased, but the ulcer remained open and was presumably discharging gastric juice from the fistula. No evidence of fat necrosis was seen in the pancreas. (Specimen in War Office collection.)

In this case death was the result of a widespread and hopeless infection of the serous membranes. At the spot where the bullet had injured the stomach, whether by contusion or through interference with the blood vessels, an ulcer had formed and perforated some time before the sixth day, while its further spread was evidenced by haemorrhage on the twelfth day. The ulcer remained open and showed no signs of healing when death occurred on the thirty-sixth day.

CASE III.

No. 9,399. Under the care of Captain W. H. Oliver.

February 6th, 1915. Bullet wound high up in the left axilla and no exit. Slight haemoptysis, but no vomiting.

Tenth day: Vomiting suddenly began and about 1½ pints of blood were brought up. This was, by mistake, reported as haemoptysis.

Twelfth day: Abundant melaena. Signs of small effusion in left chest. No previous notes had been made of chest condition.

Sixteenth day: Melaena ceased.

Eighteenth day: Pain in epigastrium when food was swallowed. No rigidity over stomach. The patient stated that he had never suffered from indigestion before receiving this wound.

Thirty-first day: Temperature rising to 102°. Physical signs of large collection of air and fluid in left chest. Aspiration removed 35 oz. of yellowish grumous brown acid fluid, which smelt like bitter vomit, and also much air. The manometer readings proved that an open leak existed within the pleural cavity.

Thirty-third day: Rib resected. Acid fluid and "coffee grounds" deposit of altered blood escaped.

Thirty-fifth day: Clotted milk seen to be discharged from the empyema tube shortly after food had been taken by the mouth.

Thirty-sixth day: Transferred to England in very bad condition. Later history unknown, but it seemed unlikely that he would recover except by the help of unusually successful plastic surgery.

Here the only certainty is that the man bled from a traumatic gastric ulcer on the tenth day, and that some time before the thirtieth day the extension of the ulcer established a direct fistula between the stomach and the pleural cavity. The exact path of the bullet was never determined.

CASE IV.

No. 1,226; T. Under the care of Captain A. Bradford.

May 16th, 1915. Wounded by shrapnel ball, which entered the left chest at the seventh space in the posterior axillary line, and finally lodged beneath the skin over the fifth right costal interspace just below and internal to the right nipple. Patient felt a "smack" in the epigastrium. No vomiting. Slight haemoptysis on the second day.

Seventh day: Fairly well. Slight epigastric pain. Left haemothorax of moderate size with pleural friction at its upper level and over the pericardium. Pleural friction also heard over the right base. Temperature 101°.

Fifteenth day: Profuse haematemesis, followed by melaena for two days. Patient states that he had never before suffered

from dyspepsia. The haematemesis came on abruptly with a feeling of nausea, as though he were "sea-sick." Very blanched. Temperature fell from 102° to 97°.

Seventeenth day: Septic haemothorax on left side, which was found to be infected with a streptococcus and a small bacillus, drained by resection of a rib. No evidence of gastric contents in this purulent blood, which was not acid in reaction. The presence of contralateral pleurisy on the seventh day makes it fair to conclude that the haemothorax had been infected at the time of the original wound.

Twenty-seventh day: Solid food allowed.

Forty-fourth day: No further gastric trouble and empyema cavity now very small. Transferred to England. Subsequent history unknown.

The course taken by this ball was so close to the stomach that it probably injured its wall by contusion, if not by actual perforation. The complete recovery from the ulcer that subsequently formed is the remarkable fact in this case, inasmuch as these injuries, so far as we have been able to observe them, have been generally fatal.

These particular cases illustrate the manner in which such traumatic gastric ulcers develop. In all four of them the missile either went through the stomach or so close to it as to cause direct injury to its wall, though it should be remarked that in Cases I and III there was no reason at first to believe from the position of the entry wound that the stomach would be likely to lie in the subsequent path of the missile. The ulcer revealed itself by haematemesis and melaena on the 6th, 10th, 12th, and 15th day respectively in each. One patient died directly from the haemorrhage; only one made a complete recovery. The cases suggest the clinical interpretation that must, with a slight reservation to be discussed later, be made of these symptoms of bleeding when they appear in the second week after a wound, and they also show the unfavourable course that may be taken by an injury of the stomach when it has not been repaired by the surgeon. But they are in themselves too few to serve as a basis for a forcible argument in favour of early operation on supposed wounds of this viscous.

A consideration of the general mass of statistics out of which these cases were chosen throws more light upon the disputed point. Taking the *post-mortem* records in the first place, examinations have been made by us on 100 consecutive cases of death at the base hospitals from wounds penetrating the chest wall. In 17 of these the missile, whatever its point of entry, had passed in its course through structures in the right base of the chest. Only eight examples were met with of a similar track through the left base. Therefore, since the incidence of wounds on either side of the chest is probably equal, it may be concluded that the left base is a more vital spot, and that the preponderance of fatal chest wounds on the right side met with at the base is due to the fact that men with wounds on the left side show grave symptoms early and die close to the fighting line. Kidney and colon are almost equally balanced on either side, so that the difference in fatality must depend on the contrast between the liver on the right and the heart, stomach, and spleen on the left.

Of the 17 fatal cases on the right side, 11 had haemothorax, and in 9 of these death was chiefly caused by the infection of this blood; 3 had wounds of the colon, and all 3 died from the resulting septicaemia; 12 had wounds of the liver, of whom 5 died of haemorrhage from the liver; there were 7 harmless liver wounds.

Of the 8 fatal cases on the left side, 5 had haemothorax with 3 septic deaths in consequence; 2 had liver injuries, of which one died from secondary haemorrhage. There were no cases of wound of the heart, and only two of actual wounds of the stomach. Of these two stomach injuries, one died of peritonitis consequent upon the perforation, and the other from gastric haemorrhage. (Case 1). A third died of general peritonitis, and his stomach was full of blood, though no actual injury to this organ was found. So the only stomach wounds that were seen in this group were in themselves fatal, and no example was met with of a relatively harmless injury to the stomach, although this might have been fairly expected to occur in a series where chest wounds in general were being investigated. There were in the series, it should be remembered, seven examples of harmless liver wounds where death was due to other causes.

Post-mortem examinations at the base of fatal wounds penetrating the abdomen were not made by us as systematically as those of the chest. In a total of twenty-five

consecutive cases there were four instances of stomach wound, which gives six altogether when we include the two already referred to under wounds of the chest. Out of the entire six five had died as the direct result of the gastric lesion, three being from haemorrhage and two from peritonitis. The single exception died from general peritonitis caused by intestinal perforation, and in this there was discovered an actively spreading gastric ulcer in relation to a slight contusion of the stomach. Once more in the fatal abdominal, as in the fatal thoracic, wounds there was no example observed of a harmless wound of the stomach.

So far, then, as can be argued from *post-mortem* evidence derived from cases of death in men who survived long enough to be transferred to the base, a gastric wound is serious and likely to be fatal. The conclusions from the indirect evidence of survival cases is of a similar nature.

In dealing with wounded men who survive, it is rarely possible to be certain that any particular organ has been hit, even though the apparent path of the missile crosses the region in which this organ lies. *Post-mortem* evidence alone gives the sure knowledge. Still, it is permissible to make rough generalizations which depend on the assumption that the path of an in-and-out missile can be indicated by the straight line connecting the points of entry and of exit. In a series of 365 non-fatal chest wounds, recorded by one of us, the number of in-and-out wounds was tabulated. Survivors from such wounds in the upper two-thirds of the thorax were numerous. In the lower third they were relatively few. Excluding surface tangential wounds, there were twelve penetrating wounds of the right base through the liver area, and of these three actually developed biliary fistulae.⁶ Through the left base, on the other hand, there were only six survival cases noted. From this fact again emerges the same deduction as that already arrived at by *post-mortem* evidence—namely, that the left base is twice as fatal a target for a penetrating wound as is the right base of the chest.

Of the six survivors the details were as follows: Two showed no symptoms beyond those of a simple lung wound; one had a haemothorax infected with *Bacillus coli*, that may have come from the splenic colon; three exhibited symptoms of epigastric tenderness and vomiting or pain after food, which suggested injury to the stomach. All these three recovered, but one (Case IV) nearly lost his life from a spreading traumatic ulcer. The other two showed no development of other untoward symptoms while in France, and their subsequent history was not ascertained, though it was reported indirectly that one of them had developed a hernia of his stomach through the diaphragm into the pleural sac.

Summarizing the whole of these facts, one sees that wounds of the left base of the chest are twice as fatal as those of the right; that among men wounded in the thorax or abdomen who survived long enough to reach the base hospitals in France and there died, only six examples of gastric injury were found by us, while five of these injuries were the direct cause of death; and, finally, that in survival cases there were only three who showed symptoms which might be ascribed to stomach injuries, and that of these the only one who could unhesitatingly be accepted as a case of gastric injury nearly died from that injury. These figures were obtained from the study of a considerable number of wounds of the chest (total 465) and of the abdomen (total 25), and they demonstrate that the majority of men who have been shot in the region of the stomach die before they reach the base hospitals, and that those who do reach the base with stomach injuries generally succumb to their wounds. The conclusion seems clear, and it is this, that an operation at the earliest possible moment gives the best chance of recovery from a stomach wound, so that laparotomy should be undertaken when the track of the missile suggests the probability that this organ has been wounded. If abdominal exploration reveals a perforation or a bruise of the stomach, it may be judged by the surgeon that the best procedure is to invaginate the wall over all the area of injury, so as to lessen the chance of later perforation if an ulcer forms.

Secondary haemorrhage from a later erosion by the gastric juice will occur only in special areas where the larger vessels lie—that is, chiefly along the less curvature

and from the posterior wall if this becomes adherent to the underlying solid organs. Here it would be peculiarly difficult for the surgeon to gain access to the injury. We are not aware of any attempt that has been made in France to deal with such an ulcer by immediate operation during the bleeding. It is probably best at this later stage to treat the haemorrhage on expectant lines by the routine measures which are adopted for profuse bleeding from non-traumatic gastric ulcers in civil life. But the danger of ulceration should always be borne in mind where a stomach wound is suspected or known to exist; and the diet, even after operation, should be very strictly guarded in such a way as will both minimize the secretion of gastric juice, and soak up that which may be discharged into the stomach. It is most necessary to forbid categorically the use of meat extracts, such as bovril, for these, in the absence of explicit orders to the contrary, are likely to be given to the wounded man as an early restorative, and they will evoke an abundant and active secretion, which finds nothing but the half-dead gastric wall to feed upon.

At the outset of this paper we mentioned the possibility of gastric or duodenal ulcers occurring when the viscous was not directly injured by a missile, but where its mucous membrane had suffered some local devitalization through the indirect action by the blood stream of septic processes elsewhere in the body. The classical example of such a lesion is the duodenal ulcer that has occasionally been reported in civil practice as a consequence of widely-spread cutaneous burns. But in the last few years pathological work on the nature of ulcer formation has tended more and more to emphasize the probability that many acute gastric ulcers may have a similar origin in various poisonous and infective processes which affect the body in general and only indirectly injure the stomach.

With these views in our mind, we have repeatedly examined the inner surface of the stomach and duodenum at the autopsies of death from severe sepsis, and especially when the skin surface had been widely destroyed by multiple shell wounds. No examples of such acute ulceration were discovered. The sole instance we are able to relate is that for which we are indebted to the clinical diagnosis of Captain Kelly, who called our attention to the importance of the case (No. v). Nor have we observed in the wards, during an experience of sixteen months, any patient who showed, during the recovery from wounds, symptoms which could justify the diagnosis of such an ulcer formation. The very few cases of haemorrhage from acute gastric or duodenal ulcers that we have met with among unwounded soldiers were of the ordinary type seen in civil practice, and, with one exception, all recovered.

CASE V.

No. 5,834. Under the care of Captain Fitzmaurice Kelly, who had made a complete diagnosis of the nature of the lesion in the patient and kindly gave us his clinical notes of the case to complete the series of these ulcers.

January 18th, 1916. Severely injured by multiple shell wounds, in the left orbit, right upper and fore-arm, right groin close to the femoral vessels, left scrotum disorganizing the testicle, and in the right leg with compound fracture of the tibia.

Third day: Admitted to base hospital. General condition very good but groin and leg wounds suppurating with a very foul infection. Wounds cleaned under an anaesthetic, and left eye excised.

Sixth day: Left testicle removed, right groin opened more freely, and fragments of tibia partly removed.

Eighth day: Slight haematemesis occurred, and was followed by profuse melaena.

Tenth day: Patient died, after repeated haematemesis and melaena. The wounds remained in an intractably foul condition until the end. There was no extensive sloughing or destruction of skin surfaces.

Post-mortem Examination.

External wounds as described above, and extremely foul. The internal organs were all utterly blanched by the haemorrhage. Slight recent pleurisy over base of left lung. No endocarditis. Stomach dilated and its inner surface covered with a thick layer of inflammatory mucus. Just beyond the pylorus lay an acute duodenal ulcer, 2 cm. in diameter, with sharply cut clean edges, which had eroded one of the pancreaticoduodenal vessels. The intestines were filled with melaena. There was no peritonitis nor any evidence of injury to the abdominal organs. In connexion with the groin wounds there was some retroperitoneal haemorrhage which had extended up to the brim of the pelvis, but this was well drained, and its upper area was free from obvious sepsis.

Death was caused directly by the duodenal haemorrhage, commencing on the eighth day, and in this case the ulcer was certainly not caused by a wound near to the duodenum. Though the ulcer was large and deep, its appearance was that of a recently formed and acute one, and this opinion was confirmed by microscopic examination. There was no scarring or deformity around it, and the base was formed by soft pancreatic substance. Unfortunately the patient was too ill to be able to give any reliable answers on the question whether he had previously suffered from indigestion of such a nature as would have indicated the presence of an old ulcer. It is unlikely that he had been a dyspeptic, for he was a well-built soldier, 19 years old, enlisted a year back, and with four months' continuous service in France.

Summary.

1. The evidence related in this paper negatives the assumption that wounds of the stomach are less likely to be fatal than wounds of any other part of the intestinal tract.

2. A perforation or a contusion of the stomach wall by gunshot wounds is liable to be followed by the development of a spreading gastric ulcer, which in certain anatomical positions will erode vessels and determine a fatal issue from secondary haemorrhage.

3. Haematemesis and melæna occurring in the second week after a wound are generally to be regarded as the outcome of such a traumatic ulcer. These symptoms are very rarely due to haemorrhage from a non-traumatic ulcer produced indirectly as the result of septic wounds elsewhere in the body.

4. If a stomach wound has not been repaired by operation within the first twenty-four hours after the injury has been received, or if there is reason to suspect the possibility of such a wound being present, the diet should be rigidly controlled on such lines as will lessen the active secretion of free gastric juice.

REFERENCES.

¹ *Lancet*, December 18th, 1915. ² *Journal of the Royal Army Medical Corps*, January, 1916. ³ Cf. Elliott and Henry, *BRITISH MEDICAL JOURNAL*, January 1st, 1916.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

INFECTIOUS JAUNDICE.

WE desire to call attention to some peculiar bodies, to which our laboratory assistant, Mr. Mann, drew our notice, in the urine of a case of jaundice with albuminuria, from Mudros.

On examination of the sediment with a low power the first thing that struck us was the presence of numerous light yellow-greenish bodies, circular or pear-shaped in outline, and of a markedly granular appearance. On examination with a $\frac{1}{2}$ in. it was seen that there was no marked differentiation of endoplasm or ectoplasm. The nucleus, usually relatively large, was easily seen. The size of the bodies varied from 8μ or less to 33μ or more, probably averaging about 20 to 25μ .

When carefully watched for some time, protrusion of a pseudopodium could be observed. This relatively clear protrusion contrasted markedly with the semi-opaque granular endoplasm. These bodies were totally unlike *Endamoeba coli* or *Endamoeba histolytica*.

No cystic forms were seen in the urine. In the faeces cysts of *Endamoeba coli* were seen.

We have named it provisionally *Amoeba urinae granulata*.

A. B. WARD, Lt.-Col. S.A.M.C.,

A. E. COLES, M.D.,

A. R. FRIEL, Capt. S.A.M.C.

South African General Hospital,
Mont Dore Military Hospital, Bournemouth.

THE late Dr. Isaac Ott, of Easton, Pennsylvania, left money for the endowment of a new chair of physiology at the University of Pennsylvania to be known by his name. Dr. Ott was known to the scientific world by his researches on the physiology and pathology of the nervous system.

Rebiews.

SURGERY IN WAR.

WE have received within the last few weeks copies of two manuals of war surgery, the one in English and the other in French. They are, we believe, the first written in either language which are frankly based upon experience gained during this war. Some other handbooks which were published a year or more ago might be more properly described as attempts to apply opinions formed before the war to the new conditions. Such books are now out of date; their places will quickly be taken by such volumes as those now before us.

The English volume, *Surgery in War*,¹ is largely the work of Major HULL, who has seen the present campaign through from the beginning to the present time. He has been assisted by Colonel H. M. W. Gray and a number of other officers on active service, most or all of whom, it would appear, have been serving in France. The subject has therefore been dealt with more as regards surgical work there than in the other spheres in which our army has been and is now engaged.

In a preface which Sir Alfred Keogh has written for the book he states that "there comes a time in a long campaign like the present one when it is profitable to take stock, as it were, of the surgical position, to apportion values to various methods of treatment and to obtain some appreciation of their results." This, we venture to think, the present volume does in a very creditable manner. The circumstances of the present war have made necessary the reconsideration of most of our ideas on military surgery. The South African campaign was carried out in a country entirely different from that of France and Belgium; those who served there saw, as Major Hull states in his introduction, results which ill prepared them for a campaign fought in weather with a large preponderance of wet days, and upon a soil artificially sown with bacteria, mostly of faecal origin. The nature of the weapons employed also has exercised a potent influence upon the surgical treatment in this war. To surgeons it will be known as "the pointed bullet war," but attention is called to the increased proportion of wounds due to artillery fire and their greater liability to septic infection. Statistical results have had to be excluded at this stage of the campaign in deference to the wishes of the censor.

The chapter on bacteriology of wounds in war has been written by Lieutenant-Colonel Harrison. He urges that in dealing with tetanus "the administration of antitoxin must be supplemented by thorough eradication of the focus of infection." This may be possible where there is a single small wound, but can hardly be carried out where there are several wounds, some of which have involved joints and internal organs, so that it is not possible to say which was the focus. He suggests that 10 to 15 c.cm. of antitoxin should be injected into the lumbar sac and 100 c.cm. intravenously in one or two injections as soon as possible after the commencement of symptoms. For the mechanical removal of bacteria from the depths of the wound Colonel Harrison favours the use of eusol, since it adds to its lymph lavage properties that of being acid, an acid reaction of the medium being inimical to the production of toxin. The use of other strong antiseptics and pastes is condemned, for the aim should be to remove the anaerobes by setting up a free flow of discharge through a sufficient wound opening. This statement is sound common sense.

Dr. Greenfield has contributed a very useful chapter on the general condition of the wounded and their treatment. He emphasizes the importance of giving pituitary extract, condemns the use of strychnine, and recommends full doses of morphine in the treatment of shock; this is in agreement with Crile's teaching. Patients with severe bone injuries stand repeated manipulations of the limb very badly, even when under an anaesthetic. No major operation should, it is said, be attempted without infiltration anaesthesia. Novocain solution $\frac{1}{2}$ per cent. with adrenal chloride had given good results, and if potassium sulphate gr. x be added to each ounce the effect is prolonged and pain after the operation is much lessened.

¹ *Surgery in War*. By A. J. Hull, F.R.C.S., Major R.A.M.C.; with a Preface by Sir Alfred Keogh, K.C.B., M.D. London: J. and A. Churchill, 1916. (Cr. 8vo, pp. 404; 24 plates, 55 figures. 10s. 6d. net.)

Preference seems to be given by other contributors to the use of hypertonic salines rather than antiseptics. The bold statement is made, in speaking of the treatment of septic wounds by excision, that "a septic compound fracture of the skull can be made to heal almost with certainty, provided the patient comes under treatment in reasonable time." This is, we believe, not the experience of all surgeons, and though in a certain number of cases this desirable result may be obtained, the suspicion must remain that it will always be the exception rather than the rule.

An excellent and careful description of the x-ray localization of foreign bodies is given by Lieutenant W. A. Edwards.

Compound fractures must bulk very largely when dealing with casualties in warfare, and it has to be borne in mind that the missile which causes the fracture usually infects the wound, and oftentimes carries into the medullary cavity of the long bones a portion of the patient's clothing. The view taken in the manual is that, with the exception of small perforated wounds, all wounds complicating compound fractures require exploration, which should be carried out as soon as possible after the receipt of the injury. The use of Thomas's splints applied as described by Lieutenant-Colonel Robert Jones is spoken of very highly, not only for the femur but also for the humerus.

The administration of urotropin (15 to 20 grains every three to four hours) is advised in every case of gunshot wound of the head. Attention is called to the opinion expressed by French surgeons "that all wounds of the skull should be trephined at once. Trephining (in their opinion) is the operation of urgency, *par excellence*, in military surgery." A thin flap of fascia from the thigh forms the most convenient tissue for the repair of lacerations of the sinuses.

It is difficult exactly to understand what is meant by the sentence "immobilization by application of a wire may be considered in some cases," which occurs in the discussion of secondary haemorrhage complicating fracture of the femur.

Stress is laid upon the fact that abdominal wounds in this war differ materially from those seen in South Africa, and we gather that Major Hull's view is that where possible practically all cases should be operated upon as soon as possible, early operation being essential, especially when the missile has penetrated the lower and lateral portions of the abdomen. Reference is made to Colonel Mayo Robson's article in the *BRITISH MEDICAL JOURNAL* of December 4th, 1915, and the excellent results to be obtained in such cases.

Captain Miller writes the chapter on gunshot wounds of the chest, and Lieutenant Snowden that on wounds of the peripheral nerves, and Dr. Greenfield has supplied excellent illustrations.

We have attempted to indicate the character of the book by way of quotation rather than criticism, because in this way, perhaps, readers may best be inspired to peruse it for themselves. It must prove helpful to all surgeons who are engaged in the treatment of the wounded at home as well as abroad, and should be in the hands of every officer of the Royal Army Medical Corps.

The French book, entitled general indications for the treatment of wounds in war,² is conceived in a different spirit. It is more dogmatic, and in a sense more elementary. Its author, Professor G. MARION, is surgeon to the great Lariboisière hospital in Paris, and médecin major de première classe—the French army is under the disadvantage that its medical officers are not members of a corps, as in ours. M. Marion has clearly had a great deal of experience in this war; his book is founded on that, and it is all the more interesting because it is very personal. For M. Marion there is always one thing to do and one way of doing it, and the surgeon inexperienced in war wounds who follows his instructions will at least feel that for each there is a well thought out reason. Such a book need not be criticized in detail; it must be taken for what it is—the opinions of a strong personality strongly expressed.

It falls into three parts; the arrangement of the first part is admirably logical. The treatment of a wounded man is divided into three periods—immediate, secondary, and late. It is perhaps due partly to the nature of M. Marion's experience and partly to his manner of presentation that the first two periods are far better dealt with than the last. Of penetrating wounds of the abdomen he says that if an expert surgeon (*chirurgien de carrière*) possessing a complete surgical equipment is called upon to treat a man in whom shock is not pronounced he ought to operate. If the surgeon is not "un chirurgien rompu à la chirurgie abdominale," or if the equipment is in any respect defective, or if the wounded man is profoundly depressed, then the surgeon ought to abstain from operating, satisfying himself with superficial disinfection of the wound, and the application of a simple dressing; an icebag should then be applied to the abdomen, the trunk raised, the diet restricted, 10cg. of opium given daily in two doses, and the patient kept in the ambulance until all danger of peritonitis has passed. The treatment of haemorrhage, of protrusion of intestine, and of lesions of the kidney or bladder, is then more particularly considered. In discussing treatment in the secondary period M. Marion recommends for peritonitis following a penetrating wound median suprapubic incision and the introduction of drains. This treatment, combined with the sitting posture, administration of serum, or such stimulants as camphor or caffeine, will, he says, now and then save some of these cases. Nothing more, however, should, he thinks, be done, for an attempt to suture the intestinal wound at this stage will cause diffusion of the infection, even if the patient survives the operation.

Of fractures of the cranium he says that even if there be no more than a simple fissure there can be no doubt that it is urgently necessary to trephine provided the environment is suitable. "It has been fully proved," he adds, "that as a cranial operation is benign and efficacious if performed before any evidence of meningo-encephalitis appears, so any operation performed after the lighting up of this dreaded complication is useless." M. Marion adds to many of his sections "don'ts"; those to this section are: (1) "Don't be satisfied with disinfecting the wound without touching the fracture"; (2) "Don't, when trephining is performed, make explorations in the brain with forceps, probes, etc." In the next section, dealing with penetrating wounds, it is said that the indications are the same, and the "don't" here is "Don't search for the projectile in the course of a trephining performed to secure disinfection of the wound." The extraction of the foreign body, he says, should only be attempted after all trace of infection has disappeared, and after it has been accurately localized.

The second part of the book is concerned with the localization of foreign bodies, and an apparatus in which the method of crossed cords is used is described at length, and strongly recommended.

The third part of the book describes apparatus for the treatment of complicated fractures and joint wounds. Like many other French authorities, M. Marion makes much use of plaster, but he praises and illustrates several splints made with the aluminium rods issued by the British Army Medical Service. We note with satisfaction that M. Marion points out the necessity, in treating injuries of the wrist, of keeping the joint in extension, inasmuch as if ankylosis does occur the position of extension is that in which the fingers will have the greatest power.

NOTES ON BOOKS.

MEDICAL men all the world over owe a debt of gratitude that is always increasing to those responsible for the compilation of the *Index-Catalogue of the Library of the Surgeon-General's Office, United States Army*.³ As any one who has ever had to look up references in medical literature knows, the *Index-Catalogue* gives the best lists of the literature of medical authors and medical subjects in existence. The library on which it is based contains over 190,000 bound volumes and 328,000 pamphlets. The first and second series contain over two million titles of authors and subjects. The last volume to appear is the twentieth of the second series, including from V to Waterworks.

² *Indications générales du traitement des plaies de guerre*. Par G. Marion, Médecin Major de 1^{re} classe. Paris: A. Maloine et Fils, 1916. (Post 8vo, pp. 190; 38 figures. Fr. 4.50.)

³ *Index-Catalogue of the Library of the Surgeon-General's Office, United States Army. Authors and Subjects. Second series, vol. xx. V-Waterworks*. Washington: The Government Printing Office, (Imp. 8vo, pp. 603.)

British Medical Journal.

SATURDAY, APRIL 8TH, 1916.

WHAT IS A TEUTON?

Not long ago we lived in happier times; we had a settled nomenclature in our English anatomical textbooks until one coined in Germany was foisted on us; we had well-recognized Latin names for the various species of animals until a new law was introduced—largely German—that has landed zoologists in a Tower of Babel, no man being certain of what the proper name for a species may be. In olden times the Aryans were a real live folk; they lived, originally in the high plateau region somewhere between the Himalayas and the Caspian; they broke westwards into Europe, bringing with them the mother forms of all the tongues we now speak, and they broke eastwards into India. Now the Aryan in the form we got to know him and like him is going; he is proving a "Mrs. Harris"—a supposititious person called into being by students of words who wanted to account for the relationship which exists between European and some Eastern languages. In those happier times we knew who the Kelt was—we wrote the word as "Celt" then; for us in these islands he was the descendant of an ancient native of the "Celtic fringe"—Ireland, West Scotland, Wales, and Cornwall. Much as the various constituent peoples of our Celtic fringe differ in stature, in colouring, and in make of body, there is one character they have in common—in all of them there prevails the same type of head form. It is not enough to say that they are long-headed (*dolichocephalic*), for there are many types of long heads, just as there are many types of round heads.

No greater mistake could be made—and modern anthropologists have not taken care to emphasize this aspect of the matter—than to suppose that two skulls which have the same proportion of width to length—that is, have the same cephalic index—are of identically the same type and race. In the case of our Celtic fringe the long-headedness is of the same type; the British Kelt is, in the vast majority of cases, a long-headed individual. In France, ever since the time of Broca, a totally different kind of individual has been regarded as the true Kelt. Broca accepted Caesar as the standard authority; to Caesar the inhabitants of middle Gaul were typical Kelts; graves of the Roman period show that Caesar's Gauls had the same rounded—or brachycephalic—head form as the modern French. For Broca—and Broca was followed by anthropologists in nearly all countries—the Kelt was a broad-headed individual, with his own peculiar form of broadness.

We do not know when the long-headed and broad-headed European strains separated from a common stock, but we do know that head form breeds true over a space of ten thousand years, and that the difference in head form is one of real racial significance. We therefore cannot continue to use "Kelt" as a racial name, for we do not know whether the speaker is referring to one or other of two opposite European stocks—the broad-headed central European or the long-headed West Highlander.

In those olden times, before King Edward came to the throne, we were happy and almost unanimous in

our use of the word "Teuton." The Anglo-Saxons were Teutons; the Germans said we were their cousins; standard works on geography and ethnography, both in England and in Germany, still reproduce a map wherein Germany, Sweden, Norway, Denmark, Holland, and Great Britain are coloured in the same tint, showing them to be parts of Teutondom and their inhabitants Teutons.

Is a Teuton, then, an Englishman or a Prussian? We are at deadly war with Germany, but that does not mean we may not be cousins; near relatives have often the fiercest of quarrels. We had a bitter feud with our children in America. May we not be making the same mistake about the Teuton as about the Kelt? A close study of a book which has just appeared¹ from the pen of the Right Hon. J. M. Robertson, M.P., leads to the conclusion that the word "Teuton" is applied to two kinds of men which, in an anthropological sense, are totally different, and that, like "Kelt," "Teuton" also must be discarded from our scientific vocabulary. Mr. Robertson has won for himself a high reputation in many lines of human endeavour as journalist, politician, historian, and philosopher, but with all his learning there is one department of quite useful knowledge he has not really absorbed, and that is the study of human races as practised by modern anthropologists. He examines what some of them have to say regarding the German shape of head, and finds they can give him no help. He takes the writings of Houston Stewart Chamberlain almost as seriously as the Germans have done—the writings which picture the natives of the German empire as blessed with all the qualities of heroes, as the supermen of the present, and masters of the world in the future. British anthropologists have never made that mistake, but they have made an equally great one—they have never taken the trouble to inform their countrymen that the word "Teuton" covers two very different types of humanity.

That discovery was made by a man who is held in high repute by every one who values the history of medicine—Virchow the pathologist. The discovery, which came to him in the light of a tragedy, was made in the following manner: At the close of the Franco-German war Quatrefages, who then occupied the chair of anthropology in the Natural History Museum, Paris, made certain aspersions regarding the racial nature of the Prussians. Virchow took the charge quite philosophically: he admitted that very little was known of the racial nature of the German people, but it is also quite apparent from the manner in which he set to work that he was confident of proving that his fellow countrymen of the north were true Germans or Teutons of the classic type—long-headed, fair-skinned, fair-haired, and blue-eyed. He went to find and study his typical German on the west coast—Holland and Frisian lands north of Holland. He found the classic German there—a man not unlike the typical Norwegian, Swede, Dane, or Englishman. He then set on foot an excellent scheme—one which aimed at taking a census of the physical characteristics of the German people—beginning with school children. The colour of the hair and eyes was taken first; in that respect Prussia came off with flying colours; its natives had the fairest hair and bluest eyes of all the people within the empire. In that respect the attempt to prove that the German people were classical Teutons was successful. But as regards head form the case proved quite different; Virchow soon became convinced that the vast majority of the German

¹ *The Germans: (I) The Teutonic Gospel of Race; (II) The Old Germany and the New.* By the Right Hon. J. M. Robertson, M.P. London: Williams and Norgate. (Price 7s. 6d. net.)

people were not long-headed. In the south—Bavaria, Württemberg, and Baden—the people were, almost without exception, broad-headed of the Alpine or French Keltic type, and with dark hair. In the north and north-east—Prussia, Brandenburg, Posen, and Silesia—the people were broad-headed of the Slavonic type, but with fair hair. Of the seventy millions of people now living within the German empire, not more than eight millions, occupying a coastal fringe on the west and scattered along the Baltic shores, are of the classical fair-haired long-headed type. Which is the Teuton—the small western long-headed fringe or the round-head central mass? In a strict anthropological sense the word "Teuton" has ceased to be usable.

It cannot be too clearly understood that Germany and Britain stand not only for two opposite ideals of life but also for two opposite ideals of manhood. In Europe to-day there are about 420 millions of people. In an anthropological sense they fall into four groups. The long heads are in the West and in a minority. They have now, they have had since the dawn of history, the command of the sea. Spain and Portugal stand for the dark-haired long heads; Great Britain, with a dash of the dark long heads in her "Celtic fringe," stands for the fair-haired long heads. She has behind her the Scandinavians, the Danes, the submerged German West, the Dutch, the Flemings, and to some degree the people of Normandy—about ninety millions of fair-skinned long heads all told.

It did not need the present war to prove that war has little to do with race; it has much more to do with language, tradition, and national ideals. This at least is certain, that so far as Britain is concerned in the present war, it is not an inter-Teutonic strife; nothing is more certain than that the great mass of the Germans and of the British people are of a totally distinct lineage.

INDUSTRIAL FATIGUE AND ITS CAUSES.

THE Health of Munition Workers Committee has added to its list of valuable memorandums one dealing with the causes of industrial fatigue,¹ which seems to set the crown to its work, for it is written with physiological knowledge and human insight. A new era will open in the prosperity and happiness of the nation if employers and workpeople can be made to grasp the importance of such an essay as this, and recognize that the physiological laws of life must be studied and followed. A short-sighted struggle for more money, shorter hours of work, and trade union restrictions of output cannot secure human happiness. It is not these crude conditions of the daily task that matter, but the opportunities of developing mind and character, of perfecting skill, of gaining success and advancement by triumphing over obstacles, of keeping physically fit in hygienic surroundings, of securing leisure to enjoy the money earned, opportunities to spend it wisely in a garden city surrounded with playing fields, and affording every worker a chance of realizing the beauty and grandeur of the universe, of the changing seasons, the flowers and the stars.

The Committee defines fatigue as the sum of the results of activity which show themselves in a diminished capacity for doing work, and points out that it is wholly fallacious to take the bodily sensations as a guide and measure of fatigue, for there may be diminished capacity for work before any signs of

fatigue appear in sensation. Fatigue results not only from the exhaustion of substances supplying chemical energy for doing work, but from the accumulation of the products of the chemical changes. It can be compared, not to the running down of a clock, but to a clogging of the wheels with dirt. The chemical products of activity are removed by the blood, and time is required both for this and for the process of restoration. "If the activity is repeated too quickly to give time enough for restoration after each action, fatigue will become progressively more intense as the debit balance accumulates."

Since the muscles are protected from exhaustion by the nerve cells failing first, the problems of industrial fatigue are almost wholly problems of fatigue in the nervous system. In the tired man fatigue is felt in the muscles, it is referred to them, but the fatigue is really that of the nervous system. "It is well known that a man apparently run to a standstill in a race may, upon some new excitement, run freshly again, under augmented stimulus from the central nervous system, initiated there perhaps in part along new paths." For every action a given rhythm of activity allows exact recovery after each act, and the heart, for example, beats incessantly for the life of a man without any accumulated fatigue. Complicated co-ordinations in the nervous system may by training become capable of maximum efficiency at a more rapid rhythm than was possible in the untrained state. "It is the problem of scientific management to discover in the interests of output and health of the workers what are the maximal efficiency rhythms of the various faculties of the human machine." This must be done for short spells, hours of shift, periods of sleep and holidays. Scientific management is illustrated by the following anecdote: Two officers at the front, for a friendly wager, competed in making equal lengths of trench, each with an equal squad of men. One let his men work as they pleased, but as hard as possible; the other divided his men into three sets, to work in rotation, each set digging their hardest for five minutes and then resting for ten, till their spell of labour came again. The latter team won easily.

The true sign of fatigue is diminished capacity; measurement of output, therefore, will give the most direct test. Since overstrain may not only reduce the capacity at the moment, but for long periods, it is plainly uneconomical to allow overstrain, and scientific management will see that the right kind of work is apportioned to the right individual. "Astonishing results, bringing advantages both to employers and employed, have been gained in other countries by the careful selection of individuals for particular tasks based not upon the impressions of foremen but upon the results of experiment." Unfortunately there is against the development of such scientific management the suspicion that any device for increasing output will be used for the profit of the employer rather than for the increased health and comfort of the workers.

"An important and early sign of fatigue in the nervous centres is a want of co-ordination and failure in the power of concentration." This may be shown objectively in an increased frequency of trifling accidents. The accumulated results of fatigue damage the general health and will be reflected in sickness returns, in returns of lost time, and in a sense of staleness among the workers—a feeling of being "done up" or "fair whacked." This feeling may result not only in lethargy and indifference, but in a craving for change and excitement, and may lead to indulgence in alcohol.

¹ Health of Munition Workers Committee. Memorandum (No. 7) on Industrial Fatigue and its Causes [Cd. 8213]. To be obtained through any bookseller. Price 1d.

A works manager worked hard 361 days out of 365, and looked worn. A skilled tool maker had had eight days' holiday, including one for a funeral, since the war began (fourteen months); he complained of the strain on his nerves. The official of a very large trade union said that overtime was excessive and the skilled workmen were becoming "nervy." These are representative examples of the reports gathered from the evidence collected by the Committee. Proper attention to the need for weekly rest would have prevented the reduction of output by such fatigue and staleness. The Minister for Munitions has accepted the Committee's recommendation concerning Sunday labour, and formulated the need for the Sunday rest throughout the controlled factories. It is remarkable that so far the Government arsenals, Woolwich and Enfield, do not seem to have carried out the instructions, and continue to work thirteen shifts in fourteen days. "Misguided efforts to stimulate workers to feverish activity in the supposed interests of the country are likely to be as damaging to the desired results as the cheers of partisans would be if they encouraged a long distance runner to a futile sprint early in his race."

Examples are given of the value of intelligent management. "At a large shell-making factory the men for the early months of war worked seven 12-hour day and seven 12 hour night shifts in the week. More recently Sunday work has been stopped (or at least every man has a weekly day of rest), and the men work from 6 a.m. to 7.30 p.m. with an hour and a half off for meals. These hours are long, but as a result of improvement in organization they now produce an increased number of shells from half the number of workers." At another large factory the men engaged in the heavy work of moulding were required by the management to rest fifteen minutes in every hour of work. The output was found actually to be increased. At another factory fifteen minutes' recreation for the girls in the open air at 11 a.m. increased the output. Educational authorities recognize that no class should last more than three-quarters of an hour, and that then the students should have a run round the playground. Nevertheless, factory girls are put to sit at a bench for stretches of four or five hours.

"Elevens" and "fours," an excellent custom among agricultural labourers, should be made compulsory in all factories. The objection is that it takes so long to empty the shops. But the shops should not be built to cover acres, but long and narrow so as to ensure good ventilation through a large surface of wall, then there would be no delay in emptying them into playgrounds which should be provided in every factory.

PENETRATING WOUNDS OF THE ABDOMEN.

In the detailed report to the Medical Research Committee presented by Captain Fraser, R.A.M.C., and Captain Bates, R.A.M.C.(T), and printed upon an earlier page of this issue, will be found an account of the results of operation, or the abstention from operation, in a number of cases of penetrating wounds of the abdomen. It is needless to say that thousands of such cases have occurred during the course of the present war, and that they are of the greatest interest to the operating surgeon because their unfortunately high mortality may admit of material reduction. It is not to be doubted that such a reduction will follow the discovery and application of the methods of surgical treatment best designed to meet the require-

ments of each individual case, and the report gives abundant evidence of the importance of this principle. A second principle upon which stress must be laid is the importance of making a thorough examination of all the abdominal viscera before the operative procedure is decided upon in cases in which the possibility that several visceral injuries will have to be repaired cannot be excluded. For example, where the small intestine has been injured, the authors of the report emphasize the necessity for scrutinizing every portion of the small intestine and of the large in succession before any decision as to treatment is reached; details of the temporary and final methods of dealing with such injuries are given, and the progressive character of the bleeding that follows laceration of even the smaller mesenteric vessels is noted. It will be seen that the authors express a general preference for the performance of a lateral intestinal anastomosis in cases of multiple injuries of the small gut, for the reason that they find that resection of the injured tube is so frequently followed by distension and paralytic ileus in the proximal segment. It would be interesting to learn how the results of the method of dealing with these cases advocated a few months ago in this JOURNAL¹ by Captain (temporary) O. W. Richards, R.A.M.C., would compare with those obtained by the authors of this report. It will be remembered that Captain Richards advised the resection of "not only the injured portion, but also as much bowel above it as is likely to remain out of action and constitute a functional obstruction," a point to which Barker had previously called attention in relation to strangulated hernia.

According to Colonel Cuthbert Wallace, men shot through the abdomen die mainly from one of three causes—haemorrhage, peritonitis, or intestinal obstruction following peritonitis. Captains Fraser and Bates conclude that immediate laparotomy, particularly if haemorrhage is suspected, or laparotomy after the lapse of an hour or two, is indicated in the vast majority of cases of penetrating wounds of the abdomen. To combat the shock from which he is suffering the patient is stimulated by warmth and by the exhibition of pituitary extract before the operation. Every precaution is taken to minimize shock during the operation, and several pints of saline are given subcutaneously while it is in progress. The danger of post-operative intestinal obstruction is met in the manner already indicated. The third danger to which the patient is particularly exposed, that of peritonitis, is minimized by washing out the abdominal cavity in early cases with extensive soiling of the peritoneum, and in later cases, with or without evidence of peritonitis, by drainage through a single Keith's tube passed into the pouch of Douglas. For the rest, the post-operative treatment is carried out on the usual lines, special attention being paid to the administration of fluids by the rectum or by subcutaneous infusion.

What of the results of treatment on these lines? The authors of the report say that the surgeon "must be prepared for repeated most bitter disappointments, but when one comes to view a series of cases, the gains seem infinitely greater than the losses." A new method of dealing with the peritonitis and paralytic intestinal obstruction that prove fatal to many of these patients is developed in a paper by Captain Sampson Handley, R.A.M.C.(T.), which will also be found in this issue. He argues that in all probability many patients shot through the abdomen and suffering from the

¹ BRITISH MEDICAL JOURNAL, 1915, II, 213.

consequent peritonitis die from the onset of intestinal obstruction rather than from the direct results of the peritoneal infection. He has found that such general peritonitis is rarely universal, and that it usually begins deep down in the pelvis and spreads upwards through the peritoneal cavity. He contends that so long as a patient with general peritonitis remains capable of active vomiting it must be assumed that the upper part of his small intestine, the stomach, and probably the transverse colon, are not paralysed, not yet having been reached by the peritoneal infection as it spreads upwards among the abdominal viscera. Hence he concludes that the patient's life may be saved, in spite of the extensive paralytic obstruction of the lower parts of the intestinal tube, by immediate operative interference. If the peritonitis remains confined to the pelvis, ileocolostomy to the ascending colon with caecostomy are, he thinks, indicated; but in cases of so-called general peritonitis extending roughly up to the level of the umbilicus, jejunocolostomy to the transverse colon and caecostomy. In all cases pelvic drainage must be provided. These operations provide an emergency alimentary canal consisting of stomach, jejunum, transverse and ascending colon, and caecum; and this canal will provide the patient with clean food and fluid that may tide him over the critical period of his illness and stop the spread of the general peritonitis that would have proved rapidly fatal had no such assistance to his resisting powers been provided. There is a thoroughness about Captain Handley's hypotheses and conclusions that renders them attractive and makes it desirable that they should be put to the test of further actual experience, as he himself suggests.

OFFICIAL RECOGNITION OF THE ENROLMENT SCHEME.

THE official statement of the War Office with regard to the enrolment of medical men for the military services, which has been widely published in the press and the full text of which will be found in the SUPPLEMENT for this week, affords a further and final recognition of the work of enrolment carried out by the three representative bodies of the medical profession—the Central Medical War Committee for England and Wales, the Scottish Medical Service Emergency Committee, and the Irish Medical War Committee. As the official statement points out, the real purpose of the enrolment scheme is to secure that those doctors are selected for military purposes who can best be spared at the particular date, and from the particular place, with due regard to the civil needs of the population, to the personal circumstances of the doctor, and to the requirements of His Majesty's Forces. The War Office has officially recognized, and now relies upon, the Central Medical War Committee and the corresponding committees in Scotland and Ireland. The official statement correctly uses the phrase "military services," for obviously the Royal Navy has an equal, if not a paramount, claim, but this has been so thoroughly recognized that up to the present the navy has, we believe, found no difficulty whatever in obtaining the medical officers needed. The appeal of the Medical War Committees has consequently been for the army, but any medical man who prefers to offer his services to the navy will not find any difficulty in so doing. The decision of the Central Medical War Committee, reported in the SUPPLEMENT, with regard to the proportion upon which the calling up should proceed will relieve the anxieties of those medical men who may have feared that calls might be made from too limited a roll.

Experience shows that the calls are likely to be small in respect of the number of men required at any one time, and will only recur at intervals as the need arises. The demand on the medical profession will be gradual and can be easily met, but can only be quite efficiently met if all medical men of military age who have not yet enrolled will do so with one of the three committees. The trust now reposed in these committees by the military authorities will impel every patriotic member of the profession to enrol. By so acting he will do his share towards rendering it possible for the medical profession to meet both civilian and military needs without recourse to methods of compulsion.

WITH THE RUSSIAN RED CROSS.

In the Norwegian daily paper *Tidens Tegn* for March 16th an enthusiastic account is given by Dr. C. Johannessen of the Red Cross in Russia, whence he has recently returned after a visit of four months. He spent three months at the front attached to Princess Kcenia Aleksandrowna's hospital and train service. He seems to have been exceptionally fortunate in securing this appointment, as apparently no other neutral surgeon was permitted to share in the medical and surgical work at the front. He entered Russia through Finland, travelling with a draft of wounded Russian soldiers released from Germany. In Petrograd he worked for a short time under Professor Oppel, who, when he had convinced himself of Dr. Johannessen's surgical attainments, helped him to reach the front. Here the staff of five English-speaking Russian nurses bridged the linguistic gap between Dr. Johannessen and his Russian patients. He was much impressed by the physique and equipment of the Russian soldiers; so well were they clothed that, among the 3,500 soldiers under his care, there was not a single case of frost-bite. The food was abundant and good, and even at the front the soldiers were able to take a bath once a week. The medical arrangements were also in other respects so satisfactory that there was no serious epidemic of any kind. He was greatly struck by the cordial, almost fraternal, relations between officers and men, and by the adaptability of the peasant soldier. When the first waves of German poison gas were approaching the Russian trenches, one of the soldiers called on his comrades to light fires in front of their trenches so that the oncoming gas would be carried upwards by the draught instead of descending into the trenches. As an example of the self-sacrificing efforts made by the various towns, Dr. Johannessen describes how, in the course of one month, hospitals with a total accommodation for 64,000 wounded were provided by Moscow alone. Since then this number has been more than doubled, and the town has provided forty ambulance trains in addition to other conveyances for the wounded. One of the most striking features in Russia was the calm and deliberate spirit in which everything was done. There was no disorderliness, no rowdiness, no drunkenness; the very sobriety of the nation was perhaps the truest sign of the unflinching spirit in which Russia was preparing to redeem the mistakes of the past.

PHYSIOLOGICAL TESTS FOR AVIATORS.

IN the BRITISH MEDICAL JOURNAL of March 11th a brief account of certain injuries and diseases of aviation was given, based on observations made by Staff Surgeon H. V. Wells, R.N., and Dr. G. Ferry. A study of the physiological methods that may be employed with advantage in the testing of would-be aviators has just been published in a Paris medical journal,¹ by Professor Camus and Dr. Nepper. They point out that, quite apart from the general physique and organic health of the candidates for aviation, attention should be paid to the promptitude and quality of the responses given by their nervous systems to the various stimuli they will receive in the course of

¹ *Paris médical*, 1916, vi, 290.

their work. It is essential, on the one hand, that they should respond without delay, so that tactile, auditory, and visual impressions may be expected quickly to lead to movements of adaptation or defence. On the other hand, it is equally important that the aviator should not be unduly at the mercy of his emotions, such as fear, excitement, nervousness, and the like. As every physiologist knows, reaction times and responses to different stimuli are quantities readily capable of exact measurement; the necessary apparatus is, indeed, the stock-in-trade of psychological and psycho-physiological laboratories. Professor Camus and Dr. Nepper have accordingly used the well-known electric chronometer of d'Arsonval for determining the candidates' reaction times or latent periods on the receipt of visual, auditory, and tactile stimuli, the mean of ten separate determinations being taken as the figure in each case. A good candidate will have a latent period of about 0.19 second for visual stimuli and 0.14 to 0.15 second for tactile and auditory stimuli. The figures will be considerably larger in the case of unsuitable candidates—for example, 0.3, 0.27, and 0.27 second in one instance, 0.28, 0.2, and 0.22 second in another, to quote actual cases. The method of investigating the stability of a candidate's nervous system is different. Apparatus is rigged up to record on the familiar smoked drum the cardiac rhythm, the respiratory rhythm, and, by means of a finger placed in a plethysmograph, any modifications that may take place in the peripheral vasomotor system; in addition, a record of any muscular tremor that may be present is made. While all these records are in progress, revolvers are fired, magnesium powder is flashed off, or cold cloths are dashed on to some exposed part of the candidate's skin. With a good candidate these violent external stimuli will produce little change in the tracings; a bad candidate will show cardiac, respiratory, or vasomotor irregularities due to excess of emotion at such alarms and excursions as these. It is clear that the man who is a bit slow in the uptake will come out badly in the first series of tests, while the tests of the second series should serve to detect and unmask the unduly nervous and excitable candidate. These novel methods of examining would-be aviators are still on their trial and have not yet reached finality in form, but the results they have yielded are said to be promising. It is undeniable that they appear to give numerical measurements of qualities that must be of importance to aviators, in place of the mere impressions as to the suitability or unsuitability of candidates that must at present influence the opinions of those who are responsible for the selection of likely fliers.

MANY NAMES FOR THE SAME THING.

We doubt whether any members of the medical profession could be found who would dissent from the statement that the practice of bestowing a series of different names on a single substance of known chemical composition is from their point of view an unqualified nuisance, whatever advantages it may have from the point of view of manufacturing enterprise. Some, however, may be unaware of the extent and frequency of this practice, though instances will occur to every one, and a good many were given in the series of articles on the chemical constitution of certain proprietary drugs published in the *JOURNAL* at the end of 1914 and the beginning of 1915. One such instance was that of acetyl-salicylic acid, which is in the *British Pharmacopoeia*, 1914, under that name. It was introduced under the trade name aspirin by a German firm; other firms have applied the names acetysal, acetosalin, aletodin, saletin, salaretin, xaxa, and empirin to the same substance. Another example is the drug introduced under the trade name atoxyl, also by a German firm; it is sodium para-aminophenyl-arsenate, but in the *British Pharmaceutical Codex* it is given the shortened name, sodium aminarsonate. Trade

names for this body are arsamin and soamin, but with regard to the latter it should be said that it is stated to contain five instead of four molecules of water of crystallization. Again, the drug which appears in the *British Pharmacopoeia*, 1914, under the name hexamine, a contraction of its chemical name, hexamethylenetetramine, was introduced under the trade name urotropine, and other firms applied to the same substance such names as aminoform, ammonio-formaldehyde, ammonaldehyde, cystamin, cystogen, formin, metramine, urisol, aritone, xametrin, and vesalvine. Other instances might easily be added from past history, and we fear that there is a risk of such a confusion arising in respect of the substance para-toluene-sodium-sulphochloramide, suggested as a wound antiseptic by Dr. Dakin and Professor Cohen; its clinical use has already met with considerable success, to which our columns have on more than one occasion borne witness. The theoretical basis of the work, full details of the preparation of the substance, and the early practical results of its use were published by the originators in the *BRITISH MEDICAL JOURNAL* of January 29th, 1916, p. 160. It was very desirable that the substance should be produced in commercial quantities, and we were therefore glad to learn that its manufacture had been undertaken by Messrs. Burroughs, Wellcome, and Co. In submitting samples of their preparation they informed us that the name chloramine, or chloramine-T, suggested by the scientific workers responsible for its introduction, had been found to clash with that of an American proprietary preparation, and that they proposed to apply the new name, tolamine, to the para-toluene-sodium-sulphochloramide made by them. In a notice of these samples published in the *JOURNAL* of February 19th, p. 289, we endeavoured, both in the title and in the text, to make it plain that tolamine was a new name used by Messrs. Burroughs, Wellcome, and Co. for the substance which Dr. Dakin and Professor Cohen had proposed to call chloramine-T. We acquiesced in the proposed use of this name in the hope that confusion might thereby be avoided, but this hope does not seem likely to be fulfilled. As Dr. Dakin and Professor Cohen, who carried out their researches for the Medical Research Committee, published full particulars of the mode of preparation of para-toluene-sodium-sulphochloramide it was open to any competent firm of manufacturing chemists to make the substance. We ought, perhaps, to have foreseen that this would happen. As a matter of fact, we shortly afterwards had occasion to mention (March 25th, p. 454) that another firm, Boots Pure Drug Company, had manufactured the substance, and were selling it under the name suggested by the originators, chloramine-T. We are told that other firms are manufacturing the substance, or propose to do so, and that the name chloramine-T suggested by its originators, which is free for all to use, appears likely to be generally adopted. Messrs. Burroughs, Wellcome, and Co., we are informed, have registered tolamine as a trade name, and the medical profession will understand that if they order para-toluene-sodium-sulphochloramide under the name tolamine, the proprietary preparation of this firm must be supplied. We quite admit that for many synthetic substances in common use it is essential to find some short convenient name when, as often happens, the scientific name which expresses its constitution is inconveniently long; obviously, para-toluene-sodium-sulphochloramide is a case in point, but Dr. Dakin and Professor Cohen furnished a short name for it, and, we understand, do not approve of the word "tolamine." While we think that the wishes of the discoverers ought to be respected, we only desire here to make our own position clear, which is that the system of various firms giving different proprietary names to the same substance is not only inconvenient to the medical profession by causing confusion, but is, in our judgement, undesirable on general scientific grounds.

AN ESTIMATE OF THE NUMBER OF DEATHS
CAUSED BY ALCOHOL.

In the *Alliance Year Book for 1916* Dr. Norman Porritt publishes an estimate of the number of deaths in England and Wales during the year 1913 directly or indirectly caused by the abuse of alcohol. Dr. Porritt has proceeded on the following lines: In the first place he sets out a number of causes of death to which the abuse of alcoholic beverages may be assumed, with more or less probability, to have directly contributed. This list includes, among others, cirrhosis of the liver, diseases of the heart, cancer, tuberculosis, and epilepsy. The total deaths registered under each heading are multiplied by a factor varying from one-eleventh to unity and the products summed. The total is given as the direct alcoholic mortality. Under indirect mortality Dr. Porritt ranks a certain proportion of the deaths attributable to the consequences of venereal disease and more than one-sixth of the deaths under 5 years of age. In this way Dr. Porritt arrives at a grand total of 77,416 deaths. That in some of the diseases named by Dr. Porritt the abuse of alcohol is of direct etiological significance, and that in almost all it unfavourably affects the prognosis, are propositions no medical man is in the least likely to dispute. On the other hand, hardly any one will be prepared to regard Dr. Porritt's estimates of the proportions really attributable to alcoholism as much more than guesses. Thus he writes: "In 1913, in England and Wales, 1,700 persons between the ages of 25 and 65 died from diarrhoea and enteritis. In at least a sixth of these the fatal result would be due to alcohol." These and similar assertions may be true or false, but are evidently not within the pale of scientific discussion. Dr. Porritt thinks that if death certificates were confidential documents an adequate record of the causes of death would be obtained. There is force in his contention, but in the particular case under notice it is perhaps doubtful whether much would be gained unless a uniform system were introduced. The more attribution of the death to the effects of alcoholism would, we think, be of little value owing to the wide individual divergences of opinion which must occur as to the relative importance of alcohol as a predisposing or determining cause in different diseases. If, however, it were possible to make a statement as to the habits of the deceased with regard to the use of alcohol in all cases, then an analysis of the returns might yield important information. As, however, the knowledge of the certifying practitioner with respect to the habits of his patient must often be imperfect, even these returns would be subject to considerable errors. In any case such an alteration in our system of certification raises many delicate questions which cannot be discussed now.

Medical Notes in Parliament.

The Budget.—So far as can be judged from the Chancellor of the Exchequer's budget statement on April 4th, the increases in taxation will not specially affect members of the medical profession in the pursuit of their calling except in respect of the increased license duty on motor cars and motor cycles, which in many districts have now become indispensable to medical practitioners. The rates for cars not exceeding 16 h.p. will be doubled, and above that trebled. On motor cycles the duty will be £2 2s. if under 4 h.p., and above that three-fourths of the duty chargeable on motor cars of like horse power. Medical men will, we presume, continue to pay half the duty in respect of a car kept for professional purposes. With regard to income tax, the rate on earned income is to be 2s. 3d. in the £ up to £500 a year instead of 2s. 1½d.; from £500 to £1,000 a year 2s. 6d. instead of 2s. 1½d. Thereafter the scale rises by stages to 5s. in the £ on earned incomes when the total income exceeds £2,500.

¹ *The Alliance Year Book and Temperance Reformer's Handbook for 1916*. Manchester: United Kingdom Alliance, 1916. (Price 1s.)

On unearned income the new scale will begin at 3s. on incomes not exceeding £300, and will rise by stages of 6d. to 5s., which will be paid on incomes exceeding £2,000. On this, as on many other points, it will be necessary to await the full statement which will be contained in the white paper and the bill, and we propose to recur to the matter shortly. Meanwhile, it may be noted that the grievance with regard to income tax on military pay is so far met that Mr. McKenna stated specifically that income received as pay for service in the naval and military forces will not be subject to the additional rates of tax. The points which came in for most criticism in the short debate following Mr. McKenna's statement were the proposed taxes on railway tickets, on matches, and on mineral waters.

Notification Fees.—The Local Government (Emergency Provisions) Bill, introduced into the House of Commons by the President of the Local Government Board, carries out in Clause 5 the recommendation of the Retrenchment Committee (see *JOURNAL*, March 4th, p. 347 and p. 350) to the effect that the fee for the notification of infectious disease occurring in a practitioner's private practice should be reduced from 2s. 6d. to 1s., the fee hitherto paid for notifications of cases occurring in his practice as medical officer of any public body or institution. The same clause requires notification of any case of infectious disease occurring in any building, tent, van, shed, or similar structure in the occupation of His Majesty's Forces, or of any person employed by the Admiralty, the Army Council, or the Minister of Munitions, if it would have been the duty of the medical attendant to notify it if it had occurred elsewhere. The local authority is to pay the fee of 1s. to the medical attendant whether the case occurs in his private practice or otherwise, unless he be a medical officer or a practitioner who holds a commission in any of His Majesty's Forces, or is employed by the Admiralty or the Army Council, and is prohibited from engaging in private practice.

War.

Mesopotamia.—In reply to Mr. Malcolm, on March 30th, the Secretary of State for India said that the inquiry which was being conducted by Sir W. Vincent and General Bingley was confined to the medical and hospital arrangements of the Mesopotamian campaign. Mr. Chamberlain added that he assumed that it would embrace all matters relative to the sufficiency or otherwise of the provision made in India and Mesopotamia for medical personnel, stores, and appliances, and as to the organization of medical relief and the arrangements for dealing with the sick and wounded in the field, at the base, and in transit to the base. He had issued instructions that the Commission should fearlessly ascertain and assign the responsibility for the breakdown of relief, whether individuals or the system were to blame. The Viceroy had invited Mr. E. A. Ridsdale, Red Cross Commissioner, now en route from this country to Mesopotamia, to join the Commission as a member.

Antityphoid Inoculation.—The anxiety of some members with regard to the scruples of conscientious objectors extends to those who object to antityphoid inoculation. Mr. Anderson asked, on March 28th, whether recruits who objected to antityphoid inoculation would be allowed leave in the ordinary way, provided they produced evidence from the M.O.H. of the district they intended to visit stating that the neighbourhood was free from typhoid fever. Mr. Tennant replied that the necessity of preventing the introduction of enteric fever into military camps was paramount, and necessitated that leave should be granted sparingly to men who objected to inoculation. He did not think that the suggestion with regard to the M.O.H. provided sufficient safeguard that uninoculated men on leave would not bring back infection.

Royal Army Medical Corps.—Mr. Shirley Benn asked if young physicians and surgeons, recognized as modern practitioners who join the Royal Army Medical Corps, are made junior officers and have to take their orders from men who, whether clever or stupid, have received their promotions through length of service. Mr. Tennant: If my hon. friend could provide an

infallible criterion for distinguishing between clever and stupid people, and if he could secure its universal and willing acceptance by all the varied and numerous parties concerned, some beginning might be made to put in practice the Utopian system of his choice. In the meantime, the answer to his question is that in the army, as in most professions, the juniors take their orders from the seniors. Mr. S. Benn: Am I to understand that medical qualifications are not taken into consideration? Mr. Tennant: It depends, of course, on the officer's rank.

Tuberculous Soldiers and Sailors.—In reply to Mr. R. McNeill, on April 4th, the Financial Secretary to the War Office said that soldiers who became medically unfit for further service owing to tuberculosis were not sent to their homes when discharged from the army. Arrangements existed with the Insurance Commission by which those men who were insured under the Insurance Act were, if they desired, sent to sanatoriums. Similar arrangements existed with the Local Government Board for men who were not insured, sanatorium treatment being provided as a special privilege. Mr. Forster declined to accept the suggestion that soldiers and sailors suffering from tuberculous disease should be kept undischarged for a period of not less than six months in hospitals specially reserved for them.

Insurance Premiums.—The Financial Secretary to the War Office stated, on April 4th, that shortly after the outbreak of war negotiations were opened with insurance companies with reference to life policy holders on military service in France. The result was that in the case of officers insured before the war extra premium was generally foregone or charged at a low rate, but this arrangement did not apply to fresh insurances.

Army Pensions.—In reply to Mr. Godfrey Collins, the Financial Secretary to the War Office stated, on March 29th, that it was roughly estimated that the cost of pensions arising out of the present war for the year 1915-16 would amount to £2,600,000, and for the year 1916-17, assuming the war to last throughout the year, to £10,000,000. There was, in addition, a charge of nearly £5,000,000 for pre-war pensions.

Wounded Soldiers Discharged.—Mr. Tennant has stated that a soldier unlikely to be again fit for military service was retained in the military hospital as a free patient after discharge from the army if he required further hospital treatment.

Sanatogen.—Sir C. Kinnoch-Cooke asked the President of the Board of Trade, on March 30th, to explain the conditions under which the Sanatogen Company was permitted to trade in this country; and whether, in view of the increasing cost of milk, and seeing that in the district in which the sanatogen factory was situated there was a demand for milk owing to the increased influx of population engaged in munition and dockyard work, and that milk was largely used for the manufacture of sanatogen, he would consider the advisability of winding up the company and so free quantities of milk for consumption. Mr. Runciman said that the business of the Sanatogen Company was being carried on in this country under supervision. The Advisory Committee appointed under the Trading with the Enemy Amendment Act, 1916, already had the case under consideration, and inquiries were being made with regard to the points referred to. In reply to further questions, Mr. Runciman said that pending the receipt of the committee's report he did not think it advisable to take any further steps.

THE British Fire Prevention Committee (8, Waterloo Place, Pall Mall, S.W.) has prepared a small placard (No. 28) setting out the fire precautions which should be taken for working parties and voluntary aid organizations for war work.

A DEMONSTRATION of a life-saving waistcoat was given recently in the swimming baths at the Y.M.C.A. head quarters in London. It consists of two superimposed garments, the inner consisting of a single thickness of waterproof material and the outer of two such thicknesses with a layer of kapok—a form of short-stapled cotton-wool—between them. On sudden immersion the volume of air between the two waistcoats is forced by the water into the spaces in the upper part of the garment, where it is entrapped by the airproof and watertight fabric, thereby enabling the wearer to keep his head above water. Should any of the air escape owing to damage of the material, provision has been made for ensuring reserves of buoyancy by means of the kapok and the air enclosed with it between the two outer linings. Various tests were made on the occasion referred to, and the waistcoat acquitted itself quite satisfactorily, although a demonstration in a swimming bath scarcely affords a criterion as to what would happen at sea. One advantage of the "Ever-ready" waistcoat, as it is called by the makers, the Life-saving Devices Syndicate, Basilston House, Moorgate Street, London, E.C.4, is that it needs no inflation on emergency; it is worn continuously, adding somewhat to the bulk of the wearer, but not otherwise inconveniencing him.

THE WAR.

AMPUTATIONS AND AMPUTATION STUMPS.

The War Office has issued a little pamphlet entitled *Memorandum on Amputations and Amputation Stumps*.^{*} It brings together, for the benefit of medical officers serving in military hospitals at home and abroad, the experience gained by the surgeons at home who have been engaged in the after-treatment of amputation cases, more especially with regard to the fitting of artificial limbs. The notes, we gather, are founded upon the experience at the special hospital at Roehampton. The number of cases sent to it for artificial limbs is large, so that the opportunity for study and observation has been unusually favourable, and the conclusions reached undoubtedly deserve, as the introduction to the memorandum says, "the careful consideration of all operating surgeons." It is stated that of the cases which, as far as the condition of the wound goes, are ready for fitting, the stumps in many are more or less objectionable from the limb-makers' point of view.

Amputations.

The first section of the memorandum deals with amputations, and it is pointed out that while the site, and often the method, of an amputation is mainly determined by the injury, in many cases the surgeon is able to use his discretion not only in the matter of the immediate surgical condition, but also with regard to the future usefulness of the stump. As an example, it is said that while, as a general rule, the amputation stump should be made as long as possible, yet the longest is not always the most useful to the patient or the best for the fitting of an artificial limb. Amputation through a joint (below the shoulder or hip) leaves no room for the fitting of a joint at its proper level in the artificial limb, and it may therefore often be better to amputate just above a joint rather than through it, unless, of course, a still lower site is available. "Guillotine" amputation—that is, straight through the limb, or circular without flaps—is an excellent procedure in suitable cases, in order to secure the freest possible drainage with the least sacrifice of tissues, but it must be followed by the proper after-treatment—namely, secondary amputation as soon as the wound is clean. Cases in which these open stumps have been allowed to heal by granulation, or treated by skin grafting, have in some instances given results which have been extremely unsatisfactory. If the bone cannot be well covered eventually it is better to re-amputate than to allow the flaps to become drawn in, adherent, and distorted in the process of cicatrization.

These general principles are illustrated in paragraphs dealing with amputations at various levels in the upper and lower extremity. With regard to amputation through the leg, the fact is emphasized that kneeling stumps are extremely undesirable at the present day, and that therefore all stumps below the knee should be kept straight in extension and not allowed to become contracted. The best amputation through the hip-joint is said to be that by an anterior racquet, tying the main vessels in the first incision. To this section there is a note to the effect that a case of amputation has not yet been met with at Roehampton, either in the upper or in the lower extremity, to which it was not possible to fit an artificial limb.

Amputation Stumps.

In the second section, on amputation stumps, it is said that from the prosthetic point of view the chief requirements of a good stump are (1) a good covering for the bone; (2) sound healing; (3) consolidation; (4) painlessness; (5) freedom of movement. It is pointed out that consolidation of the soft parts continues for several months; if a bucket limb is applied prematurely it soon becomes loose and ill-fitting from shrinkage of the stump, and, as a general rule, four months should elapse from the date of amputation before any attempt is made to fit an artificial limb. During this period consolidation may be hastened, and the condition of the stump much improved by firm bandaging. The conditions which prevent or delay the fitting of an artificial limb are enumerated as (1) sinuses, (2) painful stumps, (3) unsound scars, and (4) contracture in the neighbourhood of the joint immediately above the amputation. With regard to painful stumps, it is said that

^{*} March, 1916, 40, Misc., 1320.

localized pain on pressure is nearly always due to a bulbous nerve-end near the end of the stump, but in some cases the nerve end is spread out and adherent to the bone or to the scar. As painful nerve-ends are not always evident to the patient until pain, which may be intolerable, is elicited by the pressure of the bucket, they should be sought for by the surgeon and removed before the artificial limb is fitted. In a note on the great frequency of painful bulbous nerve-ends the advice is given that the principal nerves should always be identified and cut short at the primary amputation. Diffused tenderness, on the other hand, is, except in recent stumps, usually due to periostitis or necrosis, the latter, of course, calling for operation. It is added that pain, either localized or diffuse, is sometimes due to bony spicules projecting from the end of the bone. Such osteophytic outgrowths are commonest in stumps about the middle of the thigh, and may have to be removed before an artificial limb can be worn. Speaking generally, it is said that in all amputations the object should be to get a linear scar placed where it will not be subjected to pressure or irritation by the artificial limb.

The memorandum, though short, will be found not only very helpful but very readable, for it deals primarily with general principles, and their application to particular conditions is always adequately explained.

CASUALTIES IN THE MEDICAL SERVICES.

On March 28th it was announced that, in the published lists of casualties, the seat of war in which the casualty occurred, and the battalion in which the officer or man was serving, would no longer be stated, for military reasons. Relatives were also asked not to publish these facts in obituary notices. This information, therefore, can no longer be given.

ARMY.

Died on Service.

Captain Frederick Francis German, R.A.M.C. (temporary), died at his residence, Bedford House, Sandy Road, Seaforth, Liverpool, on March 30th, aged 55. He was educated at Liverpool, and after taking the L.R.C.P. and L.R.C.S. at Edinburgh in 1881 he acted as junior house-surgeon of the Stanley Hospital, Liverpool, house-surgeon of West Bromwich District Hospital, and acting assistant-surgeon of His Majesty's prison, Liverpool. He then went into practice at Seaforth, where he took much interest in public life. In 1895 he became a member of the local council, and three years later its chairman, a position which he subsequently resigned to take up the post of medical officer of the Waterloo-with-Seaforth urban district. He was also honorary physician to the Waterloo and District Hospital, surgeon to the troops at Seaforth, and to the Lancashire county police, and medical examiner to the National Society for the Prevention of Cruelty to Children. He was a Captain in the Lancashire Artillery Volunteers, but resigned his commission in 1907, and had lately joined the R.A.M.C. as a temporary Captain. He was a prominent Freemason, being a P.Pr.G.W. of West Lancashire and a P.M. of the Skelmersdale Lodge No. 1380. In politics he was a Conservative. He leaves a widow, daughter, and son, the latter being a staff-sergeant in the Royal Field Artillery.

Wounded.

Captain R. H. Condy, R.A.M.C. (temporary).
 Captain Gross, R.A.M.C. (temporary).
 Captain A. Robb, R.A.M.C. (T.F.)
 Lieutenant J. Young, R.A.M.C. (temporary).

DEATHS AMONG SONS OF MEDICAL MEN.

Carter, Arthur Rowland, Sergeant Rhodesian Regiment, of Odzi Rapids Farm, South Rhodesia, eldest son of the late Deputy Surgeon Rowland Wimburn Carter, A.M.S., killed in action in February, aged 35.

Childe, Charles M., Captain Gloucester Regiment, eldest son of the late Lieutenant-Colonel L. F. Childe, I.M.S., killed recently. His commission as Captain was dated February 13th, 1915.

Kenyon, Charles Wilton, Second Lieutenant Royal Sussex Regiment, attached to a trench mortar battery, son of Dr. G. H. Kenyon, of Horsham, Sussex, killed in action on March 16th, aged 22. He was born at Horton Pagnell, in Yorkshire, in 1893, educated at Reigate and at Horsham Grammar Schools, and at Exeter College, Oxford, where he was in the O.T.C. His commission was dated November 13th, 1914.

King, Maurice Edmund, Second Lieutenant Middlesex Regiment, third son of the late Dr. Henry W. King, of Northwood, Middlesex, killed recently, aged 19. He was educated at

the Leas, Hoylake, and at St. Edward's School, Oxford, and had just completed his first year as a medical student at University College Hospital when the war began. He was in the Rugby fifteen both of his school and hospital. His commission was dated February 23rd, 1915.

Bruce, Vincent Connell, Lieutenant Gordon Highlanders, second surviving son of the late Dr. Alexander Bruce, of Edinburgh, missing since March 26th, and believed killed, aged 27. He was educated at New College, Oxford, and at Edinburgh University, where he took the degree of LL.B. just before the war. He enlisted at the beginning of the war in the 15th Royal Scots and got his commission as second lieutenant in the 13th Battalion of the same regiment on November 13th, 1914, subsequently transferring to the Gordon Highlanders. On attaining his majority he succeeded to the estates of Inverquhomery and Longside in Aberdeenshire.

MEDICAL STUDENT.

Dorman, Thomas Robert Hobart, Lieutenant 2nd Battalion Royal Munster Fusiliers, who is reported missing since March 1st, 1916, is the son of the late Major Thomas Dorman, R.A.M.C., of Kinsale, co. Cork. He was a third year medical student at Trinity College, Dublin, and joined the army in March, 1915.

NOTES.

In succession to Sir Arthur Lawley, who has accepted another appointment, the Earl of Donoughmore has been appointed British Red Cross Commissioner in France to work under Sir Arthur Sloggett, D.G., A.M.S., and Chief Commissioner in France for the British Red Cross Society and the Order of St. John.

HONOURS.

On March 30th a long list of honours was published: six V.C.'s, twelve D.S.O.'s, seventy Military Crosses, and 203 awards of the Distinguished Conduct Medal. At the same time a number of decorations, conferred by the President of the French Republic, were gazetted. Quartermaster and honorary Lieutenant E. Lyall, R.A.M.C. (T.F.), received the D.S.O.; and Captain B. Grellier (S.R.), temporary Captains L. D. Saunders and H. V. White, and temporary Lieutenant J. A. Harper, all of the R.A.M.C., got the Military Cross.

D.S.O.

Quartermaster and honorary Lieutenant Edward Lyall, 2nd Northumbrian Field Ambulance, R.A.M.C. (T.F.), (attached 185th Tunnelling Company, R.E.). For conspicuous gallantry and devotion to duty. When a large camouflet was blown in by the enemy he hurried through a flooded gallery in the dark and under heavy fire went for proto apparatus. Finding all the proto apparatus already in use, he hurried on and, although in an exhausted state, descended a shaft without any apparatus, assisted in the rescue of an officer, and then went further, rendered aid to two men, and made a most gallant effort to save two officers.

Military Cross.

Captain Bernard Grellier, R.A.M.C. (attached 10th Royal Welsh Fusiliers). For conspicuous gallantry and devotion to duty during operations when tending the wounded under heavy shell fire. He helped to dig out wounded men who were buried.

Temporary Captain Leonard Douglas Saunders, R.A.M.C. (attached 10th Notts and Derby Regiment). For conspicuous gallantry and devotion to duty. He tended the wounded under heavy fire, and finally evacuated them all with great skill and care. His clothing was torn by fragments of shell, and he was at work for forty-eight hours without a rest. This is the third time he has displayed great coolness and devotion to duty.

Temporary Captain Harry Vere White, M.D., R.A.M.C. (attached 7th Lincs Regiment). For conspicuous gallantry and devotion to duty during operations when tending the wounded. His dressing station was repeatedly hit by shells, and he himself was severely knocked about several times, but for thirty-six hours he stuck to his work.

Temporary Lieutenant John Alexander Harper, M.B., 52nd Field Ambulance, R.A.M.C. For conspicuous gallantry when leading stretcher-bearers during operations. On one occasion, when three of his bearers were wounded, he went alone, under heavy shell fire, to the aid post.

Distinguished Conduct Medal.

Sergeant J. W. Cherry, R.A.M.C. (T.F.), 1/3rd Northumbrian Field Ambulance.

Sergeant W. J. Currie, R.A.M.C., 59th Field Ambulance.

Corporal D. H. Molyneux, R.A.M.C., 53rd Field Ambulance.

Private J. J. Filton, R.A.M.C., 59th Field Ambulance.

Private C. M. T. Sheriff, A.S.C., attached 53rd Field Ambulance.

Legion of Honour: Grand Officer.

Surgeon-General Sir A. T. Sloggett, K.C.B., A.M.S. (substituted for the Cross of Commander, the award of which was gazetted on November 8th, 1915).

Croix de Guerre.

Lieutenant-Colonel J. Mill, R.A.M.C. (T.F.).

Captain J. A. Cullum, Canadian A.M.C.

Captain G. H. R. Gibson, Canadian A.M.C.

Captain E. D. Gairdner, R.A.M.C. (T.F.).

A list of naval officers mentioned in despatches, by Rear Admiral Sir Dudley de Chair, for good service in the patrol cruisers, includes the name of Staff Surgeon Robert Bernard Scribner, R.N.

THE RICHMOND HOME FOR HELPLESS MEN.

The Star and Garter Home at Richmond for incurably helpless soldiers and sailors has now provision for 65, and the number already admitted is 49. A lift to the garden in which beds can be taken out on to the terrace will, it is hoped, be completed by the end of the month. The consulting staff is as follows: Consulting physician, Sir David Ferrier, F.R.S.; visiting physician, Dr. S. A. Kinnier Wilson, F.R.C.P.; consulting surgeon, Mr. Wilfred Trotter, M.B., F.R.C.S.; consulting urologist, Mr. J. Thomson Walker, M.B., F.R.C.S.; consulting ophthalmic surgeon, Dr. A. C. Hudson, F.R.C.S.; honorary dentist, Mr. Donald Campbell. The association called the British Women's Hospital is collecting £65,000 for the new buildings, but there is as yet no endowment.

MEDICAL OFFICERS WANTED.

8/3rd H.C. Field Ambulance, R.A.M.C.(T.).

Two or three vacancies exist for medical officers. Those desirous of joining this unit should make immediate application to the C.O. at the head quarters, "Trenches," Redhill. (Phone 300 Redhill.)

England and Wales.

MANCHESTER INFECTIOUS HOSPITALS.

EXTENSION schemes in connexion with the Infectious Disease Hospitals of the Manchester Corporation are now almost completed. The accommodation at the Monsall Fever Hospital has often been taxed to the utmost, and not infrequently cases have had to be refused. Five new blocks have now been added, four containing twenty-four beds each, with small observation wards and wards for special isolation cases; the fifth block provides extra nurses' accommodation. Additions have also been made to the laundry, and a shed for the motor ambulance has been built. Altogether there will be additional accommodation for 112 patients, and it is intended that in future all ordinary cases of infectious disease shall be taken to Monsall, so that the Baguley Hospital may be free for tuberculosis cases. The extensions at Baguley provide 100 beds for men and 52 for women. The new wards all face south and are open to the air above the windows, protection from storms being by means of inclined weather boards; on the north aspect there is protection for the lower story by a projecting balcony and for the upper story by the roof which is carried forward. A new dispensary, a dental room and a laboratory, and a new recreation and dining room have also been provided.

INSPECTION OF LYING-IN HOMES IN LONDON.

At the meeting of the London County Council on April 4th a long debate took place on the proposed delegation to the metropolitan borough councils of power to inspect lying-in homes under the provisions of Part IV of the London County Council (General Powers) Act, 1915. It was reported that since registration became compulsory under this Act 138 applications for registration of lying-in homes had been received, nearly one-third being for homes in Wandsworth and St. Marylebone. The result of such preliminary inspections as had already been made showed that the issues involved related almost entirely to the structural or sanitary fitness of the premises, therefore it was thought that the work was one for the Public Health Committee, and that the inspection should be carried out under the direction of the medical officer. Two of the borough councils—Bermondsey and Camberwell—stated that they were not prepared to undertake inspection; the remainder very generally stated that they could carry out the inspection with their existing public health staff without incurring additional expense. Most of the charitable and social welfare organizations strongly deprecated delegation of its powers by the Council, and eventually it was agreed that the Council itself should proceed with the work of inspection, the inspection to be undertaken by the Council's medical officer of health.

Scotland.

At a meeting of the directors of the Royal Blind Asylum and School, Edinburgh, on March 27th, the chairman said that the proposal to use Newington House as a residence for blinded soldiers had aroused great patriotic interest throughout Scotland. It was felt that it was very much

better that men who suffered this misfortune should live and work among their own people.

MAIMED SOLDIERS AND SAILORS.

The proposal to establish in the West of Scotland a hospital for soldiers and sailors who have lost limbs took definite shape at a meeting in Glasgow on March 29th. Subscriptions amounting to over £20,000 have been received, and Erskine House having been placed at the disposal of the promoters by Mr. Thomson Aikman, it is hoped that the committee will be in a position to receive patients within a few weeks. Lord Newlands, in moving a resolution appointing a committee, said that the credit for having initiated a movement for the benefit of soldiers and sailors who had lost their limbs was, so far as Scotland was concerned, due to Lady Issobel Douglas-Home, who started the Edenhall Hostel, Berwickshire, where valuable practical experience had already been gained. Sir William Macewen, in giving an account of the movement from its inception, said that notwithstanding the excellent work done at the Edenhall Hostel and at the Rochampton Hospital, it was apparent that there was abundant room for the establishment of another hospital to receive and treat men who had lost their limbs, or who had faulty use of their injured limbs after their discharge from the general hospitals, and to fit the limbless with artificial limbs and teach them to use them. Opportunity would be taken while the men were in hospital to inquire into their circumstances, and to help them to acquire knowledge, physical and mental, which would aid them in their future occupation. They would be taught to employ their spare time in useful and remunerative work, and those of dexterous hand and intelligent mind might be turned into artificial limb makers. Every effort would be made to fit them to earn their own living, and communications would be established with county representatives and with industrial firms, so that they might be distributed wherever suitable work could be obtained. The hospital is to be known as the Princess Louise Scottish Hospital for Limbless Soldiers and Sailors. Further donations will be received by the Lord Provost of Glasgow.

Ireland.

THE King has appointed Mr. Charles Yelverton Pearson, M.D., F.R.C.S., Professor of Surgery in University College, Cork, to be one of H.M. Honorary Surgeons in Ireland, in the room of the late Sir Charles Bent Ball, M.D.

The action in which Dr. Charles Ronayne, Youghal, claimed damages from Mr. Denis Doyle, U.D.C., for libel, was concluded at the Cork Assizes on March 28th. The alleged libel consisted of statements to the effect that plaintiff, who was dispensary doctor of Youghal, was incompetent and incapable of performing his duties. The defendant alleged that Dr. Ronayne was deaf, and in the interest of the sick poor he desired that he should retire on full pension. The jury found for the plaintiff in the sum of £100 and costs.

At a meeting of the Finance and General Purposes Committee of the Dublin Castle Red Cross Hospital it was reported that there were at present 126 wounded men in the hospital, and that since its opening 1,386 non-commissioned officers and men had been treated in the wards. The resident medical superintendent (Dr. W. K. Carew) reported that a new ward, containing ten beds, had now been fully furnished and equipped, so that 260 beds were available. An appeal is made for gifts of vegetables, potatoes, rhubarb, jam, cigarettes, tobacco, and slippers. A letter was read from the Belgian Consulate expressing thanks for the facilities placed at the disposal of Colonel Collins and Dr. Molder for the purpose of examining Belgian invalided soldiers.

At the Ballinrobe Quarter Sessions Dr. Hawkshaw claimed from the local board of guardians £3 3s. for duty performed for three days as locum tenens for Dr. Corcoran. The guardians were willing to pay the amount, but the Local Government Board insisted that the usual fee for three consecutive days was £2 2s. The doctor's demand was based on the scale fixed by the Mayo branch of the Irish Medical Officers' Association, and Judge Doyle gave a decree for the full amount, holding that it was reasonable.

Canada.

SUMMER COURSES IN MEDICINE.

IN view of the need for military medical officers, the medical colleges of Canada have decided to give special summer courses this year, so that fifth-year students may graduate at the end of 1916 instead of in the spring of 1917. Some months ago the students requested that such a course might be given, and at first the faculties of medicine were somewhat averse to crowding the work of the final year into a six months' course. The matter was placed before the medical faculties in a letter from the military authorities, asking if such courses could be given provided it could be shown that the military necessity existed for such action; when later it was indicated that this necessity did exist, the universities at once expressed their willingness to accede to the request. The Universities of Toronto, Queen's, and McGill have already announced such courses for this year, and it is probable that other medical colleges will do the same. This means, of course, a period of fifteen months of continuous study for the student and for the teacher continuous teaching for a period of twenty-three months, since another session of eight months must be entered upon after the production of the present final year men. A short vacation will be given during the hot part of the summer. The students will enlist for service immediately after graduation.

CANADIAN MILITARY HOSPITALS COMMISSION.

The first *Bulletin* of the Military Hospitals Commission contains a full account of the purpose and work of the Commission and its co-operating associations, with a statement of the regulations governing pay, subsistence allowance, marriage, and other matters concerning the members of the Canadian Expeditionary Force. The Commission was formed by Order in Council dated June 30th, 1915, for the purpose of providing convalescent homes and medical treatment for returned invalided and wounded members of the force. Shortly afterwards the benefit of such treatment was extended to men who had enlisted but had not yet left Canada, and later the powers of the Commission were extended to the vocational re-education of those soldiers who through disability were unable to resume their former occupations. This phase of the work was placed in the hands of provincial commissions, which in turn elected local committees. Voluntary welcome and aid committees have also been formed in numerous districts, some of which render financial assistance to the men and their families. Convalescent homes have been opened at Sydney, Nova Scotia; St. John, New Brunswick; Quebec, Montreal (3), and St. Agathe des Monts, in the province of Quebec; Kingston (2), Toronto (2), Hamilton (2), Ottawa, London, and Port Arthur, in the province of Ontario; Winnipeg, Manitoba; Calgary, Alberta; Regina, Saskatchewan; and Esquimalt, British Columbia. At the present time there are about 1,200 men at these various homes. Upon examination by the Medical Board at the discharge dépôt the men are classified as follows:

Class 1.—Men for immediate discharge without pension:

- Unfit for overseas service, but capable to take up their previous civilian occupation.
- Disability not the result of service or involving claim as the result of or aggravation by service.

Class 2.—Men whose condition may be benefited by further medical treatment or rest in a convalescent home, hospital, or sanatorium.

Class 3.—Men having a permanent disability which would not be benefited by further medical treatment (such disability due to or aggravated by service) and whose cases will immediately be considered by the Pensions Board with a view to pension.

Before leaving the discharge dépôt the men are provided with suitable clothing, and are given a sum of money sufficient for immediate needs (not more than 10 dollars); the remainder of the money to which the man is entitled is forwarded to the paymaster of the district to which he is going. The rate of pay for a private is 1 dollar a day, with 10 cents field allowance; the subsistence is from 60 to 85 cents a day.

The functional and vocational re-education of disabled men is the most difficult branch of the work of the Commission. The secretary is Mr. T. B. Kidner, who has had a good deal of experience in such work both in England and Canada. The establishment of schools has been commenced in connexion with the convalescent homes, and

preliminary instruction is given to the men in general education and recreative manual work. Such classes will be open to all the men at the convalescent homes. The Commission is conferring with the provincial governments with a view to the formation of a definite land settlement scheme, as it is expected that a considerable number of men will be anxious to take up land rather than return to their former occupations.

The Commission has agreed to recognize the British and other allied army and navy reservists who have left Canada during the period of the war for naval service. These men will be treated exactly as members of the Canadian Expeditionary Force, and will be given free treatment in a convalescent home if they require it.

Correspondence.

ARMY STANDARDS OF VISION.

SIR,—In a note on "The Relation of the Eyes to Rifle Shooting" in the *JOURNAL* of April 1st the statement occurs: "The army standard of vision is not high, and many soldiers require glasses to enable them to shoot with any degree of accuracy." We assume that the present British army standard of vision for recruits is referred to, and as a great deal of misunderstanding seems to be prevalent in regard to this point, we feel that it is very important that the facts should be made widely known. The present British army standard for general service requires vision of $\frac{5}{8}$ at least in each eye, or $\frac{5}{8}$ in the right and $\frac{6}{8}$ in the left *without glasses*. In the armies of France, Italy, Germany and Austria the visual standards very closely resemble each other while differing fundamentally from our own. They require for combatant service vision of about $\frac{5}{8}$ at least in the better eye *with glasses* (if necessary), which, if concave, may not exceed 6 to 7 dioptries in strength. To the uninitiated it might appear as if the British standard were lower than the others, but a moment's consideration will show that it is, on the contrary, by far the highest. The vision of a man who has 6 dioptries of myopia, even if his sight with glasses is excellent, is very seldom more and is often less than $\frac{5}{8}$ without glasses. Conversely, vision of $\frac{5}{8}$ corresponds on the average to a myopia of about 2.5 dioptries. The true comparison is therefore between the British $\frac{5}{8}$ and the Continental $\frac{5}{8}$ or the British 2.5 dioptries of myopia and the Continental 6 dioptries.

In respect of target shooting, it has been shown by various Continental writers that the best results are obtained by the soldiers who have the best vision, whether obtained with the aid of correcting glasses or not.—We are, etc.,

JAMES V. PATERSON, F.R.C.S. Edin.,
Ophthalmic Surgeon, Royal Infirmary;

H. M. TRAQUAIR, F.R.C.S. Edin.,
Assistant Ophthalmic Surgeon, Royal Infirmary.

Edinburgh, April 3rd.

Obituary.

JOHN T. LEON, M.D. LOND., M.B., B.Sc., D.P.H. CAMB.;
CAPTAIN R.A.M.C. (T.); HONORARY ASSISTANT PHYSICIAN, ROYAL
PORTSMOUTH AND GOSPORT HOSPITAL; S.S.O. PORTSMOUTH
COMMAND.

DR. JOHN T. LEON, the esteemed Chairman of the Portsmouth Division of the Southern Branch of the British Medical Association, died in the afternoon of March 31st, aged 50, from cerebro-spinal fever. He was almost certainly infected by a patient who coughed in his face during swabbing of the throat, and thus fell a martyr to his devotion to duty. Throughout his illness he was attended by his friends, Lieutenant-Colonel Routh and Major Ridout, and his brother-in-law, Dr. Luff of St. Mary's Hospital, saw him frequently in consultation. Dr. Leon's commission as Captain R.A.M.C. (T.F.), attached to the 5th Southern General Hospital, was dated July 21st, 1908. When on duty at the Alexandra Hospital, Cosham, he undertook much special work of high value, including the bacteriology of the instructive series of cases reported in the *JOURNAL* of February 26th, p. 307, in Captain Culpin's article on "The diagnosis of abortive cerebro-spinal meningitis."

Dr. Leon was educated at Clifton, and afterwards in Germany. He then entered University College, London, where he was Tufnell Scholar in 1885, and in 1887 he graduated B.Sc. in the University of London. In 1890 he was appointed assistant lecturer on physics and demonstrator of chemistry in St. Mary's Hospital Medical School. After holding those appointments for three years he began the study of medicine at St. Mary's, where he had a distinguished career. He became M.R.C.S. and L.R.C.P. in 1895, and graduated M.B.Lond. in 1896 and M.D. in 1899. After qualifying he was appointed on plague duty in India, where he did useful work in collaboration with Dr. Haffkine. Subsequently he served throughout the South African war, and was for the greater part of the time attached to No. 8 General Hospital at Bloemfontein. On his return from South Africa he settled in practice at Southsea, where he soon gained a leading position. He took the D.P.H. of Cambridge in 1897, and had acted as deputy to the M.O.H., Dr. Mearns Fraser, during temporary absences. Dr. Leon had been for a long time actively associated with the Royal Portsmouth Hospital, and at the time of his death was senior assistant physician. He was a Fellow of the Royal Society of Medicine, and vice-president of the Section for the Study of Disease in Children. In 1896 he contributed to this JOURNAL a note "On the relative opacity of calculi to α rays," illustrated by skiagrams of oxalate, phosphate, triple phosphate and uric acid calculi. He was keenly interested in social questions, and amongst other philanthropic work he acted as honorary secretary of the local branch of the Victoria Nursing Association. He was a brave man, who worked unsparingly for his country, and in him the medical profession has lost a distinguished physician and an able bacteriologist. Captain Leon leaves a widow and two young children, with whom much sympathy is felt.

MANY naval officers and St. Bartholomew's men of the early Eighties will hear with regret of the death of CHARLES STRICKLAND, which occurred after nine months' illness borne with great patience. He entered the medical profession rather later than most of his contemporaries, as he had been obliged to live for some time in South Africa on account of pulmonary tuberculosis, the disease which recurred last year. He took the diploma of L.R.C.P.Lond. in 1885, and that of L.R.C.S.Edin. in the following year. Strickland had a happy disposition, thoroughly enjoyed his life, and his genial nature made him a social success both at the hospital and in the services. When the war broke out he was fleet surgeon at the Royal Marine Light Infantry Barracks, Forton. Soon after this he was placed on the retired list on account of age, but he remained at this post until ill health necessitated sanatorium treatment. After an unsuccessful trial of this régime he settled down with his sister in a house in Southsea which he had prepared and looked forward to as his home on retirement; there he died somewhat suddenly on March 25th at the age of 56. The funeral, a naval one, took place on March 31st at the Highland Road Cemetery, Southsea.

Universities and Colleges.

UNIVERSITY OF LONDON.

THE following candidates have been approved at the examinations indicated:

SECOND M.B. (Part D).—J. C. Braithwaite, W. M. Brown, M. W. B. Buhnan, L. Buryll-Holmes, H. B. Carter, F. Cavers, Alix Jeanne Churehill, H. Cohen, E. S. Cohen, M. Cohen, S. M. Cohen, Florence E. Coombes, D. C. Corry, C. K. Cullen, Beryl Dyer, F. S. Etheridge, F. Fanning, J. O'F. Fletcher, R. E. Ford, R. S. Foss, D. H. Geffen, E. E. D. Gray, R. H. Greaves, Dorothy M. Greig, Hilda T. Haggatt, Edith M. Hall, Joan M. R. Harris, Eleanor Harse, H. L. Heimann, C. L. Hewer, G. R. Hull, G. Hunne, R. C. B. Ledlie, J. N. Leitch, H. S. Le Marquand, H. T. Levieux, Gdál-Leizer Levin, H. J. Levy, W. E. Lloyd, S. F. Mahmood, C. D. Maitland, Ida C. Mann, M. Marcus, G. Massie, Kathleen H. Matthews, Anna Miller, R. M. H. Newbery, Sybil G. Overton, J. P. Padshah, W. W. Payne, R. E. Pleasance, R. W. Revell, W. A. Richards, O. W. Roberts, S. Rosenschein, C. H. St. John, Ruth M. Scott, Olive B. Sharp, Katherine J. Shaw, G. M. J. Slot, Sonia Straschun, Muriel A. Sutton, Vanda P. Thomas, Ruth C. Townshend, Norah E. Trouton, N. S. B. Winter, E. C. Whitehall-Cooke.

† Awarded a mark of distinction.

M.B. (Part II).—Iena C. Adam, *† G. V. W. Anderson, I. S. Banes, Annie H. Banks, M. Baranov, Mary R. Barkas, A. Blackstock, J. D. M. Cardell, W. B. Christopherson, C. E. Cobb, Doris M. Collins, H. C. Cox, R. Coyle, Joyce E. Crags, Nora A. Crow, T. M. Davies, Mary Day, E. F. Deacon, Elizabeth Denniston, Lilian M. Fisher, G. W. T. H. Fleming, A. Foner, St. G. B. D. Gray, Magdalena A. H. Hamel, A. W. Holgate, H. N. Hornbrook, M. Jackson, V. R. Khanolkar, Muriel E. Landau, Mary K. F. Lander, Alice L. Lloyd-Williams, E. K. Macdonald, Janet McA. McGill, Kathleen McC. McKeown, Gladys Matthews, Vida S. Maxwell, L. M. Moody, Edith M. P. Morris, J. B. Nicole, Marguerite H. Paim, R. J. Perkins, Dorothy P. Priestley, Mary M. Prior, E. F. Rabey, R. D. T. Roberts, H. T. Rymér, E. J. Samuel, S. N. Senitzky, B. B. Sharp, J. H. Sheldon, C. E. A. Shepherd, B. L. Slater, Frances M. Spickett, G. P. Staunton, N. Synn, K. S. Tan, S. It. Tattersall, A. L. Telling, C. J. Thomas, Elsie M. Visick, B. L. Walker, A. D. Wall, A. E. Ward, Eugene Wolff, S. C. Woodhouse.

* Distinguished in Anatomy. † Distinguished in Physiology.

† Distinguished in Pharmacology.

UNIVERSITY OF MANCHESTER.

THE following candidates have been approved at the examinations indicated:

FIRST M.B., CH.B.—Part I, *Inorganic Chemistry and Physics*: May Ashburner, Martha F. Barritt, May Blakiston, V. Chadwick, Margaret M. Corbold, J. W. Crawshaw, K. V. Deakin, Dorothy M. L. Dyson, A. M. El Aguizy, Evelyn A. Garnett, Olive M. Gimson, A. Harris, J. Harris, Sylvia K. Hickson, J. H. G. Holt, A. Ingham, H. A. Lomax, A. Maude, W. E. Mitchell, Doris B. Norman, Emily M. Peach, F. L. Pickett, H. Rosenthal, G. Sheehan, Annie E. Sommerhalder, Doris A. Taylor, H. W. Taylor, S. Wand, R. Williamson, J. B. Wright.

Part II, *Biology*: S. Adler, Martha F. Barritt, V. Chadwick, F. A. van Collier, Phyllis M. Congdon, Margaret M. Corbold, J. W. Crawshaw, K. V. Deakin, Dorothy M. L. Dyson, A. M. El Aguizy, H. P. May, F. B. Ferguson, J. B. Fulton, Evelyn A. Garnett, Sylvia K. Hickson, A. Ingham, J. Jacobs, Irma Jehansart, E. Jones, H. A. Lomax, A. Maude, G. L. Meacham, W. E. Mitchell, Doris B. Norman, Emily M. Peach, Annie Rothwell, G. Sheehan, Florence G. Sherry, Annie E. Sommerhalder, Doris A. Taylor, H. W. Taylor, Mary I. Turner, S. Wand, R. Williamson, S. J. Woodall, J. B. Wright.

Chemistry: F. R. Ferguson, J. N. Laing.

Physics: F. A. van Collier, H. D. Preston, Florence G. Sherry.

Ethel D. Willis.

Botany: E. L. Morgan, G. L. Taylor.

SECOND M.B., CH.B.—Elizabeth C. Davies, E. Pigott, Marie Wardman, F. L. Whincup. (*Physiology*): J. Yates.

THIRD M.B., CH.B.—A. B. Platt.

D.P.H.—H. Heathcote.

UNIVERSITY OF SHEFFIELD.

THE following candidates have been approved at the examination indicated:

SECOND M.B., CH.B.—J. N. Gale, J. V. Mainprize, G. E. Rae, J. Ryan, Alice White, Ethel White.

* With distinction in Physiology.

UNIVERSITY OF DURHAM.

THE following were among the degrees and diplomas conferred at the Convocation on March 25th:

M.D. (for Practitioners of Fifteen Years' Standing)—H. B. G. Newham, S. A. Mittampalam.

M.B. and B.S.—A. F. R. Dove, H. K. Graham-Holmes, E. Haigh, G. Irving, A. E. Raine, A. Smirhwaite, B. Welch.

B.Hy. and D.P.H.—B. G. H. Connolly (*in absentia*), W. Grant.

UNIVERSITY OF ABERDEEN.

WAR SERVICE.

IN the course of his address at the graduation ceremony in the Mitchell Hall, Marischal College, on March 28th, the Principal gave the following statistics as to the number of persons belonging to the university who were serving in the naval and military forces. "Of our administrative teaching and research staffs, which in normal times numbered just over 100, 57 have been or are working directly for the purpose of the war. Of these, 15 are in the combatant service; 17 have commissions in the R.A.M.C. (8 beyond and 9 still within the university); 21 hold military offices of other kinds (6 of these with commissions), one is a prisoner of war, while there are several others who have attested but have not yet been called up. Of our graduates, 890 are commissioned, 253 in the combatant service, 604 in the R.A.M.C., and at least 33 as chaplains; and 161 graduates are still enlisted, making a total of 1,051 graduates on naval and military service. But that number does not include our graduates who are in charge of Red Cross hospitals, of whom 28 have been reported, nor about 30 others entered on the navy list as surgeons and agents at sick quarters. Add these and we have over 1,100 graduates in all on war duties. The exact number of our ungraduated alumni on service cannot be ascertained, but 71 have been reported as holding commissions and 63 as serving in the ranks—in all 139. Of undergraduate students, 121 have been commissioned and 237 have served or are serving in the ranks. Altogether I reckon that about 358 students have entered on service with the colours since the war began; and by the summer term this number will be increased. The total of graduates, alumni, students, staff, and servants of the university on active service is therefore about 1,580, as compared with 1,200 at last graduation. If we add to them the members of our Officers' Training Corps and our graduates who are serving as volunteers or under the Red Cross Society, and at naval sick quarters, we get about 1,700 as a grand total of those on war service or under training. That number does not

include 25 or 30 young men who would have matriculated as students but for their call to arms.¹

The Aberdeen University Work Party, organized in the department of materia medica by Professor Cash and a committee of ladies, had been able to dispatch large quantities of surgical dressings and hospital garments to the Red Cross and medical institutions connected with the army.²

When the Principal had concluded his address he read out the names of seventy members of the university who had given their lives. Each, he said, had joined the services because the hand of God was upon his conscience in the strength of the most sacred cause to which his country was ever called.

In an earlier part of his address the Principal referred to the postponement of the institution of certain lectureships. This reference recalls the fact that several important benefactions have recently been announced in the departments of medicine and science. These include the foundation by Sir Alexander McRobert, LL.D., of Cawnpore, India, of a lectureship in pathology with special reference to malignant disease. The emoluments of the lectureship will amount to about £750 per annum. The late Mr. William Jackson, Aberdeen, has bequeathed one-half of the residue of his estate towards the establishment of a chair of engineering in the university, the bequest being subject to his widow's life-rent. Mr. George S. Yuill, Australia, has handed over a sum of £4,000 to found travelling and other scholarships in chemistry, with special reference to its practical application to the manufactures and industries of Great Britain. A bequest by the late Miss Anne H. Cruickshank, daughter of a former professor of mathematics in the university, will shortly become operative. Miss Cruickshank left £10,000 for the purpose of founding a chair or lectureship in astronomy, and the revenue from this and other funds available will be sufficient to provide an annual return of £600.

Conferment of Degrees.—The following were among the degrees conferred:

M.D.—A. D. Pringle, M.B. (commended for thesis).
M.B., Ch.B.—*R. D. Lawrence, M.A., *A. G. Reid, W. Alexander, J. Anderson, Mary A. Chalmers, A. J. Hawes, A. A. Hearne, S. Henry, Eva C. Innes, B. S. Kanga, T. S. Law, A. A. MacKenzie, C. W. Macpherson, W. J. Moir, T. O. Robson, A. E. B. Sims, F. Simmes.

* With second-class honours.

† Passed Fourth Professional Examination with "Much Distinction."
‡ Passed Fourth Professional Examination with "Distinction."

Prizes.—The following prizes were presented:

Five Jameson memorial gold medal in anatomy: Violet M. G. Smith.

Keith gold medal for systematic and clinical surgery: A. G. Reid.

Shepherd memorial gold medal for systematic and practical surgery: Douglas S. Scott.

Dr. James Anderson gold medal and prize of £5 in clinical medicine: A. G. Reid and T. O. Robson proxime accessit.

Matthews Duncan gold medal in obstetrics: G. R. McRobert.
The Alexander Ogston prize in surgery: F. W. Carter.

UNIVERSITY OF EDINBURGH.

GRADUATION CEREMONY.

In his address to the new graduates at the graduation ceremony on March 28th, Sir Thomas Fraser, who presided, after a reference to the loss the university had sustained by the death of Sir William Turner, turned to the effect of the war. The number of matriculated students, although materially lessened, had not, he said, been disastrously affected, as appeared to have happened in some of the English universities. In 1913-14 there were 2,731 male students, and in 1914-15 there were 1,941. Comparing the numbers from the beginning of 1914-15 to March 11th, 1915, with those for the same period in 1915-16, the figures were in the former 1,732 and in the latter 1,222. He hoped that in future sessions women would be represented not only in undiminished, but in greater numbers. The number of graduates and students who had already joined the services was about 4,400; of these, 145 had been killed in action or died on service, 126 had been wounded, 2 were missing, and 8 were prisoners. Military honours and decorations had been conferred on 77, and 90 others had been mentioned in dispatches. The training all the alumni had undergone had had a gratifying effect both physically and mentally, and he thought that those great benefits might be continued after the war were physical training regarded as being within the scope of university education. He suggested that a university hall or other building devoted to athletic exercises should be erected, on the walls of which the names of those alumni who had given their lives for the country and empire should be inscribed. The gymnasium he had in view should be under the direction of a scientifically qualified expert with university status able to decide on the appropriate form and extent of the physical training required by each student. Enlightened benefactors of such a movement would place Edinburgh University on an equality of advantage with other Scottish universities, for gymnasia had already been provided, largely by public benefaction, in Glasgow, Aberdeen, St. Andrews, and University College, Dundee.

Conferment of Degrees.—The following degrees were conferred:

M.B., B.S.—K. P. Brown, C. A. E. I. Brownlee, *A. J. Caird, Yun Ying Chan, F. W. Clark, O. T. I. Clarke, A. Cleland, A. A. Crawford, B. G. Crawford, H. J. Davidson, J. Dickson, *A. V. Dill, Thea Do, W. H. Ferguson, G. H. Fraser, Bhaskar Balwantrao Gadgil, J. A. C. Gny, C. Harris, J. E. Hill, J. M. Johnston, E. B. Kelley, J. B. F. M'Laron, J. C. Manuel, G. Morris, Matheson

Sankara Narayana, †D. H. Paterson, Pierre Ange Rostant, J. J. Shannon, N. H. Smith, D. R. Thomas, A. F. de Waal, Gladys Ward, J. M. Watt, †H. D. Wright.

* With first-class honours † With second-class honours.

UNIVERSITY OF GLASGOW.

The following candidates for the degrees of M.B. and Ch.B. have passed in the subjects indicated:

[B., botany; Z., zoology; P., physics; C., chemistry; A., anatomy; Ph., physiology; M., materia medica and therapeutics; Path., pathology.] *A. P. Agnew (Z., C.), A. G. Aitken (Z., C.), W. S. Aitken (Z., C.), D. E. Alley (B.), A. A. Bain (Z., C.), A. Baird (Z.), A. Barr (Z.), A. M. Beaton (Z.), A. R. Black (P.), J. T. Blundell (Z.), G. H. Boyd (Z., C.), A. O. Bruce (Z.), G. F. Cables (Z.), S. Caldwell (Z., C.), P. A. Carrie (Z., C.), A. Chisholm (Z., C.), D. H. Clutterbuck (C.), H. Collingbourne (C.), A. B. Cook (B., Z., C.), W. Davie (Z.), J. Dawson (Z., C.), J. Dewar (Z.), A. S. Dick (Z.), J. M. Duff (Z.), W. N. Duguid (Z.), T. Fletcher (Z., C.), J. C. Forsyth (Z., C.), B. P. Gardner (B., C.), T. Gibson (Z., C.), *R. D. Gillespie (Z., C.), C. Glen (Z., C.), G. G. Graham (C.), A. Gray (Z., C.), J. L. Halliday (Z., C.), D. R. Hamilton (Z., C.), W. M. Hamilton (P.), D. Henderson (Z., C.), W. C. Holdsworth (Z., C.), W. Houston (Z., C.), A. D. Humble (B., P.), J. Harwick (Z., C.), G. Jamieson (C.), L. M. Johnston (Z., C.), J. L. Kennedy (Z., C.), D. A. Ker (Z., C.), W. P. D. Kerr (Z., C.), J. C. Kirkwood (Z., C.), D. Lamont (Z., C.), J. Lavelle (Z.), A. Logan, M.A. (B.), A. L. M'Adam (Z., C.), G. M'Alpine (B., P.), C. G. H. Macartney (Z., C.), H. J. M'Bride (Z., C.), M. M'N. M'Bride (B., P.), W. M. M'Cash (Z., C.), A. M. M'Clure (Z., C.), J. M'Court (B.), R. M'Courtney (B.), D. Macdonald (Z., C.), J. Macdonald (Z., C.), T. S. Macdonald (Z., C.), J. M'Dougall (Z., C.), J. Macfarlane (Z., C.), T. J. M'Kail (Z., C.), W. M'Kendrick (Z., C.), S. R. M'Kim (B., Z.), O. T. MacLaren (Z., C.), J. M'Nair (Z., C.), J. C. M'Naught (Z., C.), R. M. Macpherson (Z., C.), M. P. G. Main (Z.), A. Markson (Z., C.), E. B. Miller (Z., C.), J. M. L. Mitchell (Z., C.), *G. W. Murray (Z., C.), J. Nairne (Z., C.), J. P. Neilson (C.), M. Nicolson (Z., C.), G. S. P. Noble (Z.), A. L. Orr (Z., C.), T. C. Porter (C.), A. H. Rankin (Z., C.), P. G. Rankin (P.), J. Reid (Z., C.), J. F. Reilly (Z., C.), C. G. Richards (Z.), J. Sachs (Z., C.), W. H. Scott (Z., C.), H. E. Seiler (Z., C.), H. J. Sheppard (Z., C.), A. G. Smith (Z., C.), D. C. Smith (Z., C.), A. Snaddon (Z., C.), J. Snaddon (C.), F. C. Speechley (C.), A. V. Steen (Z., C.), D. Stewart (Old Ord.) (B.), D. Stewart (Z., C.), *J. M. L. Strang (Z., C.), W. D. Sutherland (Z., C.), A. Symon (Z., C.), A. S. Taylor (Z., C.), C. N. Teuppe (Z.), W. L. Templeton (Z., C.), J. N. Tennant (Z., C.), D. W. Tobias (Z., C.), G. Tudhope (Z., C.), P. A. Walker (B., P.), J. D. Whiteford (C.), C. B. Whitte (Z., C.), *J. Willic (Z., C.), J. Yule (Z., C.), Annie M. Alexander (Z.), Marion B. Arnsperg (Z., C.), *Mary Baird (Z., C.), Margaret Bennett (Z., C.), Elizabeth M. V. H. B. Bird (Z., C.), Margaret W. Blackwood (Z., C.), Agnes L. D. Bradford (Z., C.), Susan S. Bryce (Z., C.), Lilias E. B. Buchanan (Z.), Annie B. Cameron (P., C.), Edith Chalmers (C.), Ellen B. Cowan (Z.), Edith M. Davidson (Z.), Simcine Denil (Z., C.), Isabella G. Dunlop (B.), *Elsie F. Farquharson (Z., C.), Elizabeth J. Findlay (Z., C.), Christian M. Fleming (Z., C.), Margaret E. Gibson (Z.), Muriel M. Gilmour (Z., C.), Agnes S. Glover (Z., C.), Mabel S. Goudie (B., Z.), Mary B. Grant (Z., C.), Christina Gray (Z., C.), Brunhilde M. Grieve (Z., C.), Agnes B. Hart (Z.), Marion P. Hogg (B., P.), Isabel E. R. Jeffrey (C.), *Margaret L. Johnston (Z., C.), Jane C. MacDonald (Z., C.), *Mary J. Macfarlane (Z., C.), Annie I. C. MacLardy (C.), *Alexandrena M. MacLennan (Z., C.), Marie J. M'Naught (C.), Muriel M. M'Walter (C.), Janet D. Montgomery (Z., C.), Effie Niblock (Z., C.), Alice J. Paton (B.), Joanna T. Rae (Z., C.), Isabel Reid (Z.), Kathleen E. H. Rutherford (Z., C.), Mary Russell (Z., C.), Marguerite L. Sclanders (Z., C.), Margaret D. L. Service (Z., C.), Catriona Sinclair (Z., P.), Elizabeth H. M. Slimmon (Z., C.), Alexandra W. Smylie (Z., C.), Jane E. Stewart (Z., P., C.), Christina S. Stoddart (Z., C.), Margaret M. Stuart (Z.), Dorothy M. Summers (Z.), Helen B. Sutherland (Z., C.), Margaret Y. Turnbull (Z.), *Mary C. Walker (Z., C.), Mary L. Wilson (Z., C.), *Helen F. Wingate (Z., C.), Agnes H. M. Young (Z., C.).

C. O. Anderson (A.), A. B. Austin (Path.), R. Bethune (M.), A. Black (M.), D. O. Bowie (Ph., M.), J. Bradford (Path.), *A. D. Brown (A., Ph.), M. J. Cahalane (M.), T. W. Carstairs (Ph.), M. Chalmers (A.), A. E. Cochrane (M.), H. A. Cochrane (M.), A. C. Connell (A., Ph.), E. M. E. Cumming (A., Ph.), W. Dempster (M., Path.), J. C. Dow (A., Ph.), A. B. S. Drysdale (M.), K. H. Dyke (M., Path.), D. Finlayson (M.), J. P. Fleming (M.), T. Fleming (M.), T. Forrest (M.), A. D. Fraser (A.), K. J. A. Gillanders (M.), W. H. Gordon (Path.), A. S. Goudie (M.), P. F. A. Grant (A., Ph.), J. S. M'P. L. Gray (M.), J. G. Harrower (M.), A. Henderson (M.), J. Hislop (M.), T. J. Honeyman (Path.), M. Hyman (M.), E. P. Irving (Path.), J. Irving (M.), J. Joels (M.), B. E. Kerr (M.), W. H. Kerr (M.), W. M. Kerr (M., Path.), J. P. Kilty (M.), A. B. M'K. Lang (Path.), G. Lean (Path.), J. Liddell (M.), J. Lipschitz (M.), F. R. Lubovius (Path.), W. W. Lunde (Path.), *A. J. Macartney (A., Ph.), D. MacColl (A., Ph.), H. E. M'Coll (M., Path.), A. B. Macdonald (A., Path.), B. T. M'Gibbon (M.), A. D. C. M'Gowan (Path.), T. M'Gowan (M.), J. A. C. MacGregor (M.), D. B. M'Intosh (Path.), J. W. Mackay (M.), D. W. M. MacKenzie (M., Path.), R. H. M'Killip (Path.), J. G. M'Kinna (A., M.), J. M. Mackintosh (Path.), W. S. L. M'Leish (M.), J. Macleod (A., Ph.), W. M' Linden (M.), F. K. Macmillan (A., Ph.), D. Macqueen (M., Path.), A. W. M'Roie (M.), J. M. Melvin (M.), G. A. Mitchell (Path.), W. Napier (M.), J. Nicolson (A., Ph., M.), I. L. Oluwole (A.), J. Paterson (A., Ph.), J. W. Patterson (M., Path.), N. B. Peacock (M.), G. Pearson (M.), B. J. Peters (M.), J. B. Potter (M.), R. U. Qureshi (A., Ph.), I. M. Robertson (M.), J. J. Robertson (M.), F. W. Sandeman (M., Path.), T. B. Sinclair (Path.), C. L. Somerville (M.), T. Stark (A., Ph.), J. Stewart (A., Ph.), A. S. Strachan (M.), J. T. Taylor (A.), J. J. Treanor (M., Path.), J. C. Vaughan (M.), A. R. Waddell (A., Ph.), J. L. Walker (M., Path.), W. A. Walker (A., Ph.), H. D. Wallace (M.), H. Wands (A., Ph.), R. Wiggins (M.), G. M. Wishart (M.), B. Young (A., Ph.), Annetta G. T. Anderson (Path.), Ellen D. Anderson (A., Ph.), Mabel N. Blake (M., Path.), Grace Chatterton (M.), Margharita M. Couper (M.), Grace A. Fleming (M.), Margaret O. R. Gallagher (Path.), Mary B. Gillespie (Path.), Jane E. Hanson (M.), Janet W. Hepburn (M.), Mary R. Knight, M.A. (M.), Elizabeth C. Loudoun (M.), Mary J. Macdonald (M.), Isabella Q. M'Fadzean (M.), Margaret T. M'George (M.), May E. MacVey (Path.), Maud E. D. Mackinnon (A.), Margaret G. M'Vey (M.),

Florence F. M. Milne (A., Ph.), Mercedes M. Morton (Path.), Elizabeth P. Y. Paterson (M.), Vida J. Perry (A., Ph.), Margaret I. Prangnell (A., Ph.), Margaret N. Robertson (Ph.), Agnes P. Routledge (M.), Marjory Mary Scanlan (A., Ph.), Katherine Scott (A., Ph.), Margaret M. C. Steedman (M.), Dorothea H. Suttie (M.), Lydia I. H. Turrance (M.).

The following have passed in Medical Jurisprudence and Public Health of the fourth professional examination (New Medical Ordinance):

J. W. W. Baillie, J. E. Bannen, *W. M. Cameron, R. Cunningham, D. Heard, F. W. Hebbethwaite, G. M. Hetherington, H. F. Hollis, J. R. R. Holmes, *J. N. Jamieson, K. M. Alpine, N. MacKillop, *J. M. Mackintosh, H. Robertson, H. B. Sergeant, A. W. Smith, J. T. Wylie, Janet M. Alexander, Winifred J. Crawford, Margaret H. Glen, Alice J. Marshall, May I. T. Reid, Marion Watson, *Mary MacL. Weir.

The following have passed in Medical Jurisprudence and Public Health of the third professional examination (Old Medical Ordinance):

A. G. Brand, J. MacD. Clark, W. H. Gordon, E. G. S. Hall, T. J. Honeyman, *A. B. M'A. Lang, A. D. C. McGowan, A. B. Stich, J. A. White.

* Passed with distinction in one or more subjects.

Note.—Students under the Old Medical Ordinance who have not previously passed in Pathology will note that at this time in Medical Jurisprudence is conditional on their also undergoing the present examination in Pathology.

UNIVERSITY OF DUBLIN.

The following candidates have been approved at the examinations indicated:

INTERMEDIATE M.B.—*Part I, Anatomy and Physiology*: A. J. Vorster, R. Bosnekov, C. D. Brink, J. J. G. de Kook, W. R. Burns, Olive G. Blackham, H. B. Van der Merwe, W. B. Briggs, I. Widoger. *Part II, Applied Anatomy and Applied Physiology*: *H. L. Parker, *V. M. Syngé, *C. L. Wilson, I. Albertyn, P. J. Molony, R. M. D. Devereux, Mary C. Sheppard, J. C. Fouché, W. L. Young, *W. P. Elford, *W. V. Pellissier, W. Sweetnam, E. E. Rollins, *K. Greer, *T. H. R. McKiernan, P. H. S. Smith, T. B. H. Tabuteau, *E. J. Lydon, *W. A. Shannon, P. A. Dornier, L. J. Nugent, W. F. McConnell, T. S. McDonald, J. G. Bird, Ethel M. Luce, E. S. E. Mack, W. A. W. Cullen, *T. M. Bentley, J. M. Hill, D. McElwee, Olive G. Blackham, J. B. McGrannahan, P. J. Swanepoel.

* Passed on high marks. † Equal.

FINAL M.B.—*Part I, Materia Medica, Pathology, Medical Jurisprudence, and Hygiene*: *P. Rock, *B. W. Nesbitt, J. R. Brennan, H. Brill, W. J. McClintock, S. V. Furlong, H. Banks, A. L. Albertyn, A. I. Steyn, C. P. Chambers, W. P. Lufbbe, C. Weir, S. A. Clark, T. E. Hill, F. W. P. Sullivan (Materia Medica and Pathology), Michael C. Dippenaar (Pathology completing examination), Millicent Hamilton-Johnstone (Materia Medica, Medical Jurisprudence, and Hygiene completing examination), H. H. Molloy (Materia Medica completing examination). *Part II, Surgery*: J. W. Bigger, T. Lane, C. L. McDonagh, L. Blumberg, Millicent Hamilton-Johnstone, M. McG. Russell, Eileen G. Gwynn, F. J. Murphy. *Medicine*: J. W. Bigger, R. C. B. Ramsay, G. W. Doran, J. T. Westby, Millicent Hamilton-Johnstone, Eileen G. Gwynn, R. Gordon. *Midwifery*: Millicent Hamilton-Johnstone, J. G. Bird, F. Healy, J. T. Westby, S. V. Furlong, H. S. Campion.

D.P.H.—*Part I, Bacteriology, Pathology, Chemistry, Physics, and Meteorology*: B. D. Crichton. *Part II, Sanitary Engineering, Vital Statistics, Public Health, Hygiene, and Epidemiology*: J. R. D. Holtby, Marjorie Chapman, Florence Colquhoun.

* High marks.

QUEEN'S UNIVERSITY OF BELFAST.

The following degrees and diplomas were conferred at the spring graduation ceremony:

M.D.—S. H. Davison, F. C. Mann.
M.B., B.Ch., AND B.A.O.—*Eileen M. Bell, D. Corry, *J. Cullenan, C. F. Davey, S. J. W. Donald, J. E. Finlay, Mary E. Henry, Mary M. Keirna, J. M. McCormack, *J. C. McMillan, Joseph R. M. Mackenzie, J. F. W. Meenan, W. N. Montgomery, R. L. Sinclair.
D.P.H.—*Dr. A. M. Elliott, *Dr. P. J. Gaffikin, Dr. H. M. Jackson, Dr. R. J. Morgan.

* Second-class honours. † In absentia.

THE Association of Infant Welfare and Maternity Centres desires to make it known that it has not authorized the use of its name in connexion with the child life and welfare exhibition to be held in London in June.

THE American Gynecological Society will hold its forty first annual meeting at Washington on May 9th and the following days. The principal subjects for discussion are syphilis, cancer of the uterus, and painless labour.

THE National Union of Trained Nurses has addressed to the President of the Board of Trade a memorial begging that an inquiry should be instituted regarding the articles and memorandum of association of the proposed college of nursing, on the ground that it would be against the best interests of the nursing profession that the scheme in its entirety and with its present articles should be permitted to proceed. It is asked that the scheme should be examined by a competent body of professional experts, including representatives of the General Medical Council and of the British Medical Association, as well as of societies of trained nurses.

Letters, Notes, and Answers.

THE telegraphic addresses of the BRITISH MEDICAL ASSOCIATION and JOURNAL are: (1) EDITOR of the BRITISH MEDICAL JOURNAL, *Aitology, Westrand, London*; telephone, 2631, Gerrard. (2) FINANCIAL SECRETARY AND BUSINESS MANAGER (advertisements, etc.), *Articulate, Westrand, London*; telephone, 2630, Gerrard. (3) MEDICAL SECRETARY, *Medisera, Westrand, London*; telephone, 2634, Gerrard. The address of the Irish office of the British Medical Association is 16, South Frederick Street, Dublin.

Queries, answers, and communications relating to subjects to which special departments of the BRITISH MEDICAL JOURNAL are devoted will be found under their respective headings.

QUERIES.

INCOME TAX.

PERPLEXED inquires as to the deductions to be made in respect of his motor car.

* * All running expenses, petrol, tyres, repairs, etc., also such recurring expenses as insurance, licences, etc., are deductible as ordinary locomotion expenses. No allowance is due for depreciation, whether caused by wear and tear or otherwise; but the actual net cost of renewal or replacement is admitted to be a proper subject for deduction in calculating the profits for the year in which that expense was actually incurred. In the case put by our correspondent—namely, the sale of a car for £100 owing to depreciation from wear and tear and the purchase for £375 of a new car—£275 would be a correct deduction. It should be borne in mind that the deduction is not to be made from the average profit but in arriving at the profits entering into the average.

W. M. M. J. inquires what income tax would be payable on an income made up as follows:

	£	s.	d.
R.A.M.C. pay (gross)	359 16 0
Professional earnings from practice abroad...	85 0 0
Unearned income (net)	122 0 0

* * Assuming that our correspondent would not be residing in this country if he were not in the military service, we think that the £85 will probably be regarded as exempt from taxation. The sum of £122 is presumably the net amount after tax at 3s. in the £ has been deducted, in which case the gross amount would be about £143 10s., and our correspondent's gross taxable income would therefore be £360 + £143 = £503. It is unfortunate that this exceeds £500, inasmuch as the lower scale of abatements applies and the higher scale of rates of tax. The unearned income being taxed, the only tax payable direct is on the pay, namely, £360 less £100 (= £260) at 1s. 9d., that is, £23 8s.

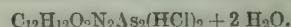
LETTERS, NOTES, ETC.

"METRIC PRESCRIBING."

DR. W. W. HARDWICKE (London, S.W.) writes: In my letter in the issue of April 1st, the sign for "centimilligram," *cmg.*, was, by an error of the printer, converted into "cubic milligram" by the insertion of a stop after the c. The metric equivalent for 1 grain, shown as 0.65, should have been .065. I regret that, when correcting the proof, the errors escaped my notice.

SALVARSAN.

MR. JOHN WEBSTER, F.I.C. (St. Mary's Hospital, W.), writes: In the paper contributed to the BRITISH MEDICAL JOURNAL of April 1st by Dr. Wilcox and myself, the formula of salvarsan has by an oversight been given as $C_{12}H_{12}O_2N_2As_2(HCl)_2$, instead of



This latter formula gives an arsenic content of 31.6 per cent. (= As_2O_3 41.7 per cent.), and not 34 per cent. (= As_2O_3 44.9 per cent.) as stated in the paper.

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

	£	s.	d.
Seven lines and under	0 5 0
Each additional line	0 0 8
A whole column	3 10 0
A page	10 0 0

An average line contains six words.

All remittances by Post Office Orders must be made payable to the British Medical Association at the General Post Office, London. No responsibility will be accepted for any such remittance not so safeguarded.

Advertisements should be delivered, addressed to the Manager, 429, Strand, London, not later than the first post on Wednesday morning preceding publication, and, if not paid for at the time, should be accompanied by a reference.

NOTE.—It is against the rules of the Post Office to receive *postes restantes* letters addressed either in initials or numbers.

Remarks

ON

"COLDS" AND THE INFLUENCE OF THE
ATMOSPHERE ON THE NASAL
MUCOUS MEMBRANE.

BY LEONARD HILL, M.B., F.R.S.,

DIRECTOR OF THE DEPARTMENT OF PHYSIOLOGY, MEDICAL
RESEARCH COMMITTEE.

EPIDEMICS of "colds" are most common when the humidity of the atmosphere is great, and the temperature variable but on the whole cool—when the weather is raw with thawing snow, or strong winds blow charged with cold rain, and the ground is wet and cold. Cold dry weather and strong drying winds do not favour these epidemics. Men living open-air lives are free from "cold" whatever exposure to extremes of weather they undergo—for example, sailors on long voyages, arctic travellers, troops at the front. The health of the navy at sea in war is better than in peace; the sailors are far less exposed to temptation to over-indulge, and to infections from the civilian population in port. Shackleton in his antarctic expedition recorded a single outbreak of "cold" after the opening of a bale of clothes packed in London. Men taken from shop or office, turned into soldiers, and put under canvas, escape the "colds" from which they suffered in civil life. When children after the holidays return to school, epidemics of "cold" usually begin to run through the community. In the holidays they may paddle all day in the sea, bare-legged, exposed to far greater cooling than at school, but they do not suffer from "colds" then. The "colds" begin when the weather confines them in shut-up and artificially warmed schoolrooms and places of assembly. The latter are the happy hunting ground of the infecting microbe, which does its work while the little innocents raise their voice in the morning hymn. A certain propinquity is required in order that the infected saliva spray sneezed, coughed, or spoken out, may be carried from a "carrier" to another victim. Out of doors folk do not crowd so closely, and the ventilation is very much greater; the saliva spray is blown away, and the infection cannot be massive, as it may be indoors or in railway carriages, where the atmosphere is comparatively still.

But this is not the whole story. Why do certain weather conditions cause epidemics to sweep through the communities of our cities? Why are those who live an outdoor life relatively immune—hardened—both to weather conditions and infection? What is the nature of the hardening process set up by exposure to weather and cold baths? In spite of the popular opinion to the contrary, it is clear that exposure, even to extremes of cold, by itself does not occasion "colds" or pneumonia. Shipwrecked folk, exposed almost to that point of chilling which stops the vital functions, do not after rescue suffer from coryza or pneumonia; neither do the troops exposed to the severest hardship in the waterlogged trenches. "Trench foot" seems to be the combined result of local chilling and waterlogging of the skin. Dry cold can be withstood very well, or prolonged exposure to salt sea water. In the case of trench foot it is the osmotic conditions of the tissues which are upset by the soaking of rain water into the chilled skin, while the tissues are poisoned by the products of bacteria which multiply within the confinement of the boot and stocking. A local damage thus results from prolonged and extreme exposure to wet and cold. On the other hand, the troops so exposed are singularly free from pneumonia, "colds," and epidemics of the influenza type.

The domestic animals—cow, pig, horse—with a relatively scanty covering of fur, not only withstand, but thrive on, continued exposure to wintry weather in the fields, or in cold, draughty byres. Stock raisers know that artificial means of heating cannot be used with success. Fowls will not thrive in artificially heated pens. The incubator chick is not so robust as the one hatched by the hen. So is it with the child coddled in heated rooms at home and at school.

Acute rhinitis or coryza, the common cold, may be caused by bacterial infection; by dust—for example,

cycling in the dust of motor cars; by a chemical irritant—for example, sulphurous acid from furnaces; the poison gas cloud of chlorine suffocates by causing the outflow of fluid in the air passages; by the pollen of certain grasses. There is also a class of people who suffer from a nervous derangement of the nasal membrane, from vasomotor rhinitis or paroxysmal rhinorrhoea as it is called. The nasal reflexes of such people are unduly excitable—hyperaemic patches may sometimes be seen on their nasal mucous membrane. Sudden changes of atmosphere—a draught—may provoke in these an acute paroxysm. These people are pathological, hypersensitive, but it is probable that their noses have a great influence on the habits of the nation. The laity do not distinguish causes. It is manifest that some people are acutely affected by draughts, and therefore draught becomes popularly considered the chief cause of "colds." Nursery and family tradition rules habits, and tradition is usually at least half a century behind science. Science may beat against the door but tradition holds it fast.

It is generally believed that more nasal catarrhs are contracted through cold feet than in any other way, and yet soldiers whose feet are chilled to the local death of tissues do not have "colds" in the head therefrom. Under what conditions does chilling of the feet inflict punishment on the nasal membrane? and how is it influenced by conditions of humidity and draught? These are questions which are well worthy of inquiry, but little attention do they seem to have received so far.

F. F. Muecke and the writer¹ drew attention nearly three years ago to the appearance of the nasal mucous membrane when the subject is exposed first to outdoor conditions, and secondly to those conditions of heating and ventilation which are not uncommon in rooms. Out of doors the wind moves at a much greater velocity at head than at foot level, owing to friction of the moving air against the ground; the ground, too, is warmed by the sun. As a rule, then, excepting such unpleasant conditions as pertain to thawing snow, the head is cooled at a greater rate than the feet. Cool breezes blowing round the head, the radiant heat of the sun, and a warm ground to stand on, are the ideal outdoor conditions. The healthy mucous membrane of the nose, examined by aid of a speculum, under these conditions appears pale and taut. If touched with a probe it does not pit, and there is no thick secretion upon it. Indoors, in those conditions which are unfortunately only too common, when the feet are chilled by draught blowing over a cold floor, and the head is immersed in warm stagnant air, the nasal membrane appears swollen, congested, and covered with thick secretion. A probe pushed into the swollen membrane forms a pit, showing how boggy it is, and the airway is so diminished that a person with a spur of bone or any kind of obstruction cannot breathe through the affected nostril. Warming the feet at a fire at once relieves the congestion and does away with the obstruction, so that the airway again becomes free. It is this congestion and swelling of the nasal membrane, and no doubt also of that of the air sinuses opening into the nose, which largely causes the feelings of stuffiness in the head and headache felt in crowded, overheated places of assembly. This headache is generally, but erroneously, attributed to the absorption of chemical poisons supposed to be present in the stuffy air.

In the chamber of the House of Commons the ventilating current is driven up through the floor in such a way as to cool the members' feet, while their heads are exposed to more stagnant air. Cold feet and stuffy heads result—just the wrong conditions for legislators. The thermometer, it is true, shows a uniform temperature of 63° F.; but the katathermometer,² an instrument invented by the writer for measuring rate of cooling at body temperature, shows that the members' feet are cooled at a rate which is 50 per cent. or more greater than the cooling of their heads. The writer has his left nostril obstructed by a deflected septum. Sitting on a bench in the House of Commons he found his left nostril became completely obstructed in the course of a very few minutes. During the inquiry of the Ventilation Committee of the House of Commons he was allowed to make experimental alterations in the system of the ventilation in one part of the chamber; closing up the floor inlets there, he introduced air at the Gallery level. Under these conditions his feet were warm, his head agreeably cooled by a slight and grateful movement of the air, and his nasal airway unobstructed. Changing to and fro, from the part ventilated on the old system to that

ventilated by the new, his left nasal airway each time became obstructed by the old, opened by the new.

An easy and striking way of demonstrating the change in the nose is to install in a small shut-up room a gas fire fitted with no flue, so that all the heated air escapes into the room and rises into the upper part. Then with the aid of mirror and speculum examine the noses of, say, half a dozen subjects who first have been in the open air, secondly have been for some minutes in the room. A properly flued gas fire, which warms the floor and feet by radiant energy, will of course put the nose again into good condition. Toasting the feet at such a fire immediately relieves the nasal congestion and opens the airway.

Cold feet *per se* do not have this effect on the nose. The writer has observed in himself, when walking in melting snow or cycling in a cold wind along snow-covered roads, that his feet may be most uncomfortably cold, but his left nasal airway is wide open. His head, under these outdoor conditions, blown upon by the cold wind, has been as cold as his feet. It is the indoor conditions of cold draughty floor and warm stagnant air round the head which produce the congestion, swelling, etc., of the nose. These are conditions entirely opposed to the natural conditions out of doors.

A leg put into warm water responds by local vaso-dilatation; a leg put into cold water becomes pale with constriction and may even shiver, while the rest of the body is warm and keeps quiet. Out of doors the cold air is inhaled, and the naked face more than any part feels the cooling effect of the wind. The nose then is made taut—constricted—even though the feet be cold. Indoors, when the feet on a draughty cold floor are chilled and constricted, and the head is in a bath of warm stagnant air, the nose becomes congested, both by the local effect of the warm air and also by the blood, which is determined to all dilated parts from the cold-constricted feet. Warming the feet, therefore, at once lessens the congestion of the nose and opens the airway.

The ideal method of warming and ventilating rooms would give us abundant radiant heat, a warm floor, and agreeable movement of cool air. Such conditions are found in one-storied foundries where the roof openings are designed of ample size. The health of men engaged in foundries is very good. The Roman hypocaust gave a warm floor, and with unglazed openings must have secured warm feet and cool heads.

Open fires, and properly flued modern gas fires, give us radiant heat, and a warm floor within the range of this heat. We can toast the feet at these, and much of the hot air goes up the chimney. The so-called radiators, gas or steam, and artificial lights, together with the heat and moisture from the bodies of people, make warm and humid the upper strata of rooms, and afford the conditions bad for the nose.

Suppose the nasal membrane has become swollen, congested, and covered with thick secretion in these bad conditions, and the subjects go outside again into the cold air; then the membrane at once becomes pale, owing to vaso-constriction, but for some little time it remains swollen and boggy, pitting on the touch of the probe. I believe that these conditions of the nasal membrane have a great deal to do with the "catching of colds." In crowded rooms infection takes place from mucous spray, sneezed, coughed, or spluttered out in speaking. The inhaled bacteria will be caught by the swollen mucous membrane covered with thick secretion. In cold outside air not only is the membrane kept taut, but the flow of blood through it is rapid, for the inhaled air has to be warmed up and moisture rapidly evaporated from the membrane so as to saturate this air at body temperature. Thus more lymph comes out into the membrane from the blood vessels, and this contains the immunizing substances. The offensive bacteria are washed away or destroyed and thus kept out. On the other hand, in the condition where the membrane is covered with thick secretion, congested and boggy, there is a medium more suitable for the bacteria to settle and grow on, for it is boggy and stagnant, not flooded with fresh lymph, particularly when vaso-constriction takes place on passing from an over-hot, moist atmosphere into the wintry outside air.

The washing away of bacteria by the outflow of secretion must be one of the most important methods of defence. In the alimentary canal poisonous concentrations of substances—for example, sugar—are diluted and kept away from the living membrane by the secretion of

mucus. In the respiratory tract fluid is poured out to dilute and wash away a chemical irritant such as chlorine. Now the rate of evaporation from the nasal membrane must be of first importance in promoting the outflow of lymph through it, and the factors which determine this are worth considering.

At 30° F. air saturated with water vapour holds 1.9 grains per cubic foot. At body temperature the saturated air holds no less than 19 grains. Exhaled air is warmed up to, and saturated at, body temperature, and a cubic foot of air is breathed by a resting man in about four minutes. Thus the nasal membrane, if it saturate air inhaled at 30° F., will evaporate $19 - 1.9 = 17.1$ grains of water (about 1 c.cm.) every four minutes. If the man is taking exercise the nose will evaporate this amount every minute, or even every half-minute, owing to the increased respiration. This means that two or three ounces may be evaporated from the nasal membrane in the course of an hour's exercise on a wintry day.

The argument so far has taken it for granted that the nose does it all—it may not; when exercise is taken other parts of the airway may share in the evaporation and beneficent outpouring of lymph.

Now let us turn to the atmosphere in spinning mills or weaving sheds saturated, say, at 75° F. Such air holds 9.4 grains per cubic foot, and to saturate it the nose will only evaporate 9.6 grains a minute—a little more than half the above amount of water. I will set out the figures for the whole range of temperatures from 30° to 90° F.

TABLE I.—Amount of Water in Air Saturated at Various Temperatures.

Air saturated at 30° F. holds 1.9 gr. per cub. ft.				
"	"	40° F.	"	2.8
"	"	50° F.	"	4.1
"	"	60° F.	"	5.7
"	"	70° F.	"	8.0
"	"	80° F.	"	10.9
"	"	90° F.	"	14.8
Air saturated at body temperature holds 19.0 gr. per cub. ft.				

It is of course the rapid increase in the containing power of the air, as the temperature rises, which enables us to keep our bodies cool, by sweating, in saturated atmospheres when the temperature is even 80° to 90° F. There is a big difference between 10.9 at 80° and 19 at body temperature, and on this the tolerance of humid tropical conditions depends.

Under ordinary indoor conditions, with a temperature of about 60° dry and 55° wet bulb, there will be about 4 grains of water vapour in each cubic foot of air; at 30° F. there is 1.9 grains. We see, then, that the difference between the evaporation from the nose on passing from wintry air to the indoor conditions is about 12 per cent.—17 grains per minute in the one case, 15 in the other. In the spinning mill at 75° F. (saturated) the evaporation is about 42 per cent. less than out of doors on the wintry day.

The demands made on the circulatory and evaporative mechanisms of the nose are, then, great on changing suddenly from this warm atmosphere to the cold outdoor conditions. A much greater supply of blood is required to keep the nose warm, and a greater passage of lymph to keep up the evaporation in the cold outdoor air. No wonder sudden changes of conditions from over-hot, humid rooms to raw, wintry weather strain the vaso-motor and secretory mechanisms and help to cause "colds." No wonder, when "colds" are upon us, that it is advisable to keep to one uniform temperature and stay indoors—as we cannot very well stay out. These sudden changes are quite unnatural to the wild animal, but the dog shares them with civilized man. The dog, however, is another story—he is not, as a rule, crowded with his fellows indoors; he hardens himself by wearing no clothes, is less infected and more immune, like the man whose work is in the open air. Our feeling of comfort depends very closely on the effect of atmospheric conditions on our skin and nose. It is probable that we are sensitive to any change in the rate of evaporation from the nasal membrane. Humid air must check evaporation until the nasal membrane has warmed up the air and so made it capable of holding more moisture. This is particularly so in the case of mist or fog; the cold particles of water must first be evaporated before any evaporation from the membrane can take place. The cold particles also chill the nerve endings in the cold spots of the skin, while the moisture

adsorbed by the clothes lessens their heat-retaining properties. Hence our discomfort and the chilly effect of a fog. Relatively dry air, on the other hand, does not check evaporation or cool the nerve endings in the same uncomfortable way.

Miserable raw wet weather, wind-driven rain or sleet, impels us indoors, and makes us shut up windows and crowd in heated rooms. Exposure to infection is thus made greater while the inability to take open-air exercise in such weather may diminish the vigour of health, which depends so intimately on the rate of metabolism and the influence of exercise on the digestive organs. There is evidence that the prevalence of cases of cerebro-spinal fever is associated with cold, wet weather and the crowding of soldiers in the humid, confined atmosphere of huts and billets.¹ Under canvas the ventilation is far freer, and the atmospheric conditions favour evaporation from the nasal membrane and prevent its congestion. In stove-heated huts crowded with men, with damp clothes steaming, the temperature and humidity rise to heights which are quite impossible under canvas.

The effect of the cool outdoor air in promoting the flow of blood through the nasal membrane is no less noteworthy than that of evaporation. A greater blood flow is not only required to maintain the evaporation, but to keep the membrane at body temperature.

The specific heat of dry air at constant pressure, and 20° C. is 0.24—that is to say, 1 gram of air takes 0.24 small calorie to warm it up 1° C.; 1 gram of air has a volume of 778 c.cm. measured at normal pressure and temperature. To warm to body temperature each litre of air breathed, then, approximately 0.3 small calorie is required, that is for each degree centigrade through which it is warmed.

If the atmosphere is at freezing point, 11 small calories will be required for each litre breathed—say 77 small calories a minute for the resting man. At 65° F. this amount will become 38; at 75° F. only 26. At ordinary room temperature, then, only half the heat will be required to warm the air breathed as at freezing temperature.

Taking exercise out of doors on a cold winter day and breathing 40 litres per minute, a man may lose 4 to 5 large calories of heat per minute in warming the air he breathes, against 0.38 sitting in a room at 65° F. We see, then, how much more blood is required to keep the nose warm in the outdoor conditions.

Herein lies one explanation of the benefit of open-air exercise, sleeping in the open air, etc. The greater circulation through, and the greater evaporation from, the nose together increase its immunity to infection.

To test the views put forward above as to the circulation in, and evaporation from, the nasal membrane we have carried out some observations on the temperature of the nose and the fluid secreted by it, first indoors and then outdoors exposed to cold winds.

If the temperature within the nose is maintained almost at body temperature not only indoors but when the face is blown upon and cooled by strong wintry winds and cold air is breathed, it is clear that much more blood must then flow through the nasal membrane per minute. Now this is what is found to be the case in observations carried out on different days and on four subjects. The temperature was recorded by inserting a delicate flat-bulbed thermometer far up, so that the bulb lay below the inferior turbinate.

TABLE II. —Temperature of Inside of Nose under Various Conditions.

Subject.	Temperature within Nose.		Temp. on Roof.	Temp. Indoors.
	On Roof.	Indoors.		
L. H. ...	37° C.	35.5°-36° C.	10.4° C.*	15.9° C.
P. ...	34.5°	35°	"	"
W. ...	34.5°-35°	35°	10.1°	16.9°
B. M. ...	36°	35.5°-36°	2.2†	16.3°
P. ...	37°	36°	"	"
L. H. ...	36°	36°-36.5°	"	"
B. M. ...	36°	35.5°-36°	"	"
L. H. ...	35°	35°	1	16.2°
B. M. ...	35.5°	35.25°	1	"

* Strong cool wind. † Cold wind. ‡ Snowstorm, cold wind.

We conclude, then, that when out of doors a man has much more arterial blood flow through his nasal membrane per diem than when indoors in heated atmospheres.

It is a common observation that exposure to cold wind makes the eyes water and the nose run—signs of that flood of fluid which is poured out to keep exposed surfaces wet and warm.

The secretion from the nose was measured in a way which gives a rough but none the less trustworthy indication. We passed a weighed probe covered with absorbent cotton-wool up the nose, left it there for three minutes, and then weighed again. A number of such weighed probes were first made ready; then a probe was passed up the nose to mop up whatever secretion might be there; after this we waited three minutes and then the observation went forward, first for three minutes indoors, and then for three minutes outdoors on a roof exposed to the wind. The results obtained were as follows:

TABLE III. —Amount of Nasal Secretion under Various Conditions.

Subject.	Secretion taken up by Probe in Three Minutes.		Temperature Indoors.	Temperature Outdoors on Roof.
	Indoors.	Outdoors on Roof.		
P. ...	0.119 grm.	0.269 grm.	16.2°	2.3; snow, cold wind.
W. ...	0.065 "	0.186 "	"	" "
L. H. ...	0.173 "	0.253 "	15.9°	10.1°; cold wind.
B. M. ...	0.063 "	0.208 "	"	" "
B. M. ...	0.10 "	0.152 "	16.3°	Snowstorm, cold wind.
L. H. ...	0.067 "	0.123 "	"	" "
B. M., right nostril	0.135 "	0.173 "	15.2°	Snowing, cold wind.
B. M., left nostril	0.029 "	0.286 "	"	" "

The last pair of observations on B. M. are of interest because the right tear duct was blocked and the right side of the nose "stuffed up" as the after-result of a "cold." We only put stress on the general sense of the figures, not on the actual amounts given as representing the secretion caught by the probe. We believe the increase out of doors was generally under-valued; in the case of W., for example, when exposed to cold wind, the secretion ran down the probe and dropped off its end—the wool had become too wet to absorb it. The internal structure of the nose is so arranged that the secretion mostly runs backwards into the pharynx when the head is held in the normal position, and it is only the anterior part which furnishes the secretion which runs to the tip of the nose and enforces the use of the handkerchief.

The above figures, then, confirm the theoretical views which have been set forward, and before laying down the pen we would point out that the conditions which we have discussed in regard to the nose no less pertain to wounds; the flow of lymph through, and evaporation from, the wound counteracts infection and hastens healing. A suitable dressing and ventilation are required to ensure the adequacy of lymph flow. The dressing must prevent premature closing of the wound by a scab. Sir Almroth Wright's salt treatment by osmotic force pulls out lymph with its immunizing properties, and the outflow washes away infecting bacteria. Now that the open-air treatment of wounds is extolled, the surgeon's attention may perhaps be directed to the problems of evaporation from, temperature of, and blood flow through wounds, in so far as these may be influenced, not only by dressing, but by the relative dryness, temperature, and movement of the atmosphere.

The writer is indebted to Dr. Benjamin Moore, F.R.S., for help in carrying out the measurements.

REFERENCES.

- ¹ *Lancet*, May 10th, 1913. ² *Trans. Roy. Soc.*, B, 207, 1916, p. 133.
³ *Arthur Compton, Journal of the R.A.M.C.*, November, 1915.

UNDER the will of the late Mr. Lewis R. Ross, the University of Rochester, New York, has received a bequest of £140,000, to be used for the establishment of a department of dietetics in which research work on foods will be carried out.

"THE SOLDIER'S HEART" AND ITS RELATION TO THYROIDISM.

BY

SIR JAMES BARR, M.D., LL.D.

WHEN the Editor of the *BRITISH MEDICAL JOURNAL* accepted my offer to write on this subject I felt that it required some temerity to enter an arena where so many doughty champions had recently striven for mastery, and not one of them, in his own opinion, knocked out of the ring. I read all the letters and articles in the *JOURNAL* on their publication, and imbibed as little as I thought necessary. Unfortunately this has involved a second reading (a form of amusement which I do not much appreciate), in order to find out whether all the writers were dealing or intended to deal with the same cardiac affection, or whether each writer had a particular disease of his own to describe. However hazy the ideas of some of them may have been, I came to the conclusion that they all intended to deal with the old "irritable heart."

The contributions of Dr. Alexander Morison, and his references to the soldier's heart as part of a general state of nervous exhaustion are excellent so far as they go, but he does not carry us far enough, and is apt to leave us in that neurasthenic land of the destitute. On the other hand, I should like to employ to Sir James Mackenzie's article on "The Soldier's Heart" the language which he used to Sir James Kingston Fowler. It is "vague, immature, insisting on the immaterial, and neglecting entirely the essential." On causation he is not the only writer who flies to that resort for the destitute—microbes and their toxins—to explain all the ills to which flesh is heir. It is to be noted that there is not a single bacteriologist on whose evidence one would condemn the most harmless staphylococcus in support of this view; the reason, perhaps, is that bacteriologists have had a scientific training, which makes them less prone to jump to a conclusion than the clinician, who becomes very positive on the subjects which he least understands. The modern heart specialist often does not even consider an elementary knowledge of physics essential for his speciality.

It is well recognized that in diphtheria, in typhoid fever, and, in fact, in any case of prolonged high temperature, cloudy swelling of the myocardium, as well as of the liver cells, may occur. In rheumatic fever the myocardium is often involved, and this can readily be recognized two or three days before the appearance of any murmur by the delay in the transmission of the pulse wave. In the case of the irritable heart the sounds are short and sharp even when there is a murmur, and there is no delay in the pulse wave—the interval between the mitral first sound and the pulse at the wrist is barely appreciable. Influenza often gets the credit of causing heart mischief, but it usually seems to me more of the nature of a neurosis accompanied by pain than a myocardial infection. Moreover, the alcohol which is too frequently and too freely administered may have some share in the causation, especially in those cases in which there is dilatation. The heart's action is quickened, the sounds short and clear, and in these respects it differs from the myocardial condition in diphtheria.

Like the civilian the soldier is liable to all the varieties of heart disease, but what seems to me strange is that although almost any kind of heart, according to Sir James Mackenzie, is good enough for a recruit, a large number of recruits get bowled over with some functional disease of the heart even before they reach the trenches. So bad does this irritable heart seem to be for those who have passed the recruiting stage that Major Bradshaw goes so far as to say that they should be invalided out of the service. If this were an established order it would be a simple matter for any one who has no stomach for fighting to get released.

In all cases of irritable heart which I have seen there has been some enlargement of the two lateral lobes of the thyroid gland with increased function. I have also found that gland enlarged in a considerable number of cases of frost-bite, or to be fashionable I suppose I should say "trench feet"; and I hope to show some relation in the causation of these affections. I am well aware that the enlargement is not always very apparent. The thyroid gland is best examined with the patient lying on his back

with his shoulders and head supported on a gentle incline from the waist upwards; the two lateral lobes can then be easily felt internal to and behind the sterno-mastoid muscles. If the patient raises his head, so as to make the muscles and fascia tense, the whole gland disappears as if by magic. There is usually some throbbing to be felt in the carotids, and possibly also in the arteries supplying the thyroid.

HYPERTHYROIDISM.

In a paper on the functions of the thyroid, the supra-renal, and pituitary glands,¹ I said:

Exophthalmic goitre is now, I think, almost universally acknowledged to be due to excess of function of the thyroid gland. In the case of marked exophthalmos a large pulsating thyroid, tachycardia, general nervous trepidation—the patient in an apparent state of fright, emaciation, a moist skin with consequent lessened electric resistance—any fool can tell what is the matter; but there are an enormous number of cases of hyperthyroidism in which there is no exophthalmos, no apparent enlargement of the thyroid, and no pronounced nervous symptoms. However, in these cases an intelligent observer will readily detect a tendency to emotional and vasomotor disturbance, a warm moist skin, warm extremities, active capillary circulation, rather high venous pressure, rapid action of the heart and the rate easily increased by any mental excitement, the knee-jerks and all the deep reflexes increased, and slight muscular tremor may be appreciable. In all degrees of hyperthyroidism the urine may contain a slight amount of albumin, especially after getting up; this corresponds to the so-called albuminuria of adolescence, and is associated with deficient vasomotor tone and a lessened amount of fixed lime in the blood. The free lime in the blood may or may not be increased, but there is always an excessive excretion, except when there is a very small intake. In cases of hyperthyroidism there is a state of unstable equilibrium; the individual is sharp, alert, even vivacious, but easily exhausted both mentally and physically, and so incapable of sustained effort.

The causes of the thyroid taking on this over-action, beyond the necessities of the system, are still rather obscure. This over-action cannot have any necessary connexion with the condition of the water in goitrous districts, because the large fibro-cystic masses are associated with lessened function of the gland, though of course in many such cases there may have been a primary excess of function, and we know that many cases of exophthalmic goitre end in myxoedema. However this may be, many are of opinion that the cause is water-borne, and can be destroyed by boiling, but the proof adduced in support of this contention is far from conclusive.

We do know that the active principle of the gland contains iodine, and that excess of function of the thyroid is always associated with excess of iodine in the gland. I have seen two cases of exophthalmic goitre, including well-marked exophthalmos, produced by a prolonged use of tincture of iodine, and both cases were rapidly cured by stopping the iodine and placing them on a calcium mixture. There may be sources of iodine difficult to trace in individual cases, but in every case one should keep his faculties of observation alert, try to find out the cause, and remove it. In every case the urine should be examined for iodine, though it is not often found unless the patient has been taking an iodide. Many medical men will tell you that they prescribe iodine and thyroid in such cases with advantage, but upon what grounds I cannot say, unless it be a hair of the dog that bit you, or the homoeopathic doctrine that like cures like; in that case, the more infinitesimal the dose the better. It may, however, most likely be that in such men's minds there is a confusion between over-action and under-action, exophthalmic and fibro-cystic goitre.

In the textbook etiology of hyperthyroidism the common cause, the female sex, is absent, but some men are as emotional as women. In the latter the thyroid gland is usually active about the menstrual period and during the early months of pregnancy. In men the supra-renal gland is ordinarily the more active, but in neurasthenia and in some febrile affections, such as diphtheria and pneumonia, the adrenalin function may be inadequate, and thus the controlling influence over the vasomotor system is lessened. In war other assignable causes are in force, such as mental and physical strain, worry, anxiety, and fear, vicissitudes of climate and temperature, want of sufficient rest and sleep, too much meat and not sufficient milk and cheese, and too much tobacco.

No wonder that under such conditions which go to make up the life of the soldier we should get great vascular disturbance and increased function of the thyroid gland. In great dread of any impending catastrophe the heart makes its presence felt by thumping against the chest wall. Anticipation is worse than action. When it was pointed out to the Irishman that, from his description of his wound, the bullet must have passed straight through his heart, he replied, "In faith my heart was in my mouth at the time."

The intensity of the symptoms varies very much, according to the excess of function rather than the mere size of the gland. In the cases of "the soldier's heart" the subjective symptoms are referable to that organ, but any careful observer should notice many other indications of increased thyroidism. The cardiac beats in these cases are frequent, usually from 80 to 120 in the minute, and the number is greatly increased by any emotional disturbance. This quickened action is accompanied by a certain amount of palpitation.

The eyes are, as a rule, not very prominent, but the sclerotics are frequently more than usually visible. The skin is warm and moist, except in cold weather, but even when the hands are cold the head is warm and the face often flushed. The tongue is rather tremulous and often indented at the edges by the teeth, there is usually some muscular tremor, a certain amount of trepidation and abruptness in manner. There is great dissipation of heat, and consequently when the body is much exposed to cold and wet the extremities become very cold and the fingers often dead, especially the distal halves. When the blood pressure is low the fingers and hands may get livid or purple and somewhat swollen from the slow capillary circulation, but this can be remedied by hanging the hands down and exercising them so as to increase the velocity of the blood in the capillaries. The toes may be a little livid when the patient is lying down, but not when he is standing up, as in the latter position the velocity of the capillary circulation in the feet may be at least quadrupled—always provided that the arterioles have not been so contracted by the cold as to shut off the capillaries. This condition of the circulation renders these men particularly liable to frost-bite, or the modern trench feet.

There is another strongly predisposing cause, a deficiency of lime salts in the circulation. This arises from insufficient intake and the excessive output which accompanies hyperthyroidism. The soldier's rations, in my opinion, do not contain a sufficient amount of calcium—the milk is scarce and each man only gets about 2 oz. of cheese daily. Whenever there is severe muscular work there should always be a large intake of lime. In mountain climbing I always increase my own supply. When there is hard work there is no danger in taking too much; a certain proportion is not absorbed, and any excess in the circulation is quickly excreted. In cases of "the soldier's heart" we get, as Dr. Jamieson Hurry would say, a vicious circle; the deficiency of calcium salts in the blood is a contributory cause in the production of hyperthyroidism and frost-bite, and the excessive action of the thyroid leads to great calcium metabolism.

So far as we at present know, the presence of free calcium ions in the blood and tissues is necessary for effective muscular contraction. The calcium ions increase the force of the muscular contraction, but diminish the irritability of the muscle, and, according to Loeb, inhibit the rhythmical contraction of muscle fibres, which he thinks does not depend on lessened excitability, but on some chemical combination of the calcium ions in the muscle which renders its rhythmical contraction more difficult or impossible. Sydney Ringer, in association with Dudley Buxton, showed that the effects of the salts of sodium, potassium, and calcium on skeletal muscles were somewhat different from their effects on the heart. The contractibility of skeletal muscles perfused with normal saline solution lasts longer, but when exhausted there is greater delay in relaxation. The contractions are strengthened and the relaxation delayed by potassium salts. On the other hand, the lime salts accelerated both contraction and relaxation. Personally, I have usually found that patients liable to cramp had a deficiency of lime in their blood, and thus the remainder contraction, so apt to occur in exhausted muscles, is not counteracted by a sufficiency of calcium. I still hold my former opinion that the calcium ions lessen the irritability of the heart muscle, and Blair Bell has shown that when a solution of calcium chloride was injected into the vein of a rabbit the rhythmical contraction continued, the amplitude of the contractions increased, but their frequency diminished, and when a poisonous dose was used the heart finally stopped in systole.

The late Ralph Mines showed how cardiac contraction was due to a difference in electrical potential between the ions within and without the cells.

We have many reasons for believing that the excitation process in muscle can be dissociated from the contractile process, and it seems clear that the electric variation is a direct index of the excitation process, while the contraction is a sequence, usual, but not quite inevitable. Just as in nerve, excitation occurs (but no contraction), so in muscle excitation occurs; if the contractile mechanism is in order excitation is followed by contraction.

In an experiment which I witnessed in his laboratory it was seen that the electric variation preceded the contraction of both the auricle and the ventricle, and, whether the cause or not of the contraction, it began the sequence of events, and, therefore, could not be the result of the contraction. In every case of excessive muscular action there is a great waste of lime salts, hence the necessity of a large intake.

The blood pressure in hyperthyroidism is very variable and merits special consideration. There is lessened peripheral resistance, the viscosity of the blood is diminished owing largely to a deficiency of fixed lime, the arterioles are relaxed, and the capillary circulation is active and free, all of which tends to lower the arterial pressure—at least the diastolic pressure. On the other hand, the capillary and venous pressures rise, the supply of blood to the heart is great, the ventricular cavities are large, and the systolic output great. Therefore, the systolic pressure may be fairly high, but as the arteries are large and the peripheral resistance low, there is a great fall in the pressure gradient, with a relatively low diastolic pressure. This great difference between the systolic and diastolic pressures means an inefficient circulation; it is therefore important that vascular tone should be maintained, and it is for this reason that adrenalin plays an important part in the treatment. When there is a great disparity between the systolic and diastolic pressures, and more especially when the systolic is relatively high, we get longitudinal straining of the large arteries, and marked recoil of the heart. It is this recoil which causes the thumping of the heart against the chest wall which is of frequent occurrence in hyperthyroidism, and is especially marked when a runner comes to a standstill after a strenuous race. In free aortic regurgitation this recoil often shakes the bed on which the patient is lying. It is often noticeable after an extra glass of spirits when the body is in a warm atmosphere. I do not mean that the extra glass, which develops the palpitation, is the only one which works the mischief, but it is the final straw, and the amount of the previous load will depend on the strength of the liquor and the capacity of the individual. This is an early stage in the development of the German beer-drinker's heart, which eventually ends with great hypertrophy and dilatation. "The soldier's heart" seems to be giving as much trouble in Germany as in this country. Dr. Goldscheider, in an interesting address, concludes that "the war had brought into unflattering prominence the ignorance of the medical profession of a group of symptoms with which a very large proportion of the soldiers in the German army were invalided."

The victims of the "soldier's heart" are easily exhausted and get short of breath on slight exertion, but pain in the cardiac region is not a very prominent symptom unless the heart be dilated. When lying in bed the heart gives very little trouble, unless the patient is suddenly startled or quickly assumes the erect posture. These patients are liable to febrile attacks, but that forms no part of the cardiac trouble.

The large class of cases of hyperthyroidism covers much more than "the soldier's heart." When the cardiac phenomena are prominent the diagnosis seems to be fairly obvious, but if the heart does not come into prominence, which it often does not, then the cases are pushed into the neurasthenic class. When one of these patients sometime back from the front is asked what is the matter he blurts out "NEURASTHENIA," and at the same time looks startled. It is then time to point out that there is no object in having neurasthenia at present, as although in civil life the shocks to which he had been subjected would be sufficient to satisfy any jury that he was suffering from traumatic neurasthenia, yet the Workmen's Compensation Act does not apply. There is no railway company to attack, and it is somewhat doubtful whether there will be any pensions for neurasthenia, or even frost-bite. Moreover, a neurasthenic patient should not suffer from a

flushed face, hot head, excitable pulse, and a general appearance of fright.

I recently saw a marked case of hyperthyroidism most unjustifiably dubbed neurasthenia.

A lieutenant, aged 25, joined the army soon after the commencement of the war, very keen and anxious to excel. He had hard work training, and on one occasion fainted at drill. Again in London he fainted in the street, was seen by a doctor, who said that he had a large heart. After this he spent some time in a nursing home under a physician who does not seem to have given any diagnosis except that his heart was not enlarged. He then went for a course of training at Winchester, and finally was sent to France in November, 1915. He had rather strenuous work, and as a bombing officer his duties were chiefly at night; he was seldom in the trenches in the daytime except to see that the bombs were all right. He had no fear of shells or other missiles, but he could not bear to see a man on a stretcher; if any one fainted he was apt to do the same. About the middle of January he collapsed in the trench, was carried out and invalided home; a medical board in London recommended his discharge from the army as unfit for further service owing to neurasthenia. He did not feel inclined to take this verdict; he went to his regimental surgeon, who said that there was nothing the matter with him, and ordered him to his dépôt. It was soon found that he was not able to stand the fatigue of constant drill, and his commanding officer requested him to see me.

He gave me the impression of having a somewhat startled, not to say frightened, appearance. He complained of being easily exhausted, getting short of breath on exertion, often troubled with palpitation and throbbing in the vessels of the neck. He gave way at the knees, and felt that he would like to lean against a support; any extra exertion caused exhaustion, and on suddenly assuming the erect posture he felt faint. He perspired freely and usually felt warm, but often the ends of his fingers became pale and dead. His head usually felt hot, and he was often confused in his thoughts, and incapable of sustained mental effort. He was emotional, and often felt inclined to cry without any reason. There was slight general tremor, muscular irritability, and *tache* easily developed and very persistent. The knee-jerks were excessive. Heart 2 in. to the right, and 4½ in. to the left of the mesial line; sounds short and clear, no murmur, second pulmonic sound rather accentuated. Pulse 84 recumbent, on assuming the erect posture 120, afterwards falling to 96. Blood pressure: diastolic 110, systolic 150 mm. of mercury. Urine 1024, acid, a trace of albumin, lime deficient, phosphates normal; appetite bad. Height, 5 ft. 8½ in. Weight in shirt and trousers, 10 st. 11 lb.; he had lost some weight. I ordered him a month's rest, a liberal diet with plenty of milk food, and a mixture of adrenalin and lime salts.

In this class of cases there is not only over-action of the thyroid but under-action of the suprarenals. The patient often feels faint, and there may be sickness, and even vomiting; on quickly assuming the erect posture he may feel giddy, and there is a great increase in the frequency of the pulse, which becomes small and feeble owing to the blood gravitating into the abdominal cavity and the failure of the vasomotor mechanism to adjust its action rapidly to the altered conditions; and there is frequently orthostatic albuminuria. These phenomena have been aptly termed "cardio-splanchnic paresis" by Albert Abrams. In these cases an abdominal belt worn tightly does good.

HYPOTHYROIDISM.

In many cases of frost-bite, even when the thyroid gland is enlarged, its over-action has disappeared before the patient reaches this country, and frequently there is a state of hypothyroidism, with feeble circulation and cold blue extremities. These cases are easily treated. There are also cases of hypothyroidism in stolid men who would not move a hair if shells were bursting all round them. I had recently a friend under my care—a distinguished officer of a high and well-merited reputation, mentioned in dispatches and honoured by the King. After twelve months' strenuous work, want of rest, and not troubling about his food, he lost over 4 st. in weight. His condition was noticed by his superior officer, who advised him to take a rest. He did not think it necessary, but in obedience to the command he returned to London, was examined by a medical board, which gave him two months' leave.

When I saw him he chafed under the long enforced idleness, but I told him that two months were little enough. I ordered him to bed, told him that I would see him when I thought it necessary, that he was to put on at least 2 st. in weight, otherwise he would require a new uniform. About medicine and diet I would speak to his superior officer, and she would see that my instructions were carried out. Notwithstanding his great loss of

weight I felt confident from his slow, feeble, intermittent pulse and other symptoms that there was deficient thyroid action, and among the remedies I ordered was a 5-grain thyroid tablet daily. He rapidly improved, gained over 2 st. in weight, and was soon fit for plenty of exercise. Before the two months were up he happened to be in London, and sought a medical board, the president of which told him that he could not pass him for foreign service. He then appealed to be examined by the junior member of the board who agreed with his senior. This seems to be a much more common custom in the army than in civil life. When I saw him he was annoyed, as he wanted to be back in the scene of action. I told him that it was his own fault, that he had thought himself too well and had stopped treatment. I had no doubt that his heart had astonished the examiners by intermitting a few times, and that had frightened them. There is an alderman in the city of Liverpool, aged 90, who can still do a long day's fishing and enjoy his dinner with the youngest of us, yet he has had an intermittent heart all his life and was several times rejected for life insurance. I told my friend that he was unfortunate in not having been examined by Sir James Mackenzie, because he might have told him that intermissions do not count, that he had an excellent heart for a recruit, and it might last him till the age of Methuselah if he did not die in the meantime. My own opinion was that his heart was good for this war and somehow on to the next if he did not get in the way of a shell. I told him that he should be like a medical student who always studies the idiosyncrasies of his examiners when going up for an examination. I told him to resume his 5-grain thyroid tablets, to take one every day of his life, and it would save him many medical prescriptions and keep him out of the hands of the modern heart specialist; but for a week before his next medical board he was to take a tablet night and morning and stop tobacco. In the meantime he should go off to Scotland and get some shooting. In a few weeks he passed another medical board, he told me, with flying colours.

I wish to take this opportunity of pointing out that there are large amounts of thyroid preparations on the market more or less useless. It is unfortunate that we should be so much dependent on the reputation of the druggists—wholesale and retail—for the quality of our drugs. Thyroid preparations should contain at least 0.2 per cent. of iodine, but in many samples I have failed to find a trace. Of course, it is easy enough to add iodine to the preparation, but whether the added iodine is as effective as that which should be naturally in the gland is another question. However, I often find that the effects of thyroid are enhanced by the use of iodine at the same time. A favourite prescription with me is a mixture of calcium iodide, tincture of iodine, and the syrup of lactophosphate of lime.

The treatment of these cases is that of hyperthyroidism and hypothyroidism, which every one should know. I see Dr. Florence Stoney strongly recommends *x* rays in cases of hyperthyroidism. I used the *x* rays in many cases with some benefit ten years or more ago, but latterly I have not done so, as all my cases have done very well without the rays. I have no objection to their use, but I think caution should be exercised for fear of overshooting the mark.

REFERENCE.
1 *Practitioner*, April, 1914.

THE report of Major-General William C. Gorgas, Surgeon-General of the United States Army, to the Secretary of War shows that the admission-rate for sickness for the whole army in 1914 was 660 per 1,000, the lowest on record. The rate was highest in China and Panama and lowest in Alaska. The rate for discharge for disability for the entire army was 12.99, as compared with 12.77 in 1913. The death-rate was 4.40, as compared with 5.15 in 1913. Among the 98,649 men stationed in the United States, Alaska, the Philippines, Hawaii, Panama, Porto Rico, and China, there were but 7 cases of typhoid fever; only 2 had received the complete course of vaccine treatment. The admission-rate for tuberculosis had receded to 3.50, and for alcoholism 13.64, both the lowest ever recorded. The rate for malarial fevers was 29.48, said to be "a very creditable showing." The Act of Congress stopping the pay of men incapacitated for service by venereal diseases had held them in check, though the rate was slightly higher than that for 1913.

CLINICAL NOTES ON PENETRATING WOUNDS OF THE ABDOMEN.*

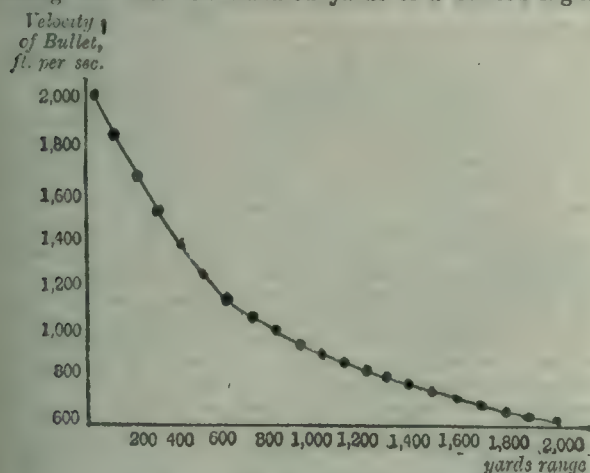
BY

H. H. SAMPSON, F.R.C.S., LIEUTENANT R.A.M.C.

I propose to mention some points in connexion with wounds of the abdomen and to read notes on some cases which have been treated recently at the special hospital at — (5 kilometres behind the firing line).

The extent of the visceral injury caused by a rifle bullet in the abdomen depends to a large extent on the distance which the bullet has travelled before impact. The most extensive wounds are caused when the range is less than 500 yards. Intestine may be torn completely across or show large open wounds with everted edges. Solid organs present radiating lacerations. These wounds, besides being extensive, bleed profusely. With a range of over 500 yards, however, the wounds are more limited in extent, but still bleed freely. As the range lengthens the damage becomes more confined to the actual track of the bullet.

It is interesting to consider the cause of this influence of range on the character of the wound. At first I thought it was due to instability of the bullet which is known to exist during the first portion of its flight. The diagram shows by means of a curve the relation between velocity and range. It shows how rapidly the velocity diminishes during the first few hundred yards of a bullet's flight.



Velocity range curve of rifle bullet.

I think high velocity is the cause of the extensive character of visceral wounds at short ranges. The term "velocity" is meant to include both the translation and the spin of the bullet, and it is probably the latter which is the more destructive force.

The importance of primary haemorrhage lies in the fact that there is little tendency towards spontaneous arrest. When seen, three or four hours after receipt of the injury, small arteries in the wounded bowel are still spurting vigorously. In fatal cases death is almost invariably due to primary haemorrhage. It becomes obvious, therefore, that on this account alone every effort should be made to convey abdominal wounds with the least possible delay to a place which is equipped for their operative treatment.

Peritoneal Perforation without Visceral Injury.

Apart from those cases in which a bullet has only a short intraperitoneal course, it is possible for a bullet to traverse the peritoneal cavity in an area occupied by intestines without causing perforation of the viscera with which it must come in contact. One such case has passed through the hospital.

CASE I.

The entrance wound was in the mid-Poupart line, just below the level of the umbilicus. The exit wound was behind in a corresponding position.

When seen, two and a half hours after the injury, signs of internal haemorrhage were present; the abdomen was rigid and tender. Operation revealed intraperitoneal haemorrhage,

* A paper read before the 3rd Corps Medical Society on March 4th.

which was proceeding from torn ileo-colic vessels adjacent to the caecum, but there was no perforation of any viscus. No sign of abrasion or bruising could be discovered in the small intestine. Bleeding points were ligatured. Recovery was uneventful.

This case is unique in my experience.

Wounds with a very short intraperitoneal course may implicate omentum only. In these cases the omentum shows a great tendency to prolapse through the wound. If the injured omentum is excised and the peritoneum closed, these cases do uniformly well. There is apparently little danger of suppuration occurring in the peritoneal cavity, although the rest of the wound may be badly infected.

Peritoneal Perforation with Visceral Injury.

Wounds of the small intestine are generally multiple, but are usually confined to one segment of bowel.

CASE II.

Cpl. H., of the S. Staffs Regiment, was hit in the abdomen at about 250 yards range. He made the interesting statement that he felt no impact. His right leg suddenly became useless and he fell to the ground. About ten seconds later he experienced agonizing pain in the abdomen. This continued without remission until operation was performed. He arrived at the special hospital within one hour of being hit. The abdomen was then rigid. There was a small entrance wound in the middle line below the umbilicus, and an exit wound, about the size of a halfpenny, in the right buttock.

At the operation seven perforations were found in small intestine. There was a large quantity of free blood in the peritoneal cavity. A segment of lower ileum, measuring 24 in. in length, and containing all the perforations, was excised. End-to-end anastomosis was performed. The peritoneum was mopped dry and then closed without drainage. There was some vomiting for three days, but the patient rallied well. A letter from England six weeks after the injury informs us that he is walking about and feeling quite fit.

Another case of uncomplicated small intestine injury:

CASE III.

Pte. B., Northumberland Fusiliers, was hit by a bullet which ricocheted off an iron roof in the front line trenches. He described the impact as a blow without any pain.

This patient arrived at the hospital in a little over an hour from the time he was wounded. There was a large entrance wound, with bruised edges in the anterior abdominal wall, below and to the left of the umbilicus. At the operation this wound was excised and converted into a vertical incision. A distorted bullet was found lying free in the peritoneal cavity, adjacent to four perforations in small intestine. Intraperitoneal haemorrhage was small in amount; 3 ft. 2 in. of ileum was excised, and end-to-end anastomosis performed. Portions of clothing were found scattered throughout the peritoneal cavity, mostly adhering to omentum. After irrigation with eusol and saline the abdomen was closed without drainage. Some infection of the abdominal wall occurred. This remained local and quickly subsided. The clinical chart indicates the progress. Five weeks after the injury this patient wrote from England to say that he was walking about, but still felt a little weak.

It is surprising how frequently injury to small intestine is complicated by injury to the iliac veins or inferior vena cava. The large arteries either escape damage or more probably produce a fatal result before the patient can be moved; on the other hand, injury to the great veins is often found. This additional source of haemorrhage has in my experience always led to a fatal result.

Wounds of the colon are often complicated by injuries to other viscera. These cases show a high mortality. If, however, the injury is confined to the colon, the outlook is more hopeful provided that operation is performed before widespread peritoneal infection has occurred. The lax wall of the colon allows instant escape of contents, in direct contrast to the small intestine, in which there is little tendency for leakage to occur for several hours.

CASE IV.

Lieut. I. was operated on within one hour of being hit in the left flank. The bullet which caused this wound had travelled more than a thousand yards.

The visceral haemorrhage was slight. There was a single linear wound of the descending colon, with faecal contents soiling the surrounding peritoneum. A Paul's tube was tied into the colon. Rubber drainage tubes were inserted into the subphrenic and iliac regions. Peritonitis remained local and a good recovery ensued. Preparations are now being made in England for closure of the artificial anus.

CASE V.

Lance-Cpl. E. Two and a half hours elapsed between injury and operation.

The descending colon was almost completely severed. There was profuse internal haemorrhage. Division of the colon was

completed. A Paul's tube was inserted into each end. A supra-pubic drain was used in this case. Recovery was rapid and uneventful.

CASE VI.

The case of Private T., Suffolk Regiment, was complicated by the fact that the bullet had entered the abdomen through the innominate bone. There were six perforations of the caecum and ascending colon, varying in size and mostly caused by fragments of bone. The edge of the liver was lacerated, two pieces being completely detached. The edges of the caecal wounds were trimmed, sutured, and invaginated. A drain was inserted into the right flank. The exit wound through the anterior abdominal wall was filled with gauze, which passed down to the wounded liver. A few hours later, during an attack of vomiting, the patient felt something give way. Examination revealed the transverse colon and omentum lying in the dressings. The prolapse was reduced under an anaesthetic. The anterior wound was then completely stitched.

In spite of this unfortunate event the patient made a good recovery. No leakage occurred from the caecum. He wrote the following from Calais three weeks after the injury:

Dear Sir,—I am pleased to be able to write you to say I am getting on quite well, and know you will be pleased to hear this, for I think you thought I'd have a rough journey to pull through. Well, I thought I might with luck, but I was bad for two weeks. . . .

Wounds of the stomach bleed freely, but, if uncomplicated, respond well to operative treatment.

CASE VII.

Corporal D. J., Yorks and Lancs Regiment, was struck in the back by a small fragment of shell. He arrived at hospital two and a half hours after receipt of the injury.

There was a small entrance wound over the left erector spinae at about the level of the first lumbar vertebra. The abdomen was rigid and tender. He had vomited once. Operation revealed perforations of both anterior and posterior walls of the stomach, two perforations of the jejunum close to the duodeno-jejunal flexure, and perforation of the thin anterior edge of the liver. The shell fragment was found imbedded in the diaphragm beneath the left costal margin. The visceral wounds were trimmed, sutured, and invaginated. The only drain used was a wick of gauze down to the wounded liver.

Recovery was uneventful. A message from Calais states that the wounds are healed and the patient well.

Wounds of the Solid Organs.

Wounds of the liver give the best results. In simple perforations haemorrhage is slight; bile drains away for a few days; recovery is the rule. A bullet at short range will split open the liver as though with a knife. In such cases haemorrhage is free, but is easily controlled at operation. Extensive necrosis of the neighbouring liver substance sometimes occurs. This is often seen in fatal cases.

The spleen is seldom injured alone. Its injury is often associated with that of the left kidney, pleura, and lung. The following are the notes of such a case:

CASE VIII.

Rifleman T., 11th Rifle Brigade, felt a sudden blow in the abdomen while lying behind a cart in front of our wire. He arrived in hospital about five hours later, and was then blanched, cold, and collapsed.

There were signs of intraperitoneal haemorrhage. There was an entrance wound in the side over the left lower ribs. On opening the abdomen the peritoneum was found to contain a large quantity of free blood. The spleen and left kidney both showed lacerated perforations. The splenic pedicle was partially severed. The bullet track passed towards the muscles of the back to the left of the vertebral column. Profuse haemorrhage was taking place from the splenic pedicle and from the vertebral region. The spleen and left kidney were excised. The region of the spine was firmly packed, as no bleeding points could be seen. The bullet was not located.

The patient was now so collapsed that the operation was curtailed by simply filling the left loin with gauze and leaving open the centre of the abdominal incision.

Chest symptoms prevented further operative measures until the eleventh day, by which time infection of the loin had already occurred. Drainage tubes were inserted through a posterior counter opening. Eight ounces of sterile blood were aspirated from the left pleura. Signs of septic absorption still continued, and on the twenty-fifth day a rib was resected in order to drain the left pleura. No infection was established.

On the twenty-seventh day the lower posterior wound became faecal. The patient was now in an almost hopeless condition. All the wounds were infected. The temperature averaged 102° F. at night, 100° F. in the morning. The pulse-rate varied from 120 to 140. The respiration-rate varied from 26 to 40. Generalized bronchitis was present. Faeces were constantly escaping from the left loin.

The pleura was irrigated twice daily with eusol and saline. On the thirty-eighth day the temperature remained normal for twenty-four hours for the first time since the injury. From this point improvement was rapid and continuous.

A medical officer from Calais writes to say that the patient was transferred to England nine weeks after the operation, and that he was then in a very satisfactory condition.

It will be noticed that all the cases I quote have had a successful result, and I want to make it quite clear that such cases are looked on rather as brands plucked from the burning than the normal result of these injuries.

One point on which too much emphasis cannot be laid is the importance in these cases of operation at the earliest possible moment. To secure this end perfect co-operation is essential. At the special hospital the operating theatre is kept in constant readiness, and the operation is usually commenced within fifteen minutes of the patient's arrival. But, of course, the most difficult task lies with those responsible for the transference of the case from trench to hospital.

DISCUSSION.

Colonel SKINNER said he was particularly interested, more from an administrative point of view. The speed with which the cases were transferred from the trenches to the hospital greatly added to the chances of recovery. This speeding up rested with the medical officers. He had read Sir A. Bowlby's Bradshaw lecture, published in the *BRITISH MEDICAL JOURNAL*, where he pointed out the greater damage done by bullets when fired at shorter ranges, advancing the theory of compressed air in front of the bullet. Also that the bullet probably has an "explosive" effect. Frequently the bullet also turned over on its course. Its velocity must be imparted to surrounding structures; so much so that Sir A. Bowlby mentioned a case in which the bullet had travelled across the abdominal wall not entering the abdomen, but *post mortem* the bowel was found disorganized. In cases of wounds of back and buttock where the wounds might not suggest an abdominal injury it was wisest to send them into the abdominal and chest department of the field ambulance. He said that Mr. Sampson had had 60 per cent. of recoveries, including cases brought in moribund.

Captain FRASER said that it was often difficult to know when the peritoneum was opened. Recently he had found by experiment that if the blood pressure was low it was probable that the peritoneum was opened. As to injury due to the proximity of the wounded person to the discharged rifle, he described a case in which, accidentally, a soldier was shot through the abdomen at 250 yards without any extensive injury of the bowel. Probably the amount of injury depended a great deal on the position of the bowel when hit. He had tried various kinds of anaesthesia—spinal, ether, chloroform, and lately intravenous ether; here the results are good; not only was there an anaesthetic effect, but a volume of fluid given at once to replace the loss of blood.

Lieutenant-Colonel PICKARD said that he had read in the *BRITISH MEDICAL JOURNAL* a paper in which the damage done by a bullet penetrating the abdomen was regarded as analogous to the splash of a hard substance striking a fluid. He described the well-known trick of throwing a stone up in the air and into a pond trying to make the least amount of splash; here the splash was least when the stone dropped vertically.

Captain SOLTAU asked why Mr. Sampson used a Paul's tube in two of the colon cases and invaginated the wound in the other, and whether he had swabbed out with ether.

Captain McNEE had examined livers pierced by bullets and noticed necrotic changes in the tissues at least two inches from the track. In one kidney case the bullet had pierced the upper pole, and the lower pole showed necrotic changes, although there was not any damage to the intervening tissue. In one 8 in. loop of small intestine he had seen one rosette wound and about nine linear slits; it was highly improbable that the bullet pierced through ten places. He suggested that possibly the slits were due to muscular action.

In reply to Colonel DUNN, Captain FRASER said that he did not use any elaborate apparatus for intravenous injections, only a Lane's bag.

Mr. SAMPSON said, in reply, that in doubtful cases of peritoneal entrance he opened up away from the wound to prevent sepsis. If the compressed air theory of causing damage to abdominal organs was correct more damage at the entrance wound would be expected. The Paul's tubes

were used in the two cases because two-thirds of the circumference of the colon was injured; in the other case the caecum had two or three small perforations. He had not used ether as a peritoneal dressing.

TWO CASES OF REMOVAL OF A BULLET FROM THE UPPER SURFACE OF THE DIAPHRAGM.

BY

E. D. TELFORD, F.R.C.S., CAPTAIN R.A.M.C.(T.F.),
SURGEON, MANCHESTER ROYAL INFIRMARY.

WHILST the lessons of war surgery have thrown much light on the immediate treatment of penetrating wounds of the chest and have prompted some most valuable additions to surgical literature, the later consequences of these injuries have received little notice.

It is a fortunate fact that not a few of these seriously wounded men recover, but some still carry in their chests the agent, whether shell or bullet, which caused the injury. These foreign bodies show a tendency to fall to the bottom of the thorax, coming to rest there on the upper surface of the diaphragm. In this position they may give rise to no trouble and no surgeon would suggest their removal. There are found, however, from time to time cases in which the foreign body is a cause of persistent and distressing symptoms.

In the first case which I report the man's life was made miserable by a constant "pricking" pain, and in the second case the soldier was quite incapable of any exertion, owing to the fact that an increase of respiratory movement beyond the normal produced at once a crippling amount of pain. The two cases are reported, not merely as examples of removal of foreign bodies from an unusual situation, but rather as instances of the help afforded to the surgeon by a simple method of "positive pressure anaesthesia." Thanks to this method, most ably handled by Major A. Wilson, the recovery of a bullet from the pleural cavity was carried out with perfect safety to the patient and was rendered, from the operator's point of view, little more than a minor surgical procedure. The details of the cases are as follows:

CASE I.

G. W. C., aged 24, was wounded in the right side of the chest by rifle bullet fired at long range. The bullet entered through the third right costal interspace three and a half inches from the middle line. Free haemoptysis occurred at once and continued in considerable quantity for twenty-four hours. He reached England at the end of five weeks, and during this time he had much pain in the lower part of the right chest, with frequent cough and daily haemoptysis. Although he stated, on admission to the 2nd Western General Hospital, that he had lost 2 st. in weight since his injury his general condition was excellent. The chest expanded well, and beyond a few moist sounds there was no physical sign of disease or injury. Cough was frequent, and the sputum always contained a little dark blood. The patient, though apparently well and comfortable in a sitting posture, was not able to lie down with ease, and was rendered very breathless by slight exertion. He complained constantly of a "pricking" pain, which he located deep to the sixth right costal cartilage.

Radiographic examination by Captain Bythell disclosed an intact rifle bullet lying on the upper surface of the diaphragm. The bullet was localized at a depth of two inches beneath a point marked over the sixth right costal cartilage and distant one half inch from the line of the right border of the sternum. As the pain continued after a month in hospital, and the patient's condition remained without change, save that the haemoptysis had ceased, it was decided to attempt the removal of the bullet.

Anaesthesia was induced by chloroform, and the tracheal catheter of the Ehrenfried's positive pressure apparatus having been introduced, the operation was carried out under ether vapour introduced under pressure by bellows. Through a curved skin incision the sixth and seventh right costal cartilages were exposed and denuded of their muscular and tendinous coverings, which were reflected downwards in one piece. A portion, 1½ in. in length, of each costal cartilage was then excised. The opening thus made gave abundant access, and through it the parietal pleura was incised in a horizontal direction. A healthy, well-inflated lung presented itself on opening the pleura. The lung appeared and felt absolutely normal, showing no trace of adhesions.

On packing off the lung with a strip of gauze there was disclosed at once on the upper surface of the diaphragm a rounded eminence, in size and shape like the half of a small walnut shell. An incision into this yielded a few drops of turbid fluid, and the bright, unbroken nose of the bullet at once presented. This was seized and extracted without difficulty; it was lying

on the upper surface of the diaphragm, and had become covered and encysted by pale, friable fibrous tissue.

The gauze was removed and the parietal pleura closed tightly by a continuous stitch of fine chromic gut. The tendino-muscular flap was replaced by chromic gut sutures and the wound closed without drain. The colour and general condition of the patient were perfectly satisfactory throughout the operation.

Beyond a slight tracheitis, probably traumatic, which cleared up completely in three days, the convalescence was uninterrupted. The patient was discharged from hospital in four weeks. The "pricking" pain disappeared from the first and the man was able to move freely without breathlessness.

CASE II.

T. J. E., aged 21, was hit by a shrapnel ball at Suvla Bay. He stated that very free bleeding followed the injury—"blood running out of his mouth without cough." He gradually recovered, and does not appear to have suffered from any complications of the injury beyond occasional slight haemoptysis, which continued up to the time of his admission to the Manchester Royal Infirmary, six months after the injury. At this time the chest showed no abnormal physical signs and his general condition was excellent. The scar of the wound of entry lay over the inferior angle of the left scapula. The patient complained of much pain on exertion and located the pain at a point on the tenth left rib, a little in front of the mid-axillary line; he stated that the pain was very severe on deep breathing.

A radiogram by Captain Barclay showed an intact shrapnel bullet lying deep to the rib and fixed in the angle between the diaphragm and chest wall.

Anaesthesia was carried out, as in Case I, by Major A. Wilson with the help of Ehrenfried's apparatus. The operation was of the simplest nature. A portion of the tenth rib, about 1½ in. long, was resected and the pleura opened by a horizontal incision. The bullet was at once evident and was picked without effort off the upper surface of the diaphragm. The edge of the well-inflated lung was well seen, and as far as it could be inspected through the limited opening the lung appeared to be quite healthy and free. The pleura was closed with fine chromic gut.

The after-history of the case was quite without incident; the patient was discharged in a fortnight in excellent condition, having had neither haemoptysis nor his former pain since the operation.

TIME IN SURGERY.

BY

R. P. ROWLANDS, M.S., F.R.C.S.,
SURGEON TO GUY'S HOSPITAL.

THE priceless value of time in surgery is often overlooked, and fleeting opportunities of successful action are frequently allowed to pass with disastrous consequences. Again and again diagnosis is delayed or operation deferred until it is too late either to save life or to secure the best result. For instance, the early signs of grave abdominal diseases are too often attributed to trivial ailments, and a "wait and see" policy adopted until such irreparable damage is wrought that complete recovery is impossible. In such cases the greatest vigilance is required to determine the proper time to "look and see."

Two typical cases of appendicitis serve to illustrate these points. They were very similar in their early signs, but treated differently and attended by very different results.

CASE I.

- (a) Diagnosis made within twelve hours.
- (b) Operation within thirteen hours.
- (c) Appendix removed, gangrenous, but not perforated.
- (d) General condition good.
- (e) Gridiron incision.
- (f) Abdomen closed.

CASE II.

- (a) Diagnosis, abdominal influenza. After nine days, appendical abscess diagnosed.
- (b) Operation after ten days.
- (c) Large abscess opened. Appendix not found owing to the large size of abscess and the grave condition.
- (d) General condition very bad.
- (e) Battle incision, as the surgeon thought he could get more room in this way.
- (f) Drainage on and off for six months; then appendix removed at second operation. Drainage another two months.
- (g) Patient up from fourth day; taken to the country on the ninth day. Quite well three weeks from operation.
- (h) Patient has been in perfect health since the operation.

It ought to be more generally known that the mortality of operations for acute appendicitis increases rapidly with the delay. Operations carried out within twelve hours of the onset of an attack are not more risky than those undertaken in the quiescent period. Still, it is common for the surgeon to be asked to see patients for the first time about the third or fourth day, or even later, when abscess, peritonitis, or other serious complications have developed. Similarly, the mortality of rupture of the intestine is only 15 per cent. when an operation is undertaken within four hours, whereas it becomes 70 per cent. when the operation is delayed until after twelve hours.¹ Similarly, the mortality of perforated gastric ulcer when an operation is undertaken within twelve hours is only about 5 per cent., but as high as 60 per cent. when the operation is deferred until after twenty-four hours. The waste of time is almost as serious and even less excusable with chronic abdominal diseases such as cancer of the stomach or large bowel. For less than one-third of cases of cancer of the stomach when first seen by the surgeon is resection possible, and the result of procrastination is nearly as bad in cancer of the rectum.

Avoidance of Waste of Time at Operations.

Time is frequently wasted during operations. It is clear that in order to get good results the surgeon must do his operations well and thoroughly, but it is often forgotten that to get the best results he must also learn to do them quickly and without waste of time. On the other hand, he must never do shoddy work so that he may be quick. While always conscious of the time element, he must not keep one eye on the clock, but both eyes and all his faculties focussed on his task. His aim must be to get so skilful and familiar with his work that he becomes quick almost without knowing it.

It is obvious that the dangers of most operations increase with their duration. If an operation takes an hour when it can be just as well, or better, done in half that time, the disadvantage of the patient is serious. He has to take much more anaesthetic, which obviously adds to the dangers and discomforts still inseparable from anaesthetics. Further, manipulations and exposure are increased and prolonged with marked increase of shock, of post-operative discomfort, and danger of complications. These points do not need to be laboured, for they are evident enough to every one who has eyes to see. When an appendicectomy takes only ten minutes the patient is hardly ill or uncomfortable in any way, whereas if it takes an hour he is miserable and sore for days.

But the value of smart work is much more striking in grave crises such as operations for acute intestinal obstruction or late peritonitis. It is no exaggeration to say that in these cases the mortality multiplies with the time consumed at the operation. The following case illustrates the value of quick work.

Acute Intestinal Obstruction by a Band: Appendix Adherent to Caseous Mesenteric Gland.

A boy, aged 6 years, was seized with very violent pain in the abdomen on the morning of April 10th, 1911. His father gave him two large doses of castor oil, which failed to have the desired effect. He was admitted into Guy's Hospital with a subnormal temperature, blue, cold, and pulseless. The abdomen was considerably distended, but flaccid. It was full in the flanks, and there was a palpable swelling in the right iliac region. On admission at 8 a.m. he was too bad for operation, and was therefore infused into the axillae.

Operation.—The patient was given ether, and the abdomen was opened at 9.30 a.m. The lower part of the right rectus was displaced inwards. The peritoneum seemed to be purplish and clearly contained blood. It was opened, and a large amount of sanious fluid escaped, showing that the condition was one of intestinal obstruction and not appendicitis. Dark purplish, but not gangrenous, coils of small intestine were at once seen. Several coils were withdrawn, and a band was seen consisting of the appendix adherent to a caseous mesenteric gland. This was astride the lower end of the ileum, close to the caecum and completely obstructed it. The adhesion to the tip of the appendix was divided, and the empty caecum drawn away from its former position, which was unusually high. The abdomen was then closed with through-and-through salmon-gut sutures. The operation lasted seven minutes (the patient was only in the theatre ten minutes). He was not much worse at the end of the operation, but the infusion which was carried on throughout the operation was continued. Pituitary extract was injected in 5-minim doses. The patient rapidly recovered.

Our forefathers before the introduction of anaesthetics had no doubt about the value of rapid operating, but later

a mischievous belief became common that, with anaesthesia, time did not matter. Unfortunately, there are still too many who appear to share this opinion. They waste valuable time—which belongs more to their patients than to them—in many different ways. It may be profitable to consider how to avoid some of this serious waste of time.

1. *By Making All Possible Preparations and Calculations Beforehand.*—The skin is always prepared before the patient comes to the operation table. All necessary instruments, ligatures, and sutures threaded on needles are ready for use before the patient is completely under the anaesthetic. The surgeon and his assistant are quite ready to begin as soon as the patient is satisfactorily under the anaesthetic. The surgeon thinks out the various steps of the operation beforehand as far as this is possible. He makes up his mind quickly what he wants to do, and does it without unnecessary delay.

2. *By Improving and Simplifying the Technique of the Operation in Every Possible Way.*—Here a sound knowledge of anatomy and surgery and constant practice are essential. As regards the knowledge of anatomy and surgery, it is assumed that the surgeon will not undertake an operation unless he is familiar with the anatomy of the part and the details of technique of the operation which he contemplates. It is clear from the results of some of the operations for hernia recently undertaken that the operators were not familiar with the anatomy of the inguinal canal, for several cases have come to my notice of recurrence within a few months owing to the inguinal canal never having been opened. It is true enough that a surgeon has to get practice to learn, but a sound knowledge of anatomy and surgery, together with diligent practice on the dead body, will carry the beginner far. Every one who wants to become a good and quick operator should practise on cloth all varieties of knots and sutures. In this way he will become expert and competent in a short time. It is often painful to see a man hesitating about his knots, and uncertain about his method of sewing. Many men waste time by making the skin wounds too small, and thus allowing themselves only an unsatisfactory view of the parts. As a rule, except on the exposed parts, such as the face, there is no object in making a small skin wound. Much time is also wasted in blunt dissection instead of clean cutting. Both of these faults not only waste time, but add to the shock and local damage. Good haemostasis saves much time. For instance, in most operations on the limbs a tourniquet is used, so that no bleeding occurs to obscure the view and delay the work. In other operations the main artery to the part is temporarily clamped or tied. For instance, the carotid is often clamped while operating on the neck. In most operations the important vessels can be secured before they are divided. Complicated instruments are to be avoided, for they waste time. For instance, a needle holder has no advantage in the majority of operations, but adds to the number of movements necessary for a given result. It is, of course, an invaluable and necessary instrument when working in a pit like the bottom of the pelvis. In ordinary work the finger and thumb are much more accurate, adaptable, and infinitely quicker. If one were to judge by the instruments they use, it might be concluded that some surgeons enjoyed making operations as difficult and prolonged as possible. The same may be said of many complicated methods, which are rarely as efficient as simpler ones. Continuous sutures save much time, and they are more effective and haemostatic than interrupted. In grave emergencies an excess of fine detail in sewing is often to be avoided; the sewing should fit the occasion. Lives may be lost through the waste of time involved by an over-refinement of technique.

3. *By Concentrating the Full Attention upon the Operation.*—This is not the time for considering and talking of other matters, nor even for explaining the various steps of the operation to the inquiring stranger. The latter must be content to watch until the operation is completed.

REFERENCE.
¹ *Lancet*, 1903, vol. ii, p. 1143.

THE Italian Minister of Agriculture, Industry, and Commerce has appointed a committee to study the creation and development of industries for the production of chemical preparations likely to be useful for medicinal purposes.

A PRELIMINARY NOTE ON THE NATURE AND TREATMENT OF CONCUSSION.

BY

T. E. HARWOOD, B.A. Oxon., M.B., Ch.B. Edin.,

RESIDENT OPHTHALMIC OFFICER, THE KING GEORGE HOSPITAL, S.E.

In the treatment of neurasthenic conditions arising in the course of the war one point would appear to have attracted but little attention. Almost every patient will be found to have more or less difficulty with reading. This is usually taken for granted and passed over as a mere incident. In reality it gives a clue to the most efficient treatment of such cases, from whatever cause arising.

The living body may be compared to an electrical system, which may break down owing to faults either in the circuit or in the battery. An organic nervous lesion may be compared to a break in the circuit, a functional nervous condition to a lowered efficiency of the battery, affecting the whole circuit, but usually showing its effects more markedly in some parts than in others.

The patient who has had a head injury involving the loss of brain substance usually shows signs and symptoms that are recognized as those of an organic lesion, but he also shows signs and symptoms which cannot be directly associated with the definite organic lesion and are the result of the shock to the nervous system as a whole; a functional condition is superimposed upon the organic. A destructive lesion of the left lingual gyrus, for instance, does account for blindness of a quadrant of both fields of vision; it does not account *per se* for giddiness, nausea, tremors, palpitation, dyspepsia, functional paralysis, neuralgia, and joint pains lasting, perhaps, for months. In cases of concussion without injury the same group of functional conditions occurs, and such cases differ from the neurasthenias of everyday life only in severity and apparent suddenness of onset, the cause being the same in every case—namely, a lowered efficiency of the battery.

Neurasthenia, in the widest possible sense of the term, corresponding to a lowered efficiency of the battery, is a general condition affecting every function, organ, and tissue of the body, though its effects are usually more marked upon some one function or organ or tissue than upon the rest, so that different names or labels become attached to different forms of the same underlying condition. The ciliary muscle is affected equally with the rest of the body, with the result that the smallest errors of refraction frequently become almost insuperable difficulties. Asthenopia following head injury or concussion is rarely due to any definite injury of the eye or its nerve supply, but simply to an inability of the ciliary muscle to make the smallest effort. Even a 0.25 cylinder may in these conditions alter the visual acuity from less than $\frac{1}{6}$ to $\frac{1}{2}$; and in most cases the visual acuity can readily be shown to depend simply upon the refractive error. The patient who has had a sudden paresis of an external ocular muscle may have diplopia, headache, giddiness, nausea, and vomiting; the physician is satisfied as to his diagnosis because it stares him in the face. Paresis of the ciliary muscle does not, but its results are frequently the same, with the added possibility that the conjunction of these symptoms with a hypermetropic disc may suggest an intracranial tumour.

If neurasthenia corresponds to a lowered efficiency of the battery it is obvious that there are two lines of treatment—the one to increase the efficiency of the battery, say by suggestion; the other to give the battery less to do, say by putting the patient to bed. A patient suffering from head injury or shell shock is usually put to bed and rested in every possible way; almost the only organs of his body upon which any constant voluntary effort falls are his eyes. At first the mere stimulus of light may be intolerable to him, and he lies with his eyes shut as far as possible; later he may be comfortable except when he changes his position. His next step is probably an attempt to read, and the difficulties of near vision are added to those of distant vision; when he gets up more frequent changes of position cause a recrudescence of his giddiness, headache, and nausea. In fact, throughout his convalescence his chief energies are, consciously or unconsciously, being spent upon his eyes, because without the use of his eyes he can do little or nothing, and

during all his waking moments a large proportion of his diminished available energy is being spent upon them, the result being that the rest of his body is starved. Various functional effects follow, and the patient falls a ready victim to organisms normal to the body and their toxins. But by correcting the refractive error the work which the eyes have to do can be reduced to a minimum and a much smaller strain put upon the battery. It cannot be too strongly insisted upon that refractive errors are almost universal, and only require care and patience to find. The effect of accurately correcting them in acute cases is dramatic, and if patients with head injury or concussion are not rapidly improving, their refraction should be estimated under atropine (unless it is contra-indicated) while they are still in bed, and accurate glasses supplied as soon as possible. If a stock of circular cylinders with frames to fit them is kept, this can be done immediately; spheres may be fastened in front of cylinders with thin strips of strapping. The glasses should be stopped as soon as possible for distant vision, but continued much longer for near work.

It is absurd to ascribe neurasthenic conditions to errors of refraction, but refractive errors are basic factors, and their accurate correction breaks a vicious circle. The facts are hard to explain except on the hypothesis that there are two centres of energy, each supplying all the structures of one half of the body. Unilateral symptoms—for example, functional hemiplegia, hemianæsthesia, hemianosmia and hemiægeusia, unilateral nerve-deafness, headache and head noises, the more exaggerated knee jerk, the more functionally limited visual field, unilateral will, with very few exceptions, be found to be on the side of the eye with the more work to do; usually on the side of the eye with the greater of two different errors or with the more abnormal of two approximately equal errors.

The earlier the refraction is corrected the easier it is to do, the more likely the correction is to be effectual, and the more willing the patient is to wear the glasses. The nature of the error does not matter in the least—everything depends on the accuracy of the correction. The object to be aimed at it is to leave a minimum, and as far as possible equal, amount of error for each eye to correct. An over-correction does no good and may do a great deal of harm. If the astigmatism is not fully corrected the probable result will be the conversion of, say, a compound hypermetropic astigmatism into an artificial compound myopic or mixed astigmatism. It is useless to attempt this kind of work without an unlimited supply of patience. Atropine is almost essential, and no fixed standard, such as $\frac{1}{2}$, should be accepted. Most patients can be made to read $\frac{1}{2}$ and many $\frac{1}{4}$ under atropine. It is absurd to say that a patient will read $\frac{1}{2}$ when he comes out of atropine; very likely he will, but at the expense of his nervous system. With simple astigmatism the results are almost certain; mixed or compound cases are much more difficult. Whether the patient is complaining of his eyes or not makes no difference. Giddiness is far more diagnostic of ciliary paresis than is headache. It is no great compliment to Weir Mitchell to adopt his system of rest cure, which, with suggestion, is the usual line of treatment in these cases, and to ignore his pioneer work on the paramount importance of eyestrain.

My work is on the lines of that of Dr. George M. Gould of Philadelphia; but I have formed my conclusions entirely on my own results, and I only read his *Biographic Clinics* a few weeks ago.

A CONFERENCE on sanitary administration under war conditions will be held in London by the Royal Sanitary Institute on June 8th and 9th. The subjects selected for discussion in the mornings are the maintenance of the standard of municipal sanitation and the Mental Deficiency Act. Visits will be paid to certain public works in the afternoons.

A SOCIETY for the scientific study of infancy from the biological, psychological, and clinical points of view has recently been established at Naples on the initiative of Professor Cacace, founder of the Istituto Nipioigenico, which comprises departments of medical consultations for infants, *gouttes de lait*, crèches, maternity wards, provident funds for mothers, instruction in motherhood and puericulture, and laboratories for the examination of milk, and the biological and hygienic study of sucklings.

THREE CASES OF PAROXYSMAL HAEMOGLOBINURIA IN SOLDIERS.

BY

DESMOND MACMANUS, M.R.C.S., L.R.C.P.,

CAPTAIN R.A.M.C.(TEMP.),

ATTACHED INNS OF COURT OFFICERS' TRAINING CORPS, BEREKHAMSTED.

In view of the comparative rarity of this condition the following cases possess considerable interest. All three men were in the early stages of their military training and paraded sick owing to discoloration of the urine, which, coupled with a feeling of great exhaustion, caused them considerable alarm.

CASE I.

Private H., aged 18. No history of venereal disease. Woke up one morning after night operations feeling very weak and shivery, and noticed that his urine was red in colour. His temperature was 100.8°; no physical signs could be detected, except that the spleen was just palpable. The urine was dark brown and contained heavy deposits; it showed the presence of albumin, and gave a positive reaction to the guaiacum test. On microscopic examination a few red corpuscles, a quantity of amorphous pigment, and some bladder epithelium were seen. Spectroscopic examination showed the absorption bands typical of methaemoglobin.

The patient was put to bed with hot-water bottles and given warm drinks. After twenty-four hours the urine was clear, and he felt quite well, though weak. He was given an iron and arsenic tonic, and returned to special duty in a few days. He had no recurrence while under my observation.

CASE II.

Private S., aged 32, had suffered from malaria in 1912 while in the tropics. He had led a sedentary life until enlistment. His attack started suddenly with severe lumbar pains after exposure to cold and wet.

On examination he had a temperature of 102.2°, which, however, quickly fell after rest in bed. There were no abnormal physical signs; the spleen was impalpable. His urine, which was examined both microscopically and spectroscopically, presented the same characteristics as in the preceding case, differing only in specific gravity. A blood examination showed a leucocytosis of 9,800. This man continued to pass blood-stained urine for forty-eight hours. He was given similar treatment, and was soon back at work. He is now in Mesopotamia, and when I last heard from him had had no recurrence.

CASE III.

Private J., aged 28, had had a similar attack previously in civilian life. On this occasion the onset was sudden, accompanied with great exhaustion. His temperature was 102° and the spleen just palpable. After being put to bed he complained of an intense "itchiness" all over. The urine had the same physical, microscopic and spectroscopic characteristics as previously described, and he also had a leucocytosis.

He recovered from this attack in twenty-four hours, but had a relapse about six weeks later. He was eventually put to clerical work and has not suffered since.

In all these three cases the exciting cause was apparent exposure to cold coupled with considerable bodily exertion. In none was there any admission of syphilitic taint. The Wassermann reaction was not done in any of the cases. On examining the cases admitted into Guy's Hospital during the last few years, I find that in the last three the Wassermann test was performed, and was positive in all of them. Malaria is cited by some authorities as an etiological factor, and Case II had suffered from this disease. It is interesting to note that in none of these cases was the initial temperature under 100°, and that in none of them did the urine clear up under twenty-four hours. This apparent severity was, no doubt, due to the considerable exposure and exertion undergone.

The most generally accepted theory of causation is that a haemolysis exists in the blood of these cases, the amoceptor of which will only unite with the red blood cells in the presence of the complement, and at a low temperature. This low temperature was present in all the cases under consideration. It seems to me that these men, all of whom had lived sedentary lives prior to enlistment, when thrust rapidly into the full stress of military life, had given way at the weakest point, which in them happened to be in the blood. I am convinced that were a more gradual system of early training recruits more generally adopted many fewer would succumb and be invalided out of the service. In Cases I and II the patients were put back and allowed only the minimum of physical effort, which was increased by degrees with the view of more thoroughly hardening them and enabling them to with-

stand both cold and exposure. So far, after nearly a year in both cases, neither has to my knowledge suffered a relapse.

HEART-BLOCK IN JAUNDICE.

BY

R. D. RUDOLF, M.D. EDIN., F.R.C.P.,

LIEUTENANT-COLONEL C.A.M.C.

THE following case occurred in a hospital some months ago, where I saw him with Lieutenant Joscelyne. It was the first example that I have come across of heart-block complicating jaundice, and I now put it on record, after reading Dr. J. Davenport Windle's paper.¹ Dr. Windle states there that he does not accept the commonly-made statement that the heart tends to be slow in jaundice, and with this I fully agree. For years in civil hospital practice I have noticed this, and since coming to France, where we see a good many cases of jaundice, the point has been brought more home to me than ever. But Dr. Windle goes on to say that in his knowledge heart-block has never been demonstrated, and hence my reason for now recording the following case. It was, as will be seen from the tracings, one of partial heart-block, and, strange to say, was at once relieved completely, and, as far as we were able to observe, permanently, by a single dose of atropine.

An officer, aged 43, was admitted to hospital suffering from jaundice. It had existed for about two weeks, and was preceded by nausea and vomiting, but no pain. There was no history of syphilis, but the patient admitted having drunk too freely for years.

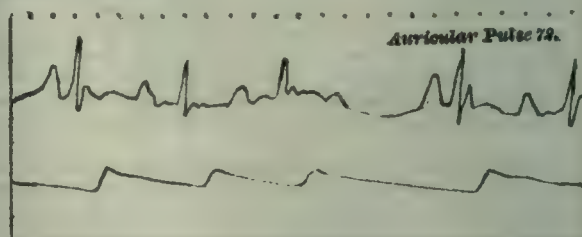


FIG. 1.

He looked ill and was deeply jaundiced. There was no oedema at first, but there was some before he left for England. There was some slight irregular fever. The liver was not palpable and seemed small on percussion. The spleen could

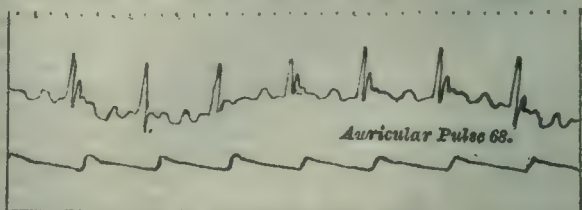


FIG. 2.—Immediately after exercise.

not be felt. The urine contained no albumin on several examinations. The pulse could be felt to be irregular in that it often missed beats, and no heart sounds occurred in the pauses. A little exertion, such as sitting up in bed several times, caused

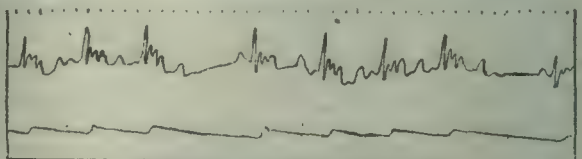


FIG. 3.—Twelve minutes after atropine.

it to become quite regular. Tracing 1 shows the pulse while the patient was at rest. The a-c interval will be seen to get longer and longer until it is more than 3 seconds, and then the ventricle misses. After this pause the a-c interval is shorter at first, but gets longer and longer until another ventricular miss occurs. Figure 2 shows the action after the exercise described. The a-c interval is still too long, but the stimulus gets through in time and the ventricle does not miss, so that the pulse is regular for a period. It will be seen that this slight exercise caused the auricular rate to fall from 72 to 68. Next day tracings were again taken and showed these same features. Then 1/60 grain of atropine sulphate was given hypodermically,

and tracings were taken every two minutes for an hour. The first effect of the atropine appeared to be a slowing of the auricular rate, which fell from 72 to 64 (as measured in the tracings), and the ventricular missings were very frequent.

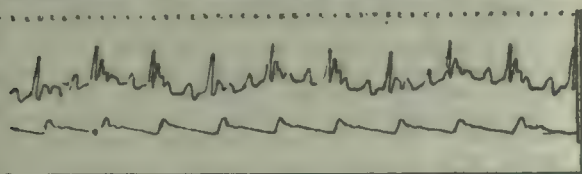


FIG. 4.—After fourteen minutes.

Tracing 3 shows the state of things twelve minutes after the administration of the drug. But at fourteen minutes, the auricular rate being only 60, the heart had become quite regular, although the *a-c* interval still remained much too long (Tracing 4). At twenty minutes the pulse was 68 and quite regular and the *a-c* interval was shortening, and at thirty minutes after the giving of the atropine, as seen in Tracing 5,

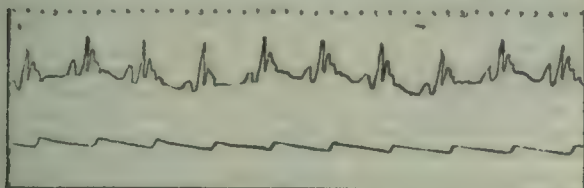


FIG. 5.—Thirty minutes after atropine.

the pulse was regular (76) and the *a-c* interval of quite normal length. The pulse was then taken by the sister for another three hours, and was always regular, and ran as follows:

12.50 p.m. ...	72	2 p.m. ...	72
1.10 " ...	72	2.10 " ...	72
1.10 " ...	74	2.20 " ...	70
1.20 " ...	76	2.30 " ...	72
1.30 " ...	72	3 " ...	76
1.40 " ...	74	4 " ...	76

The general condition became rapidly worse, and he soon developed oedema and ascites. The pulse, however, remained absolutely regular. He was very anxious to get to England, so was permitted to travel there, as the outlook in any case seemed bad.

This case was, of course, not one of simple catarrhal jaundice, but was probably one of organic disease (probably malignant) of the liver. I have no evidence that the condition of heart-block did not exist before the jaundice, except that the patient assured us that he was very fit and quite up to all his work as an officer at the front. The fact that the block was partially relieved by gentle exercise and completely and, as far as we were able to watch the case, permanently, by a single dose of atropine, would all point to the probability of the delay in transmission of stimuli through the auriculo-ventricular bundle being due rather to vagal origin than to any organic disease there. The patient had not been taking digitalis for days before the tracings were taken.

REFERENCE.

¹ BRITISH MEDICAL JOURNAL, January 22nd, 1916, p. 123.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

BRADYCARDIA ASSOCIATED WITH JAUNDICE.

DR. WINDLE's paper on the heart's action in jaundice, in the JOURNAL of January 22nd, 1916, prompts me to put on record the following case:

A male, aged 17, came to see me on September 7th, 1914, suffering from well-developed jaundice. This may have been of the epidemic type, as another younger member of the same family developed jaundice some weeks later. He had not been under observation at the onset of the illness, but the initial symptoms appear to have been slight, and he had not kept his bed. The pulse was slow (40 to 44) and irregular. Later in the day he was seen at home and a pulse curve taken. Unfortunately it was not possible to get a tracing of the jugular pulse, so simultaneous curves of the apex beat and radial pulse were taken. The rate was just under 39, and the cardiogram demonstrates that

there were no premature beats; the pulse and ventricular rates were the same. This was confirmed by auscultation of the heart.

In the absence of a venous curve the presence of heart-block cannot be absolutely excluded, but it is improbable, for the following reasons: (1) In a later portion of the curve the rate is rather higher and there is marked (sinus) arrhythmia; (2) as the jaundice passed off the heart-rate

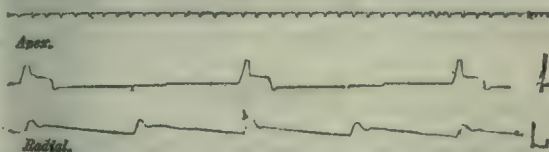


FIG. 1.—Simultaneous curves of the apex beat and radial pulse.

rose gradually. At visits to see me the rate was 43 on September 9th, 45 on September 11th, 55 on September 14th, and 56 on September 19th. It may be concluded, therefore, that, associated with the jaundice in this patient, there was a total bradycardia of high grade with a variable degree of sinus arrhythmia. His normal pulse-rate appears to be about 60. He belongs to a family several members of which have a rather slow heart-rate, his mother's being sometimes as low as 30.

Dr. Windle suggests that the arrhythmic bradycardia in these cases is not caused by the jaundice, but is the same as that which is commonly met with in young people after febrile illnesses. This may be so, and there is merely the apparent relation of the heart-rate to the degree of jaundice in my patient to suggest a causal connexion between the two. It is difficult to prove or disprove, but that the pulse-rate should not decline till the appearance of the jaundice is only what one would expect, since the latter is the outward sign of the entrance of bile into the blood circulation. Even if the jaundice appeared before the fever had subsided and the pulse had fallen, one might not be justified in concluding that bile salts do not lower the heart-rate. The fever, whatever its cause, is an opposing factor which may more than neutralize the supposed retarding influence of bile salts, just as it is difficult or impossible materially to alter the heart-rate in fever by means of digitalis.

Bradycardia is believed to be almost exclusively associated with the catarrhal type of jaundice. This is possibly due to the fact that this disease is much more common in young people, in whom apparently the retarding mechanism of the heart is very sensitive. The frequent occurrence of slow sinus arrhythmia in such patients after even slight febrile illnesses is evidence of this.

HULL

E. E. LASLETT, M.D. B.Sc.

AMOEBAE IN URINE IN A CASE OF INFECTIOUS JAUNDICE.

WITH respect to the memorandum on the occurrence of amoebae in the urine of a case of infectious jaundice, recorded by Lieutenant-Colonel Ward, Dr. Coles, and Captain Friel in your issue of April 8th, on page 526, may I point out that an organism called *Amoeba urogenitalis* was described by Baelz in 1833? The species was found in masses in the sanguineous urine as well as in the vagina of a patient in Japan. The amoebae when quiescent had a diameter of about 50 μ , and exhibited granular cytoplasm and a vesicular nucleus.

Similar cases were also reported between 1892 and 1895 by Jürgens, Kartulis, Posner, and Wijnhoff. Jürgens found small mucous cysts, containing amoeboid bodies, in the bladder of an old woman suffering from chronic cystitis; they were also found in the vagina. Kartulis observed similar organisms in the sanguineous urine of a woman suffering from a tumour of the bladder; the organisms measured 12 μ to 20 μ , and exhibited slow pseudopodial movements, and a nucleus and vacuoles were seen after staining. Posner's case, a man, also passed blood stained urine, in which amoeboid granular bodies, about 50 μ by 28 μ , were present. The amoebae exhibited change of shape, and contained one or more nuclei as well as red blood corpuscles. The patient was under observation for over a year, during which the attacks recurred, and Posner concluded that the amoebae had penetrated into the pelvis of the kidney. Wijnhoff observed four cases of amoeburia in Utrecht, and Jeffries (1904) found similar

cases in the United States. During the last two years, I learn from friends in the Anglo-Egyptian Sudan that a few cases with amoebae in the urine have occurred there. These amoebae might be considered, nowadays, to belong to the genus *Endamoeba*.

In view of the above facts, the provisional name *Amoeba urinae granulata* seems hardly necessary.

H. B. FANTHAM,

Lecturer in Parasitology, Liverpool School of Tropical Medicine.

Reviews.

DISEASES OF THE NOSE AND THROAT.

WE said of the first edition of Sir STCLAIR THOMSON'S treatise on diseases of the nose and throat, which appeared in 1911, that it was at once the fullest and the clearest work on the subject in the English language. A second edition¹ has recently been issued, and we see no reason to modify the opinion expressed as to the first. The book in its present form bears on almost every page the marks of very careful revision, and a considerable amount of new matter has been added. An excellent account of suspension-laryngoscopy—the latest development in the methods of direct inspection of the larynx—is given. The procedure of nerve-blocking by the injection of novocain around the superior laryngeal nerves for the production of local anaesthesia is fully described. The method is said to be very useful in cases of great irritability of the larynx, and particularly as a means of preventing pain in that most distressing condition, the dysphagia of tuberculous laryngitis. Aspergillosis of the accessory sinuses receives more adequate treatment than it did in the previous edition, and the indications for the use of salvarsan are more fully set forth. The intranasal operation for drainage of the frontal sinns is described in detail. There are new sections on intranasal dacryocystostomy and on the nasal route to pituitary tumours. The chapter on removal of the tonsils has been entirely rewritten. There is considerable difference of opinion among laryngologists on the question whether only the projecting part of a diseased tonsil should be sliced off or the whole gland extirpated. British and American specialists are mostly in favour of the radical procedure. The subject is of greater importance than might seem at first sight, for disease of the tonsils is the cause of much immediate suffering and possible future detriment to the patient. It is also troublesome to the doctor, and we remember hearing a very distinguished surgeon of the mid-Victorian period declare that he would rather do three lithotomies than one tonsillectomy. To those who can recall the barbarous methods of that time the present manner of dealing with diseased tonsils represents a striking advance in surgery. Sir StClair Thomson gives a lucid and impartial exposition of the relative advantages and disadvantages of the different methods now in use. But, indeed, he everywhere handles debatable matters in a judicial spirit that makes his book a trustworthy guide to practitioners and students. The illustrations, many of which are new, add materially to the value of the book.

CANCER OF THE STOMACH.

AN elaborate clinical and pathological study of carcinoma of the stomach has recently been published by Drs. SMITHIES and OCHSNER,² based on a series of 921 cases seen during the last decade and buttressed with numerous references to the recent literature of the subject. The authors break little or no new ground in their survey, but perform a most valuable service in bringing together the indications for diagnosis and treatment in this most serious affection and casting fresh light on other points of minor importance. Previous writers, for example, have found cancer of the stomach to be a little commoner in females than in males; in this series of American cases

however, the males were just over three times as many as the females. As regards age, 350 of the patients were aged from 50 to 59, and 85 per cent. were from 40 to 69 years old. The authors find that material prosperity, or the tendency to over-eating, promotes the occurrence of carcinoma of the stomach; trauma may have been a contributory cause in only 21 of their patients, and a family history of cancer was obtained in 8.5 per cent. In a series of 566 cases specially examined for the purpose, it appeared that there were good reasons for supposing that a gastric ulcer had preceded the cancer in no fewer than 60.5 per cent.; they do not attempt to estimate the percentage of the patients with ulcer of the stomach in whom the ulcer subsequently becomes carcinomatous. Very full accounts of the morbid anatomy, symptomatology, clinical manifestations, diagnosis, and x-ray appearances in cancer of the stomach are given. So far as treatment is concerned, the authors strongly urge laparotomy and excision of the ulcer or growth wherever possible in all cases in which there is reason to suppose that a carcinoma is present. Dr. Ochsner gives full descriptions of the operations advised for the complete or partial excisions, the curative or palliative surgical treatments, he has found most practical and efficacious. The book is full of interesting details, and is well illustrated; the authors write clearly and temperately. Their work may be warmly recommended to the attention of all surgeons and physicians; it ends with an excellent account of the non-surgical treatment of the disease.

EYES FOR THE LAYMAN.

THE eyesight is by common consent the most precious of the senses. During infancy and childhood much can be done by carelessness and ignorance to injure or even destroy the sight, and it is only in the last few decades that public attention has been at all adequately directed to the proper protection and conservation of the vision of children. Much still remains to be done; the British public still has a great deal to learn about the elementary physiology of the eyes and the precautions that should be taken in every school and every home to prevent the young from misusing their eyes. An ophthalmic surgeon of special experience in this matter, Mr. N. BISHOP HARMAN, has quite recently published an admirable account³ of the dangers and disasters threatening the eyes of children; the book is one that should be very widely read. It is written in simple language that any layman should be able to understand, and in spite of its simplicity succeeds in giving a clear and complete presentation of the subject. Its successive chapters deal with topics familiar to all of us, such as sore eyes, pink eye, eye-strain, astigmatism, short sight, squint, and the great question of spectacles; later chapters deal with the lighting of rooms, the best arrangements for illumination when reading, writing, and work have to be done, and other like subjects. We can strongly recommend this book to the attention of the general public. It fills a long-felt want, and fills it to perfection, for it leaves out none of the essentials of the subject and is written in a style that is both convincing and attractive.

MEDICAL JURISPRUDENCE.

IN reviewing the first edition of Dr. W. G. AITCHISON ROBERTSON'S work on *Medical Jurisprudence, Toxicology, and Public Health*,⁴ we referred to it as the most remarkable case of condensation within our experience. This was in 1908, and now in 1916 the third edition is before us with two new chapters (Medical Inspection of School Children and Diseases of Occupation). We then expressed a fear that such a concentrated diet might produce mental indigestion in students, but the fact that three editions have been called for in eight years proves our fears groundless. Is it advancing years bringing a wider survey of students' educational needs, or is it the reviewer's increasing experience as an examiner that has brought him in the interval to a more appreciative frame of mind as regards the merit of the book? We do not know, but

¹ *Diseases of the Nose and Throat, comprising Affections of the Trachea and Oesophagus: A Textbook for Students and Practitioners.* By Sir StClair Thomson, M.D., F.R.C.P. Lond., F.R.C.S. Eng. Second edition. London, New York, Toronto, and Melbourne: Cassell and Co., Ltd. 1916. (Med. 8vo, with 22 plates and 337 figures in the text. 25s. net.)

² *Cancer of the Stomach.* By F. Smithies, M.D., with a chapter on the Surgical Treatment of Gastric Cancer, by A. J. Ochsner, M.D., LL.D., F.R.C.S. Philadelphia and London: W. B. Saunders and Co. 1916. Roy. 8vo, pp. 522; 106 figures. 24s. net.)

³ *The Eyes of our Children.* By N. Bishop Harman, M.A., M.B. Cantab., F.R.C.S. London: Methuen and Co., Ltd. 1916. (Fcap. 8vo, pp. 129. 1s. net.)

⁴ *Manual of Medical Jurisprudence, Toxicology, and Public Health.* By W. G. Aitchison Robertson, M.D., D.Sc., F.R.C.P.E., F.R.S.E. Third edition. London: A. and C. Black, Ltd. 1916. (Cr. 8vo, pp. 658; 51 figures, 1 plate. 10s. 6d. net.)

can only say that we could almost hope to see it made the standard textbook for students on the subjects dealt with. Everything is there that a student ought to know, and that, too, in just the right perspective, and expressed so clearly and so pleasantly that we have been beguiled into reading nearly the whole work. There is, of course, a large superstructure to be built on the foundation here supplied, and that experience alone can bring about, but it is safe to say that no part of such superstructure need be without a sure foundation if a student has carefully followed Dr. Robertson's words and meaning.

NOTES ON BOOKS.

THE Research Department of University College Hospital Medical School has recently issued⁵ a collection of ten papers dealing with work done beneath its roof in the years 1914-15. These papers deal with pathological and physiological subjects of considerable variety, and have all appeared previously in scientific periodicals. Dr. Lewis, one of the directors of the department, contributes, with Mr. Barcroft, a further account of the dyspnoea that may accompany a reduction in the normal alkalinity of the blood and the various symptoms that may be associated therewith. Dr. Bolton, in a paper first appearing last year in the *Journal of Pathology and Bacteriology*, gives an elaborate account of the relation of the acidity of the gastric juice to the production and maintenance of gastric ulcer. Other papers of no little interest will be found in this collection, which contains evidence of much solid labour.

Dr. MCCARRISON has republished in book form five of his papers on *Goitre and Cretinism*⁶ that have already made their appearance in the *Indian Journal of Medical Research*. Several of these have already been noted in the *BRITISH MEDICAL JOURNAL*. As is well known, Major McCarrison has done much to establish the fact that many cases of goitre are due to the consumption of infected drinking water, although it is true that the actual virus of goitre has hitherto escaped isolation in the laboratory. This reprint is of particular value because the originals of the five articles appearing in it must be inaccessible to the majority of medical men in this country.

The *Indian Manual of First Aid*⁷ of Lieutenant-Colonel BLACKHAM has reached its twelfth edition. It gives a capital account of the subject, and naturally has plenty to say about the special accidents to which dwellers in India are exposed. It should be in the hands of all English-speaking foreigners in India.

A singularly depressing and untimely picture of life in the Russian army is furnished by a recently translated Russian novel, *The Duel*.⁸ Its author, we are told, was born in 1870, passed through the cadet school and military college at Moscow, entered the army as lieutenant in 1890, and resigned after seven years to devote himself to literature. The hero of the novel is Sub-lieutenant Romashov, a weak-kneed idealist who could never have made a soldier. The novel is devoted to describing the way in which the hero undoes himself by witlessness, wine, and women. At the end of the book the heroine succeeds in selling both herself and her lover's life by a single stroke of perfidy. Not one of the characters, male or female, can be described as normal; all have their repulsive features, all are grossly vicious in public or private—or both; from the military point of view all are incompetent but one. The Russian army is described as composed of "those defenceless victims of their own ignorance and brutal coarseness, of the officer's heartless indifference and cruelty, of a humiliating systematic slavery; but the most horrible of all, however, was the fact that not a single officer . . . saw in these stereotyped crowds of slaves anything beyond mechanical quantities bracketed under the name of companies, battalions, regiments, etc." We read that the Russian "soldier's courage is inspired by drink. Military discipline still exists, but it is based on threats and dread, and undermined by a dull, mutual

hatred." It will be seen that the author takes a consistently gloomy and depressing view of the Russian army and all its works. Yet nothing could have given him the lie better than the whole course of the present war upon the Eastern front. Nothing could have shown up the inherent falseness of the author's views about the Russian army better than the magnificent spirit and solidarity with which it has borne up for twenty months against the onslaughts of the far better armed and prepared Central Powers. The book has been fairly well translated. It is one for our pessimists to read, and read with pleasure; they will overlook the fact that its whole thesis is being contradicted daily by the test of war.

The world knows very little of what actually goes on at the front in France day by day. Spies are many, information of great value to the enemy is easily picked up, and the Allied Governments have rightly done their best to screen their military operations in detail behind an impenetrable veil of secrecy. An American journalist, however, has been given the opportunity to inspect for himself the conduct of warfare in and behind the French trenches. As he says, "To obtain me permission to see the French fighting machine in action required the united influence of three Cabinet Ministers, a British peer, two ambassadors, a score of newspapers—and the patience of a Job." He gives an excellent account of his experiences in a book recently published,⁹ with scores of most illuminating photographs. He was most struck by the organized efficiency of the French, the profound conviction of victory with which they are animated, and the incredible horrors of modern warfare in the combinations of slaughterhouse and sewer known as trenches. He refers again and again to the waste and desolation left by the passage of war through countryside and village. He has been unfavourably impressed by the lack of seriousness with which the British make war—an old complaint often brought against us in past centuries, both inevitable and true. The book gives an admirable picture of modern warfare in its general aspects, and for that reason should be widely read. It is of particular interest to medical men for the reason that its writer has seen much of the wounded and the vastly improved organization that has now been evolved to succour them without delay. "As one Tommy remarked, 'You 'ears the 'ell of a noise, and then the nurse says: "Sit hup and tike this broth"'—so speedy is the transit from battlefield to hospital.

⁹ *Vive la France*. By E. A. Powell. London: W. Heinemann 1916. (Cr. 8vo, pp. 268; illustrated. 3s. 6d. net.)

WAR WASTAGE AND THE BIRTH-RATE.

GERMANY AND GREAT BRITAIN.

In a recent report Dr. Newsholme has calculated that had the birth-rate of England and Wales been the same in 1914 as in 1876 there would have been 467,837 more infants born in 1914 than actually saw the light. In an official report to the Lower House of the Prussian Diet, on February 25th, it was stated that there were now 560,000 fewer births in Germany than would have occurred if the birth-rate of the year 1900 had been maintained. It was stated, further, that the decline of the birth-rate in Germany in twelve years had been as rapid as that in France in seventy, and that the number of births in Germany had sunk 75 per cent. more than the number of deaths.

The decline in the birth-rate has combined with the appalling wastage of the able-bodied male population in the war to make the maintenance of the population in the future a matter of frequent discussion in Germany. A society with the title *Deutsche Gesellschaft für Bevölkerungspolitik* has been founded by Professor Julius Wolf, who, in an address¹ at the first meeting, said that though the working classes were inclined to dread any interference with their mode of life, the increase of population after 1880 had coincided with enormous improvements in their condition; the lot of the working man in France with its low birth-rate was certainly not better than that of the German. He expounded what he called a "positive policy of population." Every effort should be made to encourage a will to marry and bring up a large family. The average age of marriage in Prussia was for men 29, and for women from 25 to 26.² Were marriages contracted earlier, not

¹ *Deut. med. Woch.*, November 4th, 1915.

² In England and Wales the mean ages at marriage in 1913 were bachelors 27.56, spinsters 25.72.

⁵ University College Hospital Medical School (University of London). Research Department. Directors: Dr. C. Bolton and Dr. A. E. Boycott, F.R.S. *Collected Papers*, vol. v, January, 1916.

⁶ *Collected Papers on Goitre and Cretinism, 1913-14*. By R. McCarrison, M.D., F.R.C.P., D.Sc., Major I.M.S. Calcutta: Thacker, Spink, and Co. 1915. (Cr. 4to; illustrated.)

⁷ *The Indian Manual of First Aid*. By Lieutenant-Colonel R. J. Blackham, C.I.E., R.A.M.C. Twelfth edition. Bombay: G. Claridge and Co. 1915. (3½ x 5, pp. 210; 68 figures. 1 rupee.)

⁸ *The Duel*. By A. Kupin. London: G. Allen and Unwin, Ltd. 1915. (Cr. 8vo, pp. 350. 6s.)

only would the birth-rate rise, but the incidence of venereal disease would fall. He advocated a reform in professional education which would enable a man to earn his living earlier, and to postpone some of his studies. Social problems, including housing and wages, were, he said, also closely connected with the birth-rate. The indirect taxation was burdensome to the working classes. Germany's fiscal policy penalized families with many children, and dealt lightly with bachelors and families with only one or two children. At present the third child in a family was an embarrassment, and the fourth a sorrow. The fact that the infant mortality was considerably greater in some places than in others showed that it was still capable of reduction, and young girls should be educated in domestic duties, and the will to marry and the will to propagate inculcated. Fräulein Müller, President of the Deutsch-evangelischen Frauenbund, promised the support of her society, but Herr D. Naumann, a Reichstag Deputy, was pessimistic as to the efficacy of the methods advocated. The relation of the housing problem to the birth-rate was, he said, obscure, districts with the best housing conditions sometimes showing the lowest birth-rate. The will to propagate, he added, was feeblest among Government officials, in spite of the fact that their economic future was secure. Dr. Hofmeier, speaking as a gynaecologist of more than twenty-five years' experience, said that the fall in the birth-rate was principally due to economic factors. He urged that the 180,000 illegitimate children born every year should not be neglected; for lack of care their death-rate was 25 to 30 per cent.

At a conference of the Zentralstelle für Volkswohlfahrt,² stock proposals, such as the special taxation of bachelors, were made, but Dr. Christian of Berlin suggested that the present system of monogamy for life might not meet future needs. He calculated that, were the birth-rate and death-rate of the German nation in 1912 to be maintained, the increase of the population within the next twenty years would be reduced only from 16.8 to 14 millions by the war. The deficit would be completely made good were the fecundity of the married to be maintained at the level of 1901 to 1910. Frau Fürth advocated extension of insurance, provision of subsidies, and the care of the unmarried mother. The suckling bonus, established soon after the outbreak of the war, should not be confined to the first twelve weeks, but should be given as long as the mother suckled her infant, up to eight or nine months. Celibacy among female officials should no longer be insisted on, and women engaged in professional duties should be encouraged to marry.

At this conference a school medical officer, Dr. Lewandowski, stated that the changes in the nation's diet caused by the war had reacted on school children's weight, which had not increased as much as in times of peace, but otherwise they had not suffered; the increased employment of women had, however, led to a corresponding neglect of young children. Frau Direktor Deutsch said that the German women had shown themselves admirably qualified for professional work during the war, but in household duties had not fulfilled all that was required; she suggested State schools for housewives and mothers in which the teaching would be adapted to the requirements of the various grades of society, and Fräulein Lange went so far as to suggest that domestic training for women should be made compulsory, as was military service for men.

As in this country, efforts have been made in Germany to diminish infantile mortality, but the results have not been conspicuously successful there. According to Dr. W. A. Brend, the infantile mortality-rate from 1901 to 1912 averaged 184 (exclusive of stillbirths). Mr. Benjamin Broadbent of Huddersfield, who speaks with special authority, seems to think that the reason for the comparative failure in Germany is that the schemes evolved there have savoured too much of the drill sergeant, and have not had sufficient regard to what in this country has from the first been looked upon as the fundamental doctrine—namely, that the mother, and the mother only, can properly tend the babe, and that the proper place for the mother and the babe is the home. We may, therefore, take comfort that we are working along right lines, and that expansion of the system of maternity and child welfare centres will result in a still further reduction in

the infantile death-rate. There was unfortunately last year an increase in the rate. The rate in England and Wales fell from 163 in 1899 to 95 in 1912 but rose again in the following year. In 1914 it was 105, and in 1915, 110. In Scotland in 1915 the infantile mortality-rate was 126, which is higher than in any year since 1901. It is 15 more than in 1914, 17 more than the mean of the five preceding years, and 14 more than the mean of the ten preceding years.

PREVENTIVE OBSTETRICS.

It is not yet, perhaps, as fully recognized as it ought to be that there is in obstetric practice a large sphere of preventive medicine which has hardly been entered upon. A great debt of gratitude is due to the pioneer work done at the Edinburgh Royal Maternity Hospital. The report by Dr. J. W. Ballantyne, published recently in the JOURNAL,⁴ shows that the hospital, by attracting dangerous complications of pregnancy, has helped to demonstrate the widely fatal effects upon the life of the child before birth—embryo or fetus—of morbid states of the expectant mother. No statistics have hitherto given any indication of the gravity of the facts, for there has been and is no means of gauging with any approach to accuracy the number of abortions which occur in this country as the result of maternal pathological conditions, and it is only recently that legislation has been sanctioned requiring the notification of stillbirths—that is, of pregnancies interrupted after the twenty-eighth week. Reference is not here made to criminal induction of abortion, but only to the miscarriages which take place as the result of one or other of the morbid states of the mother or of the contents of the uterus. There exists no means of making more than a guess at the frequency of such antenatal casualties, but the Edinburgh statistics justify the statement that the number of pregnancies ending as abortions, and therefore disastrously for the new life in the womb, is not small.

As an instance of the heavy loss of antenatal life to which reference is being made, the results of the prematernity work done at the Edinburgh hospital in the autumn quarter of 1912 may be taken. During the three months 36 women (7 unmarried and the rest married) were treated in the prematernity ward for one or other of the maladies of pregnancy; 2 of them were so completely relieved of their troubles that they were able to return to their homes, pregnancy continuing; 33 were delivered safely in the hospital; one girl suffering from acidosis of a grave type at the fourth month of pregnancy died. There was, therefore, one maternal death out of the 36 cases (not quite 3 per cent.), not a high mortality having regard to the nature of the cases. Three of the infants died after birth, and again it can be claimed that the post-natal death-rate was not high considering the diseases from which the mothers of the infants were suffering. But when the antenatal mortality is looked at a very different and a much less satisfactory state of matters is revealed: 17 of the infants were born alive and survived, and 17 died before they left the womb, whilst 3 (as already stated) died after birth. Out of 37 antenatal lives, therefore, 17, or nearly 46 per cent., were lost in the uterus. It is true that the gravity of the figures is to some extent lessened by the fact that one of the cases was a triplet abortion (counting as three antenatal deaths), and that there were 6 other abortions; thus 9 of the prenatal deaths were the result of miscarriage, for of course the embryos were not viable. Yet the deductions only serve to throw into clearer light the fact that miscarriages, whatever may be their effect upon maternal health and life, are most disastrous to antenatal life.

In this apparently gloomy fact, however, there lies hidden a hopeful one. Miscarriages are in many cases preventable, and it may turn out that one of the most beneficent parts of the work to be done by antenatal clinics and prematernity practice in the future may be the prevention of threatened or probable abortions. At the present stage it is not possible to discuss whether the child born as the result of a pregnancy in which a miscarriage threatened will be less fit physically and mentally to fight the battles of life; but, in the meantime, the prevention of antenatal deaths due to miscarriages is an object to be aimed at. There is at present a vast amount of maternal suffering in the period of expectancy among women of the

² Deut. med. Woch., November 11th, 18th, and 25th, 1915.

⁴ February 5th, 12th, and 19th, pp. 189, 234, and 275.

working class if the gestations be complicated by any of the many morbid states to which they are liable. The single fact mentioned in the report here quoted—that of thirty-one mothers suffering from albuminuria one only developed eclampsia—speaks strongly for the value of the work done.

Prevention is the keynote of the whole prematernity movement. At present it is not known how many lives are lost antenatally, and therefore how many might be saved cannot be stated; but there can be no doubt that many are so lost, and there is justification for the belief that by antenatal clinics and prematernity practice not a few of them may be saved. Infant life will be not less but much more valuable after the war, and the politician no less than the hygienist will be well advised to consider closely all available means of saving the unborn.

MOTOR NOTES FOR MEDICAL MEN.

By H. MASSAC BUIST.

THE NEW TAXES.

THE prohibition of the further importation of passenger-car chassis and parts has brought to an end the revenue planned by Mr. McKenna in his autumn Budget to be reaped as an additional war-time contribution from motoring. The sum received by the Exchequer while those duties were in force and the trade was free to import foreign cars and cycles amounted to £540,609. At this rate, had those duties remained in force for a full year, they would have amounted to a very appreciable sum more than the £800,000 which the Chancellor of the Exchequer hopes to reap from the alternative revenue from motoring through the new scale of licence fees. In face of the lapse of the duties through the prohibition of imports it was to be expected that motoring would in any case be taxed in an alternative way to yield some special war-time revenue.

The two obvious alternatives were increased licence fees or heavier petrol duties. There are many phases of the petrol situation which may not be made public, but which are quite appreciated by the Government. I am convinced, however, that had the Chancellor raised the duty on petrol instead of introducing heavier car licences, his proposals would have come in for a great deal more criticism from the motoring community than they are receiving now.

THE ALTERNATIVES.

The medical man who has not studied the matter in all its bearings may protest in all reasonableness that his car is as much a utility vehicle and as little a pleasure carriage as is the munition maker's motor-lorry, and he may ask why the whole of the burden of the new taxation is not placed on the shoulders of those who motor for pleasure and of whom there has been so much talk of late. The answer is that the data collected by the various motoring organizations from every quarter of the kingdom reveals that only a negligible quantity of passenger cars out of the total in use in the country are being employed for pleasure as distinct from one business purpose or another. Were the share of the revenue to be raised apportioned to this residue of pleasure car owners, the individual contribution would be so heavy that, practically without exception, the owners would be compelled to put their cars by, and therefore no money would be forthcoming for the Exchequer from this source. The question was whether the burden of taxation could be divided between the owners of passenger cars or whether some of the burden should be placed on the shoulders of the users of "utility" motor vehicles.

THE EFFECT OF THE HIGHER LICENCES ON VARIOUS TYPES OF CAR.

As far as this new taxation is concerned, at least 90 per cent. of medical men fall under the head of one of three groups. Let us consider each in turn, beginning with the least taxed classes as being those that probably constitute the greatest numbers.

First in the scale we have the light car users, such as Standard car, Swift, Singer, Stellite, and owners of such like vehicles, who will have to pay 3 guineas more licence fees for the full motoring year beginning January, 1917, and £2 7s. 3d., being three-quarters of the increased fee for the right to use their cars after August 15th next, because the new duties have been made law after only one quarter of the current year has lapsed.

Next we come to the class using such machines as 12-h.p. Rovers, and, indeed, anything up to the size of what is in point of accommodation a really big vehicle of great speed possibilities, such as the 16-h.p. Sunbeam. By the new scale of taxes those driving four-cylinder vehicles which do not exceed 80 mm. or 3½ in. cylinder bore will have to pay 3 guineas more for their motoring in 1916 if they want to employ their cars after August 15th next, and 4 guineas a year more for the full year beginning January, 1917.

In the case of those medical men who have cars that come within more than the third degree of taxation on the new scale, motoring would cost each 9 guineas more than he anticipated this year, and 12 guineas, or 5s. 3d. a week, more for the full year of 1917. This would be a material matter chiefly in the case of owners of Ford cars, some of whom, I gather, are suggesting that the whole system of Treasury rating should be altered, and the tax based, instead, on the original price of the car. While frankly admitting that some owners of such vehicles would feel the strain of an extra war levy of this sort, one has nevertheless to confess that it is to the interest of medical men as to all other sections of the community that no taxation system should be adopted that should prejudice the mechanical development of the motor. In what direction during recent years has the motor been evolved so that we are getting light, refined, and small power packets to do as much work and develop as good a turn of speed as large ones did formerly and with vastly more refinement? Briefly, by the development of a longer stroke in relation to bore. "Yes," the Ford owner may say, "I quite agree that, as regards British-made cars, or, for that matter, European ones, the present system of taxation is fair, but it is quite unfair to the American machine." That remark, however, is not quite accurate. If those American machines that constitute the newer models, and show that their makers have been making better motors of recent years, are studied it will be found that to get the efficiency, the refinement of working, the power from the engine volume, the flexibility, and so forth, there has been a gradual lengthening of stroke measurement in relation to bore.

Many of the 1916 American models come off quite well under this new Treasury rating. Take the car that is produced on the next largest scale to the Ford, the 12-h.p. 1916 Willys-Overland. Under the new scheme this machine is only taxed 4 guineas more for the whole year, because it is a new and modern design of engine. On the other hand, the Ford engine measurements have not varied since 1908. (See *Autocar*, November 7th, 1908.)

HOW THE MEDICAL MAN MAY BE RELIEVED.

In my opinion it would not be justifiable to alter the basis for arriving at amount of taxation unless it could be shown besides that by so doing the evolution of the motor would be encouraged. In the circumstances, far from encouraging development, it would be discouraged and a premium put on a type of motor which has contributed nothing to the world's knowledge of how to improve the liquid fuel internal combustion engine, while owners of other American manufactures, to say nothing of the British and European ones, the makers of which have been developing their motors from year to year, and the bore and stroke of whose machines do not remain in 1916 what they were seven and more years ago, would be penalized.

The medical man has to remember that, as an income-tax payer, his car charges are allowed to him as a business expense, and also that he has paid only half licence rates hitherto. If the duty had been put on petrol instead of on cars, even with the rebate allowed to medical men, those who would be paying respectively 3 and 4 guineas a year more for their motoring under the new licence scheme would not be as well off as they would be as matters now stand, while it is doubtful if those who will come within the 12 guineas extra tax will be much, if any, worse off. In any case it would not be good policy for the Treasury to upset the whole line of motor engineering development, which the New World itself is now copying from this country, merely to suit one particular class of machine; such a course would, moreover, have the effect of imposing additional burdens on the owners of dozens of other types of machines much used by the medical profession.

Therefore, in seeking a remedy for the case of the medical man, including owners of Ford cars or other machines of more than 16-h.p.—the British Medical Association has made representations on behalf of the profession to the Chancellor of the Exchequer this week—I suggest that his particular case could be served with least disturbance and most general satisfaction by making the extra duty only half what the ordinary member of the public will have to pay for any class according to Treasury rating. Thus, on a car of more than 16-h.p. the doctor would pay a war tax of only 6 guineas a year, or 2s. 7½d. a week, against the public paying 12 guineas, or 5s. 3d. a week. The policy, moreover, would be akin to the treatment of the profession in the matter of existing licences, also to the granting of a rebate on petrol duty to the medical profession. Thus no medical man would pay a total fee of more than 9 guineas a year for the use of any car suitable and necessary for doctors' work, and two-thirds of that tax is only a war-time levy. Suppose it obtains for two years, the Ford would still provide very cheap motoring for the profession.

MR. McKENNA'S CONCESSIONS.

As the foregoing goes to press, Mr. McKenna's reply in the House of Commons to Sir C. Kinloch-Cooke is announced, to the effect that the existing concession, under which registered medical practitioners pay only half rates on licences for motor cars and motor cycles, will be extended to the new duties. This, therefore, accords with the solution of the problem suggested above. In practice it means that the medical man will only have to pay a total of 3 guineas a year for the use of a light car; 4 guineas a year for the use of a machine not exceeding 16-h.p. Treasury rating; and of 9 guineas a year for a machine exceeding 16-h.p. Treasury rating; whereas the general member of the public will pay 6, 8, and 18 guineas in respect of those various classes of vehicles. The actual sums of money which doctors will have to disburse by way of extra duty this year are respectively £1 3s. 7½d. and one guinea and a half in mid-August for light cars and for machines not exceeding 16-h.p.; and in July £4 14s. 6d. for a machine of over 16-h.p. Treasury rating, for which the public will pay 9 guineas. Medical men using motor bicycles as well as side-cars are treated in the same way. Considering the crisis through which the nation is passing, and the urgent need of raising revenue, Mr. McKenna is treating the medical profession with fairness and understanding.

THE FUEL PROBLEM.

Far more serious for the medical man, as for the rest of the motoring community, is the petrol situation, if only for the reason that, whereas financial obligations in relation to licence fees are foreknown, in the matter of petrol prices none of us know where we stand from one week to another. The Government is striving to the utmost of its power to relieve the situation by imposing no more duties on motor fuel, which is rightly deemed to cost the community too dear already. It goes further, for the new scale of licence taxes very distinctly discourages the use of large-engined cars of the character that are greedy of motor fuel. When an owner has to pay £126 a year for the mere right to take his car out of the garage the Government is going about as near to prohibition of a particular class of motoring as any one can reasonably expect.

All the talk of the Government taking control of the petrol companies and compelling them to supply the public at fixed rates is utter absurdity, for the simple reason that if it fixed rates, still without incurring loss, it could not supply the public at cheaper rates than they are paying for their petrol now. Reduced to plain terms, petrol is worth just as much as it will fetch in the world's markets, and, as we are dependent on Transatlantic markets for the bulk of the supplies used by the public, we must pay what that fuel will command there plus the cost of bringing and distributing it here. Since last this matter was touched on in these columns there has been another 2d. a gallon advance in the price of Pratt's and the majority of other brands, consequent on the rise in the wholesale price of motor fuel on the part of the various refiners in the New World from whom the Anglo-American and other companies here have to buy their supplies. Briefly, the reason of the rise is that expansion of the consumption of motor fuel in the United States will

demand 25 per cent. more fuel than the total produced in the last year, of which total not more than 20 per cent. was exported, so that there is a threatened shortage of 5 per cent. for this year's requirements in America unless extra sources of supply are developed. Such resources are being developed, but gain under this head is offset by the facts that over one hundred American controlled oil wells in Mexico are at present idle owing to lack of transport facilities, that there is a blockage of shipping in the Panama Canal which is hampering the Rockefeller group in their dealings with the East, and that the production of the Cushing oilfield in the States has fallen off from 300,000 to 100,000 barrels a day of crude oil of the highest petrol content; besides which, for the time being, alternative fuels cannot be placed on the market of the New World by reason of the fact that the Steel Corporation and suchlike enterprises, which installed plant for producing benzole to compete with petrol when the price of the latter was only 20 cents an American gallon, are disposing of all their output of benzole now at between 80 and 90 cents an American gallon to the dye industries and to the makers of explosives.

DR. RITTMAN'S PROPHECY.

Dr. W. F. Rittman, inventor of the process which is claimed to yield anything up to 200 per cent. more petrol than the older methods of distilling petrol from the crude oil, and whose process the U.S.A. Government allows oil refiners within the borders of the States to use gratis, though only ten of them have adopted it so far, the Rockefeller group having a system of their own which apparently yields at least equally satisfactory results in practice, holds that either some way must be devised of increasing the available supply of petrol to meet the increased demand, or we must come to the use of fuels which have somewhat the same composition as the conventional motor spirit but which are more plentiful, or, finally, that we shall have to look to some other agent for use in the propulsion of motor cars and the operation of other hydrocarbon burning machines.

No two crude oils are the same. Of two wells in one oilfield one will yield more petrol than another. The average motor spirit content of petroleum in America is below 12 per cent. By new cracking processes Dr. Rittman holds that this can in time be brought up to 60 per cent. He says, however, that Californian and Mexican oils contain virtually no "gasoline," but can be made to do so by his fractional distillation process. He says that to-day 300,000 of the 2½ million motor vehicles that are owned in the States are being run on "cracked gasoline," otherwise motor spirit produced from kerosene, gas-oil, and so forth. He predicts that the rise in prices will continue uninterrupted until the middle of July next, will come down in mid-October to what it is to-day at wholesale in America, and will continue that rate of decline uninterruptedly until it comes back to normal.

That, however, does not solve the problem for this country, because it is largely a transport and distributing difficulty, which will obtain until the end of the war.

The patriotism of the Asiatic Petroleum Company, vendors of Shell spirit and other brands, in refusing to raise the price of their petrol to the public at a period when, commercially and morally, they would be thoroughly entitled to do so, cannot be overpraised. But as, owing to the enormously expanded employment of utility motor vehicles the demand for petrol among the civilian community in these islands is greater than it was before the war, and as owing to its contracts with the Government for the supply of the Services the Asiatic Petroleum Company can only let its clients have one-third of their normal requirements before all this expansion took place, it follows that that quantity of spirit is not much more than a bucketful towards a bathful that is needed. Therefore, by far the majority of motorists have no option but to buy the dearer brands, the first grades of which now cost 2s. 8d. a gallon in this country and 2s. 9d. a gallon in Scotland and Ireland. Indeed, during the next few months motor fuel costs are likely to prove a greater burden to the majority of the medical profession than the new scale of car licence fees.

The freeing of transport after the war, and the throwing open of oil wells in various parts of the world that are at present idle, or the production of which cannot be brought to market, will, of course, be the main solution.

MILITARY ORTHOPAEDICS.

LIEUTENANT-COLONEL ROBERT JONES, R.A.M.C.(T.), has been appointed by the War Office Inspector of Military Orthopaedics. Lieutenant-Colonel Jones is lecturer on orthopaedic surgery in the University of Liverpool, and has been surgeon to the military orthopaedic centre at Alder Hey Military Hospital, near Liverpool, since its establishment. He is also a member of the staff of the hospital at Roehampton, near Richmond Park, for men who have lost a limb in the war.

HOSPITALS FOR MEN WHO HAVE LOST LIMBS.

It is perhaps necessary to recall that the hospital at Roehampton—the Queen Mary Auxiliary Hospital—which was established about a year ago, with the approval of the War Office and Admiralty and with the co-operation of the Greenwich and Chelsea Commissioners, is a special hospital for men who have undergone amputation of a limb. Accommodation is provided for 300 men in two houses placed at the disposal of the committee by Mr. Kenneth Wilson. The men admitted to the hospital are retained there until the artificial limbs they need have been made and adjusted under the supervision of the experienced staff of orthopaedic surgeons attached to the hospital. A hospital on similar lines and with the same recognition from the War Office is being established in Glasgow, where, we understand, the same system of supervision and construction of artificial limbs on the spot will be followed. Mr. Hayes Fisher stated the other day in the House of Commons that cases of this class were being reported at the rate of 300 a month.

THE SCOPE OF MILITARY ORTHOPAEDIC HOSPITALS.

In addition to the men who have undergone amputation, there are among those returning from abroad to military hospitals at home a large number of cases of injuries of limbs, especially of joints, varying in severity, but all more or less interfering with the ability of the wounded man to do useful work in civil life. No one will doubt that these men can in a large number of cases be greatly benefited by skilled orthopaedic treatment, and it is obvious also that this treatment should be begun as early as possible. The recognition of this by the medical department of the War Office has led to the appointment of an Inspector of Military Orthopaedics, whose duty it will be to exercise general supervision on behalf of the War Office in respect of the treatment of orthopaedic cases in the various military hospitals and sections of hospitals set apart for them, and to arrange for the transfer of suitable cases to selected centres for orthopaedic treatment. The types of cases which will come within the scope of the scheme may be classified as follows:

1. Derangements and disabilities of joints, simple and grave, including ankylosis.
2. Malunited and ununited fractures.
3. Injuries to ligaments, muscles and tendons.
4. Cases requiring tendon transplantation or other measures for irreparable destruction of nerves.
5. Nerve injuries complicated by fractures or stiffness of joint.
6. Certain complicated gunshot injuries to joints.
7. Cases requiring surgical appliances.

It may also in many cases be thought well to refer to the special orthopaedic hospitals deformities and disabilities of feet, such as hallux rigidus, hallux valgus, hammer-toes, metatarsalgia, painful heels, and flat and claw feet.

The Hammersmith Military Orthopaedic Hospital.

The Hammersmith Military Hospital will be the first of these military orthopaedic hospitals to be organized under the supervision of the Inspector of Military Orthopaedics. The buildings consist of the Hammersmith Infirmary and Workhouse, and will hold a total of about 800 men. In addition to the ordinary surgical orthopaedic service, there will be departments for treatment by massage and mechano-therapeutics, for electrical treatment, and for radiant heat, whirlpool and other forms of baths, each in their own quarters. There will also be a large and well-fitted gymnasium. The workshops of the building are

large, and it is hoped to be able to fit them in such a way that all splints, surgical appliances, special boots and instruments, etc., may be made upon the premises. Special accommodation is to be made for plaster-of-Paris work, including the taking of plaster-of-Paris casts.

The staff of the hospital, apart from the administrative officers, will consist in the first place of four surgeons, a consulting neurologist, physicians in charge of the massage, electrical, and balneological departments, x-ray specialist, anaesthetist, gymnastic instructor, and four resident medical officers.

The British Red Cross Society has from the moment of its first suggestion offered its help to this hospital, and is assisting, both financially and through its organization, in providing the equipment required, which is necessarily elaborate.

ROYAL MEDICAL BENEVOLENT FUND.

At the last meeting of the Committee, held in March, twenty-six cases were considered, and £207 granted to twenty of the applicants. The following is a summary of the cases relieved:

Widow, aged 46, of M.R.C.P.Irel. who practised at Norwich and died in January, 1916. Applicant left totally unprovided for with four children aged 5 to 19. The eldest has joined the army and the youngest are at school. Applicant's health is bad, and she has no friends. Voted an immediate grant of £5 pending further inquiries.

Daughter, aged 44, of M.D.Edin. who practised at Leamington and died in 1884. Applicant along with her mother managed with the aid of the Fund to get along by letting some of their rooms. The mother died recently, and the applicant was unable to manage without a little help. Voted £6.

Widow, aged 68, of M.B.Edin. who practised at Bolton and died in 1905. Applicant lost about £700 through a defaulting trustee, since dead, and her only certain income is £10 per year. One daughter, a shop assistant, lives at home, and helps as much as she can. Voted £12 in twelve instalments.

Widow, aged 62, of L.R.C.P.Irel. who practised in North London, and died in February, 1916. Her late husband was a pensioner both of the Fund and Epsom College. Applicant has no income, and at her age expects it will be difficult to find work. Voted £12 in twelve instalments, and referred to the Guild.

Widow, aged 61, of L.R.C.P.Irel. who practised at Mitcham and died in 1914, after a long illness during which all his savings were spent. Applicant is now practically dependent on the hospitality of friends. Relieved three times, £40. Voted £10.

Wife, aged 37, of M.R.C.S.Eng., is in an advanced state of tuberculosis, and her husband is in an asylum. There are three children; the eldest is being cared for by a relative, the second is in an orphanage, and the youngest living with her mother. Relieved once, £18. Voted £18 in twelve instalments, and referred to the Guild.

Daughter, aged 39, of L.R.C.P.Irel. who practised at Earlsfield and died in 1902. Applicant is blind, and is training as a masseuse. Prior to the recent death of her mother, who had a pension for life, they managed. The applicant is now dependent on a relative who has to earn her living. Help wanted for tuition fees. Voted £10.

Daughter, aged 66, of M.R.C.S.Eng. who practised at Plymouth and died in 1879. Applicant has recently lost £30 per annum through the death of a friend. Only certain income £11 per year. Lives with sister, who receives an annuity from the fund. Relieved three times, £36. Voted £12 in twelve instalments.

Daughter, aged 55, of M.R.C.S.Eng. who practised at Manchester and died in 1898. Applicant managed to earn her own living, until an attack of nervous debility a few years ago necessitated her giving up her work. Only income a pension from her late employer of 6s. per week. Relieved twice, £24. Voted £12 in twelve instalments.

Daughter, aged 49, of M.D.Glas. who practised in Derbyshire and died in 1872. Applicant was left totally unprovided for, and has tried to earn a living by taking in paying guests, but owing to the war has not been successful of late. Relieved once, £10. Voted £10 in two instalments.

Widow, aged 61, of L.R.C.P.Irel. who practised at Dumfries and died in 1908. Was left unprovided for with four children, none of whom are able to help. Only income a pension of £12 per annum from another society. Relieved seven times, £68. Voted £12 in twelve instalments.

Widow, aged 58, of M.D.Edin. who practised in Cumberland and died in 1903. Left totally unprovided for, and tries to earn a living by taking in boarders, but owing to her residence being on the East Coast has been unsuccessful since the war. Has four children, all married, and unable to help. Relieved ten times, £112. Voted £12 in twelve instalments.

Daughter, aged 52, of M.R.C.S.Eng. who practised in London and died in 1895. Owing to exceedingly bad health applicant is unable to take permanent employment. Only income, £28 per year. Relieved four times, £51. Voted £12 in twelve instalments.

(To be continued.)

British Medical Journal.

SATURDAY, APRIL 15TH, 1916.

THE MAN WITH THE MUCK-RAKE.

In the second part of *The Pilgrim's Progress* Bunyan describes how Christiana was shown a number of instructive sights in the significant rooms of the House of the Interpreter. Among these was "a room where was a man that could look no way but downwards, with a muck-rake in his hand. There stood also one over his head with a celestial crown in his hand, and proffered him that crown for his muck-rake; but the man did neither look up, nor regard, but raked to himself the straws, the small sticks, and dust of the floor."

In the recent debate in the House of Commons, dealing with the army medical organization and its alleged defects in France and elsewhere, Mr. McNeill brought forth a great collection that had been made for him of the sins of omission and commission attributed to those responsible for our medical arrangements overseas. On this occasion the wounded were left lying all night in the open; on that occasion the supply of stretchers was caused to fall lamentably short; on other occasions there had been wholesale terrible breakdowns of the medical arrangements; indeed, the entire present organization of the Army Medical Service was fundamentally unsound, and the topic was embroidered by the speaker with all the worn fal-lals and fripperies of hearsay that any scandal-monger might collect for the adornment of a scarecrow in which he was interested. Many of the officers Mr. McNeill attacked, by name or otherwise, were on service abroad, and in any case are precluded by regulations from making any reply. Their defence in the House of Commons was undertaken by Colonel Arthur Lee, parliamentary secretary to the Ministry of Munitions, who had little difficulty in disposing of most of the allegations. Colonel Lee spoke with the authority of personal familiarity with the facts; for nine months he had been Lord Kitchener's special personal representative to report to him upon the practical working of the medical services in the field. He had had unique opportunities of watching the work of the medical services at many of the places where the breakdowns were said to have occurred, and he was in a position to say at once that Mr. McNeill's harrowing tales were not in agreement with the facts he had himself observed. Mr. Tennant has made his own opinion very clear on several occasions, and only last Wednesday he declined to entertain a suggestion by Mr. McNeill to appoint a roving committee to examine into the organization and working of the Army Medical Service at home. He would not, he said, undertake action which could only have the effect of dislocating and perhaps disorganizing a most efficient piece of mechanism. In so speaking the Under-Secretary no doubt expressed also the opinion of the Secretary of State, Lord Kitchener.

Some tales and anonymous statements there are that have not been authoritatively disposed of as yet. There is the matter of the redistribution of the stretchers said to have been collected together before the battle of Loos; what if it should prove to be the case that these stretchers were directed to be returned

to a central post, so as to be immediately accessible to all the divisions that might well have urgent occasion to use them? Would it have been advisable on the eve of an attack to strip several exposed divisions bare in order that one might have an unlimited supply? Again, with regard to the alleged neglect to call together the Army Medical Advisory Board to co-operate in the general superintendence of the organization of the medical service, what if it should prove to be the fact that most of the members of this Board have long been serving in an advisory capacity abroad? These are considerations that will occur to any one without any special knowledge of the facts; yet there is a tendency to discount such explanations and to accept as gospel any lurid and pessimistic account of the doings of our national services abroad. People are too ready to believe in the truth of any allegations of wholesale incompetence, or worse, made at the expense of the officers responsible for the conduct of our medical and military affairs in France, Flanders, the Mediterranean, or elsewhere. Many, like Mr. McNeill and his informants, are unduly eager to take on trust and repeat what they are told about such things, oblivious of the fundamental principle laid down once and for ever by Stareleigh, J., to the effect that what the soldier or any other man said is not evidence. The evidence is all the other way, and shows that the Army Medical Service abroad has done its work as well as is humanly possible, and has adapted itself to the varying needs of plague, pestilence, battle, murder, and the other weapons of offence used by the Central Powers with the greatest self-devotion and skill, and, what is more, with striking success. Some instances of local failure of its provisions there must have been; how could it be otherwise on a field of battle extending into three continents? But these instances will, we are firmly convinced, prove to be the rare exceptions and not the rule, as our ill-informed pessimists and grumblers, in Parliament and out, would have us believe.

But the medical tittle-tattlers have not been satisfied with trying to discredit the army medical arrangements abroad. There has been a dead set against the heads of the Army Medical Service at home, and at least one leading newspaper announced that Sir Alfred Keogh had been driven to resign. This particular insinuation was officially stated by the War Office to be "quite untrue," and the contradiction caused universal satisfaction. Sir Alfred Keogh, who very early in the war was called away from an honourable and interesting post to act as Director-General at home so that Sir Arthur Sloggett might be free to take over the direction of the medical service of the British Expeditionary Force in France, has accomplished something little short of a miracle. He has organized at home the medical service of a force ten times as numerous as the "contemptible little British army" of August, 1914. He had to accept the responsibility for the health of a multitude of raw recruits drawn from every class, unaccustomed for the most part to outdoor life or the hard work of soldiering; he had to organize a medical service to look after them out of the civilian medical profession who were ready and willing, and medically highly competent, but for the most part untrained in handling large bodies of men under military conditions. He has succeeded in organizing the medical work for the recruits, while at the same time meeting every demand from the army in France, in the Mediterranean, and now in Mesopotamia. He could not have succeeded without the loyal support of his profession. He has had it, but he would not have

had it if he had not deserved it. The good sense of the true heart of the medical profession has brushed aside the carping criticisms of backbiters; it has seen defects, but it has seen readiness to remedy them, to try all things, and hold fast that which is good. In the immense effort which Great Britain has made to become a great military power Sir Alfred Keogh is one of the outstanding figures. No man is indispensable and the Army Medical Service has many able officers, but as long as Sir Alfred Keogh feels able to stick to his post his profession want him there.

The man with the muck-rake, no doubt, serves a useful purpose at times, as did the drunken Helot in his day; we are glad to know that his investigation of the doings of the Army Medical Service has brought to light nothing more than what Colonel Lee happily described as a *nidus equinus*, a mare's nest constructed, no doubt, of the straws, the small sticks, and the dust of the floor detailed by John Bunyan. In conclusion, one may advantageously quote this author further: "Then said Christiana, Oh, deliver me from this muck-rake!" And so say all of us.

THE FOURTH WAR BUDGET.

WAR finance has hitherto necessitated half-yearly Budgets, and the Chancellor in his recent speech made it clear that a second Finance Act for 1916-17 was already regarded as inevitable. It is therefore natural that the taxpayer should look upon the present proposals with rather more apprehension than if his contributions to the Exchequer for the current year were thereby definitely fixed. It is a remarkable proof of the readiness of the country to bear the pecuniary burdens of the war that, although there is not any likelihood that the high-water mark of taxation for the year has been reached, the Budget has been received with all but universal approval, and such hostile criticism as has been heard is limited almost entirely to the more novel but less productive portions of the Chancellor's proposals.

Those taxes which are now embodied in the Finance (New Duties) Bill, such as the match tax, the railway travel tax, and the entertainment tax, are being attacked with some vigour, and with a not inconsiderable degree of plausibility, but at present it seems probable that in general they will hold good, though no doubt with minor modifications—as, for instance, with an exemption of railway season tickets from the new taxes. But Governments are frequently prepared to jettison unpopular taxes if by that means other and more lucrative portions of the financial cargo can be more easily saved; and it may be that the present attempt to "broaden the basis of taxation" may meet with less success than seems likely at the present moment. These new duties, as distinct from the increases in the old taxes, form only a small portion of the estimated yield of the whole, and it is clear that in any case by far the larger portion of the war taxation will be levied upon the upper and middle classes. The lowering of the exemption limit for income tax and the quarterly collection of the duties from wage earners was provided for in the second Finance Act of 1915, but is only now on the point of coming into operation, and it will not be possible to ascertain the financial result with any degree of accuracy for some time to come. For that reason, as well as on account of the administrative difficulties and expense, it would seem that any further reduction of the exemption limit is at present unlikely, though the political and economic advantages of such a course are generally admitted.

Coming to a consideration of the actual proposals,

it has to be borne in mind that the income tax rates laid down in the last Finance Act never came into full force. That Act provided for an increase of 40 per cent. on the then existing rates, with a relieving clause restricting the rise for 1915-16 to 20 per cent. only. Consequently the minimum and maximum rates for that year were 1s. 9½d. and 3s. respectively, and are now raised to 2s. 3d. and 5s., and the corresponding increases are therefore 5½d. and 2s., and not 1½d. and 1s. 6d., as several of the daily papers originally suggested. One example will serve to show the effect of the gradual rise in the rates: On an income of £1,000, half earned and half unearned, the tax payable at pre-war rates would have been £48; the effect of the various Acts has been to raise that contribution to £67 for 1914-15, to £120 for 1915-16, and to £162 10s. for 1916-17, but the last word in respect of this year's tax has probably not yet been spoken. How far income tax can be paid at the proposed rates without trenching on capital is a question that only future investigation can decide; certainly it cannot be done without severe personal sacrifice.

The most interesting feature of the income-tax rates as they will now be applied is the extended graduation of the "unearned income" rates. All tax paid by way of deduction at the source will apparently be at the full rate of 5s. in the £, and a very large number of taxpayers will for the first time find it necessary to prepare statements of total income in order to obtain the relief to which they will be entitled. Taxation at the source—alternatively referred to as the "sheet anchor" or the "fetish" of our income-tax system—has obvious advantages from the Revenue standpoint, and will no doubt be given up only with great reluctance, but the legislation of recent years, by requiring practically every person to render declarations of total income, has to a considerable extent weakened the arguments for its retention. When the promised revision and simplification of the tax is carried out, we may, perhaps, see this principle discarded in favour of a system under which each person would render a statement of his income and be taxed thereon on one charge, payable in instalments. Such a method of assessment is now being put into force in France, our Allies having adopted a system of logical simplicity more consonant with the genius of the French nation than the cumbrous edifice which has been laid on the foundation of the British readiness to accept a compromise as necessarily containing the best of both alternatives.

One advantage of the French system is that it is more flexible in the matter of allowances, as exhibited, for instance, in the deduction it makes for wives and dependants, as well as for children. In the case of our own system the only parallel allowance is in respect of children, which is fixed at £25 (comparing unfavourably with the more generous 1,000 francs in the French system), and which, unlike the French equivalent, is limited to persons whose total income does not exceed £500. This restriction seems to us no longer defensible, either in theory or from an administrative point of view. To-day all classes of society realize the importance of education more than ever before, and as the rates of tax have been so closely graduated, it would seem only reasonable that the relief should be extended and graduated on similar lines. So far as the practical difficulty of granting such relief is concerned, we suggest that it is being solved automatically, as more and more taxpayers are brought by extended graduation into contact with the Revenue officials in connexion with their own payments or repayments.

General practitioners must regard with some dismay the further increase in locomotion costs, which will be caused by the rise in the rates of licence duties on motor cars. The medical profession is in a peculiar position in this matter, and the British Medical Association made representations to the Chancellor asking for exceptional treatment of medical motorists in respect of the car and cycle duty. In view of the fact that the profession has already suffered hardship through the previous increase in these duties and also in the petrol tax, we are glad that the representations have met with a considerable measure of success. In two other cases of hardship, namely, that occurring through the double taxation of colonial incomes and of the application of the new rates to officers in the army and navy, the Chancellor announced that he proposed to leave these "vexed questions" where they stand now, and we suggest that the course adopted in those cases might with at least equal justice be followed in connexion with the increased licences so far as medical practitioners are concerned. Motor taxes have undeniably a flavour of the sumptuary law about them, at any rate in the popular mind, and so far as motor-ing may be for pleasure, few would be at pains to dispute the argument. But such reasons have clearly no application to the motor car kept by a practitioner to enable him to reach his patients with the minimum of delay, and any alteration in the tax payable in such cases should be rather in the direction of further relief than in that of increased taxation.

The medical profession has been met to a certain extent in this matter, and we are thus able to endorse the general opinion that on the whole the taxes imposed are as fairly distributed as possible, and that the Chancellor is to be congratulated on an exhibition of his own courage, of the sanity of his advisers, and of the self-sacrificing spirit of the whole nation.

PSEUDO-DARWINISM AND WAR.

OF all the misunderstandings and misrepresentations to which genius has ever been subject, perhaps those concerning Darwin have been the most tragic, at any rate, in their results for his own country and for the world at large. They afford a striking example of the danger pertaining to the coining of phrases which seem to sum up in a few words the discoveries of a lifetime but too readily catch popular imagination and lead it astray. In the opening paragraph of his discussion of the "struggle for existence"¹ Darwin carefully emphasized the point that he used the phrase "in a large and metaphorical sense, including dependence of one being upon another, and including (which is more important) not only the life of the individual, but success in leaving progeny." This plain statement of a vital qualification has been almost universally ignored by popular exponents or critics of the Darwinian hypothesis, who have stubbornly adhered to a narrow and literal interpretation of the term in question as well as of those others—"natural selection" and "survival of the fittest"—in which the great naturalist loosely summarized his main conclusions. In Germany the prestige and influence of Darwin have been great, but he has been fatally misunderstood. The sanction of his great name has been abused in the dissemination of heresies from which he himself would have recoiled in horror and contempt. In this respect, while Nietzsche and von Treitschke have not been guiltless, the most blatant sinner has been General Bernhardt, who in his widely read books assumed the authority of Darwin for his qualification of war as a "biological necessity" and the basis of all healthy development. It so happens that Darwin, as Sir James Crichton-Browne points out

in a recently published address,² explicitly condemned human warfare as dysgenic and pathological. On the face of it a nation is not a species, and, as Sir Ray Lankester neatly puts it, "You do not see fir trees advancing against beech trees, bears against wolves, vultures against eagles," in big well-drilled battalions and brigades. Sir James Crichton-Browne's address deserves careful study, not only for its crushing refutation of Bernhardt's fallacies, but for its interesting suggestion of extended importance for the factor of mutation in the cosmic process. Postulating a teleological origin and guidance of evolutionary changes, the author identifies as "four tremendous mutations, discontinuous, inexplicable by any naturalistic theory," and "revealing directivity," the transitions (1) from the physical to the vital, (2) from the vital to the mental, (3) from the mental to the moral, and (4) from the moral to the religious or spiritual spheres of action. On the vexed question of the relation of brain and mind, Sir James favours the transmissive theory rather than that which regards thought as the product of cerebration. "So far," he says, "are we from having parallelism between mental and physical states that it would be more correct to represent them as two immense and independent spheres which to a small extent impinge upon and intersect each other."

HORRORS OF A GERMAN PRISON CAMP.

IN THE BRITISH MEDICAL JOURNAL of March 18th, p. 421, reference was made to the experiences of Dr. François Léonetti during an epidemic of typhus in the prison camp at Langensalza in the early part of 1915. A still more damning record of German brutality is to be found in a report just issued by the Foreign Office of a Government Committee of which Mr. Justice Younger was chairman, on the camp at Wittenberg during the epidemic of typhus which raged there in the first six months of last year. The report is based upon information supplied by Major Priestley and Captains Vidal and Lauder, R.A.M.C., and other prisoners recently released. On the outbreak of the epidemic the German staff, military and medical, hastily fled, and six British doctors, Major Fry, Major Priestley, and Captains Sutcliffe, Field, Vidal, and Lauder, who had been detained at Halle in defiance of the Geneva Convention, were sent to Wittenberg. They found the conditions in the compounds almost indescribably horrible. The sick were practically left to their fate without attendance, medicine, or dressings. As a consequence of this neglect several cases of gangrene of the feet occurred, and one man had to undergo amputation of both legs. The only precautions taken by the Germans were to prevent the spread of the epidemic to themselves by isolating the prisoners from the outside world. There were between 250 and 300 cases among the British prisoners, of whom 60 died. The mortality among the French and Russians was much greater. The medical officers and the nursing orderlies suffered most. Major Fry and Captains Sutcliffe and Field died of the disease. The Committee has no doubt that "the conditions to which the camp authorities had reduced the camp and the prisoners they had abandoned was directly responsible for the deaths of these devoted men." Captain Lauder fell ill on March 7th, but recovered; when convalescent he resumed duty. The report pays a glowing tribute to the work of the English doctors and orderlies. Only once during the whole course of the epidemic did Dr. Aschenbach, the German medical officer in charge, enter the hospital or even the camp, and that visit was of the most perfunctory kind. His callousness is illustrated by an incident related by Captain Lauder. Shortly after their arrival at the camp Major Fry asked him for some medical requisite that was urgently needed.

² Bernhardt and Creation: A New Theory of Evolution. By Sir James Crichton-Browne, M.D., D.Sc., LL.D., F.R.S. Glasgow: James Maclehose and Sons. 1916. (Cr. 8vo, pp. 72. 1s. net.)

¹ The Origin of Species, Chapter III.

Dr. Aschenbach, who was cautiously standing outside the entanglements, refused the request and turned away with the words, "Schweine Engländer." And this is the man whom his Sovereign delights to honour with an Iron Cross! Perhaps it has been fittingly bestowed, for this "decoration," which used to be a badge of honour, has, since its wholesale conferment on baby slayers, become a symbol of infamy. The conditions of the Wittenberg camp are said to have improved, largely owing to the representations of Mr. Gerard, the American Ambassador, and measures have been taken to prevent a recurrence of the epidemic. The commandant has been removed, but Dr. Aschenbach remains in charge, and as long as he is left in authority we can feel no assurance that sick prisoners will be treated with any regard to humanity. Perhaps, like the commandant at the Cassel camp, he feels that he is making war in his own way by letting the prisoners die. The report has sent a thrill of horror through this country, and we welcome Lord Robert Cecil's announcement that steps are being taken "to bring to the notice of all civilized States these shocking revelations of cowardice and brutality."

WAR SURGERY, OLD AND NEW.

In an address delivered before the Philadelphia County Medical Society Dr. William W. Keen, Emeritus Professor of Surgery in Jefferson Medical College, gave an interesting account of the surgery of the American civil war in which he did notable service. Dressings then consisted of simple ointments, often only cold unboiled water, followed later by constant poulticing to produce an abundant flow of pus. The supply of ether and chloroform was plentiful. The hypodermic syringe was not in general use even towards the end of the civil war. For the examination of wounds surgeons had only the ordinary probe, which, being unsterilized, was often a means of introducing bacilli, as well as detecting bullets. Surgeons were in blissful ignorance of the fact that the sponges they used harboured multitudes of germs which infected every wound they touched. "If one fell on the floor it was squeezed two or three times in ordinary water and used at once." With knives, saws, forceps, and needles, these appliances made up the whole armamentarium of the surgeon in the civil war. The haemostatic forceps was unknown; each artery was caught and held up with a tenaculum and tied with undisinfected silk. Meantime other arteries continued to spout blood until they could be tied one by one. Secondary haemorrhage was common. Keen was called to five cases in one night after the battle of Gettysburg. In all the years since 1876, when he adopted Lister's antiseptic method, he has not seen five other cases of this occurrence. The Red Cross, the trained nurse, and the motor ambulance—which have all come into existence since the civil war—have rendered inestimable service, but the greatest advance has been the discovery of the part played by sepsis. More than once Dr. Keen saw his teacher, the famous S. D. Gross, "give a last fine touch to his knife on his boot—even on the sole, and then at once use it from the first cut to the last." When threading a needle, all pointed the silk by wetting it with germ-laden saliva and rolling it between germ-laden fingers. Practically every serious wound suppurated. Of over 2,800 cases of pyaemia during the civil war only seventy-one ended favourably; less than eleven in every hundred cases of lockjaw recovered; the mortality from trephining was 61 per cent. Dr. Keen says that he has never seen a case of hospital gangrene since the civil war. In the present war the danger of infection of wounds by the germs in a soil which has been under cultivation for centuries is increased by the conditions of trench warfare. But some of the worst scourges have been abated, and it is reasonable to hope for increasing success as knowledge grows. That military surgery is, in Dr. Keen's opinion, undergoing transformation is shown by the very title of

his address. He calls it "Old and New War Surgery," and it was delivered on March 24th, 1915. Already the "new" of a year ago has to a considerable extent become the "old." New conditions of warfare have brought new experiences which have led investigators to seek for new methods of treatment. These are on their trial, and are so recent that they are not mentioned by Dr. Keen.

THE CONTROL OF MALARIA.

A CONFERENCE, held in Sydney on January 21st to consider the best means of dealing with cases of malaria in soldiers arriving from New Guinea and other malarial regions in the Pacific, came to the conclusion (according to the *Medical Journal of Australia*) that anopheline mosquitoes are not sufficiently prevalent in the greater part of the Commonwealth to make the risk of the spread of the disease from returned soldiers a serious one. It was considered that the epidemic spread of malaria is improbable, except in Overland Corner in South Australia, and in those areas where the disease already exists. It was recommended that all discharged soldiers now in Australia who have been infected should be concentrated in one place in order to go through a course of treatment. The United States Public Health Service, as the result of an investigation as to the prevalence of malaria in the South, has found that in certain sections 40 per cent. of the inhabitants are infected. This estimate is based on 204,881 cases reported during 1914. The infection-rate among the white population was found to be more than 8 per cent., and among the coloured 20 per cent. A great reduction in the prevalence of the disease has been effected at thirty-four places in nearly every State in the South. In some the incidence was reduced from 15 per cent. in 1914 to less than 4 or 5 per cent. in 1915. Over 2,000 anopheline mosquitoes in malarious districts were dissected during the early spring months without a single infected insect being found; not until May 15th, 1915, was the first parasite in the body of a mosquito discovered. The Public Health Service therefore concludes that mosquitoes in the latitude of the Southern States do not ordinarily carry the infection through the winter. This discovery, it is held, indicates that protection may be secured by treating human carriers with quinine before the middle of May, thus preventing infection from chronic sufferers reaching mosquitoes and being transmitted by them to other persons. It is recognized that the eradication of the disease depends on the destruction of the breeding places of the mosquito, and a campaign with that object is recommended.

THE PSYCHOLOGY OF THE WOUNDED SOLDIER.

PROFESSOR FERRARI, director of the lunatic asylum of Imola, who has had opportunities of talking with hundreds of soldiers wounded in the battles on the Isonzo,¹ says that he was struck by the extreme modesty of the men, who were disinclined to speak of the time spent by them in the trenches or of what they had done there. Ferrari traces this reserve to a sense of honesty which makes them feel they are less worthy of admiration than their comrades who have given their lives. In the matter of projectiles the wounded soldier, he says, has some curious preferences. The ideal is the rifle bullet; next comes the hand grenade; then shrapnel; lastly, the airplane bomb. The last is despised because it is not necessary to be a soldier to be hit by it. The bullet has something personal about it as coming from an enemy who might himself have been shot by the wounded man; it is thus the symbol of a kind of duel with equal weapons, if not under the same conditions. Ferrari's observations go to show that the mental state of the soldier during the various phases of the campaign undergoes marked modifications. While he is waiting to be sent forward to the firing line an *esprit de corps* is developed which suppresses or attenuates individual

¹ *Policlinico (sezione pratica)*, November 18th.

character and brings all to a higher moral level. The honour of a man's birthplace, regiment, and branch of the service has to be maintained at whatever cost; nothing else counts. It is in the firing line, however, that the new spirit is chiefly formed. In the "hell" of the trenches the men are "transformed" by the feeling that a tremendous task has to be accomplished and by the disturbance of all the normal conditions of life—the narrow space in which they are confined and the cramped position in which they move and have their being. Very few admitted that they felt fear; the absolute concentration in the complex act to be done made them insensible to everything else, so that a quiet and peaceful man who till yesterday would not have raised his hand against any one, now from his trench seeks with careful deliberation to kill any enemy within range. Very few do this with any feeling of hatred—at least, Ferrari adds significantly, at first; it is rather a game of craft, the inborn instinct of the chase. The enthusiasm with which the order to attack is received is partly due to a feeling of relief at getting out of a hole where one is under shell fire to which no effective reply can be made. Men hit in such circumstances are stopped instantly, while all their faculties are at the highest tension; this sudden arrest gives rise to a psycho-physical state which manifests itself in a tendency to speak of the assault in which they took part as soon as they can and to take no interest in anything that does not relate to it. Together with this there is a desire to carry on the fight in order to settle accounts with the enemy.

WASSERMANN REACTION IN MILK.

K. K. MORDWINOW¹ has recently reported the results of a series of examinations of human milk for the Wassermann reaction. He states that his results are in agreement with those of Tomsen, Bate, and others, and show that the reaction with human milk gives quite satisfactory results. The specific antibodies reach the milk from the blood at a very early stage. Mordwinow has succeeded in getting a positive Wassermann reaction on the second day after delivery. The action persists during lactation; he obtained a positive reaction as late as fifteen months after delivery. Cases in which the milk gave a negative reaction and the blood a positive were rare; this condition was observed in one case only out of twenty. In three cases he had a stronger positive reaction with milk than with blood, and the infant also gave a positive reaction. He points out that the milk reaction may be of particular value in cases in which a wet-nurse refuses a blood examination.

TUNGSTEN AS A SOURCE OF ULTRA-VIOLET RAYS.

MORE than one form of open tungsten arc has already been used for obtaining ultra-violet radiation, but, although rich in the quality of its ray output, the sputtering character of the flame and the continual attention which it demands militate against its hospital use. The enclosed tungsten arc is a new lamp, recently introduced commercially, which incorporates a very ingenious method of striking the arc between a special filament and a small ball of tungsten; and to adapt it to this special purpose it has been constructed in a quartz bulb. The lamp gives a good ultra-violet spectrum, though not the very short wave lengths obtainable with the open arc. A paper on the use of the lamp for therapeutic purposes was read by Mr. B. H. Morphy and Mr. S. R. Mullard at the Röntgen Society on April 4th. It was urged that its greater convenience compensated for any disadvantage. If the lamp is overrun—thereby, of course, diminishing its life—the rays obtained extend much further into the ultra-violet region. In the course of the discussion Major Wilson, of the Canadian Medical Service, said that ultra-violet light was being used extensively in the base hospitals for the treatment of

wounds, and he had himself made some experiments with a view to getting ultra-violet radiation of much shorter wave-length than hitherto obtained by striking an arc in tungsten vapour.

We regret to record the death from pneumonia, on April 8th, of Mr. Arthur E. J. Barker, Professor of Surgery, University College, London, who has been serving as consulting surgeon to the Southern Command, with the rank of lieutenant-colonel.

Medical Notes in Parliament.

War.

The Number of Medical Officers in the Navy and Army.—In reply to questions by Mr. Aneurin Williams, the Secretary to the Admiralty stated, on April 6th, that the number of qualified medical men now employed in connexion with the navy was 1,118. This did not include part-time medical men—namely, Admiralty surgeons and agents. Mr. Tennant said, on April 10th, that there were 10,659 medical men holding commissions in the army at the present time. In reply to Sir J. Lonsdale, on April 12th, Mr. Tennant stated that medical men between the ages of 45 and 55 were being employed as commissioned officers for general service in the United Kingdom. Doctors over 55 might offer their services for local employment to the General Officer Commanding-in-Chief of the Command in which they were living, or in which they desired to do duty with troops. The policy should be that the medical men of more advanced years rendered the country the better service by undertaking the care of the civil population, and thus setting free those of military age who were physically fit for duty at home or abroad.

Territorial Medical Officers.—Mr. Lynch, on April 10th, asked whether there was any discontent amongst Territorial medical officers, especially those attached to regiments; and whether the appointment of a Territorial medical officer of position and long service as such on the staff of the Director-General at the War Office would be considered, and also the insertion in the *Army List* of a seniority list of the officers of the Territorial medical service. Mr. Tennant said: "The Territorial regimental medical officers joined the service for the specific purpose of doing the duties in which they are now engaged, and it is unlikely that they would be discontented if called upon in time of war to assume responsibilities for which they engaged in time of peace. Promotion of regimental medical officers is regulated by time service. Other Territorial Force medical officers are promoted by selection and seniority in their units. In these circumstances there is no need for a seniority list. The Director-General has an officer on his staff who has considerable experience of the Territorial Force." Mr. Lynch also asked whether a lieutenant-colonel of the Territorial medical service of many years' service received the same remuneration as a temporary lieutenant-colonel appointed since the commencement of the war; if so, whether this was in accordance with the spirit of the War Office undertaking that such officers should receive the pay of the corresponding rank as laid down by the Pay Warrant, 1914, for officers of the Royal Army Medical Corps; whether in the case of such officers their experience and their services were held to make them more valuable; and whether the higher rate of pay of 35s. laid down in the warrant for lieutenant-colonels of the Royal Army Medical Corps would be given them after five years' service in the ranks. Mr. Forster replied: Yes, sir; these officers are treated in accordance with the undertaking referred to. Unmobilized service in the Territorial Force cannot be held to count towards the higher rate of pay as if it were full-pay service in the regular army. If any Territorial Force lieutenant-colonels give the necessary amount of embodied service, they will be entitled to the higher rate of pay.

Army Medical Administration.—On April 12th Mr. R. McNeill asked the Under Secretary of State for War whether he would appoint an independent committee to examine into and report on the organization and working

¹ *Meditsinskoye Obozreniye*, 1915, N. 13-17.

of the Army Medical Service at home and abroad. Mr. Tennant replied that he could not undertake action which could only have the effect of dislocating and perhaps disorganizing a most efficient piece of mechanism.

Artificial Limbs.—Mr. W. Thorne, who, on April 6th, asked a question as to the supply of artificial limbs, suggested that the provision of such limbs and the payments for the maintenance of the men in hospital while the limbs were being supplied and fitted were inadequate, that voluntary subscriptions were being solicited, and that boards of guardians had passed resolutions to the effect that all such expenses should be a national charge. The Financial Secretary to the War Office said that artificial limbs were supplied in kind at Government expense, and the recipients fully maintained in hospital at public expense while they were being fitted. Nothing was known as to resolutions by boards of guardians to the effect mentioned.

Motor Operating Theatres.—On April 10th Mr. Lynch asked the Under Secretary of State for War for statistics of the number of cases of compound fracture in which life or limb had been sacrificed owing to sepsis; and whether, with a view of reducing the mortality, a system of motor operating theatres had been established at the front. Mr. Tennant replied that the War Office was not in possession of the statistics mentioned, and referred Mr. Lynch to answers given him on July 26th and February 29th. In the earlier answer (BRITISH MEDICAL JOURNAL, July 31st, 1915, p. 188) Mr. Tennant said that the question of sending motor operating theatres to the front had been carefully considered in communication with the expert advisers overseas, with the result that it had been decided not to send any motor operating theatres, as the opinion of the expert advisers on the spot was that their provision would not diminish the rate of mortality of abdominal wounds. The question put by Mr. Lynch on February 29th was as to whether, by the provision of movable hospitals, or by a closely connected series of hospitals within a short distance of the firing line, operations on the severely wounded might be undertaken with the least possible delay. Mr. Tennant said that use had been made of this description of hospital for many months, and in his answer on April 10th explained that he was referring to the casualty clearing stations, which are as near the firing line as is safe. These clearing stations, he added, are essentially mobile, as they accompany divisions in an advance.

Medical Examination of Recruits.—The question of giving facilities for the medical examination of men before they are actually called up was raised on April 10th by Captain Douglas Hall. Mr. Tennant said men might, if they so desired, be examined by a medical board previously to being called up for service, or, in order that they might have time to settle their affairs, ten days' leave might be given to them. Arrangements were being made for such an examination some time in advance. The War Office could not institute a larger number of medical boards than had already been formed, owing to the fact that there was not a sufficient number of skilled medical officers to carry them out. With regard to the special case of the Isle of Wight, the request of the local recruiting authorities had been approved for the carrying out of the preliminary medical examination of recruits by the medical officer at Parkhurst so long as he was a regular officer. All men had to go before the medical boards unless rejected at the preliminary examination at the recruiting office.

Soldiers and Sailors: Sanatorium Grants.—In reply to Sir Henry Craik, the Financial Secretary to the Treasury said, on April 11th, that it was proposed to entrust to the Statutory Committee on Soldiers' and Sailors' Pensions the duty of providing treatment in sanatoriums of tuberculous cases among soldiers and sailors. The normal practice was that the non-employed soldier or civilian was dealt with by the local authorities, but certain of them had no institution. Pending the establishment of the statutory committees, grants were made out of public funds, but in future the committees would undertake this work.

Invalid Prisoners in Switzerland.—Mr. Tennant stated, on April 11th, that the arrangements had been agreed to as to the internment of British and German invalid prisoners of war in Switzerland, on the principle that British and German prisoners should equally be interned in Switzerland, the one as it were in exchange for the other, though it was not really an exchange. The French Government had granted permission for the passage of German prisoners from the United Kingdom through their territory, and the necessary details for giving effect to the scheme were being worked out.

Health of Munition Workers.—In reply to Mr. Lewis Haslam, on April 10th, who asked questions as to whether the recommendations of the Health of Munition Workers Committee were being carried out, the Parliamentary Secretary to the Ministry of Munitions (Dr. Addison) said that the precautions with regard to ventilation and mechanical devices to ensure workers against poisonous fumes were being enforced by the inspectors of the Factory Department of the Home Office as a part of their general administration. Mr. Haslam also asked whether the Committee had reported that the health and efficiency of munition workers had been detrimentally affected by too prolonged hours of work, and had pointed out that continuous overtime not only tended to ruin the health of the worker of average powers of endurance, but also was excessively costly and prejudicial to economical and effective production; and, finally, whether compulsory powers were being taken to prevent the continuance of the evils indicated. Dr. Addison, in reply, stated that the exercise of compulsory powers had hitherto not been found necessary, and referred to a

written reply of Mr. Lloyd George on April 4th, in which he stated as follows: "The hours of work of women and young persons in controlled establishments, as in other factories and workshops, are limited by the Factory Acts and Regulations made by the Home Office thereunder, subject only to exceptions by general or special order of the Home Office under paragraph 150 of the Factory Act, 1901. The Ministry of Munitions are in constant and regular communication with the Home Office as to the extent to which and circumstances in which such orders of exemption should be granted with a view to giving effect to the recommendations of the Health of Munition Workers Committee. No special instructions regulating the hours of male adult workers have been issued by the Ministry of Munitions, but steps are being taken to reduce Sunday labour and to secure that adequate weekly rest periods are provided."

Motor Car and Cycle Licences.—On April 12th Mr. McKenna said, in reply to Sir C. Kinloch-Cooke, that the existing concession under which registered medical practitioners paid only half rates on licences for motor cars and motor cycles would extend to the new duties. In reply to a question, on April 6th, the Chancellor of the Exchequer said that it was not proposed to alter the date on which motor car licence duty would be payable, but a supplementary licence for the remainder of the current calendar year would have to be taken out before June 30th or August 15th for cars, etc., which it was proposed to use after these dates. The new duties would, like the existing duties, be collected by the local authorities on behalf of the Exchequer. In reply to a supplementary question, Mr. McKenna said that he imagined that if a car were not used the local authority would insist upon the surrender of the number of the car in order to prevent it being used. In reply to Mr. Rowlands, on April 10th, Mr. McKenna said that he was considering whether exemption from duty could not be granted for cars used exclusively by the owners at their own expense for Red Cross, special constabulary, Voluntary Aid Detachment, and other voluntary work for the Government.

Notification Fees.

The Local Government (Emergency Provisions) Bill was considered in Committee in the House of Commons on April 11th. On Clause 5, provisions as to notification of diseases, which proposed to reduce the fee to be paid to a medical practitioner for notification in respect of a case of infectious disease occurring in his private practice to 1s., Sir Philip Magnus moved an amendment to provide that the fee remain 2s. 6d. except in the case of measles. He said that the mere fact that this reduction had been recommended by the Retrenchment Committee did not seem to him, or to a large number of members of the medical profession, a sufficient reason for reducing the fee hitherto received. No class in the country had made greater sacrifices than members of the medical profession. A large number had given up incomes of considerable amount to join the R.A.M.C. for a very small salary for a long period, while other practitioners were doing work at hospitals for which they got practically nothing. Sir Philip Magnus referred to the deputation consisting of the Chairman of Representative Meetings, the Chairman of the Parliamentary Subcommittee of the Medico-Political Committee, and the Medical Secretary of the British Medical Association, to the Parliamentary Secretary of the Local Government Board on April 6th on the subject, and recalled Mr. Hayes Fisher's promise then given to confer with the President of the Local Government Board. Sir Philip Magnus asked what answer the President had given. Members of the medical profession, he said, regarded the statement made on the second reading of the bill, that the notification of diseases involved nothing more than clerical work, as a slur upon the manner in which they investigated these diseases before notification was made. A doctor was required to supply a diagnosis, and for such a certificate the fee of 1s., as compared with the 2s. 6d. hitherto paid, was not sufficient remuneration. The practice of economy where skilled professional opinion was required was very unwise. He believed that the whole amount of the saving would be very small. Measles might be distinguished from other infectious diseases on account of the greater ease with which it was diagnosed, and it was for this reason excepted in the amendment he had proposed. Mr. Hayes Fisher said that he desired to join in

The eulogy passed upon medical men for the splendid work they were doing, not only abroad, but at home, and he deeply regretted that any words he had used should have seemed to cast any slur upon the medical profession. He thought, however, that no words of his could be so interpreted. The proposed reduction did not originate with the Local Government Board, but with the Retrenchment Committee; it was that Committee which said that almost the whole of the work involved was clerical. For his own part he recognized that much more than clerical labour was involved. There must be, in the first place, a complete diagnosis, and he gave every credit to the doctors for doing their work fully and admirably. But the diagnosis had to be made for the patient, and the doctor could not know how to treat a patient until he had made the diagnosis. It was not until he had fully ascertained what the disease was that the Act called upon him to notify it. The filling up of a certificate was a simple form, and the Retrenchment Committee had come to the conclusion that for that *ls.* was sufficient, at all events, during the period of the war. No doubt the fact that the list of diseases to be notified was growing had been taken into account. The deputa- tion from the British Medical Association admitted that *ls.* would be sufficient for notifying measles, but urged that 2s. 6d. should be retained for all other diseases. Mr. Hayes Fisher said that he had consulted the President of the Local Government Board as to whether there was any ground for differentiating diseases. The departmental authorities consulted said that they could not draw any clear line of distinction between the medical responsibilities for notifying measles and any other infectious diseases. The medical advisers of the Board had also been consulted, and had said they could not differentiate between different diseases, and that if *ls.* was sufficient for the notification of measles, then *ls.* was sufficient for drawing up a simple form with regard to other diseases notified. He could not hold out any hope that the Government would forego the clause; it must be retained, and the doctors—at all events for the period of the war—would, he hoped, accept the *ls.* instead of 2s. 6d. Mr. J. Samuel made an appeal for a reconsideration of this decision, holding that the reduction was false economy. It must tend to produce very great discouragement among doctors, even though the reduction was made in war time. Mr. Boyton said that the statement by Mr. Hayes Fisher would be very unsatisfactory to the medical profession. The increase of work thrown upon the medical profession owing to recent legislation, the multiplication of forms and returns, had rendered their professional life onerous, and their labours constant and anxious. They were called upon to make many sorts of returns for the small fee of 2s. 6d., and it was not too much to give for such work. He could not understand the policy of the Local Government Board in reducing the fee, especially at a time when the medical profession was making greater sacrifice than any other body of people in the country. Sir Philip Magnus said it was much to be regretted that the opinion of the medical advisers of the Local Government Board should differ from that of the bulk of the medical profession, as expressed by the British Medical Association, and he hoped that the view expressed in the letter of that Association to the President of the Local Government Board would be accepted by him. He appealed to Mr. Hayes Fisher to consult the President once more and see whether some compromise could not be made which would be likely to satisfy the majority of the medical practitioners still left in the country. The amendment was negatived without a division. After a drafting amendment, moved by Mr. Hayes Fisher, had been accepted, Mr. Samuel, on the question that the clause as amended stand part of the bill, appealed for a reconsideration of the matter before the report stage. He considered that the Local Government Board had made a grave error. Sir Philip Magnus also appealed to Mr. Hayes Fisher to consult again with the President of the Local Government Board. Mr. Hayes Fisher said that he would report that there was a difference of opinion in this matter, but, judging by the view expressed by the President when he conversed with him on the subject not long ago, he could not hope that the President would change his mind. The clause was agreed to without a division, and, after further progress, the proceedings were postponed at the appointed hour.

Infantile Mortality.—The President of the Local Government Board gave the following information, in reply to a question by Mr. King, on April 5th: "The latest figures for 1915 show that the death-rate under 1 year of age amounted to 110 per 1,000 births, as compared with 115 per 1,000 births in the previous ten years and 105 in the year 1914 and 108 in the year 1913. In spite of the general restriction of local expenditure, active steps are being taken by practically all the larger local sanitary authorities to lessen infant mortality and to promote the welfare of infants generally. A large number of local authorities have appointed health visitors, who advise mothers as to the care of their infants; in most of the large towns maternity and child welfare centres have been established, at which expectant and nursing mothers receive medical advice and minor treatment, and in many places arrangements have been made for the provision of midwives and of doctors for the confinement of necessitous women and for other assistance for expectant and nursing mothers and children. My department have distributed a grant of about £41,000 in aid of maternity and child-welfare work during the financial year which has just ended."

Death Certificates.—In a written reply to Mr. King, on April 6th, the President of the Local Government Board said that he could not at present undertake to introduce legislation relating to the confidential certification of the cause of death as recommended in the report of the Royal Commission on Venereal Diseases.

Medical Treatment of School Children in Ireland.—In a written reply to Mr. V. Kennedy, on April 6th, the Chief Secretary for Ireland stated that the Commissioners of National Education had in June, 1914, prepared a scheme for the utilization of the grant towards the medical treatment of school children as apart from dental treatment, but the Treasury in August, 1914, had intimated that it could not approve the scheme. The total expenditure from the vote on this service between April 1st, 1912, when the grant was first made available, and March 31st, 1916, was £2,111, the whole being in respect of dental treatment. The grant was available towards meeting the cost of the medical treatment of school children and services ancillary thereto, and could be availed of only in respect of schemes approved by the Lord Lieutenant. Payment could not exceed one-half of the certified amount of the expenditure in the case of any scheme. The condition that one-half of the expenditure should be provided from local sources was prescribed by the Treasury when the grant was first placed on the Estimates.

Venereal Diseases: Examination of Prisoners.—In reply to Mr. King the Chief Secretary for Ireland said that, so far as the General Prisons Board for Ireland was concerned, no difficulty would be made in giving effect to the recommendation of the Royal Commission on Venereal Diseases that where the medical officer of a prison considers that an examination of a woman is necessary it should be made by a woman doctor. In the only prison that is wholly occupied by women prisoners in Ireland the medical officer is a woman.

German Scientists.—In reply to Captain Bathurst, on April 6th, the Prime Minister said that the Government had no power to intervene in cases of the retention in the list of members of the Royal Society and other learned societies in Great Britain of German scientists, including some who had been instrumental in concocting poison gases.

Paper.—In reply to Mr. Field, on April 5th, the President of the Board of Trade said that as at present advised he did not think it desirable for the Government or the Royal Commission on Paper to take possession of existing stocks, and trusted that no such action might prove to be necessary.

At the present time when new cars are hard to obtain, medical men, like other motorists who have to study economy, are looking for means to improve the running of existing cars which have been in use a few years, and would perhaps have been sold had new ones been obtainable. One of the most likely parts of an engine to wear and cause trouble is the carburettor that has moving parts of any kind, and as any wear affects the adjustment, the efficiency of the engine is reduced. It has been found by many motorists that a moderate sum spent on a new carburettor of good make has put several years on the life of the car, incidentally enhancing the price which could be obtained for it if the owner desires to sell. The carburettor of which we have heard most in this connexion is the Zenith, which has no moving parts that can wear, and is therefore particularly adapted for use on a car where reliability is of the first importance, as is the doctor's. Apart from any improved running we are informed that a considerable economy is effected in petrol consumption. In one instance which has been mentioned to us, the improvement was from sixteen to twenty-three miles to the gallon. At the present price of petrol such a result would lead to the carburettor paying for itself in a few months.

THE WAR.

THE ATTACK ON THE ARMY MEDICAL SERVICE.

An officer who has been with the British Expeditionary Force in France continuously, save for two or three periods of leave, since October, 1914, has written as follows in a private letter after reading the full report of Mr. McNeill's speech in the House of Commons on March 15th, and Colonel Lee's reply on March 16th:

On March 15th everything that it was thought could be said against the Army Medical Service and its chief administrators in Great Britain and France was voiced by one of the most experienced exponents of grievances that the House of Commons possesses. On March 16th the charges were met by Mr. Arthur Lee in a speech so crushing, that even so doughty a fighter as Mr. McNeill seems to have felt that he must throw up his brief. Incidentally he admitted that he had no first hand knowledge of matters, and threw the blame for his errors on those who instructed him.

Statements of this kind are usually written down as mere excuses, but in the present instance this would be unjust, because what was apparently said to Mr. McNeill and repeated by him is very much what has been said to a good many of us on many occasions. It is, in fact, a good many months ago that these attacks on the Army Medical Service began, and it has long been clear that there is a cave whose inhabitants are out to disturb as far as they possibly can the confidence of the public in the wisdom and ability of the administrators of the medical affairs of the army.

The cave has exhibited considerable cunning. Knowing that the public had too intimate and personal a knowledge of the way in which the wounded were being treated to be easily convinced that there could be anything much wrong the cave has avoided a frontal attack, and endeavoured to excite disquiet by dwelling on alleged slackness in matters of organization and other technical details. On such subjects neither the public nor the medical profession at large can be well informed. So for a time the cave had a little success, being assisted thereto by certain newspapers which one after the other open their columns to the grievances, which the writers failed to recognize were due not to the army system but to the inevitable circumstances of war.

But the success of the cave was not prolonged; its battle line began to look ragged a month or two ago, and when at length in March it ventured on its great push it was utterly defeated. Consequently the campaign is not one of which the cave has any reason to be proud, for it has certainly done no good, and probably has achieved some harm. Attacks of the kind almost invariably necessitate the preparation of returns and reports which would not otherwise be needed, and thus lessen the time available for attending to ordinary and really useful business. These attacks ought, therefore, to be resented both by the medical profession and the general public as *contra rem publicam*.

Never before have two men had to undertake a larger task or greater responsibilities than those that have been shouldered by Sir Arthur Sloggett and Sir Alfred Keogh respectively during the last eighteen months. They have had to deal with members of a profession accustomed both to think for itself and to express its opinions freely, and it was natural that various steps taken both at home and abroad should have been deemed open to criticism; it was almost equally natural but far less defensible that one man here and another there should have considered that had he been in charge of matters he could have managed things much better. But, nevertheless, the fact remains that a huge task has up to the present been most successfully accomplished. The health of the army has been maintained at a singularly high level, and the wounded have been tended both individually and collectively with tenderness and most enlightened care.

The medical public, in fact, owes the deepest gratitude to the officers in question. During the last eighteen months it has been upon its trial, and had it been less ably led it would have suffered greatly in public opinion, whatever sacrifices individuals might have made. As things are, it stands distinctly higher in public opinion than it did at the beginning of the war.

What have been the motives of the men who entered this cave? It is difficult to say. Doubtless they considered themselves to be acting altruistically, but it is not likely that anyone else will take that view. There are certain

individuals in this world who, having obtained a certain position, resent the idea of any large public affair being conducted without their assistance. There are others who are ever ready to pull down any existing pile in the hope that in the general ruin something valuable may roll in their direction. There are also nobodies who, confusing notoriety with fame, deem that they will become somebodies if they agitate long enough and loud enough.

Whether there will be any attempt to restart the campaign remains to be seen. But being aware of the methods the cave has hitherto employed, I suggest that anyone invited to assist them should closely question those by whom they are approached. If, for instance, statements are made to them on the alleged authority of B. or C. they should ascertain precisely what real knowledge of matters B. or C. possess. Both in France and in England the work is on so large a scale that it is scarcely possible for anyone not seated at the centre where all nerves meet to apprehend accurately any particular item of work. Moreover, in France the different units are so scattered, there is so much difference in their environment and the character of the work, and aims and general needs everywhere differ so greatly that only exceptionally fortunate individuals gain any real knowledge of it as a whole. An officer may work quite a long time in France and yet acquire nothing beyond hearsay knowledge of a very small part of the general work.

If the statements of men of really long experience are to be received with caution, those of individuals who after a few months abroad have preferred to return home to look after their personal interests should not be swallowed even with a pinch of salt.

THE CARE OF CRIPPLES IN GERMANY AND AUSTRIA.

A congress was held in Berlin early in February to discuss the care and education of crippled soldiers. An exhibition of artificial limbs and other devices for helping cripples to become self-supporting was also held. It was stated that in Austria this problem had been dealt with so drastically that it was impossible for a cripple to refuse treatment, and that in Hungary a special commission had been appointed, with powers to refuse pensions and every other compensation to cripples who would not be treated. Another speaker gave an account of the numerous institutions which had sprung up in connexion with the education of cripples. He described how "compensation psychoses" were discouraged, and how the paramount importance of regaining their capacity for work was impressed on soldiers early, the healing of their wounds being treated as a secondary consideration. At the outbreak of the war there was hardly a single institution in Austria for the treatment and education of cripples. The initiative, ingenuity, and capacity for organization shown by Spitzky had done much to promote the welfare of the crippled soldier. His hospital contained 3,500 beds, 1,300 of which were devoted to soldiers with amputated limbs. The hospital included twelve different departments; one ward was set apart for wounds of the knee, another for wounds of the finger, and so on. About three-fifths of all the crippled Austrian soldiers had previously worked on the land, and new occupations on the land were chosen for them. Professor Dollinger said that in Hungary about 5,000 beds had been set apart for crippled soldiers, and institutions had been organized for the education of cripples, usually with a view to farm work. Dealing with the problems of artificial limbs, one speaker insisted that success depended much more on the cripple's desire to work than on the nature of the artificial limb. The standardization of every artificial limb was also insisted on in order that the whole or part of such a limb could easily be replaced. It was also generally agreed that crutches should be dispensed with as early as possible and the cripple be given some temporary artificial limb, be its construction ever so primitive. In this connexion the plaster-of-Paris limb was warmly recommended.

TREATMENT OF WOUNDS OF THE BRAIN.

The Nobel prize winner, R. Bárány, who during the siege of Przemyśl by the Russians was reported to have dispatched his observations on war surgery by aeroplane to the Austrian headquarters, has now published a paper

on the treatment of wounds of the brain.¹ He observed from start to finish sixty cases of bullet and shell wounds of the brain. He learnt to abandon rubber and glass drainage tubes in favour of the "cigarette" drain. In a series of thirty-nine cases in which drainage was by small strips of gutta-percha, recovery occurred in 20.5 per cent. Being impressed by the part played by secondary infection of the brain, he kept the wound closed and undrained in many cases. Out of thirteen in which the wound was closed from the outset, healing by first intention occurred in nine; in three plastic operations on the dura had to be undertaken. He considered that, as a rule, when the wound was not obviously infected and came under treatment within the first twenty-four hours, the best course was to operate at once, to excise the tissues about the wounds of entry and exit, to remove fragments of bone and foreign bodies from the brain, to arrest haemorrhage, and to close the wound carefully with sutures without employing any drain. When an abscess had already formed it should be opened and drained with strips of gutta-percha.

CASUALTIES IN THE MEDICAL SERVICES.

ARMY.

Killed in Action.

Fourth-class Assistant Surgeon George Cyril West, of the Indian Subordinate Medical Department, is reported as killed in action. He is the third officer of the I.S.M.D. thus reported as killed within the past three weeks. He was born on August 7th, 1893, attained warrant rank on April 20th, 1914, and prior to the war was stationed at Dalhousie.

Wounded.

Lieutenant N. McCall-Smith, R.A.M.C., temporary.
Assistant Surgeon J. W. Newbold, I.S.M.D.

Died on Service.

Major Francis Courtenay Lambert, R.A.M.C., died of paratyphoid fever on service abroad, on March 29th, aged 37. He was born at Dover on January 22nd, 1879, the eldest son of Lieutenant-Colonel Lambert, late of the Royal Marine Artillery, now of Lyston, Branksome Park, Bournemouth, was educated at Wimborne Grammar School, at Cheltenham College, and at St. Mary's Hospital, and took the qualifications of M.R.C.S. and L.R.C.P. Lond. in 1902, after which he served as house-surgeon at St. Mary's. He entered the army as lieutenant on January 31st, 1903, becoming captain on July 31st, 1906, and major on October 31st, 1914. He was recently serving in Mesopotamia, where he was twice mentioned in despatches.

Major Robertson Stewart Smyth, R.A.M.C., died in a nursing home in London on April 6th, aged 36. He was born on August 18th, 1879, the fourth son of the late William Smyth, of Brookfield House, Banbridge, and was educated at Dungannon Royal School and at Trinity College, Dublin, where he took the M.B., M.D., B.Ch., and B.A.O. in 1904. There he was captain of the Dublin University Rugby fifteen, and played in several international matches in 1903-4. Entering the army as lieutenant on July 31st, 1905, he became captain on January 31st, 1909, and had recently been promoted to major. He had been serving in France from September, 1914, up to last December, when he was invalided. He was mentioned in despatches by Lord French for gallant conduct in the field. One of his brothers is a captain in the Royal Irish Rifles.

Major Walter Linney Hawksley, R.A.M.C.(T.F.), is reported as having been accidentally killed on service on April 4th, aged 33. He was the eldest son of the late Dr. Hawksley, of Southport, and was educated at Liverpool University, where he took the M.B. and Ch.B. in 1904 and the D.P.H. in 1907. After qualifying, he acted as house-surgeon and house-physician of the Northern Hospital, Liverpool, as resident medical officer of the new City Hospital, Fazakerley, and as school medical officer to the Liverpool Education Committee, finally becoming assistant medical officer of health and chief tuberculosis officer, Liverpool, and assistant lecturer in hygiene, Liverpool University. He got a commission as captain in the 2nd West Lancashire Field Ambulance on October 1st, 1911, and had recently been promoted to major. He leaves a widow and two young children.

Major Charles James Holmes, R.A.M.C.(retired), died at his residence in Lancaster on April 5th, aged 58. He was born on October 15th, 1857, the youngest son of Mr. John Holmes, of Athlunkard, co. Clare, was educated at Queen's College, Cork, and took the M.D., M.Ch., and the obstetrical diploma of the Royal University, Ireland, in 1882, also the F.R.C.S.I. in 1890. Entering the army as surgeon on August 2nd, 1884, he became surgeon-major on August 2nd, 1896, and retired on November 16th, 1904. He rejoined on mobilization in August, 1914, and was employed in charge of the military hospital at Bowerham Barracks, Lancaster. He had seen much war service: Sudan, 1885, medal with clasp, and Khedive's bronze star; Sudan, 1896, advance on Dongola, and operations of September 19th, medal with clasp and Khedive's medal; and South Africa, 1900-2, in Cape Colony and Orange River Colony, Queen's medal with one clasp and King's medal with two clasps.

DEATHS AMONG SONS OF MEDICAL MEN.

Underhill, Charles Bertram, Second Lieutenant West Yorkshire Regiment, fourth son of Dr. F. T. Underhill, formerly of Tipton, Staffordshire, now medical officer of health, Vancouver, British Columbia, killed on March 28th, aged 22. He was born at Tipton, educated at Vancouver and at McGill University, and was assistant city analyst at Vancouver. At the beginning of the war he joined the 11th British Columbia Regiment, and came to Europe with the first Canadian contingent. He got a commission in the West Yorks on December 22nd, 1914, and went to the front last September. He was serving as machine gun officer of his battalion when killed.

NOTES.

MR. HUGH M. RIGBY, M.S.Lond., F.R.C.S., has been appointed a consulting surgeon to His Majesty's forces in France, with the rank of Colonel A.M.S.

HONOURS.

The Médaille d'Honneur des Epidémies has been bestowed by the French Government on two members of the staff of British Red Cross Clearing Hospital No. 16, Miss Bradley, matron, receiving the silver medal, and Miss Dorothy Gully, a sister employed in the nursing of contagious diseases, the bronze medal.

MESOPOTAMIA DISPATCHES.

A dispatch from General Sir John Nixon, K.C.B., covering the operations in Mesopotamia from the middle of April to the end of September, 1915, dated January 1st, 1916, was published in the *London Gazette* of April 5th. Among a large number of officers mentioned for good service are the following medical officers:

Operations at Khafajiya, April 24th to June 19th, 1915.—Major H. R. Brown, I.M.S.

Operations at Amara, May 31st to June 4th, 1915.—Colonel P. Hehr, C.B., I.M.S.; Lieutenant-Colonels: H. O. B. Browne-Mason, R.A.M.C.; J. F. Donegan, R.A.M.C.; Captain G. Wilson, R.A.M.C.; Lieutenant R. V. Martin, I.M.S.; Assistant Surgeons E. A. Cotton and E. S. Sheelo, I.S.M.D.

Euphrates Operations, June 26th to July 23th, 1915.—Colonel H. M. Adamson, R.A.M.C.; Lieutenant-Colonel E. Jennings, I.M.S.; Major A. Spitteler, I.M.S.; Captains: P. B. Bharucha, I.M.S.; R. C. Clifford, I.M.S.; R. E. Flowerdew, I.M.S.; F. A. Robinson, R.A.M.C.; Sub-Assistant Surgeons: Mohan Lal, Barkatullah, Fazl Ahmad, I.S.M.D.

Operations at Kut-el-Amara, September 28th, 1915.—Surgeon General H. G. Hathaway, C.B., A.M.S., Staff; Lieutenant-Colonel J. F. Donegan, R.A.M.C.; Majors: S. Anderson, I.M.S.; *F. O. Lambert, R.A.M.C.; Captains: K. K. Mukerji, I.M.S.; J. Startin, R.A.M.C.; Lieutenant F. T. Simpson, R.A.M.C.; Assistant Surgeons: A. S. Morarji, H. J. Luxa, S. A. de Souza, I.S.M.D.; Sub-Assistant Surgeons: Mithu Lal, S. Manikkam, I.S.M.D.

Operations from November 6th, 1914, to April 14th, 1915 (previously published in *Gazette of India*).—Colonel P. Hehr, C.B., I.M.S.; Staff; Lieutenant-Colonels: J. Hennessy, F. J. Palmer, H. M. Adamson, F. J. Donegan, H. O. B. Browne-Mason, D. J. Collins, R.A.M.C.; and G. B. Irvine, I.M.S.; Majors: E. Bennett, H. A. Bransbury, J. C. Foster, and *F. O. Lambert, all R.A.M.C.; and J. H. Horton, D. S. A. O'Keefe, H. R. Brown, and R. E. Cook, all I.M.S.; Captains: A. T. J. McCreary, R.A.M.C.; and R. E. Wright, T. H. Hislop, D. Arthur, C. H. Barber, H. B. Short, C. C. Shaw, G. F. Graham, R. Knowles, J. J. H. Nelson, F. O. Fraser, and E. E. Stanger-Leathes, all I.M.S.; Lieutenants: E. B. Allnut and I. M. Burnett, both R.A.M.C.; N. K. Bai and L. A. P. Anderson, both I.M.S.; Assistant Surgeons, I.S.M.D.: W. H. Brown, T. H. S. Hutton, E. A. Cotton, L. C. Raphael, H. Vincent, J. V. Fernandez, J. H. T. Pacheco, H. N. Murphy, and A. F. Phaire, Sub-Assistant Surgeons, I.S.M.D.; V. L. U. Ram Pandit, Mohan Lal, G. R. Hariba, V. S. Nayakar, M. Ranasarni, Sundar Singh, K. W. Khuperkar, and S. M. Dadashahib, Dr. Arthur Bennett (American Mission Hospital).

* Since dead.

† Killed in action.

MEDICAL OFFICERS WANTED.

14th Mounted Brigade Field Ambulance.

There are vacancies for medical officers in this unit. Apply to Major J. Hamilton, Cricket Ground, Canterbury.

21st Home Counties Casualty Clearing Hospital.

Three medical officers are required for this unit. Application to the Officer Commanding 21st Home Counties Casualty Clearing Hospital, Halton Camp West, Tring.

¹ Beiträge zur klinischen Chirurgie, kriegschirurgisches. Heft 8. Abstract in *Muench. med. Woch.*, January 4th, 1916.

England and Wales.

THE number of patients (pauper, criminal, and private) for whom the London County Council was responsible to find accommodation at the beginning of the present year was 20,886, as compared with 21,539 twelve months previously, while the total number of patients, including those in the Metropolitan Asylums Board's institutions, in workhouses, and with relatives and friends, was 28,252, as compared with 29,211 at the beginning of 1915. It is the first time since the Council has been the responsible authority that decreases have been recorded in both these totals. The decrease of 653 in the number of lunatics under reception orders is made up of 363 males and 290 females, and as the ratio of the sexes in the asylum population is 9 males to 11.8 females there is a proportionately greater reduction of the male insane. It is assumed that the great decrease in pauperism is reflected in these figures.

ROYAL COMMISSION ON UNIVERSITY EDUCATION IN WALES.

A Royal Commission on University Education in Wales has been appointed "to inquire into the organization and work of the University of Wales and its three constituent colleges, and into the relations of the university to those colleges and to other institutions in Wales providing education of a post-secondary nature, and to consider in what respects the present organization of university education in Wales can be improved, and what changes, if any, are desirable in the constitution, functions, and powers of the university and its three colleges."

The members of the Commission are: Viscount Haldane (Chairman); Professor W. H. Bragg, F.R.S., Quain Professor of Physics in the University of London; the Hon. W. N. Bruce, C.B., a Principal Assistant Secretary under the Board of Education, and Sir Owen M. Edwards, M.A., Chief Inspector of the Welsh Department of the Board; Mr. W. H. Hadow, D.Mus., Principal of Armstrong College, Newcastle; Mr. A. D. Hall, F.R.S., a Commissioner under the Development Act; Sir Henry Jones, M.A., D.Litt., Professor of Moral Philosophy in the University of Glasgow; Sir William Osler, Bt., F.R.S., M.D., Regius Professor of Medicine in the University of Oxford; Miss Emily Penrose, M.A., Principal of Somerville College, Oxford. The secretary to the Commission is Mr. A. H. Kidd, of the Board of Education, to whom all communications should be addressed.

LIVERPOOL ROLL OF HONOUR WEEK.

The Lord Mayor has issued an appeal to all classes in Liverpool to provide a special fund for supplementing Government pensions to widows, orphans, and dependents of Liverpool men who fall in the war, and to provide allowances to deserving cases in which pensions have been refused. Every class in the city will be canvassed during the week May 7th to 13th. The Liverpool Medical Institution has already sent a circular to the medical profession of the city, signed by its president, Dr. Charles J. Macalister, Dr. Hubert Armstrong, secretary, and Dr. Llewellyn Morgan, treasurer. It is desirable that the subscriptions from each profession, vocation, and trade should be contained in one list, and the medical profession has already subscribed many generous amounts since April 1st. This local fund will be administered under the control or direction of the Lord Mayor, in accordance with the principles and policy of sympathetic treatment hitherto adopted in connexion with Town Hall Fund.

LIVERPOOL MEDICAL INSTITUTION.

At the last pathological meeting, held at the Liverpool Medical Institution, Professor Beattie demonstrated a simple method of anaerobic culture which meets the difficulty in obtaining pyrogallol acid. Sterilized white vaseline is the medium which acts like a plug over the culture medium in the test tube and occludes the air. Professor Beattie showed luxuriant growth of anaerobes with the vaseline plug raised by the gas evolved during their growth, and the complete absence of growth of aerobic micro-organisms in similarly prepared test tubes. Professor Ernest Glynn gave a demonstration of various ulcerative processes of the oesophagus, especially its

cardiac end. To prevent *post-mortem* digestion the tissues were fixed immediately after death by the introduction of formalin into the oesophagus and stomach. Professor Glynn has used the method in several hundred cases for over fifteen years. Numerous macroscopic and microscopic slides showing ulceration in varying degrees of evolution were shown in the lantern. Professor E. Glynn accounted for the clinical symptoms of pyrosis, heartburn, and waterbrash by reference to the morbid changes in the cardiac end of the stomach and the oesophagus which the formalin method had rendered apparent to the naked eye.

Scotland.

THE Glasgow Corporation has decided to proceed with the scheme for a municipal dairy to supply milk to the hospitals. The corporation requires 156,000 gallons of milk a year. The farmers who contracted have refused to submit their herds to the tuberculosis test.

Dr. Templeman, M.O.H. Dundee, in his annual report, states that the infant mortality-rate for 1915 was 209, the highest figure since 1893, when it was 217. The high rate in 1915 was due to whooping-cough and measles, and to an increase in the number of deaths from bronchitis and pneumonia accompanying these diseases.

At the 106th annual meeting, on April 7th, of the Edinburgh Royal Institution for the Education of Deaf and Dumb Children it was reported that the new buildings—an educational wing with twelve classrooms, etc.—had been added without trespassing upon capital. Dr. J. W. Ballantyne spoke of the three groups of deaf-mutes—the acquired, the hereditary, and the antenatal but non-hereditary, and pointed out that in every one there was now the hope of prevention. The acquired could be lessened by the decrease in the infectious fevers, the hereditary by the restriction of intermarriages between deaf and dumb persons, and the antenatal but non-hereditary by the campaign against the venereal diseases.

The total amount received by the Lord Provost of Glasgow down to the end of last week for the Princess Louise Scottish Hospital for Limbless Sailors and Soldiers at Erskine was nearly £38,000. Among the subscriptions received was one of £100 from Mr. James J. Hamill of Columbus, Ohio, who, in his covering letter, said that he desired "to help to some slight extent in alleviating the pain, and suffering, and hardships of the poor fellows at the front who are so bravely sacrificing everything in this righteous cause."

Good progress is being made with a scheme of the Scottish Veterans' Garden City Association for the housing and care of permanently disabled soldiers and sailors. The site is immediately to the east of the present village of Longniddry on the north side of the main road from Edinburgh. Plans for the laying out of the grounds have been prepared, and the construction of the houses will be commenced shortly. Part of the ground is reserved for small workshops, a public washhouse, and a public hall. The houses will be of three sizes, with one room, two rooms, and three rooms respectively, in each case with kitchen, scullery, and other necessary accommodation.

EDINBURGH CHILDREN'S HOSPITAL.

At the annual meeting of that great institution, the Royal Edinburgh Hospital for Sick Children, it was reported that the work had gone on unimpaired, but the deficit of over £4,000 on ordinary income was a source of grave anxiety. Lord Strathclyde, in moving a resolution commending the hospital to the liberality of the public, expressed high appreciation of the self-sacrificing devotion of the medical and surgical staff. Many had entered the military services; all honour, he said, to them, but all honour also to those who remained behind to carry on not a diminishing but an increasing work. The Rev. Dr. Fisher, in seconding, testified to the efficiency, ability, and economy with which the work of the hospital was conducted. He referred to the falling birth-rate, which, he said, was one of the most ominous and sinister facts in the social life of the time, and added that it was a national duty to preserve the lives of the children, for the future of the empire depended not upon the young men and women of to-day, but upon the children coming up behind them.

Ireland.

DR. ROANTREE, of Bray, M.O. for one of the Rathdown dispensary districts, having accepted a temporary commission in the R.A.M.C., the guardians have appointed the locumtenent of his private practice to be his deputy at the dispensary, and have allowed Dr. Roantree half pay during his absence.

Dr. E. C. Thompson, of Omagh, who has been surgeon to the Tyrone County Hospital for over forty-one years, has been appointed deputy lieutenant for the county. He was for some years M.P. for North Monaghan.

The means to be taken to lessen infantile mortality were discussed at a meeting of the Joint Committee of the Irish Women's Local Government Associations held in Dublin recently. It was pointed out that in the country parts of Ireland the mortality was lower than in England, but higher in the cities. The pasteurized milk dépôt in Dublin had done very good work; the deficit, which was between £300 and £350 a year, was made up by the founder, Lady Aberdeen. The attempt to induce the corporation to take it over and run it as a municipal undertaking had not been successful.

THE PETROL SUPPLY.

Sir Matthew Nathan, Under Secretary to the Lord Lieutenant, has addressed to the members of the medical profession who use motor cars or motor cycles, whether as general practitioners, consultants, or medical officers engaged as such in the public service, a letter dwelling on the necessity for economy in the consumption of petrol in face of the difficulty caused by the temporary diminution of shipping and transport facilities. At the same time he lays stress on the anxiety of the authorities to provide for all necessary public services according to their importance, and the need of rendering all possible aid to the medical profession in its work is fully recognized. With the view of avoiding the danger that this work might be hampered in the future, each medical man who thus uses a motor car in his practice has been requested to furnish the same particulars as to his car and consumption of petrol as have been asked for in England.

AMALGAMATION OF UNION WORKHOUSES.

The cost of upkeep of many of the workhouses in Ireland is absurdly large in proportion to the number of inmates. At present a workhouse is maintained in every union, and the amalgamation of unions, the only authorized method of reduction, is not convenient in all areas. The problem has lately been investigated in co. Tyrone. The number of inmates has been reduced by the operation of the Old Age Pensions Act and recently by war conditions, while the great rise in the cost of fuel and provisions has accentuated the capitation expenditure. The smaller unions object to complete amalgamation with the larger, but means should be found to end the extravagance involved in keeping up large workhouses for a mere handful of paupers, and at the same time to keep the smaller unions in existence for the purposes for which they are still needed. This could be done if some of the boards of guardians closed their workhouses wholly or in part, and boarded out their paupers in adjoining unions, while the union and the board of guardians remained for the purposes of administering the Medical Charities Act and outdoor relief. An Act has been passed authorizing the transfer of paupers from one workhouse to another "in connexion with the present war." The Tyrone County Council and all the local boards have adopted resolutions in favour of the immediate submission to Parliament of a short amending Act to delete these words. The resolution has been sent to other county councils, and will, it is hoped, meet with general support.

THE President of the Republic of Venezuela has issued a decree establishing a medical school at Caracas.

THE United States Senate has now before it a bill providing for the establishment in the Department of Justice of a bureau for the study of the criminal, pauper, and defective classes. Its work would include laboratory investigations and the collection of sociological and pathological data.

Correspondence.

INDUSTRIAL FATIGUE AND ITS CAUSES.

SIR,—Your leading article on "Industrial Fatigue" in your issue of April 8th has many comments that are equally applicable to fatigue in our own profession. There must be a considerable body of general practitioners who are doing and have been doing much extra work during the past two years, and who have not had any kind of holiday since 1913. These men, even with the best of good will to do all they can to help, are feeling "fed up." Locumtenents are scarce, expensive, and fastidious, and, as local schemes for arranging holidays only add to the burdens of already fatigued colleagues, I should like to ask if it be not possible to dilute the labour of the general practitioner during the coming summer with fourth and fifth year students. These young men could work a practice under the supervision of a neighbouring colleague, who would act as the deputy of the man on holiday. If the General Medical Council and the British Medical Association could see their way to accept and foster this suggestion, the details of the employment of fourth and fifth year students could be arranged later. I am quite convinced that unless something is done to give general practitioners a short rest and holiday many will break down, to the disadvantage of both civil and military populations.—I am, etc.,

Warrington, April 9th.

J. S. MANSON.

PERNICIOUS ANAEMIA AND ERYTHRAEMIA.

SIR,—I can trust Dr. O. Leyton not to misinterpret my presumption in venturing—without any clinical particulars beyond those published on p. 484—to express a view of the remarkable facts he has observed which is at variance with his own unhopeful conclusion. He succeeded in doubling the haemoglobin and in nearly doubling the red count within one week. Why, then, should the patient have left the hospital after a year's treatment much the same in condition as he had entered it? That week's work was worth renewing—on the same plan suitably modified. We owe to him the discovery seemingly, let us hope of a cure, but at any rate of a great fact—that for pernicious anaemia erythraemic blood possesses the double qualification, special to all potent curative agents, of a remedy and of a poison. A little of them can stimulate that which too much will destroy. The dose first injected was conspicuously beneficial, although such as to produce toxic effects closely akin to anaphylaxis. The second, four times larger, was wholly toxic. As it stands, that demonstration would seem to encourage minimizing any future dose instead of increasing it, and repeating it steadily at its optimum of individual efficiency as between donor and recipient, with any dilution or artificial modification that experience might indicate. That attempt strikes one as more promising than its converse, merely hinted at in the paper, that of curing erythraemia with the blood of pernicious anaemia. The sooner theories are disproved or improved, surely the better. For years, in dread of alarming symptoms once witnessed, I had denied asthmatics their adrenalin—till Dr. Hertz published the safety and efficiency of its minimal doses. We shall, indeed, thank Dr. Leyton for not having long buried his find if, as seems possible, good oil has been struck.—I am, etc.,

London, W., April 2nd.

WILLIAM EWART.

NOMENCLATURE OF TYPHOIDAL DISEASES.

SIR,—Since the differentiation of the typhoid group of diseases into the three varieties caused by the Eberth-Gaffky bacillus, the *B. paratyphosus* A and the *B. paratyphosus* B respectively, a need has arisen for one word which can be used for the whole group in common. In the large majority of cases it is quite impossible to diagnose clinically the three infections one from the other, and it is not always possible to obtain readily bacteriological aid. There is no necessity, however, to coin another word as we possess two already which are used interchangeably—"typhoid" and "enteric." I suggest that the word "enteric" be used to denote all or any of the three infections above mentioned, and any similar that may hereafter

be differentiated, and that the word "typhoid" be restricted to cases of infection by the Eberth-Gaffky bacillus.—I am, etc.,

Homerton, N.E., April 10th.

E. W. GOODALL.

JEJUNOSTOMY AND JEJUNO-COLOSTOMY.

SIR,—Mr. Sampson Handley, in his paper in the JOURNAL last week (p. 519) refers to a paper of mine published six years ago in the *Archives of the Middlesex Hospital*, wherein I advised jejunostomy in cases of post-operative paralytic obstruction. He thinks it would probably fail. He opines wrongly; it is most successful.

In a future issue of your JOURNAL I hope to publish another paper on the subject supported by six successful cases.

Mr. Handley suggests jejuno-colostomy and caecostomy, which is in effect a jejunostomy, with the difference that the drainage from the jejunum takes a course through a segment of the large intestine instead of reaching the exterior direct.—I am, etc.,

London, W., April 11th.

VICTOR BONNEY.

MANY NAMES FOR THE SAME THING.

We have received from Messrs. Burroughs, Wellcome, and Co. a letter, the following passages from which seem fully to state their position:

With regard to the editorial article in your issue of the 8th inst., relative to the use of the word "Tolamine" as a short title for para-toluene-sodium-sulphochloramide, we suggested the use of this word to the authors of the research in place of chloramine or chloramine-T, the names they gave to the substance, because the word chloramine has been used by John Wyeth and Brother, Philadelphia, for at least twenty-five years to denote a compound chloride of ammonium pastille manufactured by them.

We made our position in the matter perfectly clear to the investigators, and gave them the option of adopting "Tolamine" as a common word for the substance, but as they did not agree to this suggestion, we then explained that it was impracticable for us, in the circumstances we had mentioned, to use the word chloramine or chloramine-T (the latter title still containing the word chloramine), and we should therefore issue the preparation under the word "Tolamine," and register it as our trade mark.

In our opinion the use of the word chloramine involves the danger of using one name for many substances, as, quite apart from the confusion which will arise with the existing proprietary preparation, chloramin and chloroamine are applied to the simple compound NH_2Cl , and further, there is additional risk of confusion with the *Codex* preparation chloramide.

Universities and Colleges.

UNIVERSITY OF OXFORD.

THE following degree has been conferred:

M.D.—A. L. Pearce Gould.

UNIVERSITY OF LONDON.

MEETING OF THE SENATE.

A MEETING of the Senate was held on March 22nd.

Recognition of Teacher.—Mr. H. S. Souttar was recognized as a teacher in surgery at the London Hospital Medical College.

M.B., B.S. Examination.—A revised syllabus in forensic medicine for the M.B., B.S. examination for internal and external students was adopted for examinations to be held in and after the session 1917-18.

Presentation Day.—The presentation of students to the Chancellor will take place on May 10th at 3 p.m., and a service for members of the University will be held at Westminster Abbey at 6 p.m.

Dixon Fund.—Applications for grants from the Dixon Fund, which is allocated annually for the purpose of assisting scientific investigations, must be received by May 15th. Particulars can be obtained on application to the Academic Registrar.

UNIVERSITY OF GLASGOW.

GRADUATION CEREMONY.

At the graduation ceremony held in the Bute Hall on April 8th, the degree of M.B., Ch.B. was conferred by the vice-chancellor, Sir Donald MacAlister, upon fifty-two graduates, ten of whom were ladies. Practically all the male recipients have, it is understood, signified their intention of entering the military or naval medical services. Professor Bryce, Dean of the Faculty of Medicine, presented the graduates in medicine. At the conclusion of the capping ceremony the Vice-Chancellor, addressing the graduates, said: "You have now been admitted

into the ranks of a profession which expects, and expects with confidence, that you will do your duty to your fellow men. That duty demands that you shall exercise all your skill and knowledge on their behalf, and, still more, that you show yourselves humane, unselfish, upright, and devoted. Whether you work at home or abroad, whether your practice be civil or military, you are put on your honour to render your highest service to your country and your King. A great example has been set you by the Glasgow men and women who have made famous throughout the world the name of its schools of medicine. You are now deemed fit to take your place beside them. Our earnest prayer is that you will equal or surpass them in all that is worthy and of good report. In the name of the university I give you its benediction, and commend you, in war and peace, to God's care and keeping."

The following is a list of the recipients of the degree of M.B., B.Ch.:

*W. D. Allan, J. Alston, W. Baird, Christina B. Buchanan, D. Cameron, J. Chalmers, D. H. Coats, W. K. Council, A. F. Cook, A. S. Cook, W. G. Cook, J. N. Cruickshank, A. Davidson, Jane B. Davidson, J. Dunbar, J. B. Fisher, M. M. Frew, T. R. Fulton, W. H. Gibson, Jessie C. Gilchrist, J. Glaister, J. S. Kinross, G. Kirkhope, W. J. B. Lavery, R. Lindsay, Dorothy McCubbin, J. W. Macfarlane, J. MacInnes, K. S. Macky, D. M'Lauren, Elizabeth S. Martin, F. R. Martin, J. M'D. Matheson, W. W. Morrison, A. Morton, W. O'Brien, J. A. Paterson, T. S. Paterson, J. H. Paul, W. J. Poole, T. J. D. Quigley, J. Richardson, A. W. Ritchie, G. W. Ronaldson, Mary H. Routledge, Mary I. Sinclair, Jane Stalker, W. M. Stewart, J. L. Torley, R. S. Weir, C. A. Whittingham, Marion B. D. Wilson.

* With distinction.

† Also graduated as M.A.

CONJOINT BOARD IN SCOTLAND.

THE following candidates have been approved at the examinations indicated:

FIRST COLLEGE.—T. A. du Toit, R. B. Forgan, W. H. Kerr, R. F. Kerr, Lizzie R. Clark, M. H. Carleton, J. B. Singh, G. C. Field. *Passed in Biology*: P. E. Malloch. *Passed in Chemistry*: J. Murray, A. W. Smith.

SECOND COLLEGE.—A. E. Hempleman, R. E. Hopton, A. S. Hughes, E. L. Adendorff, Rebecca Goodman, J. K. Steel, W. Gibb. *Passed in Anatomy*: H. W. Howatson. *Passed in Physiology*: J. J. van Nickirk, G. S. Woodhead, J. F. Cook.

THIRD COLLEGE.—C. V. Samwel, E. B. Bronstorph, G. P. de Silva, H. Shaw, A. I. Neek, C. R. C. Moon. *Passed in Pathology*: M. A. K. Mofreh, Eliza J. Stuart, P. M. Fernando, D. Stewart. *Passed in Materia Medica*: D. G. Howard.

FINAL.—Z. A. Green, J. E. Ainsley, J. C. Badwell, H. C. A. Haynes, B. C. Haller, J. Byrne, J. V. R. Roban, S. J. Abrahamis, J. Blackburn, C. Harris, A. Caston, R. C. W. Spence. *Passed in Medicine*: S. W. Hoyland. *Passed in Surgery*: J. J. Curtin. *Passed in Midwifery*: J. Adami, J. J. Curtin. *Passed in Medical Jurisprudence*: J. H. Blackburn, R. V. Clarke, C. G. Book, W. McKelroy, M. A. White.

ROYAL COLLEGE OF PHYSICIANS OF IRELAND.

THE following have been admitted as Licentiates:

J. F. Coffey, K. Elmes, H. Gerrard, J. Magner, C. A. R. McCay, D. McCormack, J. A. McKinnon, A. J. Neilan, J. P. Pegum, G. C. L. Woodroffe.

SOCIETY OF APOTHECARIES OF LONDON.

THE following candidates have been approved in the subjects indicated:

PRIMARY EXAMINATION.—Part I. *Biology*: K. J. H. Davies, H. T. M. Price. *Chemistry*: K. J. H. Davies. *Materia Medica and Pharmacy*: L. E. A. B. Farr, T. F. Reason. Part II. *Anatomy*: W. M. Anthony, G. R. Aspinwall, W. A. Bibby, T. L. Bonar, J. Brodetsky, K. B. Chapple, E. S. Davies, D. A. Dyer, J. Gordon, J. Gorsky, W. R. G. Harris, R. A. Hickley, A. H. Hill, O. B. Hillman, C. Holmes, R. E. Jenkins, E. F. J. Jones, R. M. Jones, F. W. Kemp, N. H. Kettlewell, W. Kilroe, F. Lloyd-Williams, L. Lyne, J. J. M. Macdonnell, J. S. Moore, G. E. Morgan, H. S. Morris, W. R. Ranson, G. V. Richards, S. Robinson, A. H. Shelswell, H. W. Southgate, E. A. Sparks, J. Stephen, A. C. Teuton, C. de B. Thomson, A. E. Young. *Physiology*: W. M. Anthony, G. R. Aspinwall, J. Brodetsky, E. S. Davies, J. Gorsky, W. R. G. Harris, A. R. Hill, O. S. Hillman, C. Holmes, R. E. Jenkins, E. F. J. Jones, F. W. Kemp, J. S. Lewis, P. Lloyd-Williams, L. Lyne, J. J. M. Macdonnell, J. S. Moore, G. E. Morgan, H. S. Morris, W. R. Ranson, G. V. Richards, A. H. Shelswell, H. W. Southgate, E. A. Sparks, A. C. Teuton, A. E. Young.

LONDON SCHOOL OF TROPICAL MEDICINE.

THE following were approved at the examination held at the termination of the fiftieth session of the school:

*W. N. Leak, †H. Bayon, Miss V. G. Field, E. A. Blok, J. A. Beels.

* Dr. Leak gains the "Duncan" Medal, this being awarded to the student who obtains the highest aggregate of marks.

† With distinction.

The Services.

EXCHANGE.

LIEUTENANT R.A.M.C., Regt. M.O., desires to change with officer holding a position in base hospital, casualty clearing station, or ambulance train, the latter preferred. Address, No. 1500, BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C.

Obituary.

SIR ALEXANDER RUSSELL SIMPSON, Kt.,
M.D., D.Sc.(Hon. CAUSA), LL.D.,

EMERITUS PROFESSOR OF MIDWIFERY AND THE DISEASES OF WOMEN
AND CHILDREN IN THE UNIVERSITY OF EDINBURGH.

THE hand of death has removed another of the band of professors who in Edinburgh University in the fourth quarter of the last century made its medical teaching known and respected all over the world. Sir Alexander Simpson has not long survived his friend and colleague Sir William Turner; indeed it is not more than six weeks since Sir Alexander published in this JOURNAL (p. 330) some most interesting reminiscences of the late Principal. A motor accident in the street on the evening of April 6th has ended in a moment a long and useful life, and brought an added sorrow to the many griefs which are not far from every one in these troublous times. For the place of the Emeritus Professor of Midwifery will not easily be filled in medical, philanthropic and evangelical Edinburgh.

Born in Bathgate, West Lothian, on April 30th, 1835, Alexander R. Simpson was 35 years old when he was elected to succeed his uncle, Sir James Young Simpson, in the Chair of Midwifery in Edinburgh University in 1870. For thirty-five years he not only occupied but conspicuously adorned that high office; and when in 1905 he retired, it was not because of failing powers, but because, to use his own words, "there was always a risk that the ageing incumbent of a chair might become an incubus upon it." His friends did not share his fears, and Sir Alexander might well have continued for at least another five years; but the full ten years of comparative freedom from professional work, which by retiring he thus was able to have at the close of his life, enabled him to do many things which he had been longing to accomplish, including a journey round the world and a survey of the mission field, and must have brought him a great deal of contentment, rounding off a life which had been marvellously complete and well ordered. One sharp grief divided these last ten years into two parts, the death of Lady Simpson in 1911; but Sir Alexander did not falter in his path, although he thenceforth walked alone, and there can be no question that his sorrow drew from him that tenderest of all his medico-evangelical booklets—*The Broken Heart of Jesus*.

The events of the first thirty-five years, before Sir Alexander stood "nel mezzo del cammin' di sua vita" as professor of midwifery in Edinburgh, may be briefly summarized, although they were indeed potent times whose moulding and determining influences ruled all the years which followed. He was educated at Bathgate Academy and at Edinburgh University; and, as the system of medical apprenticeship had not at that time quite died out, he had, as he said in his valedictory address (in 1905), the "singular good fortune to be apprenticed to Professor Goodsir, although the relationship did not help him much in learning to cure disease." But it brought him under the spell of a man of genius "who was a tireless toiler," and when, after graduation (M.D., 1856), his young apprentice came to bid him farewell preparatory to post-graduate study at Berlin and in Montpellier, Goodsir said to him, "Mr. Simpson, see that you go regularly to church every Sunday," and added, with a smile, "there's no better way to learn German." In the years which succeeded, tireless toil, going regularly to church, and the learning of German and of any other language (French, Italian, Dutch) which served to bring obstetrical knowledge to him, all continued to fill Simpson's days to the full. When he returned to Edinburgh he had the privilege of seven years spent as assistant to his uncle, Sir James, who was then at the zenith of his reputation and powers; and the nephew grew quietly into greatness beside that massive figure. There followed five years of private practice in Glasgow, where from "the corner house in Blythswood Square" Alexander Simpson daily, and often nightly too, set out on his errands of healing, and built up such a reputation for himself, and gathered round him so large and influential a *clientèle*, that when in 1870 he stood as candidate for the professorship of midwifery in Edinburgh, his friends in the great city of the west openly said that if he failed to seat himself in the chair in Edinburgh, he had still a feather bed to lie on in Glasgow. There can be no doubt that these five strenuous and

independent years did more than anything else could have done for the upbuilding of Sir Alexander Simpson, and sent him through to his heavy duties in the east with a determination and a capacity to overcome obstacles which were the delight of his friends and a surprise to those who were opposed to him. When the great contest and trial of strength were over and Simpson was installed in the chair of midwifery (1870), it stands to his lasting credit that without yielding one essential point he nevertheless steadily drew over to the circle of his friendship many who had been averse to his coming, and did so by the simple, kindly acts of a Christian gentleman, ready to forgive and quick to forget.

For the next thirty-five years (1870–1905) Simpson dominated Edinburgh obstetrics and gynaecology (for at that time the university chair carried with it the appointment to one of the gynaecological wards in the Royal Infirmary). His lectures were always filled with the latest obstetric knowledge of the Continent, and he early recognized the value of the gynaecological work of the Americans; he saw the number of students attending his class rise to little short of 300; he instituted a summer class of operative midwifery and gynaecology, which came to be more and more largely attended; he did his share of the teaching of clinical gynaecology, in association with the Professors of Clinical Medicine in the Royal Infirmary, and his Thursday gynaecological demonstrations were always well attended. He witnessed the birth of abdominal surgery and, indeed, took a great share in it, feeling his way by his operations (ovariotomies and the like) in the Buchanan ward towards the perfected science of the present day, himself reaching an outstanding position as one of the most successful of hysterectomists, and placing the surgeons under a debt of gratitude which many amongst them readily acknowledged. He was on duty for a quarter of each year as physician at the Royal Maternity Hospital (named also, in honour of his uncle, the Simpson Memorial), where he performed the first Porro-Caesarean section in Great Britain; he was swift to apprehend the value of the axis-traction principle introduced by Tarnier of Paris into the construction of the forceps, and through his immediate application thereof to the J. Y. Simpson forceps he carried this great obstetric advance to Austria and to Germany at the same time that he brought it to his own land; the basilyst invented by him is, in the opinion of many to-day, the best known perforator for the head, including the basis cranii, and the basilyst tractor has also much to recommend it. He rarely missed a meeting of the Edinburgh Obstetrical Society, of which he was thrice president, or an opportunity of saying a kind and encouraging and at the same time critical thing of the work of the younger men presented to it. He worked himself and he encouraged his assistants to work; and when the work was done and recognized as good he distributed the praise most generously, keeping little or none for himself. It was a beneficent and a benevolent domination that he exercised over Edinburgh obstetrics for thirty-five years. But he did more: he saw to it that midwifery got and maintained its right and proper and important place in the medical curriculum of the university; he took with him and established on ever surer foundations the reputation of Scottish midwifery across the border, in England, in Europe, in America, and even in far-off Japan; there was hardly an international congress of medicine or of gynaecology at which he did not attend and to whose debates he did not contribute; and he brought back to his Alma Mater and to his classroom and ward the rich spoils of his experience and observation abroad, with the result that many of his colleagues and assistants were early familiar with the best that the Continent and America could give. It was during his visit to the International Medical Congress at Washington in 1887 that he made an important contribution to an attempt to introduce uniformity into the nomenclature of obstetrics, and distributed among the medical men attending the congress copies of the Gospel of Luke and the Acts of the Apostles, printed (without chapters and verses) in the form of a separate work, with the title "Christ and the Beginnings of Christianity, by a Physician of the First Century." One suspects—nay, one is sure—that he enjoyed more fully the giving away of the booklet than the presentation of the uniformity scheme, and he always spoke with supreme satisfaction of the medical men who accepted copies without a suspicion that they

were receiving portions of the sacred scriptures. For some years he was dean of the medical faculty in his own university; he was president of the Royal College of Physicians of Edinburgh, and he was also honorary president of the Glasgow Obstetrical and Gynaecological Society (1896-8). He was an honorary or a corresponding Fellow of many American and Continental societies; Manchester gave him its honorary Doctorate of Science, and his own university added the LL.D.; and, to crown all, he received the honour of knighthood in 1906. He did not perhaps write so much himself on the subjects which he taught as he inspired others to write, but the volume of *Contributions* which he published in 1879 contained not a few outstanding articles, including the learned one on Laah's theory of flexion in the mechanism of labour. His Harveian address on *Life and its Epiphanies* (1911) was also a notable production.

It has not been possible to speak of his professional life without referring to the religious side of his activities. The two were indeed so intertwined in him as to be inseparable. Their close connexion was equally evident to the students attending his class, to the medical men who came into touch with him, to his colleagues in the university and medical societies, and to his patients and friends. As a consequence he was not only asked to preside over such a medico-religious body as the Edinburgh Medical Missionary Society and came naturally to take a leading part in Professor Henry Drummond's evangelistic campaign among the students, but he was also drawn (always willingly) into all sorts of work in connexion with the United Free Church of Scotland (in kirk session and general assembly), and for many years he directed and presided over the activities of the Carrubber's Close Mission. He also was greatly interested in the temperance cause. (He was returning from a temperance meeting when he was knocked down by a motor car.) Further, his religion was so truly a part of all his work that a unity was produced which was most impressive and convincing.

There are not a few sides of Sir Alexander Simpson's life and work which have not even yet been touched upon. His hospitality, catholic in its extent; his liberality, public and known, but (far more) private and little known; his sympathy with all in distress; his admiration for all things Scottish; his appreciation of the best in literature; his pronounced Liberalism in politics; his keenness (this may be a surprise to some) to bring down a pheasant or a grouse; and his never-failing good humour and friendliness—these are sides of him which need to be held in mind in forming a full and complete picture of the man who used the words, "not in himself a great man, but one who had been a friend of great men," to paint his own likeness. He was a greater man than he was ready to admit.

At the general election in December, 1910, Sir Alexander Simpson unsuccessfully stood for the Universities of Edinburgh and St. Andrews against Sir Robert Finlay. Sir Alexander leaves four sons and a daughter. The eldest son, J. Y. Simpson, is professor of natural science in the New College, Edinburgh; the second, George F. Barbour Simpson, has followed in his father's footsteps and has specialized in obstetrics and gynaecology; a third is a clergyman in Glasgow. Lady Simpson was a daughter of Mr. George Barbour of Bonskeid, Pitlochry, and sister of Dr. Freeland Barbour, P.R.C.P.E.

The funeral, a private one to the Grange Cemetery, Edinburgh, took place on Monday, April 10th; and there was a memorial service in St. George's U.F. Church on Wednesday, April 12th, attended by the Session of St. George's (the late Sir Alexander was the father of the St. George's Session), and such public bodies as the Royal College of Physicians, the University, the Edinburgh Medical Missionary Society, etc.

Sir HALLIDAY CROOM, Professor of Midwifery in the University of Edinburgh, writes:

We who remember Sir Alexander Simpson's appointment to the Chair of Midwifery in the University of Edinburgh will recall that his position was an extremely delicate and difficult one. He was overshadowed by the fame of his illustrious predecessor. His sureness of perception and infinite tact, combined with his abounding kindness, carried him triumphantly through that anxious and somewhat disquieting period. To those of us who were asso-

ciated with him at that time his modest conduct and his immediate and courageous application to the work of his chair will always remain a delightful memory. His subsequent distinguished career amply justified his selection by the patrons.

During the long period of his incumbency of the Chair of Midwifery he took an active and lively interest in all departments of academic work. He was a careful, conscientious, and interesting teacher. His lectures were most comprehensive, with perhaps too great a wealth of detail.

On first assuming charge of the gynaecological wards in the Royal Infirmary, coming as he did from Glasgow, where gynaecological operative work was not then a feature, he at that time fought rather shy of the major operations, then practically monopolized by Keith. Before long, however, his ward was filled with abdominal work, which in those days was in its comparative infancy. As time went on his keenness for operating grew apace. His methods grew more and more exact; he was deft and quick with his fingers, rapid and meticulously careful in his technique—as his assistants knew full well—the result being that ultimately he had very few equals, and certainly no superior, in operating. After his frequent spring visits to France and Germany he came back full of fresh ideas and methods, and those were promptly put in practice in his ward. He was a constant student, and scarcely any of the advances in operative gynaecology missed his notice.

He took the deepest and most profound interest in students, not only in their professional work but in their religious life, in which his personality played a prominent part. In all movements for the benefit of students' higher life he took a foremost part, and many mature men of the present day can bear witness to the influence he had upon their lives. This was never better shown than in the interesting time of Henry Drummond's work among the university students, into which he threw himself with characteristic ardour. He was a man of very broad sympathies and wide benevolence, and he contributed handsomely to most of the philanthropic institutions in the city, and to those who appealed to him personally for help he was most open-handed.

Nothing was more delightful than to see him at foreign congresses, most of which he attended, from Moscow to Washington. He was then in his element, whether it were mounting the rostrum beside the president or in the midst of a festive luncheon or dinner party. Everybody knew him and he knew everybody. His name, indeed, was a household word at every congress. There can be no question that at such gatherings he was a universal favourite, for he had a wonderful geniality and fluency of speech, even in a foreign language. His facility in public speaking was certainly one of his most striking characteristics. He spoke with equal ease and grace in a public meeting, a class-room and a medical or church congress. He was particularly happy in his after-dinner speeches, though he was aided by neither alcohol nor tobacco.

His hospitality was proverbial. At his table were to be found men from all countries. Foreigners made prolonged visits to him, and it is a remarkable fact that no one was more hospitable than he was to Germans, who used to be his frequent guests, and that he met his death by the darkness produced over the city by the fear of Zeppelin raids.

He spent an ideal life. His winter was absorbed in the duties of his university chair, varied by philanthropic and religious work. Immediately the session finished in March he went abroad, either to Italy or France, until the beginning of the summer session in May. During the summer, in order to be in touch with his hospital and university work, he had a house in the neighbourhood of Edinburgh, and every autumn he rented a mansion in the country, where he enjoyed shooting—for he was an excellent shot—and similar sport. Each year, therefore, was completely rounded off in congenial work and healthful recreation.

Simpson was one of the most unobtrusive of men and quite willing to efface himself for the advantage of others, although promptly and ardently resenting any slight offered to the department to which he belonged. He was of an even, calm temperament. His firm and definite religious convictions permeated absolutely his whole life. He had the enviable faculty, due to his wonderful belief, *aequanimis in arduis servare mentem*. To those of us who knew

him this was not a mere temperament, but a fixed belief in his Christian faith. Those who did not know him well were apt to think that he was somewhat austere and looked on the serious side of life too completely, but those of us who did know him knew very differently. No one was of a more kindly disposition, more disposed to take the charitable view of everything, and more pleased to enter into all the amusements and pleasures of those with whom he associated. This was an exceptionally charming characteristic of his.

During the long period of his connexion with the Obstetrical Society of Edinburgh he was three times its president, and there he ruled supreme. He seldom missed a meeting, and his remarks were always felicitous and peculiarly encouraging to the younger men. His attendance at these meetings was with him a religious duty.

His last appearance as a university professor was when he delivered the Promoter's address at a summer graduation, and a more beautiful, chaste, modest, and interesting piece of personal reminiscence it would be difficult to imagine.

Although, when he resigned his charge, he was over 70 years of age, he remained till his death in spirit, temper, and habit, one of the youngest and most active of men, and, indulging his great love of travelling, paid a visit to India.

He had a most comprehensive knowledge of the literature of obstetrics and gynaecology, and was deeply read in all departments of their science and art. He could, with the greatest ease and shortest notice, give references to the most abstruse and out of the way matters. He was an omnivorous reader and a close student, but unlike most, he had no favourite chair in which he sat, nor any favourite desk at which he wrote, nor any favourite room. His powers of application were such that he could read and write anywhere and at any time. It will always be a matter for regret that with his exceptional acquaintance with the literature and practice of his art, he did not produce a textbook, because such a volume produced in his fascinating and attractive style would have been a permanent asset. But he, like his great predecessor, did not care for the drudgery of that work, and his writings are, therefore, to be found scattered in various journals, and the papers he has left us are models of what such papers ought to be—concise, clear, and scrupulously accurate.

Sir JAMES AFFLECK writes:

It is hard indeed to realize that that bright and kindly spirit, with whom I had been holding friendly converse a few hours before, should have been so swiftly and tragically snatched away. Despite his 80 years, "his eye was not dim nor his natural force abated" in any direction (save for the infirmity of deafness), and he looked and walked as if there might yet be many more years in store for him.

It will fall to others to refer more specially to his professional merits which gained for him such an eminent position in his own department, as well as to his intellectual gifts and accomplishments. Relinquishing professional work at the age of 70, when he was admittedly at his best, his interest in medical science and progress never waned, but was keen to the last, while his activities in the domain of philanthropy and Christian work were unceasing.

His was truly a full life, and a fruitful one—fruitful in the many lives made better by his influence, his example, and his constancy; while his sympathies with every cause bearing upon the welfare of humanity found expression alike in his advocacy and his beneficence.

To those who are this day mourning his sudden end it comes as a solace to hear from so many lips the words, "He was a good man if ever there was one," and to feel that this worthy and noble life leaves so fragrant and enduring a memory behind it. Would that there might be an increasing number of such lives in our ranks!

Dr. ROBERT WISE (Stamford Hill, London, N.) writes:

I had the great honour of acting for one year as class assistant to Sir A. R. Simpson in the University of Edinburgh. I shall never forget his great kindness and hospitality. I last met him, hale and hearty, at the Royal Society of Medicine when he read his paper on Jean Astruc. I beg to add my humble tribute of praise to his true goodness and to his greatness as an obstetrician, gynaecologist, and physician.

SIR THOMAS BOOR CROSBY, KT., J.P.,

LL.D., M.D. ST. AND., F.R.C.S. ENG.

SIR THOMAS BOOR CROSBY, the first doctor of medicine to become Lord Mayor of London, died at the age of 86, on April 7th, at his residence in Gordon Square, after a short illness.

He was the son of a Lincolnshire farmer, and was born in 1830, at Gosporton, near Spalding. Apprenticed to a local surgeon, as was the rule in those days, he afterwards studied at St. Thomas's Hospital, and took the diplomas of M.R.C.S. and L.S.A. in 1852. At St. Thomas's Hospital he filled the appointments of house-surgeon and demonstrator of anatomy. He became F.R.C.S. Eng. in 1860, and two years later M.D. St. Andrews. After leaving the hospital he joined an old-established and very well-known firm of practitioners in Fenchurch Street, E.C., and his connexion with the City of London continued to the end of his long life. He became a member of the Common Council for Langbourn Ward in 1877, and alderman for the same ward in 1898. He was sheriff in 1906-7, and was elected Lord Mayor in 1911. He was then in his 82nd year, and it was noted that he was not only the first doctor of medicine but the oldest citizen to receive that office. His daughter acted as Lady Mayoress, and was associated with him in carrying on the many professional and social duties of the office. His term was distinguished by the assembly of provincial mayors and provosts at very short notice on the occasion of a serious coal strike, and by the raising of £450,000 for the *Titanic* fund. He attended, as Lord Mayor, at the funeral of Lord Lister on February 16th, 1912, at Westminster Abbey, following the pall-bearers in company with the Lord Provost of Edinburgh.

He early became a member of the British Medical Association, and was at one time a member of the Council of the Metropolitan Counties Branch. He showed great interest in the work of the Association in many ways, and it was largely due to him that the then Lord Mayor gave a reception to the members attending the annual meeting in London in 1913. In acknowledging a vote of congratulation from the Council of the Metropolitan Counties Branch on his election as Lord Mayor he said: "I am glad that my appointment to that office is a source of gratification to my medical brethren." There is no doubt that he valued his election largely because it reflected an honour upon his profession. He was at one time president of the Hunterian Society, before which he delivered, in 1871, the annual oration on "Modern Medicine"; he was also a member of the Senate of the University of London. He received several foreign Orders, including that of the Legion of Honour of France, of the Crown of Russia, St. Olaf of Norway, Dannebrog of Denmark, and the Rising Sun of Japan.

Sir Thomas Crosby was kindly and courteous. To the last he walked, spoke, and thought like a young man. He ascribed his phenomenal juvenility as an octogenarian to moderation, but also to his custom of ensuring a right amount of sleep. He taught that if a man lost his fair share of slumber one night he should never neglect to make up for it on the next night.

A memorial service was held at All Hallows Church, Lombard Street, on the afternoon of April 11th, when the funeral took place at Kensal Green. The Lord Mayor and Sheriffs attended in state, together with the members of the Court of Aldermen and many members of the City Corporation, including the representatives of Langbourn Ward.

TOM BATES, L.R.C.P., L.R.C.S. ED., M.R.C.S. ENG.,

CONSULTING SURGEON, WORCESTER GENERAL INFIRMARY AND WORCESTER OPHTHALMIC HOSPITAL.

Dr. TOM BATES, when just completing fifty years of practice, died of influenza on April 3rd at his old house in Foregate Street, Worcester. He had retired from active practice in 1913 and taken a residence elsewhere, but when his two sons and successors undertook military duties he resumed active work, and unfortunately the inclement weather which prevailed during the last week in March proved fatal to him. Born at March in Cambridgeshire, Dr. Bates received his education in Glasgow and Paris, took the diplomas of L.R.C.P. and S. Ed. in 1866, and that of M.R.C.S. Eng. two years later. He became associated with the eminent surgeon, Mr. Carden, and

later with Dr. Woodward, well known in Worcester. He soon acquired a large practice, solely through ability and force of character, as he was by nature very unassuming. He was not only a dexterous operator but was among the first to understand and practise the treatment by hot water of the commoner gastric disturbances due to errors of diet. For nearly forty years Dr. Bates undertook the only public work which was really to his taste—namely, the honorary surgeoncy of the Worcester General Infirmary, resigning in 1909, when his colleague, Mr. T. P. Gostling, observed that if ever the hospitals came on the rates they would never get such good service as they had received from Dr. Bates. Dr. Bates also held for a very long period the post of honorary surgeon to the Worcester Ophthalmic Hospital. He was a member of the British Medical Association, and when the jubilee meeting was held in Worcester in 1882 he served as secretary to the Section of Obstetric Medicine.

When, at the age of 70, Dr. Bates was about to retire and the infirmary found itself without a house-surgeon, he cheerfully volunteered to do the work, but then his colleagues insisted on sharing the responsibility. A year later he once more assisted the infirmary in the same way. When the war came he undertook, as above noted, his two sons' practice, which, unfortunately, proved too much for his physical powers.

Dr. Bates, a deeply read man, possessed a good knowledge of the French language, and was remarkable for his wit. A good cricketer in his youth, he was also a keen billiard player. He married a Malvern lady, by whom he had four children—two daughters and two sons. Both these sons, Dr. Mark Bates and Dr. Tom Bates, jun., have undertaken military duties. The funeral took place on April 8th at St. Nicholas's Church and Astwood Cemetery, and was attended by numerous members of the profession and patients, and by convalescent soldiers, and nurses from the infirmary.

THE profession in the West of Scotland has suffered severely in recent months by the death of some of its active and well known members, and the name of Dr. WILLIAM GRANT MACPHERSON of Bothwell has now to be added to the list of those who have gone. Carrying on his usual duties till he was taken suddenly ill on the evening of March 29th with what proved to be pneumonia, he passed away during the early hours of March 31st. He was a "son of the manse," his father being the minister of the parish of Canisbay, Caithness, the most northerly parish on the mainland of Scotland. There he received his early education. He entered upon the study of medicine at the University of Edinburgh, where he graduated M.B., C.M. in 1888. In the same year he went as assistant to the late Dr. Bruce Goff of Bothwell, and eventually became a partner in the firm of Goff and Macpherson. His sterling qualities as a man and as a physician were highly appreciated, and he practised his profession with much acceptance. He was greatly beloved by a large circle of patients throughout the Lower Ward of Lanarkshire. He gave much of his time and energy to the promotion of the honour and interests of the profession. Following the example of his late principal, he was an enthusiastic and loyal member of the Association, being at the time of his death a member of the Scottish Committee. He was also Chairman of the Local Medical and Panel Committee and a Member of Council of the Medical and Dental Defence Union of Scotland. In all of these offices his services were highly valued, and he was personally greatly esteemed. His unexpected and comparatively early death has caused pained surprise and sorrow to his friends and colleagues. He leaves a widow to mourn his loss, and for her the deepest sympathy is felt.

THE LATE DR. WILLIAM EVERETT.—Captain J. J. Harper Nelson, I.M.S., writes from India as follows with reference to Dr. Everett, whose death in consequence of the torpedoing of the ss. *Persia* on December 30th, 1915, was noticed in the JOURNAL of January 15th, p. 109:

The manner of his death was tragic, but filled one with admiration. I was a passenger on the *Persia*, and had been allotted a place in his boat in case of necessity. When the torpedo struck the vessel we all gathered opposite our boats. Our boat was the foremost on the port side. The *Persia* heeled

over to this side, and as starboard boats could not be lowered women and children were all directed to cross to the port side. Dr. Everett was at his place, and one has a vivid remembrance of his calm bearing under difficult conditions. He was very busy assisting ladies and children to remain upright on the sloping decks. The vessel suddenly rolled over on to its side, and Dr. Everett was unable to get clear of the ship. During the voyage I had got to know him fairly well, and I was impressed with his quiet, dignified bearing, sound professional knowledge, and keen insight into human nature. Men and women were to him not only patients but objects of character study, and his experiences as a ship's surgeon were consequently of absorbing interest. He was an excellent type of ship's surgeon, and his death is much to be lamented.

THE death took place at his residence, Askeaton, co. Limerick, on March 29th, of Dr. P. C. O'BRIEN, resident medical officer of that district. Dr. O'Brien, who was in his 70th year, was for many years medical officer of Askeaton Dispensary District, and his services were greatly appreciated by the public. Some years ago he was appointed a magistrate for the County of Limerick.

DR. G. H. ANDERSON died on April 10th at Loftus-in-Cleveland, after having been associated for over half a century with the district. A native of Aberdeenshire, he was educated at the grammar school in the city of Aberdeen, and graduated M.B. and C.M. of the University in 1865 and M.D. in 1867. He settled at Eston in North-East Yorks, but in 1868 went to Loftus, where he continued in practice down to seven years ago. Dr. Anderson devoted much time to local public affairs and took special interest in sanitary problems, the provision of an isolation hospital in his district being mainly due to his advocacy of an institution of that type.

PROFESSOR GILBERT BALLET, who died on March 17th, was one of the foremost specialists in mental disease in France. He was born at Ambazac (Haute Vienne) on March 29th, 1853. He began the study of medicine at Limoges but soon migrated to Paris, where he became *chef de clinique* under Charcot in 1883. He was appointed physician to the hospitals in 1884, becoming *agrégé* in 1886 and professor in 1907. For two years he lectured on the history of medicine, and in 1909 found his right place in the chair of mental diseases. He was president of the Congress of Alienists and Neurologists of France and French-speaking countries in 1901, and of the French Congress of Medicine. In 1912 he was elected a member of the Academy of Medicine, in the work of which he took a very active part. In 1914 he drew up a scheme of reform of the French lunacy law of 1838, and in 1915 he was reporter of a commission appointed to study the regulation of the sale of alcoholic liquors. Ballet was an ardent advocate of measures for the promotion of temperance. He contributed largely to medical literature. His most important works are lectures on psychoses and nervous affections, and a treatise on mental pathology.

PROFESSOR LÉON LABBÉ, who died recently, was born at Merlerault (Oise) on September 29th, 1832. He graduated at the Paris Faculty in 1861, became *agrégé* in 1863 and surgeon to the hospitals in 1864. For more than thirty years he was one of the leaders of French surgery. Many years ago his name was brought prominently before the public by his successful removal of a fork from the stomach of a man who had swallowed it; the case was known as that of *l'homme à la fourchette*. Labbé was the author, in conjunction with Coyne, of a treatise on benign tumours of the breast and of a number of other writings on surgical subjects. He was a member of the Institute of France and a very active member of the Académie de Médecine. He was a Commander of the Legion of Honour. Labbé retired from professional life in 1905 and entered the French Legislature, becoming Senator for the Orne and President of the General Council of the Department. Among those present at the funeral service, which took place at the Church of Saint Augustin on March 24th, were a number of representative men in science and politics.

Professor CHARLES GIRARD of Geneva, one of the leading surgeons of Switzerland, died on March 4th in his 67th year. He was born at Renan in the Val de Travers, and studied medicine at Berne, Tübingen, and Freiburg-im-Breisgau. He took his degree at Berne in 1872. He served during the Franco-Prussian war under Professor Lücke, then professor of clinical surgery at Berne. In 1872 Lücke was appointed head of the surgical clinic at Strassburg and Girard became his chief assistant. That position he held till 1875, when he returned to Berne; he became *privat-docent* in surgery, and in 1904 he was invited to succeed G. Julliard in the chair of clinical surgery at Geneva. He was the author of numerous papers on surgical subjects, and had been elected president of the Société Suisse de Chirurgie on the very day of his death.

Medical News.

THE offices of the BRITISH MEDICAL JOURNAL and of the Association, including the library, will be closed from Thursday evening, April 20th, to 10 a.m. on Tuesday, April 25th. The library and offices of the Royal Society of Medicine will be closed from Thursday, April 20th, to Tuesday, April 25th, both days inclusive.

SIR ALMROTH WRIGHT has been elected a foreign associate of the Paris Académie de Médecine.

AT the meeting of the Royal Microscopical Society at 20, Hanover Square, W., at 8 p.m., on Wednesday next, Professor Benjamin Moore will read a paper on early stages in the evolution of life.

DR. GIUSEPPE SERGI, Professor of Anthropology in the University of Rome, has just completed his seventy-fifth year. In honour of the occasion the Roman Anthropological Society has decided to publish a volume of original memoirs.

THOUGH a large number of soldier patients are receiving free treatment at the brine baths at Droitwich, the arrangements for dealing with ordinary cases are in no wise affected. We are asked to make this statement because it is said that some medical men are under the mistaken impression that the Droitwich baths have been given over entirely to military patients.

A MEETING of representatives of public hospitals in London and the provinces and of matrons and nurses was held on April 7th at St. Thomas's Hospital to consider the proposal to found a college of nurses. The Hon. Arthur Stanley, M.P., who was in the chair, said that the answers received from the governors of hospitals and nurses' training schools, and matrons, had convinced the promoters that they were working on the right lines. Several conferences had been held with representatives of societies which advocated State registration, and there was practical agreement that three fundamental principles must be adopted—State registration, a uniform curriculum, and a one-portal examination. It was proposed that the college should have a council of thirty members and a consultative board. The main object of the meeting was to ask those present to ensure that the board was representative of all branches of the nursing profession in Great Britain and Ireland. It was hoped to establish boards in Scotland and Ireland at once. A second meeting will be held next month.

WE have received the new number for April of the *Craigleith Hospital Chronicle*. It has, unfortunately, to record the death of Miss Annie Paulin, who had been intimately associated with the hospital since August, 1914, and who was also the first editor of the *Chronicle*. Dr. J. A. MacDougall continues his story of some Scottish regiments, the present instalment dealing with the Cameronians. There are some jokes, but not so many as usual, and a set of excellent verses, "Sworn Brothers All," by Henry Johnstone. We are indebted to Miss M. Anderson of Edinburgh for the gift through the editor of the *Chronicle* of the first two numbers. By this gift the file in the Library of the British Medical Association is completed to date. The *Gazette of the 3rd London General Hospital*, Wandsworth, celebrates the attainment of the age of six months in its number for April. Corporal Irving displays his versatility by imitating Mr. Nevinson, who contributes another excellent futurist drawing, this time "the driver of the ambulance." There are a good many other caricatures and some photographs. The *Norfolk War Hospital Magazine* has made its first appearance this month. The hospital has just celebrated its first birthday, but it occupies a building which has celebrated its centenary, and of this there is a photograph, among other illustrations.

Letters, Notes, and Answers.

THE telegraphic addresses of the BRITISH MEDICAL ASSOCIATION and JOURNAL are: (1) EDITOR of the BRITISH MEDICAL JOURNAL, *Atiology, Westrand, London*; telephone, 2631, Gerrard. (2) FINANCIAL SECRETARY AND BUSINESS MANAGER (advertisements, etc.), *Articulate, Westrand, London*; telephone, 2630, Gerrard. (3) MEDICAL SECRETARY, *Mediscera, Westrand, London*; telephone, 2634, Gerrard. The address of the Irish office of the British Medical Association is 16, South Frederick Street, Dublin.

Queries, answers, and communications relating to subjects to which special departments of the BRITISH MEDICAL JOURNAL are devoted will be found under their respective headings.

QUERIES.

M.O. writes: In a munitions factory the employees have to dip their hands in hot water and also in 25 per cent. sulphuric acid, with the effect that the skin becomes cracked in places and red and inflamed in others, while the clothes in contact become ragged and tear readily. Can any treatment for the hands be suggested, and any particular clothing which might be useful?

LETTERS, NOTES, ETC.

METRIC PRESCRIBING.

DR. W. W. HARDWICKE (London, S.W.) informs us that the manager of a panel pharmacy recently refused to dispense a metric prescription on the ground that it was "written in French," whereupon Dr. Hardwicke wrote to the Secretary of the London Insurance Committee, who informed him that "a chemist on the panel is required to dispense prescriptions written in metric as well as those in which imperial weights and measures are used." This is, of course, the case. In the *British Pharmacopoeia* for 1914 the metric system is employed for all pharmaceutical and analytical computations, and it is stated in the preface that "the metric system has also been employed for the specification of doses, in the expectation that in the near future the system will be generally adopted by British prescribers. . . . As a transitional provision doses have also been expressed in terms of the imperial system."

FASTING TREATMENT FOR DIABETES.

DR. F. S. ARNOLD (Berkhamsted) writes with reference to the fasting treatment for diabetes discussed in the *JOURNAL* of March 25th: The fasting treatment in diabetes is not new, nor was it introduced by Dr. F. M. Allen. It has been practised and ably advocated by Guelpa of Paris for a good many years past. His work, *Autointoxication et Désintoxication*, in which the method is described, appeared in 1910, and my translation of it, bearing the actual title, *Fasting in Diabetes*, was published in 1912, and is now out of print. The "Guelpa method" in the treatment of diabetes has been the subject of many discussions of great interest at the meetings of the great French medical societies; it is fairly widely known, even to the lay public, in this country and in America; and, unless I am mistaken, it has been described and discussed in your columns a good deal further back than two years ago, when, according to the statement in your leading article, the fasting treatment was "introduced" by Dr. F. M. Allen.

INCREASED FEES.

M.D. writes: Would it not be well if a general notice were issued by the medical profession that medical fees have had to be increased? The reason for the increase is obvious, but the difficulty of the practitioner having to explain to his old patients the enhanced rates would be avoided.

PAIN AT ROOT OF NECK AND CARDIAC IRREGULARITY.

DR. D. OWEN WILLIAMS (Glandovey) has noted this condition in a woman aged 59. The stethoscope detected marked local pulsation and coupled beats corresponding to the heart sounds. Under appropriate cardiac treatment the pain passed away within four days, the heart sounds becoming normal. The patient had recently been subject to worry, and suffered a few years ago from albuminuria, which had entirely disappeared.

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

	£	s.	d.
Seven lines and under	0 5 0
Each additional line	0 0 8
A whole column	3 10 0
A page	10 0 0

An average line contains six words.

All remittances by Post Office Orders must be made payable to the British Medical Association at the General Post Office, London. No responsibility will be accepted for any such remittance not so safeguarded.

Advertisements should be delivered, addressed to the Manager, 429, Strand, London, not later than the first post on Wednesday morning preceding publication, and, if not paid for at the time, should be accompanied by a reference.

NOTE.—It is against the rules of the Post Office to receive *poste restante* letters addressed either in initials or numbers.

Observations

ON THE

TREATMENT OF GUNSHOT WOUNDS OF THE SPINE.

BY ALFRED J. HULL, F.R.C.S.,

MAJOR, R.A.M.C., BRITISH EXPEDITIONARY FORCE, FRANCE.

WHEN considering the place in the theatre of war at which spinal injuries should receive operative treatment it is necessary to weigh the advantages of early operation, which will limit the spread of septic infection and relieve the central nervous system of deleterious pressure, against certain disadvantages. These injuries require careful examination, and in some cases prolonged observation, before they are submitted to operation; a specially trained staff is required for their operative and after treatment. It is usually considered desirable that the patients should remain in the hospital in which they are operated upon for a considerable time. I think it is extremely doubtful that transport will be more injurious after an operation than before it. Of one thing I am convinced, and that is that the relief from pain which follows successful laminectomy places the patient in a much better position to withstand the strain of the journey. It is inevitable that, with the exception of certain conditions in siege warfare, when special units can be organized for particular branches of surgery, the treatment of these cases will have to be relegated to the base hospitals.

The following case is not without interest from the fact that the missile was removed from a portion of the vertebrae inaccessible by laminectomy:

CASE I.

Pte. C. was wounded by a rifle bullet, which entered the right loin 2 in. below the extremity of the last rib, and fracturing the transverse process of the second lumbar vertebra, lodged to the right of the body of the same vertebra. The patient suffered from severe local pain, which radiated down the branches of the lumbar plexus. There was partial motor and sensory impairment of the right leg. Five days after the injury a long incision was made in the right loin and peritoneum exposed by muscle splitting. A hand was then inserted by a retroperitoneal route and the fractured vertebra felt for as a guide to the bullet. A scoop was passed down the same track and the bullet removed. A counter-incision was made from the back to the site of the bullet and the cavity drained by "salt sac"—a tube made of gauze and bandage filled with common salt. Pain disappeared after the operation. Fourteen days later the wounds were healed, full sensory and motor control had returned, and the patient had entirely recovered.

Wounds of the spine may be extensive, the whole section of the cord being involved, and conductivity of the cord lost. Such cases present all the unfavourable phenomena associated with fracture-dislocation of the spine as met with in civil practice, together with the additional danger of septic infection. These cases are obviously unsuitable for operative treatment, but it is otherwise with many cases of spinal injury.

The following case reported by Captain Hepburn illustrates a type of inoperable cases complicated by concomitant injuries:

CASE II.

Wounded by a fragment of high explosive shell; was admitted about three days later with an irregular wound which would admit two fingers, situated about 2 in. to the right of the second lumbar spine. The wound was very septic, with extensive surrounding cellulitis. X rays showed the shell fragment lying in front of the left margin of the second lumbar vertebra, with a fracture of the body.

The patient became very toxic and extremely jaundiced, with severe abdominal pain and vomiting, and died ten days after being wounded.

At autopsy the shell fragment was found between the two layers of mesentery of the small bowel, which was extremely thickened. There was extensive retroperitoneal effusion of blood, a fracture of the body of the second lumbar vertebra, laceration of the top of the right kidney, but no laceration of the peritoneum and no injury of the liver.

Considering the results of spinal injuries as a whole, it must be admitted that they have not been encouraging, but it will probably be found that better will be obtained in the future. At the present time improvement has been noticeable in the results of treatment in these injuries. The cause of disappointment in the past was partly due to a lack of differentiation between hopeless cases and cases likely to benefit by operative treatment and partly to

delay in operation. Spinal operations, to be successful, must be performed at an early stage before any vital changes have occurred in the cord. The earlier circumstances allow the cases to be operated upon, the better will be the results. By delaying the operation, cases lose their chance of recovery in two ways—sepsis spreads, and pressure upon the nerve tissue causes vital changes in the cord. An early operation will remove the septic focus and relieve the pressure upon the nerve tissue, thus obviating the main causes of permanent nerve tissue lesions.

We have had many opportunities of witnessing the relief which follows the removal of a foreign body from the central nervous system. A foreign body, whether a missile or a depressed fragment of bone, exercises a striking effect upon the circulation of the brain and cord, and coincident with its removal the previously non-pulsating tissues begin to vibrate. Good circulation is essential to the recovery of injured tissue, and early operation affords the best chance of relieving the interference in an injury to brain and spinal cord.

We know that by operation planned to remove septic tissue and to relieve the pressure of fragments of bone or foreign bodies we can effectively deal with depressed compound fractures of the skull, and that by adopting the same principle we can excise a penetrating wound of the knee, remove infected bone, and obtain aseptic result. It would appear rational to apply the same principle to injuries of the spine, and, with certain reservations, this can be done. The spinal injury differs from the head injury in the greater susceptibility of the spinal cord and its lack of regenerative power. The small area of the spinal cord renders an injury to the cord of much more serious importance than an injury to the brain. An injured area in the brain may be recoverable, where an injury of corresponding size to the cord may destroy the whole section of the cord.

It would appear justifiable to operate upon spinal injuries when a foreign body is present and has been shown by x ray localization to be in an accessible position. Septic trouble is almost certain to follow a foreign body lodged within the spinal theca and its removal will not add materially to the patient's danger. Severe pain alone is occasionally a sufficient reason for operating.

The principal indications which make operative interference justifiable are evidence of some remaining conductivity of the cord, evidenced by the presence of some motor and sensory function in the part below the injury. Here the transverse lesion of the cord is incomplete, and the removal of pressure may be followed by great improvement. The circulation is restored and function is recovered.

CASE III.

Sgt. W. was wounded on October 24th and admitted to a base hospital on October 26th. There was a clean entrance wound at the back of the neck 2 in. to the right of the spinous process of the sixth cervical vertebra, and an exit wound in front, below the margin of the lower jaw on the left side.

The symptoms present were left hemiplegia and paralysis of the right arm, loss of sensibility on the left side, and hyperaesthesia of the right arm and foot. The presence of conductivity of the cord and the evidence of fracture of the fifth cervical vertebra were considered sufficient reason for operating.

A long incision was made over and down to the spine of the cervical vertebrae and the spinous processes cleared of muscles. Retractors were placed in the grooves on either side of the spines and the muscles retracted; the laminae were exposed and the fracture of the fifth vertebra discovered. The spinous process of this vertebra was fractured and the lamina on the left side was fractured near the articular process. The spinous processes of the vertebrae above and below were cut off. The right lamina was divided and the laminae of the damaged vertebra removed. A detached fragment of bone was found pressing upon the spinal theca. The dura was not lacerated and pulsed normally. The depressed fragment was removed and the wound sutured. The right arm recovered rapidly, and the following day sensation was normal. The patient suffered from considerable pain in the right arm after the operation. The operation wound healed by primary union.

The patient slowly recovered the use of his limbs, and three weeks after the operation had completely recovered, with the exception of partial paralysis of the left arm.

Cases of injury to the cauda equina have a much more hopeful outlook. The cauda equina bears a greater resemblance to the peripheral nerves than the spinal cord, and its nerve roots have been cut and sutured in animals, with complete recovery of function later. Tuffier

operated upon the first two lumbar roots, which had been divided by a bullet wound, and obtained perfect recovery.

The principal points by which injury of the cauda equina can be differentiated from injury of the cord are:

The position of the wound.

X ray may show a missile or fracture of the lower lumbar vertebrae.

Asymmetry of the symptoms.

Severe pain.

Pain and hyperaesthesia are indicative of injury of nerve roots rather than cord. Abolition of the deep reflexes points to a lesion of the nerve roots, either the efferent or afferent fibres being injured. The reflex centre in the cord may be injured in some cases, but the loss of conductivity will then be complete. Limitation of symptoms to a small portion of the segments of the lumbar-sacral region denotes a caudal lesion. A rapid increase of symptoms from segment to segment will denote a medullary lesion. A slow involvement of additional segments will point to a caudal lesion.

GENERAL CONSIDERATIONS AS TO TREATMENT.

Three lines of treatment are indicated—prevention of sepsis, removal of gross pressure upon the spine, and the prevention of complications which threaten life.

The most dangerous complication associated with spinal injury is septic infection of the genito-urinary tract, and this can usually be prevented by adequate care in the passing of catheters and by the use of urinary antiseptics and twelve-hourly lavage of the bladder. A solution of quinine sulphate, 1 or 2 grains to the ounce, has been recommended for this purpose. It is important that a catheter should be passed when the patient arrives at or leaves a hospital, and that instructions be given for the passage of this instrument during transport. The risk of sepsis is not added to by irrigation of the bladder once it is necessary to catheterize.

The following classification of injuries may be used from the point of view of treatment:

1. Injuries which have perforated the spinal theca.
2. Injuries which have not perforated the spinal theca.
3. Concussion of the spinal cord, which may be produced by the passage of a bullet through the vertebrae without actual pressure of the missile or bone fragment.

A trauma of the spinal column, even of a comparatively slight nature, may produce injury to the cord itself. The differentiation of concussion from organic injury has an important influence on treatment. A bullet passing through the body of a vertebra or merely touching one of the processes may produce concussion of the spine, presenting symptoms almost indistinguishable from an organic lesion. Neurologists rely mainly upon the improvement of the symptoms when distinguishing between the two conditions.

In severe concussion, paralysis of the body below the lesion takes place, the reflexes are lost, sensation is diminished, and the sphincters are paralysed. The chief signs by which the lesion can be differentiated from pressure upon the cord are as follows:

The transient nature of the symptoms; soon after the injury the patient begins to recover and there is a gradual return of function.

The symptoms usually correspond to those of a complete transverse lesion, and there is a complete loss of conductivity of the cord.

An x-ray examination will be negative.

The careful examination of the nervous system, the observation of the cause of the symptoms, together with an x-ray examination, will usually differentiate cases of concussion from cases suitable for operation, and prevent an unnecessary operation being undertaken. In some cases the diagnosis will only be made in the course of an exploratory operation. In cases in which the symptoms are practically indistinguishable from gross injury, an operation would appear to be justifiable on the grounds that it will do no damage and waiting will inflict irreparable damage upon cases suffering from the effects of pressure. Moreover, when a bullet has caused concussion, it has in all probability depressed bone also.

Pressure upon the Spinal Theca by Missiles, Depressed Fragments of Bone, or Extra-dural Haemorrhage, without Perforation of the Theca.

Here the outlook is most hopeful if the operation is performed before the pressure has caused irreparable damage to the nerve tissue. Laminectomy should be performed, and the missile or depressed fragments removed.

Complete recovery occurred after the removal of a shell fragment which had fractured the laminae of the fifth cervical vertebra, and depressed bone to the extent of half an inch square. Signs of recovery began to appear the day after the operation. The patient left for England with complete recovery of function.

Spinal Haemorrhage.

Haemorrhage may be produced by indirect violence, such as fracture of the body of a vertebra by a high-velocity bullet, or by direct injury to the theca by a missile or bone fragment.

Extra-dural haemorrhage or haemorrhage into the spinal theca may occur, and both conditions may be present in some cases. Cases of haemorrhage without other spinal lesions, such as concussion or pressure on the theca by foreign bodies or bone, are rarely seen, but haemorrhage in a degree sufficient to cause symptoms of pressure is often present with other lesions. In one case, operated upon for a bullet wound in the lower dorsal region, there was paralysis of both legs and of the sphincters; signs of conductivity of the cord were evidenced by the presence of sensation below the injury. Laminectomy was performed and a small fragment of bone discovered pressing upon the front of the cord. The dura was not lacerated and was pulsating feebly. When retracting the cord to remove the fragment of bone, a considerable amount of clot was squeezed out of the spinal canal, and at once the dura began to pulsate normally.

The treatment of spinal haemorrhage will usually form part of the treatment undertaken for the relief of pressure from some other cause. Cases in which spinal haemorrhage played an important clinical part have been rare in our experience. The optimistic view that haemorrhage into the spinal theca will recover spontaneously is more than doubtful, and such cases would appear suitable for exploration.

Injuries to the Spine with Penetration of the Dura.

The condition is comparable to that of depressed fracture of the skull, with particles of indriven bone penetrating the cranial meninges and lacerating the brain. Sepsis is exceedingly likely to extend to the spinal meninges along the bullet track and depressed bone. The most excruciating pain may be caused by depressed particles of bone, and the advance of sepsis mercifully ends the patient's suffering by causing spinal meningitis.

The only successful treatment is the early removal of the peccant fragments. Expectant treatment allows the patient to run risks out of all proportion to the risk of an operation. If spinal sepsis does not end the patient's sufferings an infection of the genito-urinary tract usually occurs, and in those rare cases in which the patient survives these dangers he often remains a hopeless paralytic.

Undertaken at an early stage by specially experienced operators, the surgical treatment of this condition should prove if not brilliant, at least a means of saving a fair portion of the victims.

It is of the utmost importance that the operation be carried out under a local anaesthetic, or shock, haemorrhage, and chest complications will levy their toll. The operation begins as an ordinary laminectomy operation, except that if the bullet track be accessible it should be excised. In some cases the results can be obtained without any bone-cutting at all, the fractured lamina being merely removed with forceps and scissors.

Circulatory disturbances are at work in these cases, the pressure of the fragments upon nervous tissue exercising an untoward effect upon the circulation of the central nervous system. The importance of the early relief of this interference with the circulation must be fully recognized if a favourable result is to be obtained. The delicate nerve tissue of the cord rapidly receives irreparable injury from pressure, the patient is worn out by pain, and septic infection extends as a result

of delay in operation. Operative treatment may be contra-indicated in some cases. Severe injury to other organs and total loss of conductivity of the cord will usually negative operative treatment.

Foreign Bodies within the Spinal Theca.

In addition to any damage the missile may have inflicted on the cord or cauda equina, the danger of sepsis makes the injury most serious. The missile will almost certainly have carried septic matter into the wound, and will form a septic focus within the theca. Early removal of the missile gives the patient his only chance if the missile be septic.

The results of removing septic missiles from within the cranial meninges is sufficiently satisfactory to make such operations on the spine hopeful if performed within a reasonable time of the injury. In one case a shrapnel bullet was removed from within the spinal theca in the lumbar region seven days after the injury. The patient was paraplegic before the operation, and great improvement in motor power had taken place before he left hospital.

The interest of the following case lies in the fact that complete recovery followed an operation upon a septic wound complicated by a septic compound fracture in the vicinity of the spinal wound. The case appeared to be almost hopeless, as septic meningitis seemed almost certain to occur. In this case, as in all spinal cases, urotropine was administered from the beginning.

CASE IV.

Pte. M. was wounded in several places by fragments of high-explosive shell. Two fragments lacerated the skin over the fifth dorsal spine, fractured the spinal laminae, and entered the spinal theca. A larger fragment inflicted a large lacerated wound over and fractured the left scapula. Partial motor and sensory paralysis of both limbs was present, and the patient suffered from violent pains in the right leg. The bladder and rectum were normal. Five days after the injury the compound fracture of the scapula was in a most septic condition, and pus and cerebro-spinal fluid were exuding from the spinal wound. Two metallic foreign bodies were localized within the spinal canal. The septic compound fracture of the scapula was treated by dressing with gauze soaked with hypertonic salt solution, the dressing remaining in the wound, untouched, for four days. The perforating wound of the spine was excised, the track of the missile having been packed with gauze soaked with tincture of iodine. The laminae of the fifth and sixth dorsal vertebrae were exposed and a comminuted fracture of the fifth arch discovered; this and numerous depressed fragments of bone were removed. A laceration of the dura was present; a scoop passed through the laceration detected a metallic foreign body; this missile and some fragments of bone were extracted. The second foreign body could not be reached, so the laminae of the sixth dorsal vertebra were removed, exposing it; the remaining fragment was then removed from the spinal theca. Two small salt sacs were inserted down to, but not into, the spinal theca, and the muscles were drawn together by a catgut suture. The skin wound was partially closed. The spinal wound was well shut off from the septic compound fracture by impermeable material. The entire operation was performed under local anaesthesia.

The patient's limbs were massaged daily, and ten days after the operation he had regained complete motor and sensory functions. The spinal wound was dressed seven days after the injury, the salt sac came away quite easily, and the wound was afterwards dressed daily with 5 per cent. saline solution. A considerable amount of cerebro-spinal fluid escaped from the wound for a fortnight after the operation. The patient suffered from violent pain in his legs during convalescence.

Two months after the injury the patient was walking about completely cured.

Wounds of the Spine causing Total Loss of Conductivity of the Cord.

An irreparable injury has been inflicted upon the cord, and an operation will not lead to any improvement of the symptoms. These cases are comparable to the cases of fracture dislocation of the spine met with in civil practice. They are unsuitable for operative treatment. An exception to this may be made in cases in which the pain is so severe that an operation is worth undertaking for its relief alone.

Exceptionally, it may be possible to prolong a patient's life, although he is foredoomed to death, by undertaking an operation for the removal of sepsis.

INDICATIONS FOR OPERATION IN GUNSHOT WOUNDS.

Cases in which there is Evidence of some Conductivity of the Spinal Cord.—In all cases in which conductivity of the spine remains there is hope of improvement in the

functions. An operation will not harm the cases in which the damage to the cord is too extensive to allow of recovery, and will save the lives and functions of the slighter cases.

Pain.—The pain in some spinal lesions is so atrocious that an operation is justifiable, whatever the lesion of the cord.

CASE V.

Fracture dislocation of the first and second lumbar vertebrae, caused by the fall of a trench wall. Motor and sensory paralysis were complete with the exception of slight movement in the toes of the left foot. Retention of urine. The patient suffered excruciating pain. There was little hope of improvement in function, but a laminectomy was considered justifiable for the relief of pain. The pain was immediately cured by laminectomy, and considerable improvement in motor power resulted.

Operations upon Spinal Injuries.—The x-ray examination preceding the operation is of the greatest importance. A lateral as well as an antero-posterior plate is always necessary, and if a foreign body is present accurate localization must be carried out. The localization of the foreign body is so important and so difficult to obtain in this situation that special precautions must be taken. No reliance should be placed upon stereoscopic plates when used either in a stereoscope or by squinting. They are liable to represent a foreign body either deep or superficial to a known structure according to the preconceived idea of the observer. In the lumbar region the curve of the spine prevents the close application of a glass plate to the skin; a film should be employed in this situation. It is necessary to place beyond all possible doubt the level at which a foreign body lies. The surgeon must be able to attack the lamina concealing the foreign body with confidence that he is removing the right one. Unnecessary removal of the lamina and dangerous searching will be avoided if the following procedure be adopted:

Under local anaesthesia a deep silver suture is placed at the side of the spinous process of the suspected vertebra. The patient is then x-rayed and the wire left *in situ*. During the operation, whether the wire is next to the vertebra concealing the missile or not, it will be easy to identify the correct one, which if not opposite the wire is usually the one above or below. A similar method is to scratch the skin across the suspected spinous process, and lay a needle across the scratch before taking the x-ray plate. Some such precaution is to be recommended. Counting the vertebrae during an operation has caused doubt and difficulty even to experienced operators.

Shaving the skin area, cleansing with ether and biniodide, the application of a sterile dressing two hours before the operation, and painting the skin with iodine at the time of operation, has given satisfactory results. Local anaesthesia has usually been employed, in some cases combined with a slight degree of ether or chloroform anaesthesia. The use of local anaesthesia has been found to be so advantageous that other methods have been abandoned. The success of the operation depends largely upon its use. Several cases suffering from severe chest complications have had no ill effect from the operation. Either the prone or the lateral position may be employed; the prone position gives the better exposure of the vertebrae. When the lateral position is employed the lower leg is placed in the extended position, the upper leg is flexed, the knee being bent to a right angle, and a thick hard pillow is placed beneath the bent knee and leg. In this position the patient rests comfortably and firmly on his side. An incision is made in the middle line down to the spinous process. The incision should be a long one, about 8 inches in length. The retraction of the soft parts and exposure of the laminae are much facilitated by a long incision, and the whole operation can be carried out with greater ease. The spinous processes are then cleared on both sides by cutting downwards close to the spinous process, to the laminae through the whole length of the incision. With a pair of strong scissors the remaining muscles attached to the spinous processes are cut and cleared away. When the soft parts have been cleared from the spinous processes throughout the whole length of the wound it will be possible to pass a pair of retractors down to the laminae in the grooves on either side of the spine and retract the erector spinae muscles.

The vertebrae can now be examined; if a depressed fractured lamina is discovered, the spines of the fractured vertebra above and below are cut off and the fracture examined. In some cases the fracture involves the laminae at each side, and these can be removed when the ligamenta subflava have been divided.

The lamina of one side may be fractured, and it may only be necessary to divide the uninjured side, or both laminae being fractured they can be removed without cutting any bone.

The most difficult step in the operation is the division of the first lamina. The lamina must be removed as far as the articular process, but it is not necessary to commence the section at this difficult spot; the lamina may be divided nearer to the spinous process and the remainder of the lamina removed with bone forceps. There are three well-known methods of dividing the laminae, of which the use of the cutting bone forceps is probably the easiest and most convenient. A saw may be used either of the guarded pattern, or a Hey's skull saw. The cut is made with an inward direction in order to avoid the articular process, and the section is completed with forceps. The drilling or trephining method is carried out by cutting a hole in the middle of the lamina with a drill or burr, and completing the section with De Vilbiss or other suitable forceps. The entire division by forceps is rapid and sufficiently easy. Laminectomy forceps, Sargent's craniectomy forceps, or Jansen's bone forceps may be used. Whatever forceps are employed, the surgeon must be practised in the use of the instrument. With well-devised bone forceps the lamina may be bevelled until the edge is very thin and easily elevated. The spinal dura is separated from the lamina by tissue, and is not easily injured with ordinary care. The infiltration of the tissues with adrenalin solution, a long incision permitting easy retraction, and a good exposure of the laminae will greatly facilitate this difficult stage of the operation.

When the spinal canal is opened the condition of the fracture can be further investigated, detached fragments of bone or the missile may be discovered. The spinal canal will sometimes be found to be filled with effused blood, and a continuous stream of saline may be commenced at this stage. The dura is examined, and if uninjured and pulsating normally is not opened. If lacerations are present, depressed fragments of bone or missiles are sought for. The operation is completed by suturing the spinal muscles by one continuous catgut suture and suturing the skin without drainage. The wound is invariably painted with mastisol wound varnish.

Secondary infection and death from meningitis is very apt to follow drained laminectomy wounds when incontinence of urine or faeces is present.

At the conclusion of the operation, and for some days afterwards, the patient is placed flat on his back. The pressure upon the wound is advantageous.

In the dorsal area it is comparatively easy to explore the spinal canal anterior to the cord. One or two nerve roots may be divided with safety in this region and the theca gently retracted. The nerve roots are afterwards sutured with fine catgut. Operations for injury to the cauda equina have given the best results. Any division of the cauda which is discovered should be sutured. The probability of regeneration and recovery of function is considerable.

CONCLUSIONS.

1. The majority of cases of gunshot injury to the spine require excision of the wound and exploration at the earliest favourable opportunity.
2. The diagnosis is not so gloomy as past experience teaches.
3. Local anaesthesia is practically essential.
4. The administration of urotropine should be begun as soon after the injury as possible.
5. The presence of a missile together with severe pain are indications for immediate operation.
6. Accurate localization of foreign bodies is of the utmost moment. A lateral as well as an antero-posterior view is desirable.

REFERENCE.

- ¹ A. J. Hull: *Surgery in War*, Chapter III.

THE TOXIC EFFECTS OF ETHYLHYDROCUPREIN ON THE EYE.

By GEORGE H. OLIVER, D.O.Oxon.,

HONORARY OPHTHALMIC SURGEON, ROYAL EYE AND EAR HOSPITAL, BRADFORD.

CONSIDERABLE interest has been aroused lately regarding the therapeutic value of the alkaloids and derivatives of cinchona, and attention has been drawn to this in recent numbers of the *BRITISH MEDICAL JOURNAL*.¹ In a paper by Morgenroth² and Levy³ on the chemo-therapy of pneumococcus infection, the process by which they arrived at the conclusion that the pneumococcus can be destroyed or rendered inert by quinine or its derivatives is described. They showed that in certain infections induced artificially by virulent strains of the pneumococcus the micro-organisms can be destroyed, and the lives of the majority of the animals saved by the administration of ethylhydrocuprein. Fränkel⁴ used this drug, which is a quinine derivative, in a number of cases of pneumonia, which was then epidemic in Berlin. In describing his results, he said:

As with the serum therapy of pneumonia, which does not promise much, so with ethylhydrocuprein. This does not appear to be the thing we want, chiefly because it produces a very disagreeable complication, which, though it occurs in a small number of cases, yet is so evident that the drug cannot be recommended for use in practice. This complication is the occurrence of amblyopia, which we observed in 14.3 per cent. of our cases. The single dose prescribed was 0.5 gram, and from 1 to 2.5 grams were administered internally daily. After we became aware of this effect of the drug we did not give above 2 grams a day. The amblyopia disappeared rapidly (two days) on stopping the drug. I have no doubt that, had we continued this treatment, permanent visual defects would have followed. You know that in simple quinine intoxication complete amaurosis occurs. Ophthalmoscopic examination showed well-marked narrowing of the retinal vessels, chiefly the arteries, with reduced visual fields. When at the worst, the patients were able to make out fingers at 1 or 2 metres only.

The complication here described has occurred in a case in which I am interested, but with disastrous results. In the early part of 1915 I was called in consultation to see a man, aged 40, who a month before was extremely ill with pneumonia. His medical man, with the consent of the consulting physician, prescribed ethylhydrocuprein in 5-grain doses, to be taken every three hours. The patient took in all 120 grains.

The day previous to the discontinuance of the drug the patient complained of roaring in the head, partial deafness, and a feeling as though a dark blind had been drawn over his eyes. He was so ill and difficult to understand that these symptoms were considered to be due to meningeal complications. The drug was stopped next day, when it was found that he was quite blind and could not distinguish light from dark.

I found that he had bare perception of light; the right pupil reacted very slightly to light, the left not at all. Pupils two-thirds dilated. Ophthalmoscopic examination showed that the vessels were reduced to fine threads, the arteries being made out with difficulty in the left eye; both discs were quite white. This was in February, 1915, one month after the commencement of the symptoms. I saw him again on March 11th, 1915. My notes are as follows:

Considerable improvement in vision; can find his way about inside and outside the house, and can distinguish such articles as a knife, fork, or spoon at three metres.

On April 3rd, 1915, there is much improvement; V. = R. $\frac{2}{6}$, L. $\frac{2}{6}$; reads J. 4 slowly; L. E. and C. R. J. 14; both fields very much contracted; pupils react to accommodation and slightly to light. Colour vision obliterated. Right disc not quite so white, but vessels still attenuated, more so in left eye.

On June 5th, 1915, V. = R. $\frac{2}{6}$, L. $\frac{2}{6}$. Ophthalmoscopic examination: Right eye, faint blush on temporal side of disc. Left disc quite white and vessels reduced to fine threads. Pupils both oscillate in a remarkable manner, synchronously, in day and gas light.

August 25th, 1915. V. = R. $\frac{2}{6}$, L. $\frac{2}{6}$; near vision = J. 4 c R. and L. Complains of severe pains in the back, which have troubled him more or less since convalescence set in. Attacks last a few days, during which visual acuity is considerably lowered and fields much more contracted, with immediate restitution to former level when pain ceases. Small coloured objects 2 mm. to 3 mm. in diameter not spotted, but with larger objects, such as postage stamps, red and green colours are easily named.

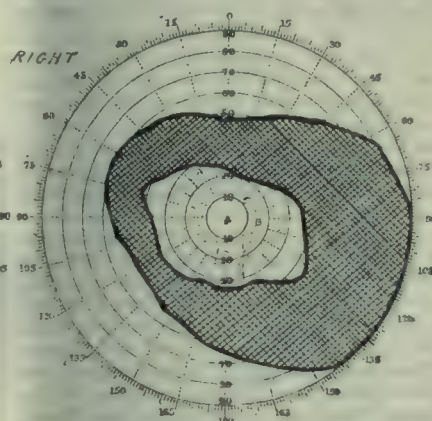
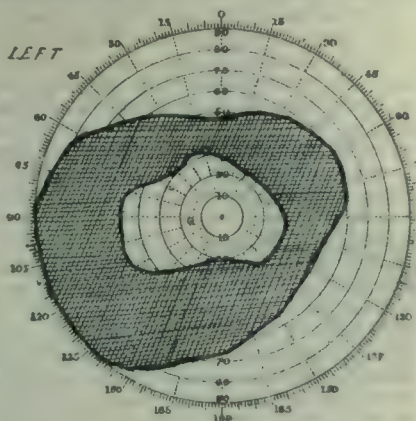
It is impossible to map out the colour fields (Bardley's sclero-meter); the patient is so uncertain of the boundary zone. Ophthalmoscopic examination: Discs as before; vessels, arteries, and veins have a well marked double outline, which is carried a considerable distance beyond the disc, and in one or two instances is more distinct than the blood column.

The most striking circumstance is the great improvement made up to June 5th, 1915, which one would have little expected, seeing that the vessels were so narrow and the discs so white, indicative of the destruction, from reduced blood supply, of a large number of ganglion cells in the retina, and the visual fields so much reduced, as shown in the accompanying charts.

I heard recently from the patient's family doctor that the improvement made was not maintained, and I asked the patient to come to my rooms, which he kindly did.

On February 5th, 1916, V. = R. $\frac{1}{2}$, L. $\frac{1}{2}$. Vision began to go down in November, 1915, and steadily declined until Christmas, when he could not see his food on the plate before him. In the second week of January, 1916, he began to improve, and has continued to do so up to date. Ophthalmoscope: Both discs now quite white with no trace of colour; details not discernible. Vessels seem to have increased in size a little, and a few very fine branches may be seen on the discs. Vessels in left eye are smaller than in right eye, and both arteries and veins have a double outline which extends far away from the disc.

Apart from these changes, the fundus is quite normal in



appearance. Pupils are dilated and contract very slightly to light and still oscillate. I am afraid there is little hope of this patient being able to earn his own living in the future.

That ethylhydrocuprein is a dangerous drug I have no doubt, and its internal administration is to be carefully avoided. It may happily be discovered that much smaller doses than those given heretofore will suffice to destroy the pneumococcus; indeed, it has been shown by Henry

F. Moore¹ in his experimental studies with this drug that "it inhibits the growth of and kills pneumococci *in vitro* in very considerable dilution," and that "the serum of rabbits which have been previously treated with a single dose of ethylhydrocuprein exerts a bactericidal action on, and later inhibits

the growth of pneumococci in the test tube." Known also by the name of optoquin, this substance has been used by ophthalmic surgeons in the treatment of serpiginous ulcer of the cornea. Some say it will cure a virulent ulcer in ten days, and others, including myself, have seen no special advantage in its use, while cases have been reported in which the instillation of a 1 per cent. solution of the drug has caused rapid destruction of the cornea.

REFERENCES.

¹ BRITISH MEDICAL JOURNAL, 1915, ii, pp. 542 and 827. ² *Berl. Klin. Woch.* 1911, p. 1560. ³ *Ibid.*, 1912, p. 664. ⁴ Quoted in *Epitome of Current Medical Literature*, BRITISH MEDICAL JOURNAL, December 18th, 1915, p. 52.

SOME NOTES FROM THE BATTLE FRONT IN NORTHERN FRANCE.

By A. LAPHORN SMITH, M.D., M.R.C.S.ENG.,

LATE SURGEON-IN-CHIEF OF LADY EVA WEMYSS HOSPITAL; LATE TEMPORARY MAJOR R.A.M.C.; FORMERLY SURGEON-IN-CHIEF, SAMAHITAN HOSPITAL, MONTREAL, AND PROFESSOR OF ABDOMINAL SURGERY, BISHOP'S UNIVERSITY.

My experience has been gained in the military hospital established and maintained under ideal conditions by Lady Eva Wemyss near Soissons, and by frequent visits to the great receiving hospitals at Compiègne under Ligusard, Carrel, and Mencières. These hospitals were only a few miles behind the firing line.

In such a hospital as that of Lady Wemyss the conditions for the rapid healing of wounds were unusually favourable. The three most important elements of success in treating wounds we had there in abundance—sunlight, fresh air, and pure water—and we made use of them all to the fullest extent. Every bed in the hospital was carried out of doors at 10 a.m., and the patients remained out until sundown. The heavy dressings were removed, and only a light layer of gauze put over the wounds to keep out dust but to let the light in. Even the operating was practically out of doors, to the great advantage not only of the patients, but also of the surgeons and nurses. The bathhouse was outside of the hospital, so that the wounded entered the wards clean in body and clothing. They were induced to drink water by every possible means, generally in the form of Imperial Drink, made with a teaspoonful of cream of tartar and the juice of one lemon to the quart of boiling water, and sweetened with sugar or saccharine to taste. Many were suffering from rheumatism, arthritis, neuritis, and cystitis, and these were all given fifteen grains of potassium bicarbonate in a tumbler of lemonade; this makes a pleasant effervescent drink, containing citrate of potash. Sometimes they took their water at every meal, flavoured with

red wine, and at other times they had an abundance of beef-tea. When they had lost a great deal of blood and were unable to drink enough to replace it quickly, they were given large quantities of beef-tea by the rectum by slow continuous absorption, the reservoir being a douche bag lying at the foot of the bed, raised on blocks, so that the supply was only a few inches higher than the rectum. When thus introduced without pressure the rectum does not so easily rebel, but will, on the contrary, drink up enormous quantities of liquid. As every patient had received antitetanus injections, we did not have a single case nor did we have one of typhoid. There were no deaths and no amputations of limbs. We had several very high temperatures, which caused me a great deal of anxiety until, at Sir Joseph Godfrey's suggestion, I gave 10-grain doses of quinine. One case turned out to be tertian and another quartan ague.

In the morning we were awakened by the roaring of the guns, and soon after the wounded men began to arrive at the base hospital, already having had their wounds swabbed with 2 per cent. iodine at the field dressing station. Those who had fractures were put up in temporary splints, and then some thirty ambulances arrived from the subsidiary hospitals, so that by noon there was hardly a surgical case left. Carrel took many of the badly infected cases, or rather those in whom there was every probability of suppurating occurring. Mencières, the orthopaedic surgeon of Rheims, and chief of the Compassion Hospital, was allotted the bad cases of joint injury by shrapnel and bullet, requiring great operative skill or his "embalming" treatment. To the Lady Wemyss Hospital were allotted the compound comminuted fractures and many of the wounds and burns caused by shrapnel bursting at close quarters. By two o'clock the patients had been bathed, x-rayed, and in the operating-room. The x-ray machine was run by storage batteries charged by a small gasoline engine. The x-ray plates were held up before the operator, and each piece easily seen and removed. In many cases the fragment of shell was nearly a foot

away from the wound of entrance, so that in most of the cases a fresh incision was made over the spot where the bullet was located, and the long track through which it had travelled was cleaned, drained, and allowed to heal, which it quickly did. Most of the shrapnel wounds having been made from above downwards while the men were standing in the trenches, the shells exploding in the air, the fragments of steel were all situated much below the wound of entrance. To probe for the foreign body with a director in order to remove it with long forceps would be a mistake, for there would almost surely follow a collection of pus, since there is a little cavity containing small particles of clothing or mud. By making the opening at the most dependent part we can get the fragments out and flush the track and cavity with 1 in 4 hydrogen peroxide. In a few days the wound of entrance and the track will have completely healed, and the new wound, especially if it has been packed with iodoform gauze for the first day or two, will also have closed. Many of the patients went back to duty in ten days or less.

Many of the wounds were in the scalp, face, and neck, and it was evident that a light nickel steel helmet would have saved thousands of men from leaving the trenches. We called the attention of our Surgeon-General to the great number of scalp wounds, and soon after light steel helmets were provided in large numbers for the French soldiers, with truly remarkable results. While many were stunned, the helmets saved them from fractures of the skull and severe lacerations of the scalp, which would have kept them from the trenches for weeks or months. If the bullet had gone through the arm or leg, or muscles of the chest, shoulder, or buttock, a drainage tube with many windows was of the greatest advantage—first, by preventing the wound in the skin from healing too soon; and secondly, by preventing the pus from being absorbed. It is well to remember that even a teaspoonful of pus pent up without drainage or blocked by gauze packing may imperil a soldier's life; while ten times as much pus well drained will not even cause a rise of temperature.

Conservative Surgery.

No effort is too great nor time too long in order to save limbs as long as there is any life in them. A great many, even the great majority, of the badly damaged limbs may be saved, and eventually become very useful, without risking the patient's life. The collateral circulation of the leg can be well developed in a few hours after the femoral has been cut across. The limb should be kept warm, so as to dilate the arteries and capillaries. Also by elevating the bed at an angle of 45 degrees the venous blood will run back to the heart by gravity, and thus make it so much easier for the fresh hot liquid to keep the injured tissues from gangrene. With antiseptic surgery and antitoxins, patient but ever watchful waiting has taken the place of operative daring, but watchfulness is required to steer the patient through the surgical dangers. With a finger on the pulse and an eye upon the quantity of pus, and the effect of the loss upon the patient's face, we must be ready at a moment's notice to adopt Menci re's method, or the more dangerous method of amputation, leaving him in the one case with his own leg, and in the other with a wooden one. Every dressing should be weighed before and after its application to ascertain how much fluid the patient has lost (minus the amount evaporated). Pus consists of the great army of dead phagocytes killed by the microbes. It costs much blood to provide these phagocytes, and there is a limit to the number that the patient can furnish. So we supply him with at least iron phosphates and albumin to make up for what he is losing by his dead cells. A better way to estimate his loss is by a tube 2 ft. long; its upper end, with many windows, is placed for the whole length of the pus producing area and the other end in a white glass wine bottle attached by a wire around its neck to the frame of the bed underneath. If the wound be sealed hermetically, all the pus must pass into the tube through the windows and into the bottle. But as this end is much longer than the end in the wound the weight of the pus dropping into the bottle siphons the tiny particles as they are formed in the miniature battlefield, instead of being left until they accumulate enough to overflow. Carrol connects every drainage tube by a hollow copper wire with a vacuum pump, and a

column of mercury shows the degree of vacuum in every wound; 6 in. or 8 in. of vacuum is enough. The effect of this method of drainage is that, first, the temperature drops to normal because the ptomaines given off by the microbes are removed *pari passu* instead of being absorbed—ptomaines give temperature. Secondly, the pulse drops to normal. Thirdly, the burning and discomfort of the skin disappears because there is no wet gauze soaked in acid pus bathing it from one dressing to the next. Fourthly, the bills for dressings also drop. The pus goes into the bottle, which is weighed every twenty-four hours; the colour and consistence; as well as the weight, can thus be ascertained. If the dressing becomes wet, or the temperature goes up, the tube must be removed and cleaned. Otherwise there is no scientific reason for changing it every day. But the dressing of gauze paper is so cheap that we may change it every day; it can be sterilized the same as absorbent cotton. Another great advantage of the paper dressing is its lightness. A large package enough for a dressing only weighs an ounce and only costs a halfpenny. If my notes do no more than call attention to the wonderful absorbent paper, they will not have been written in vain.

Pus is full of phosphates and some iron, and a patient who is losing from 8 to 16 oz. a day cannot go on very long if these substances are not replaced. He becomes weak, develops neuralgic pains which demand morphine, and he dies from exhaustion, his heart growing weaker and weaker from want of food. The most digestible form of phosphates and iron are hypophosphites or glycerophosphates. The responsiveness of the cerebro-spinal system in many of the wounded, at least, has been weakened by nicotine. The bowels are stagnant, and the decomposing food gives out nauseous gases and poisons, and the stomach works feebly in digesting meat or casein. If an excessive tobacco smoker comes to us in civil life suffering from nicotine poisoning we give him comparatively large doses of nuxvomica, with remarkable results. If a wounded man who is poisoned even to blindness, of whom I have seen several, comes under our care his wound will heal in half the time if we get the nicotine out of him and stimulate the paralyzed trophic nerves with strychnine and electricity. If his wounds are suppurating profusely give hypophosphites, and if he has sudden spurts of temperature give quinine. As to antiseptics, I have great confidence in potassium permanganate, but I have seen excellent results from hydrogen peroxide and also from carbolic acid. I have personally put potassium permanganate to the most severe test possible, only after my confidence in it was absolute. I have been called in consultation to cases of puerperal septicaemia in the pre-rubber glove days, and when I had to perform several abdominal sections on the same day. I blackened my hands and arms the colour of mahogany with a strong solution of permanganate and whitened them in solution of oxalic acid, and then in the ordinary boric solution and alcohol; the cases all recovered.

When I had a dangerous infection of my hand I asked the Professor of Surgery of McGill to cut through the swollen tissue under cocaine and to fill the yawning crater with dry powdered permanganate, which carbonized the microbes, gangrenous tissue, and phagocytes alike. This was at 10 p.m., and by next morning I was saved. Permanganate has the great advantage that it is not a poison if used externally. While in Paris the chief surgeon of one of the great French hospitals asked me what I would suggest in the case of a soldier with gas gangrene whose foot he had amputated; the wound had not united at all; it fell open as soon as the stitches were removed. The odour was sickening. I suggested putting the foot into a rubber bag filled with a strong solution of permanganate for twenty-four hours. From the first moment, I learnt, there had been no more odour and the man began to improve.

Recently I was in charge of a case of carbuncle of the neck which poured out enormous quantities of acid pus which burned the surrounding skin and started a crop of subsidiary boils. The man was exhausted with pain and suppuration, and was going downhill rapidly. Under an anaesthetic I made a 2-inch cross incision and plunged my gloved finger into the cavity as far as the second joint. A hole for drainage was made at the most dependent part, and a wick inserted. Then a teaspoonful of finely powdered

permanganate was poured into the cavity, which had been thoroughly curetted to remove the pyogenic lining. The powder was pushed into every crevice with a piece of cotton on a forceps and with the finger, and some gangrenous skin and cellular tissue removed with scissors, and the wound was packed with a strip of gauze. It was left alone for a few days, during which the man rapidly improved, and when the wound was washed out there was a healthy pink granulating surface, but almost dry. At the end of ten days he was out and about.

Mencièr's Method of Embalming.

One of the greatest pleasures of my stay in France was that of assisting Mencièr at these operations at the Hôpital de la Compassion. I may describe one of the many cases I saw with him.

A young farmer from the south of France was shot through the ankle by a rough piece of cast steel shrapnel. Pieces of his shoe and sock were carried through and left there, although the steel went through. As he had been standing in the same wet and dirty socks for weeks in the trenches the wound was badly infected. The tibia, fibula, and scaphoid were shattered into many fragments, some living, but most of them dead. One collection of pus formed after another, and the poor fellow was so exhausted with pain and suppuration that he continually begged to have his leg removed. No sooner was one abscess opened and drained than another formed, so that at one time there were four drainage tubes traversing the joint at various angles. Mencièr thought the leg might be saved, and the man was transferred to his hospital for operation. The operation was done very quickly under spinal anaesthesia. A tourniquet was applied around the thigh, so that it was bloodless. The antiseptic precautions were perfect. The operator made a 9-inch incision, which was held open by powerful retractors while he removed the suppurating fragments and curetted the cavity with a sharp spoon. With a cold chisel and mallet he cut away the ragged ends of the tibia, fibula, and tarsus. When he had finished there was a cavity which more than held 8 oz. Mackintosh was fastened to the edges of the skin, and the cavity after being thoroughly dried was filled with pure carbolic acid, which remained there one minute by the watch. This was removed with swabs of cotton, and then the cavity was irrigated with 5 to 7 pints of strong alcohol. Again the cavity was dried and then irrigated with the embalming fluid, consisting of alcohol, ether, iodoform, guaiacol, eucalyptol, and balsam of Peru. The ether acts as a vehicle to carry the antiseptic substances into every corner. After this a permanent dressing was applied, consisting of strips of gauze soaked in solution A, which is ten times stronger than solution B. This dressing is removed twice daily for seven days. The phenolized wound, which appears whitish directly after the carbolic acid is applied, becomes once more red under the influence of the lavage with alcohol. Next day the wound looks more or less blackened with the acid, but it is dry and clean and has lost the nauseous characteristic odour of gas gangrene.

Mencièr claims that most antiseptics act only on the surface, while phenolization acts in the depths of the tissues where the *Bacillus perfringens* becomes harmful.

I can testify to the fact that Mencièr saved many limbs by his method. It is easy to learn and carry out, although rather expensive on account of the large quantity of ether used. Whether we could not obtain equally good results by the deep disinfection of wounds by potassium permanganate, either in powder or in strong solution, I am not prepared to say.

Ulcers and Burns.

Great improvement in the healing of large ulcers or wounds of the feet and legs can be obtained by raising the foot of the bed on two chairs or blocks, so that the wound will be absolutely higher than the patient's nose. Zinc oxide ointment on oilcloth, not oilsilk, but cheap white table oilcloth, is the best treatment for extensive burns such as we had a great many of, due to the explosion of bombs a few feet distant. Some of the men had their trousers burnt off them. Boracic acid causes great pain, and should never be employed, and Carron oil does well; but what is wanted is something thick enough to exclude air, alkaline in reaction, and oily. It must not be spread on lint unless put on very thickly and backed up by oilcloth or jaconet. As lard becomes rancid and intensely acid, it should never be used for ointments; vaseline is cheaper, keeps for ever, and is always bland. I gave all these cases an anodyne the moment they entered the ward, and thus saved them much of the shock generally seen. When these large destructions of dermis occur near a joint it is important to resort to skin grafting on a large scale to avoid cicatricial contraction. Many joints were kept efficient by keeping a weight on until the grafted skin had replaced the destroyed

tissue. I removed strips of skin 4 in. long from the outside of the thighs under an anaesthetic, and stitched them across the centre of the large areas under great aseptic precautions, and on removing the dressing a week later was gratified to see that they were firmly adherent. From each of these strips the skinning over process proceeded rapidly, and in another week the weight was taken off, and there was no tendency to retract. I saw some cases where a good man was lost to the service by retraction of his legs, from burns behind the knees, without weights or skin grafting being used. But they did not occur at Lady Wemyss Hospital.

Heart Surgery.

The most striking experience of my stay in France was while visiting the Hôpital du Panthéon, where I witnessed the removal of a bullet from the pericardium behind the heart by Dr. d'Ardennois. In fifteen minutes the skin and muscle over the heart had been incised and lifted up; the ribs nipped through and lifted up on their joint with the sternum; the heart lifted out of the pericardium, all the time throbbing so strongly as to knock the operator's hand away when he tried to catch it; the bullet found, caught, and wriggled out of its bed; the heart put back, ribs sewed together, muscles readjusted, and skin closed carefully. A lady doctor, herself a doctor's wife, assisted, and the accuracy of the x-ray picture in front and profile showed where the bullet was to a nicety.

As a rule we received our cases the same day that they were wounded. But this was not always the case; sometimes, for various reasons, we did not receive them for a week. Many of these were deep, clean cuts, gaping widely, granulating, and bathed with pus. In these cases it was our invariable rule to thoroughly cleanse them with hydrogen peroxide, which cleanses without harming the granulations, and then to pass a silkworm-gut stitch far back from the edge of the wound and a quarter of an inch under it, and so to embrace the whole raw surface in a series of deep loops. When these were tied, the granulating surfaces were brought firmly together. No bad results followed. There was a little suppuration without temperature, because we drained with a few strands of silkworm-gut at the bottom. The country was saved at least two weeks' loss of each man so treated, for in a few days, or a week at most, the wound was healed, instead of taking a month to fill in with granulations.

FAECAL AND INTESTINAL VOMITING AND JEJUNOSTOMY.

By VICTOR BONNEY, M.S., M.D., B.Sc.LOND.,
F.R.C.S., M.R.C.P.,

ASSISTANT Gynaecological Surgeon to the MIDDLESEX HOSPITAL,
AND SURGEON IN CHARGE OF ITS MILITARY BRANCH AT
CLACTON-ON-SEA; SURGEON TO THE CHELSEA
HOSPITAL FOR WOMEN, ETC.

The obstruction was released, but the vomiting never stopped, and the patient died twenty-four hours later.—
Case Report, any Hospital.

The abdominal distension continued to increase, the patient vomited large quantities of brownish fluid, and the pulse became uncountable.—*Another Case Report, any Hospital.*

In November, 1910, a paper of mine appeared in the *Archives of the Middlesex Hospital* (vol. xxi), entitled "Post-operative paralytic obstruction of the intestine, with special reference to its treatment by jejunostomy." Therein I pointed out that the fatal result in these cases was due to toxic absorption from the upper intestinal tract brought about by an acute ascending infection by *B. coli communis* and other organisms of the lower intestine in a state of exalted virulence and activity.

I further pointed out that in these cases the bowel may be divided into three segments, each of which is in a different condition: (1) A collapsed portion, (2) a portion above it much distended with gas, but containing no fluid matter, and (3) a portion above that distended with gas and fluid matter, the fluid being more or less faeculent in character and identical with that vomited.

I showed that in these cases it was proper to open the upper fluid-containing segment in order to drain the

reservoir of toxicity, and useless to open the middle gas-containing segment.

During the time that has since elapsed my confidence in the correctness of the views then expressed has been strengthened, and I hold strongly that in all cases of paralytic intestinal obstruction (whether primary, or secondary to an organic obstruction or to peritonitis), when advanced to the stage of faecal, or short of faecal, intestinal vomiting, should be treated by jejunostomy.

The Character of the Vomit as Indicating the Condition of the Upper Intestinal Tract.

The character of the vomited matter indicates the condition of the upper part of the intestinal tract, for where the vomit is faecal or intestinal the stomach forms the highest part of the fluid-containing segment. This upper segment does not necessarily reach as high in every case of intestinal obstruction when it first comes under clinical observation, nor need it at first include any part of the small intestine; for if the primary obstruction is situated low down in the large intestine, the total area of distension may not at first extend above the ileo-caecal valve. In such the "segment of toxicity" will comprise the caecum and descending colon. In this phase, however, the vomit is neither faecal nor intestinal, but simply the stomach contents.

In all cases of obstruction, however, the stomach and jejunum will eventually be included in the fluid-containing segment, and so soon as this occurs the fact is made patent by the change in the character of the vomit, which at first becomes intestinal and finally faecal.

This upward extension of the limits of the fluid-containing segment is due to a rapid upwardly extending infection of the canal by organisms of the lower intestine.

The effect of an infection by faecal bacteria on the contents of the small intestine is well illustrated by the following case:

A soldier was sent to the military branch of the Middlesex Hospital at Clacton-on-Sea. He had been kicked by a horse and intestine had been ruptured. Immediate laparotomy was performed, and the bowel anastomosed by means of a Murphy's button. When the man went to Clacton, four weeks afterwards, the button was still *in situ*, and could be well seen with the x rays. The abdominal wound presented a fistula from which typical faecal matter, characteristic in odour and non-irritating to the skin, exuded. Two weeks later, the button not having passed and the man being very ill with signs of intraperitoneal suppuration, I operated.

I found to my surprise that the faecal fistula led down to a coil of small intestine some 3 ft. above the point where the button was lodged, which itself was some 3 ft. or more from the ileo-caecal junction. The button was half in and half outside the bowel, the wall of which at the point was in a state of necrosis, and surrounded by a large pelvic abscess. I excised two portions of the gut and performed a double anastomosis, and the man made a fortunate recovery.

The interest of the case from the point of view of this paper is that the presence of the necrotic area in the vicinity of the button had induced an ascending infection, which extended at least 3 ft. above it, and which converted the odourless ichorous contents of the ileum into a stercoraceous, non-ichorous material, identical with that normally found in the large intestine.

This conversion by bacterial agency of the normal contents of the small intestine into a highly toxic fluid is the essential factor in the production of the symptoms of acute intestinal obstruction. The presence of the toxic substances in the bowel excites the mucosa to exude a copious watery secretion which, mingling with the infected fluid already there, itself undergoes corruption. Thus the upper intestinal tract becomes converted into a great toxic reservoir.

The death of the patient is due to the absorption of this toxic material, and the vomiting is Nature's desperate attempt to rid the organism of the poison.

It is here that surgery should step in and drain the reservoir.

The drainage opening must tap the fluid-containing segment. It is useless to open the segment that lies below it; nothing escapes, and I have on several occasions seen a patient die with great distension and vomiting faecal matter to the last, whilst through a free opening into the caecum or ileum not a drop of fluid, not even a puff of gas came!

On the Place of Caecostomy.

Caecostomy is a most effective operation in those cases in which the caecum and ascending colon form the fluid-containing segment; but it is not indicated when the vomit is faecal or copiously intestinal—that is, when the "segment of toxicity" includes the upper intestinal tract.

Jejunostomy.

By making an opening into the jejunum in a case of faecal or intestinal vomiting the source of the vomit is directly tapped and free drainage of the toxic material is established.

No patient should be allowed to die with faecal vomiting if it is possible to perform this operation. Its effect in my cases has been remarkable; in all of them there has been immediate cessation of the vomiting, and all the patients have recovered.

It is true that after jejunostomy a second operation to close the opening has to be faced, but this is not such a serious undertaking as might at first be thought.

Mr. Sampson Handley, in his paper recently published in this JOURNAL,¹ refers to my original paper on the subject, but doubts whether jejunostomy would be successful in cases of post-operative intestinal paralysis. The cases I am now able to report show that it is most successful. Its object is *drainage*, to which all else for the moment must be subservient. There is no fear that jejunostomy will starve the patient of water. Once the vomiting is stopped, the stomach alone is quite capable of absorbing all the water required, and more can be given by the rectum or under the skin.

Mr. Handley suggests instead short-circuiting the jejunum to the transverse colon and then performing caecostomy. Inasmuch as he opens the jejunum, he does actually perform a jejunostomy, the difference from my procedure being that the jejunum drains through a segment of the colon instead of directly through the abdominal wall.

Which of these two channels of drainage will prove to be the best, experience alone can show. Certainly jejunostomy is the shorter and easier operation, and, in view of the septic condition of the bowel, I opine the safer.

TECHNIQUE OF THE OPERATIONS.

The First Operation.

The abdominal incision should be separate from that made to relieve the obstruction. The latter will usually be in the mid-line below the umbilicus. It may have been primarily made there on account of the obstruction or have been made through the scar of the recent operation that preceded the obstructive symptoms. By making a separate incision for the jejunostomy the healing by first intention of the far larger wound below it will not be jeopardized. An opening about 2 in. long, directly above the umbilicus, having been made, the *highest obtainable coil of jejunum* is pulled up. In most cases the coil immediately below the duodeno-jejunal junction may be deliberately selected; but if there be great distension this may be impossible; and the surgeon must then take at random one of the coils lying in the left hypochondrium. The intestine is fixed in the wound by two stout sutures passed through the skin, then through the thickness of the bowel wall, and then out through the skin again at either end of the wound. The intestine is now opened by a small longitudinal incision, the edges of which on either side are sutured to the skin edges of the abdominal wound with a few stout sutures.

On opening the bowel a quantity of gas escapes, and there may be at once a gush of faeculent fluid, but sometimes the latter does not begin to pour out till a little time has elapsed.

Though the fluid must be highly infective, it does not seem to affect the wound to a marked degree, neither does it interfere with the healing of the second wound if such be present.

It might also be supposed, in view of the loose suturing of the intestine to the edges of the wound, that there would be considerable danger of infection spreading to the peritoneum, but in not one of my cases has this occurred.

Subsequent Progress.

During the next twenty-four hours a copious discharge takes place identical with the fluid the patient was vomiting before the operation. After this, as the intestine clears itself, the discharge becomes thinner and odourless, and increasingly bile-stained until it consists of the normal jejunal contents. At the end of a week, or sooner, undigested food particles appear, and the skin in the vicinity of the opening becomes very red and excoriated. The patient rapidly wastes, and it is now time to consider the closure of the opening.

During this period the treatment should be as follows: For the first forty-eight hours nothing but water should be given by the mouth, to which brandy or whisky may be added as required. The amount of water given should not be stinted. After this the patient should be given easily absorbable meat essences and extracts, freely and at short intervals. It is no use giving food substances which require jejunal digestion, like milk, for instance, which is merely passed in clots out of the jejunal opening. Rectal saline infusions with glucose added should also be given every four or six hours. If the patient's condition is very bad continuous infusion of saline solution into the thighs is the best of all restoratives. Brandy may be added in the proportion of 1 oz. to a quart. For the discharge frequent changing of the dressings is required, and the skin should be protected by smearing it with a thick mixture of castor oil and oxide of zinc.

The Second Operation.

At the end of a week or ten days closure of the jejunal opening has to be undertaken. As by this time the skin is very red and excoriated around the opening, the preparation of the operation area should be limited to the application of iodine solution on the table. It is no use attempting a paring operation, the whole opening must be removed, the bowel sutured end to end, and the abdominal wound separately closed. The skin incision should begin $1\frac{1}{2}$ in. above the opening, and continue downwards until the opening is nearly reached. It should then bifurcate to surround the opening $\frac{1}{2}$ in. outside the muco-cutaneous junction and unite again below it. The peritoneal cavity should now be opened above the adherent bowel, and a finger inserted to make out the limit of its deep attachment. Guided by this finger the bowel is entirely freed, bringing away with it that part of the abdominal wall included in the oval area demarcated by the skin incision. The freed coil having been brought up, a clamp is applied to the intestine on each side of the opening, and about two inches from it, so as prevent the escape of the contents. Sterile towels are now packed round the coil so as to exclude the wound edges and the peritoneum and the previously attached portion is cut away down to the mesenteric attachment. An end-to-end anastomosis is then performed with three layers of sutures for extra security. The bowel is dropped back and the wound in the parietes closed with a single layer of stout sutures.

For the first forty-eight hours after the closure it is better to restrict the patients to water by the mouth, but this may be given freely. Afterwards, and up to the end of the first week, the diet should be limited to easily-absorbable meat extracts and essences.

Report of Cases.

I give below short details of six cases of jejunostomy, five of my own (all I have performed) and one of my colleague's, Mr. Bryden Glendining, which he has very kindly given me leave to publish.

CASE I.

Paralytic obstruction of the last 3 ft. of the ileum and of the caecum and ascending colon forty-eight hours after radical removal of carcinoma of the cervix. Faecal vomiting. Jejunostomy was performed with immediate relief. Jejunal opening closed about a week later. Recovery.

CASE II.

A case in which an ovarian dermoid was forced through the wall of the rectum above the floor of Douglas's pouch by the child's head during labour. Primary operation thirty-six hours later; general peritonitis. It being impossible to suture the bowel, the uterus and broad ligaments were sutured to the back of the pelvis, so as to exclude that cavity. Enormous distension and faecal vomiting. Jejunostomy performed two days later

with immediate relief. Jejunal opening closed about a week later. Recovery.

CASE III.

General peritonitis due to a suppurating ovarian cyst. Cyst removed. Obstructive symptoms appeared with faecal vomiting. Jejunostomy with immediate relief. Jejunal opening closed some days later. Recovery.

CASE IV.

Operation for extrauterine gestation. Patient became distended. Mr. Handley in my absence reopened the wound. Patient greatly relieved for two days. Symptoms of acute obstruction then became manifest, with copious intestinal vomiting. I reopened the wound, and found enormous distension of the upper part of the small intestine. Jejunostomy with immediate relief. Jejunal opening closed a week later. Recovery.

CASE V.

Patient had been operated on for papilliferous ovarian cyst two years before. Admitted for intestinal obstruction and faecal vomiting. Scar reopened; many adhesions and great distension found. Jejunostomy with immediate relief. Jejunal opening closed a week later. Recovery.

CASE VI (Mr. Glendining).

Operation for suppurative disease of the uterine appendages. Seventeen days later wound reopened for further collections of pus in the pelvis. Abdominal distension increased, with faecal vomiting and signs of obstruction. Five days later jejunostomy. Stomach washed out and 1 pint of liquid paraffin poured into the bowel. Six days later excision of piece of jejunum and anastomosis. Recovery.

REFERENCE.

¹ BRITISH MEDICAL JOURNAL, April 8th, 1916.

A CASE OF MARKED TEMPORARY APHASIA AFTER LIGATURE OF THE COMMON CAROTID ARTERY FOR TRAUMATIC ANEURYSM.

By FRANK COLE MADDEN, M.D., M.E.L.B., F.R.C.S. (ENG.),

PROFESSOR OF SURGERY, EGYPTIAN GOVERNMENT SCHOOL
OF MEDICINE; SENIOR SURGEON, KASR-EL-AINY
HOSPITAL, CAIRO.

DURING the year 1915 we treated upwards of 5,000 sick and wounded soldiers—British, Australian, and Turkish—in Kasr-el-Ainy; but with all the chances of damage in many cases of bullet wounds we had only one case of obvious penetration of the large vessels of the neck.

This case, which unfortunately ended fatally, reached us many days after the infliction of the wound, and was that of a British soldier with a bullet which had passed through the upper jaw on the right side, then through the soft palate and side of the pharynx and on down the neck in front of the sterno-mastoid. An x-ray photograph showed the bullet lying in front of the body of the sixth cervical vertebra rather to the right side. A well-marked pulsating swelling was present over the carotid artery, on which we proposed operating when the general condition had improved. Our hands were forced, however, owing to the occurrence of repeated disquieting secondary hæmorrhages from the wound in the pharynx. On the advice and with the kind assistance of the late Colonel Stonham, consulting surgeon to the forces, I cut down in the neck and found a very extensive slitting of the internal jugular vein, pouring blood into a very thin-walled pouch, only very imperfectly delimited from the surrounding tissues. There was no injury to the arteries of the neck. Though we were able to secure the divided ends of the vein, the shock and hæmorrhage at the operation were too great to be borne by an already very enfeebled patient, and he died shortly after the operation.

It remained for our civil patients, who were once again admitted to the hospital after the stress of wounded had passed, to furnish us with a much more perfect case of combined injury to artery and vein in the neck, which, for several reasons, is worth placing on record.

History and Condition on Admission.

He was a young Egyptian carpenter, aged 23, named Mustapha Aly, admitted on February 15th, 1916. He stated that he had been stabbed in the left side of the neck with a chisel three days before. At the time there had been considerable hæmorrhage, which had soon stopped. Very shortly after the blow he noticed a swelling at the site of the wound, which induced him to apply for advice. The external wound was situated over the middle of the left sterno-mastoid, and had almost quite healed, but a large pulsating swelling occupied the space

in front of the muscle, and extended well down the neck and towards the outer margin of the muscle. This had all the characters of an arterio-venous injury, and tended to increase slowly in size in all directions during the few days preceding operation. It appeared to be directly in connexion with the left common carotid artery, pressure on which completely stopped the expansile pulsation of the swelling and considerably reduced its size. Beyond the presence of the swelling and slight interference with the movements of the neck, the patient was not in any way bothered.

Operation.

At the operation, on February 26th, a free incision was made from the upper limits of the swelling along the anterior border of the sterno-mastoid nearly down to the sterno-clavicular articulation. After reflecting the skin, dissection disclosed that the main mass of the pulsating tumour occupied the substance of the left sterno-mastoid muscle, and was exceedingly thin-walled in its upper and outer part. By retracting the muscle backwards it was found that the common carotid formed a kind of neck to the sac, and the internal jugular vein passed straight into it. While attempting to clear the neck of the sac from below it gave way and some haemorrhage occurred, which was immediately controlled by pressure on the artery lower down. The common carotid and the internal jugular vein were then ligatured well below the lower limits of the sac, and the difficult part of the operation appeared to be over. Then the sac burst, and we saw that there was a considerable length of the internal jugular vein split inside it. Haemorrhage was free, and only partially stopped by pressure; and it was not till, after considerable tedious dissection, we had ligatured the internal jugular vein and a large posterior tributary and the external carotid artery above that all bleeding ceased. The sac was then opened up and cleared, and it was seen to be confined to the body of the muscle. Beyond the limits of the muscle there was no definite sac, and it is remarkable that a more extensive and diffuse extravasation of blood had not taken place. The operation took nearly two hours, and the patient, who had been given intravenous saline injection on the table, had a fairly good pulse, and under appropriate treatment soon rallied.

After-History.

But he lay in a dull, heavy, stupid condition for twenty-four hours. After that he gradually seemed to understand what was said to him, but was quite unable to put any of his thoughts into words for several days. His pupils were equal, as were his radial pulses; he swallowed well and, though quite aphasic, was able to make certain grunting noises, which reassured us as to the integrity of his recurrent laryngeal nerve. For two or three days there was a definite paresis of the right side, and the grip of the right hand was appreciably weaker than the left. Rectal and bladder functions were not interfered with in any way after the first twenty-four hours.

The peripheral symptoms very soon passed off, and in ten days' time no difference in the power of the limbs could be distinguished. The mental dullness rapidly improved, but recovery from the aphasia was a much more gradual process. About fourteen days after operation, much to his delight and to our satisfaction, he greeted me by articulating quite distinctly, after one or two false starts, "My name is Mustapha" (in Arabic), and two days later he wished me "Good-morning," without any preliminary bungling. Very gradually his re-education has proceeded, until now, four weeks after operation, he is sufficiently recovered to be able to tell us where he lives and to ask to be discharged.

His wound healed perfectly, and there is only a small hard lump in the muscle. In the left side of the neck no dilatation of veins can be seen, and there is no pulsation to be felt either along the course of the carotid or over the facial or temporal arteries. The radial pulses are the same on both sides.

Every day his aphasia is less, and it is very interesting to note his distress and annoyance at not being able to put his ideas into words, especially now that his mental condition is so thoroughly re-established and his ideas flow so much more readily. So rapid has been his progress in the last few days that I am hopeful he will eventually completely recover without any physical or mental defect.

NOTES ON A FATAL CASE OF ACUTE NEPHRITIS OCCURRING IN THE EXPEDITIONARY FORCE.

By RICHARD C. CLARKE, CAPT. R.A.M.C.(T.F.),
ASSISTANT PHYSICIAN TO THE BRISTOL ROYAL INFIRMARY.

My reason for publishing these notes on this single and rather incomplete case of nephritis is that I think it of peculiar interest; it gives me at any rate food for thought, and may help to elucidate the problems of this disease. Also, although I am, I admit, out of touch with the literature, I understand that very few complete *post-mortem* examinations on early cases of nephritis occurring in our forces in the field have been made.

Driver L., A.S.C., attached to a field ambulance, was admitted into the clearing station on February 17th, 1916. On January 30th his urine was examined, in course of a routine

examination of his unit by Captain McLeod of a mobile laboratory, and found to be normal. On February 7th he reported sick, and two days after he was admitted into the field ambulance with follicular tonsillitis. The temperature never exceeded 101° F. In two days the fever subsided and the throat cleared up. At this stage a moderate amount of albuminuria was present, but no oedema. For the next three days the temperature kept down, and the only thing which prevented his being returned to duty was the presence of complete anorexia and some vomiting.

On the fifth day in hospital his face was noticed to be puffy, and there was a large amount of albumin in the urine. The next evening the temperature ran up to 102.6° F., and in the morning he was evacuated to the casualty clearing station. He arrived with the convoy at about 2 p.m., and I examined him at 3 p.m. He looked very pale and ill and complained of headache and weakness. There was no marked oedema of the face, though there was some swelling of the ankles and a well-marked lumbar pad. The temperature was 100.5° F., and the tongue furred, brown, and extremely dry. The pulse was 100 and of fair quality. Except that the heart sounds were rapid and slightly feeble and that there were rhonchi at the bases, the examination of the chest was negative. The abdomen was somewhat tumid, and there were signs of moderate ascites. The liver dullness was higher than normal behind, and the edge was felt in front below the costal margin. The spleen was not felt. Examination of the central nervous system elicited nothing unusual. The fundus was not examined. His general condition, though serious, did not lead me to suppose then that he would die. The urine was fairly profuse, pale, and clear. On boiling it was solid with albumin. On spinning the sediment showed hyaline casts, often with polymorphonuclears attached and free polymorphs. There were no epithelial casts, and nothing suggestive of the presence of epithelial cells.

I saw him again in the evening and found him no worse. Towards the morning he had diarrhoea and abdominal pain, and at 8.30 a.m. suddenly collapsed. I saw him shortly after, and found him cold and pulseless, but quite conscious and complaining of abdominal pain. He died an hour later, perfectly conscious to the last; in fact, he dictated a letter home some ten minutes before he died.

Necropsy.

I performed a *post-mortem* examination two hours after death, with Captain McLeod and Dr. Amecielle of the French medical service.

There was no abnormal pericardial fluid. The heart was small and the walls of the left ventricle distinctly thickened. The valves and aorta were normal. There was oedema of the bases of the lungs. The peritoneal cavity contained about 2 pints of opalescent fluid. The intestines were normal.

The liver was somewhat enlarged and fatty. The spleen was enlarged slightly, flabby; no necrotic patches. The kidneys were large, firm, and congested. There was much swelling of the cortex and pyramids, the latter standing out very clearly. The capsule stripped easily. The bladder was normal, as was the pancreas. The suprarenals showed some medullary hypertrophy and medullary haemorrhages. The meninges were slightly injected and the brain a little oedematous.

Blood taken from the vena cava contained 1.80 grams of urea per litre. A blood film taken just before death showed a high polymorphonuclear leucocytosis, estimated at about 40,000.

Bacteriological Data.—The peritoneal fluid yielded on spinning a sediment of leucocytes, mostly polymorphonuclear, amongst which were very numerous streptococcal chains of medium length. No organisms were found in smear preparations of the kidney or spleen pulp, but polymorphonuclear leucocytes were very numerous in the smears from the spleen. A growth of streptococci was obtained both from the kidney and the spleen. The organism had moderate haemolytic power; 5 c.cm. of a thirty-six-hour culture in horse serum bouillon, when injected subcutaneously into a rabbit, did not cause the death of the animal. A control injection into a similar rabbit of a streptococcus taken originally from a wounded French soldier in subculture for five or six months killed the animal. The only other organism isolated from the viscera was a coliform bacillus, which, as it grew from only one of several preparations of the kidney, can, I think, be disregarded as a *post-mortem* examination.

Microscopic sections of the organs showed that in the kidney the main brunt of the attack had fallen on the interstitial tissue. The glomeruli had escaped entirely and most of the tubules. In the interstitial tissue were several areas of acute congestion. In these were foci of polymorphonuclear and large mononuclear renocytes, forming microscopical abscesses. The tubules running through these areas showed some degeneration, but no desquamation of the cells. Moreover diapedesis of polymorphonuclear cells was seen taking place through the basement membrane, and some were seen in the lumen of the tubules. Globules of fat were seen in many of the liver cells. There were a few areas of cellular necrosis in the cortex of the suprarenal. The medulla showed haemorrhages and collections of polymorphonuclear leucocytes, and there was distinct medullary hyperplasia. Lungs showed some foci of congestion and oedema. The spleen was congested with an undue amount of leucocytes. The heart and pancreas were normal.

The actual cause of death in this case was, I think, septicæmia in a patient whose resistance was lowered by a certain amount of uræmia. The slight uræmic symptoms, namely, headache and anorexia, the mode of death

and terminal peritonitis all point to this. The case, however, presents many problems of interest. It started with tonsillitis probably of streptococcal origin, and at that time there was no albuminuria. The question arises, then, Did the tonsillitis pass on to a septicaemia, and cause a streptococcal interstitial nephritis, or did the toxin circulating in the blood from the focus in the throat cause the kidney trouble, leading to a general lowering of resistance, which allowed the streptococcus to get a footing in the general circulation? In other words, was this nephritis of pyaemic or toxic origin?

Personally I am inclined to the former view. I admit that no organism was demonstrable in the sections, and the fact of its growing from the kidney pulp can be explained by a general blood infection. I support my case entirely on the microscopical abscesses in the interstitial tissue of the kidney, and on the clinical course of the case.

My thanks are due to Captain McLeod, R.A.M.C., who did the bacteriological work, and to Dr. Amecielle, of the French medical service, who got the tissues sectioned for me, and gave me his valuable opinion on them.

INJURY TO THE INTERNAL EAR PRESENTING SOME UNUSUAL FEATURES.

BY

CAPTAIN H. LAWSON WHALE, M.D., F.R.C.S.,

R.A.M.C.(T.),

THE BELGIAN FIELD HOSPITAL.

SOLDAT D. was admitted on December 29th, 1915, with a bullet wound of the head.

Entrance wound left frontal eminence. No exit wound. Skiagrams (1) on admission, showed no bullet, but only splintered bone below the wound; (2) on February 2nd, showed no bullet, but a rarefied area, where at operation the bone spicules had been removed.

Treatment.—On admission the patient was anaesthetized and trephined. Fragments of bone were removed from the frontal lobe of the brain and the wound dressed with gauze. There was nothing to suggest a fractured base. There were no signs of focal injury nor of intracranial pressure. As regards his head wound, the patient made an uninterrupted recovery.

Evidence of cerebral irritation (sulkiness, mischievousness, resentment of any one approaching him) persisted for some days, and disappeared with the sudden onset, on January 8th, of escape from the left ear of fluid, which flowed slowly but steadily, was quite clear, and reduced Fehling's solution. With the flow of cerebro-spinal fluid all signs of cerebral irritation ceased. The flow persisted until January 24th.

Otology.—The right ear was normal. In the left ear, half an inch from the external meatus, a sessile swelling of the bony roof bulged downwards, occluding three-quarters of the meatal lumen and preventing inspection of the membrane. It was covered with intact skin, sensitive and stony hard to the probe, and resembled a mental exostosis. It was impossible to be certain that it was the result of the injury. This appearance persisted unchanged as long as the patient was in hospital, so that the membrana tympani was never seen.

Hearing was at first good, and equal on both sides to watch, speech, and whisper; no tuning-fork was then available. The hearing on the right remained normal, while on the left it became progressively worse. On January 26th he heard speech left 18', whisper 4'; on February 6th, speech 2', whisper 3'. On February 24th I obtained a tuning fork (D.V. 512); Weber to right; absolute bone conduction on left—15 secs. On and after March 5th, for speech, watch, and tuning-fork, both air and bone conduction were nil on the left side.

Equilibrium.—As soon as the patient was well enough to be lifted into a sitting position he fell over on to his left side. In a few days he could sit up without support, and walk unsteadily by January 15th. After January 26th he could walk straight with his eyes open; but with eyes shut staggered to the left. He next developed a crab-like gait (with eyes shut), diverging constantly to the left, and crossing the right foot over the left as he walked, to avoid falling to the left. On and after March 5th his gait was normal, with eyes opened or closed.

Evidence as to Cerebellar or Vestibular Lesion.—There was never any asthenia, dysidiadokokinesis, giddiness, vomiting, or nausea. There was no indication for lumbar puncture or examination of optic discs.

Nystagmus.—No galvanic apparatus or rotation-chair was available. Repeated observations were made, with the head in various positions and water at different temperatures; and the ears were irrigated both separately and simultaneously. The mean results obtained were as follows:

Spontaneous Nystagmus.—On deviation to right: Fine, pure horizontal, never of more than first degree. This became progressively less marked, and no nystagmus was obtainable after February 17th. On deviation to left: No nystagmus.

Caloric Response.—Head backwards 60 degrees; water at 90° F. ran in for two minutes. Right: During the persistence of spontaneous nystagmus on deviation this was always made

coarser and raised to third degree. After spontaneous nystagmus had ceased (February 17th), irrigation elicited a similar but less violent normal response. Left: On deviation to this side there was never any response to irrigation. But, for as long as the spontaneous nystagmus to the right persisted, this could always be inhibited for periods varying from two to fifteen minutes by warm irrigation of the left ear.

To test this inhibitory effect of stimulating the left labyrinth on nystagmus to the right, the two ears were simultaneously irrigated several times after February 17th, when spontaneous nystagmus to the right had ceased. But at no time did the irrigation of the left ear have any effect on the nature or duration of the nystagmus obtained by simultaneous irrigation of the right ear.

On his discharge to the base, after ten weeks in hospital, he had on the right side normal caloric labyrinthine response and normal hearing. On the left side, total loss of labyrinthine response and complete deafness. Gait and general health normal.

The signs of cerebral irritation during the early days disappeared suddenly and permanently with the appearance of cerebro-spinal otorrhoea, which again ended spontaneously sixteen days later. Although there had been no classical signs of compression, it seems reasonable to suppose that the irritative stage might have merged into such, and that the cerebro-spinal flow was nature's decompression. The gradual loss of spontaneous nystagmus to the sound side and of a tendency to fall to the injured side, were merely evidence of recovery from partial or complete unilateral loss of labyrinthine function. Since stimulation of the left labyrinth always inhibited any spontaneous nystagmus to the right, but later on failed to inhibit caloric nystagmus to the right, and since also there was a progressive loss of hearing, there was obviously a progressive lesion of cochlear and vestibular apparatus.

The results of caloric tests on the left ear seem puzzling. Whether the lesion was in any part of the left external semicircular canal or in the nervous mechanism proximal to this, it was striking that stimulation should inhibit nystagmus to the right, but never succeed in eliciting nystagmus to the left.

The bullet was never removed from the skull, nor seen in a skiagram. It may never have entered, although the shape of the wound suggested penetration rather than glancing. If it is still in the patient's head, that would not seem to account for the findings here reported.

THE TREATMENT OF DIABETES.

BY

JOHN HUME, M.D., D.P.H.,

PERTH.

The cause of diabetes is looked upon as the result of the faulty action of certain glands, whose action appears to result from, or be aggravated by, absorption of toxic products produced in the alimentary tract.

This statement appears to be borne out by the remarkable improvement which takes place in diabetics when the treatment is directed to controlling toxic production in the bowel. The beneficial effects of removing alimentary toxæmia is fully explained in an article on starvation and purgation by Dr. Guelpa of Paris.¹

There is a variation each day in the amount of sugar in the urine of diabetics which takes place independently of treatment. In my opinion this is due to the condition of the bowel, as I have invariably found the sugar content of the urine high when the bowel was loaded; after it was cleared by aperients a reduction in the amount of sugar was apparent.

As the treatment of diabetes by means of a starch-free diet is very irksome to the patient, and often unsatisfactory, I have for several years treated my diabetic patients by fasting, and cleansing of the alimentary tract, at the same time allowing a diet from which starch was not entirely excluded.

As early as three days after commencing treatment, I have invariably found alleviation of the symptoms, the thirst much less, the craving for food not nearly so pronounced, the pruritus, if present, markedly relieved, and the patient all round much better than on a rigid starch-free diet and opium derivatives.

Mode of Treatment.

I thoroughly inspect the mouth, have any defective teeth removed, and enjoin the necessity of thoroughly cleansing the teeth and washing out the mouth frequently.

The fast I begin with is generally about fourteen hours' duration. The best time to commence is in the evening. I allow a light meal about 5 p.m. Two hours after I give a dose of castor oil. The patient can rinse out the mouth with warm water, if desired, two or three times during the fast, but on no consideration must anything be swallowed, not even water, as I find the results are not so satisfactory when water is allowed. At 9 next morning I give a second dose of castor oil and then no food for two hours. By 11 a.m. the bowels have, as a rule, acted, and I allow the patient to have breakfast. There is therefore a period of absolute fasting between the two medicines. In succeeding fasts salines can be used, the object being to secure a thorough evacuation and to reduce the intestinal flora as far as possible. The patient can easily go through the same routine every second night, and after he has become accustomed to the treatment the duration of the fasts should be prolonged by beginning earlier in the afternoon and extending them next day. At the end of a fortnight a fast of twenty-four hours can easily be done two or three times a week.

It is better in the earlier fasts to keep the patients in bed, as I find they are more easily managed and it is pleasanter for themselves as they can more readily keep warm and do not have the same temptation to stop the fast as they would have if they were going about. In many cases the disappearance of the sugar is complete. I generally recommend, however, that there should be one fast of eighteen hours each week carried out in the same way.

If a small quantity of sugar persists I recommend two fasts each week of about fourteen hours, and find this quite sufficient to prevent the other symptoms of the disease from manifesting themselves and to allow the patient to attend to his duties.

The following four cases, selected at random from my notes, are typical of the results to be obtained:

1. Mrs. H., aged 56, thirst very marked, intense pruritus, specific gravity urine 1024, sugar 8 per cent. Had been under treatment previously to becoming my patient; at end of first week after commencing treatment the thirst was almost nil, there was great improvement in the pruritus, and the sugar was only 5 per cent. At end of first month 1 per cent. and no sugar present at end of six weeks.

This patient has an occasional fast and has been working regularly for three years now.

2. D. McF., aged 49, urine specific gravity 1026, sugar 9 per cent., thirst marked, and a considerable degree of mental disturbance. He had previously been under treatment for four months. In six weeks after commencing treatment he returned to his work. Fourteen months ago he went to America and occupies a good position. He does a fast of about eighteen hours once in ten days.

3. Mrs. J., aged 62. When I first saw her the fourth toe on the left foot was gangrenous. The specific gravity of the urine was 1035 and the sugar 11 per cent. Very great thirst and pruritus were present. The toe was removed and wound healed satisfactorily. At end of four weeks after commencing treatment only 2 per cent. of sugar remained, and at end of six weeks none was present. She does a fast of eighteen hours about every six days.

4. J. D. (male), aged 64, specific gravity urine 1028, sugar 8 per cent., and a trace of albumin was present. At end of six weeks no albumin and only a trace of sugar left. The patient felt much better and returned to work. He has kept well and does one fast of fourteen hours in the fortnight.

REFERENCE.

¹ BRITISH MEDICAL JOURNAL, October 8th, 1910, p. 1050.

THE British Fire Prevention Committee (8, Waterloo Place, S.W.) has issued a memorandum on the use of a mixture of sawdust and sodium bicarbonate for extinguishing small fires occasioned by the ignition of petrol and other inflammable liquids. The sawdust must be free from shavings and chips, but need not contain added moisture. When applied to the surface of the burning liquid it floats for some time, thus excluding the oxygen of the air and smothering the fire. The addition of sodium bicarbonate is advantageous, for the heat liberates a certain amount of carbon dioxide, which adheres to the sawdust, and slightly assists in extinguishing the fire. The proportion should be about 10 lb. of bicarbonate to one bushel (or, say, 12 lb.) of sawdust. The powder must be applied rapidly and systematically by a sweeping motion of a shovel, so as to cover the whole of the burning surface; the method, it is thought, will prove particularly useful in motor garages and hangars.

NEW FORMS OF PLATING DISHES FOR
THE CULTIVATION OF BACTERIA.

By S. DELÉPINE,

DIRECTOR OF THE PUBLIC HEALTH LABORATORY, MANCHESTER.

OWING to the difficulty of obtaining at the present time suitable dishes for making plate cultures I have adopted several devices.

1. The object of the first was to utilize the stock of Petri dishes which I had in the laboratory, which was insufficient when it became necessary to have some eight hundred dishes available daily in connexion with our military work alone.

I had a number of shallow flat metal lids made to fit the tops and bottoms of the existing dishes, so that each Petri dish could be utilized to make two plates, thus doubling the stock available (Fig. 1). I found that these metal lids when well tinned answered their purpose. They, however, require frequent polishing in order to keep the surface smooth and free from rust.



1 One half of a Petri dish with a metal lid to replace the other half. The unevenness of the bottom of the Petri dish is exaggerated.

2 A plating dish made by forcing a glass plate into a flexible metal rim.

2. I have also made plating dishes by inserting round pieces of plate glass in a thin rim of well tinned metal or waterproofed cardboard, etc. (Fig. 2). These plating dishes are very much cheaper than the old-fashioned Petri dishes, and appear to me to be better, because the glass bottom is perfectly flat and of equal thickness, and permits of the media being more evenly spread. They stand sterilization perfectly well, and the bottom is clearly visible up to the edge. I have by numerous experiments ascertained that tin does not appreciably affect the growth of bacteria; aluminium is less suitable, but duralumin could be used instead of tin, if sufficiently thin rims could be made with this alloy.¹

3. A more expensive form of metal rim has also been made for me, which consists of two concentric rings of well-tinned metal (block tin or duralumin would be better); the inner is screwed into the outer, which is provided with a flange, against which the glass bottom plate is fixed when the inner rim is screwed home (Fig. 3). The advantage of this form, which is more expensive, is that the glass plate can be replaced easily when broken.



3 A "plating dish" made by fixing a glass plate by screwing two metal rings together.

4 A "plating dish" made by fixing a rim of metal to a glass plate by means of coagulated albumin or collodion.

4. A much older design (which I used as far back as 1887, in order to obtain even layers of cultivating media, and plates more suitable for photographic purposes than those made in Petri dishes) is even simpler, but somewhat less convenient than the previous forms. It consists of a square or round tin frame; one surface is perfectly flat, and is fixed to a bottom glass plate by means of coagulated blood serum, collodion, or oxidized linseed oil (Fig. 4).

To make a plating dish with such a frame, a perfectly clean glass plate of suitable size and shape is placed over a metal plate heated to the temperature of boiling water. The surface of the frame which is to be fixed to the glass is painted evenly with fresh blood serum or white of egg. The frame is then pressed with the painted surface against the hot glass, and allowed to remain under slight and even pressure for a quarter of an hour or longer on the hot plate. At the end of that time the albumin is quite coagulated and dry, and the frame is so firmly adherent that sterilization by steam can be carried out several times without causing any separation.

All this apparatus can be obtained from Messrs. Chas. H. Hearson and Co.

REFERENCE.

¹ The Action of some Metals upon Certain Water and other Bacteria, *Journ. Roy. Soc. Inst.*, vol. XXV, No. 6, 1914.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

MENTAL SYMPTOMS IN ACUTE TETANUS.

CAPTAIN EVERIDGE'S case of tetanus complicated with mental symptoms (BRITISH MEDICAL JOURNAL, March 25th) reminds me of a very similar case I had under my care in 1891. A negro convict at the Penal Settlement in British Guiana was admitted with tetanus of moderate severity. I treated him with chloral hydrate, giving just sufficient to keep him constantly under its influence.

The case, though not severe, was obstinate, and the total amount of chloral administered was considerable. As he was recovering from the tetanus symptoms almost identical with those described by Captain Everidge developed, hallucinations being very marked. There was no rise of temperature, which had not at any time during the attack been much above normal.

I attributed the mental symptoms to the chloral and discontinued it, and the symptoms gradually passed off. Recovery was complete about a week after the chloral was stopped. In Captain Everidge's case the chloral dosage was large, and in view of my own case I think the mental symptoms might be more rightly attributed to this than to the carbolic acid.

W. F. LAW, Lieutenant (temporary),
Military Hospital, Cork. R.A.M.C.

THE INGUINAL INCISION FOR INTRASCROTAL AFFECTIONS.

It is hardly likely that the proposal to utilize an incision in the inguinal region for dealing with all, or most, affections within the scrotum contains anything particularly novel, but the success which has followed my own efforts tempts me to give it publicity. The chief reason for adopting the incision is to obtain a route into the scrotum that avoids the skin of this region. I doubt if there is any part of the body surface so difficult to sterilize or render aseptic. The anatomical construction of the region largely accounts for this. The skin is in a constantly corrugated condition, and for that reason difficult to cleanse by the ordinary processes of bodily ablution. It possesses an unusually large number of very coarse hairs which implies large hair follicles capable of harbouring various kinds of micro-organisms. Among the ordinary run of hospital patients the skin of the scrotum is frequently deeply ingrained with "dirt." Thus, then, it frequently happens that by none of our ordinary antiseptic applications can we gain that amount of sterilization which will ensure an incision through the scrotal skin remaining aseptic. Another rather striking feature about the skin of the scrotum is the readiness with which it sweats when confined under a dressing. The surface layer of epithelium is cast off, and this, with the exudation, produces a particularly offensive odour. Such a condition readily infects any wound made for dealing with intrascrotal conditions. The difficulty encountered in trying to render the skin surgically clean seems to be due to the peculiar susceptibility it has to either carbolic acid or to iodine. I have often seen the application of either of these agents—and I might add also rectified spirit—lead to an amount of irritation that sometimes presented the red, weeping appearance of an acute eczema. Why this should happen it is difficult to say, except it be that the corrugated condition of the skin creates small recesses in which the solutions lodge, and so have a longer period upon which they can act on the tissue. Apart from all consideration is connected with the difficulty of rendering the skin aseptic, there is another disadvantage, and that is the extreme degree of venous vascularity of the scrotum; this might not in itself be difficult to deal with were it not for the laxity of the tissue in which the many venules are coursing. It is not easy to secure these vessels by ligature; and we have no means of exercising the pressure which it is possible to apply in other parts of the body. The result, too frequently, is oozing into the scrotum and distension of the part with blood clot. All these drawbacks are overcome by approaching the scrotal cavity through an incision made in the inguinal region. When the inguinal canal is freely opened up the contents of the scrotum can be withdrawn into the wound and dealt with

as required. We can thus deal with any condition of the testicle, with hydroceles, and with varicoceles. It is not possible to ensure, when, for instance, we have had to remove the testicle or dissect out the sac of a hydrocele, that no oozing of blood will take place into the lax tissues of the scrotum; for this reason, therefore, it is advisable to pass a drainage tube down to the bottom of the scrotal cavity; as an aid to proper drainage, it is of considerable advantage to raise and support the scrotum on a thin wood or cardboard shelf secured between the legs.

While this particular incision is frequently used for excising a portion of the pampiniform plexus in varicocele by withdrawing the cord with the dilated plexus of veins from the scrotum, I have not seen any mention of its employment for dealing with hydroceles and testicular affections of reasonable proportions. It is more specially for these two latter conditions that the inguinal approach to the scrotal receptacle seems worthy of being more widely known.

A. ERNEST MAYLARD, B.S., M.B.Lond.,
F.R.F.P. and S.,
Surgeon to the Victoria Infirmary, Glasgow.

EARLY DIAGNOSIS OF WHOOPING-COUGH.

THE early diagnosis of whooping-cough is one of the trials of the general practitioner, and, in the absence of an epidemic, one is liable to be misled into allowing a child with an apparently harmless cough to infect others while the unmistakable signs which subsequently develop are still lacking.

During an outbreak last year I had considerable opportunity for observing probable cases in the earliest stages, and I found that every case of suspicious cough which showed marked conjunctival congestion in the region of the external canthus subsequently developed whooping-cough. In examining for the sign one directs the patient to look towards the nasal side of the eye under examination, when, on separating the lids at the external canthus, a tumid, congested mass somewhat resembling a large phlyctenule may appear on the bulbar conjunctiva, just within the external canthus. This swelling may or may not be accompanied by injection of the palpebral conjunctiva, but I have come to regard it as an indication in doubtful cases of this nature.

Malvern.

H. W. JACOB, M.D.

Reports

ON

MEDICAL AND SURGICAL PRACTICE IN HOSPITALS AND ASYLUMS.

KING'S COLLEGE HOSPITAL.

A CASE OF HIATAL OESOPHAGISMUS IN A MAN AGED THIRTY-SIX YEARS.

(Under the care of Mr. BOYCE BARROW.)

[Reported by C. P. G. WAKELEY, M.R.C.S., L.R.C.P.,
House-Surgeon; Temporary Surgeon, R.N.]

E. C. B., aged 36, was admitted to King's College Hospital on October 5th, 1915.

History.

He was healthy up to the age of 20, when he had a bad attack of pleurisy with double pneumonia; soon afterwards he began to vomit after food, and had a cough which kept him awake at night, and persisted until he vomited; then he was able to sleep. This occurred two or three times a week. The vomiting became gradually worse, and the patient developed a feeling of choking after meals, sometimes in the middle of a meal; this condition was relieved by brandy, and the food seemed to pass into the stomach. At the age of 23 he went to Bournemouth for a rest cure; afterwards he was advised to go to the Woking Cottage Hospital, where he was treated for gastric ulcer for six weeks. As his condition did not improve, he was sent to Guy's Hospital; here he was fed by nutrient enemata, and only given fluids to drink, but the vomiting persisted. After this he lived at Mero in Wiltshire for two years; he was under constant supervision, and was given bismuth for the gastric condition. In 1912 a surgeon

told him he was suffering from excess of gastric secretion, and advised him to wash out his stomach every day; the sickness was temporarily relieved by this, but gradually returned. In 1914 another surgeon told the patient that he was suffering from intestinal stasis, and advised resection of the colon. This was refused, and in October, 1915, he was admitted to King's College Hospital under Mr. A. Boyce Barrow.

Condition on Admission.

The patient was very thin and weak-looking; he vomited all food, even fluids, and was fed by nutrient enemata for the first two days in hospital. The stomach was washed out twice a day, but even this did not stop the vomiting. A test meal was given on two occasions; both times the patient vomited the whole meal about three-quarters of an hour afterwards. The report from the clinical laboratory was as follows: Volume, 14 cc.

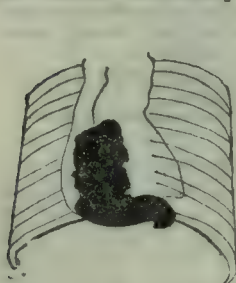


FIG. 1.—Immediately after meal.



FIG. 2.—Thirty minutes after.

acidity = 0.017 per cent. HCl; no physiological HCl present; lactic acid absent. As this report seemed to indicate disease of the stomach, a bismuth meal was given. The figures, which are tracings taken from the x-ray plates and reduced, show the condition of affairs at various times after the meal. Fig. 1, taken immediately after the meal was finished, shows marked dilatation of the oesophagus to the right side; no food had entered the stomach. Fig. 2, taken thirty minutes after the meal, shows food entering the stomach from the oesophagus and a small portion in the pyloric end of the stomach. Fig. 3, taken an hour and three-quarters after the meal, shows food still in the oesophagus, a small amount in the pyloric end of the stomach, and some in the small intestine. Fig. 4, taken three hours after the meal, shows that the oesophagus still contained food, and was dilated; and Fig. 5, taken six hours after the meal, shows the oesophagus in a similar condition. Fig. 6, taken twenty-three hours after the meal, shows traces of

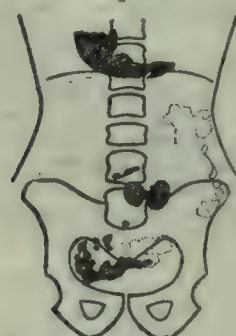


FIG. 3.—One and three quarter hours after meal.



FIG. 4.—Three hours after.

food in the oesophagus and some in the ileum. Fig. 7, taken thirty-one and a half hours after the meal, still shows bismuth residue in the oesophagus, but some of the food had reached the caecum. Shortly after the last x-ray plate was taken the patient vomited 5½ oz. of food consisting mostly of bismuth. The conclusion to be drawn from these series of x-ray photographs was that there was a condition of cardiospasm of the oesophagus. It was impossible to pass a bougie into the stomach, even when passed down an oesophagoscope. An opaque bismuth bougie was passed as far as possible, and the patient examined by the x rays. The bismuth tube was seen to pass along the upper surface of the diaphragm and lie

beneath the heart; it could not be made to enter the stomach. Fig. 8 is a drawing (reduced) from the x-ray plate.

Operation.

Mr. Barrow decided to operate with the idea of trying to dilate the stricture from the stomach, and, failing this, to perform a gastrostomy. On October 13th an incision was made one inch to the left of the middle line, the rectus muscle exposed and split longitudinally, and the posterior layer of the rectus sheath and peritoneum incised; the stomach was found empty, and in a semi-contracted condition. There was no sign of malignant disease or any thickening in the region of the cardiac orifice, the opening was very small, and could be felt by a finger invaginating the anterior wall of the stomach and pushing this upwards to the cardiac orifice. The rest of



FIG. 5.—Six hours after meal.



FIG. 6.—Twenty-three hours later.

the alimentary canal appeared to be normal. The stricture was dilated to a certain extent by the index finger of the operator being pushed well through the cardiac orifice into the lower end of the oesophagus; adhesions were felt to give way. It was decided to perform a gastrostomy in case the stricture closed again. A portion of the anterior wall of the stomach was attached to the abdominal wall after the manner suggested by Frank, but the viscus was not opened. The abdominal incision was closed.

The patient was very comfortable, and did not experience any anaesthetic vomiting. He was fed on liquids for the first two days, then he was given milk puddings, which kept down; from that he was given fish, chicken, and meat, things he had not been able to eat for sixteen years. The patient left hospital on November 5th. He never vomited once after his operation, and during the last two weeks in hospital gained 5 lb. Since leaving hospital his doctor in Dorset writes: "He has gained over a stone in weight since leaving hospital, and eats all kinds of food with a hearty appetite."

The following points require a little consideration:

1. The test meals which were given undoubtedly never reached the stomach, but remained in the dilated lower



FIG. 7.—Thirty-one and a half hours after meal.

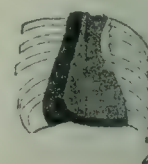


FIG. 8.—Position of oesophageal bougie.

end of the oesophagus, and this explains the fact that there was a total absence of hydrochloric acid; this fact, together with the wasted condition of the patient, suggested gastric carcinoma.

2. The dilatation of the oesophagus was towards the right; the cause of this seems to be the fact that the aorta lying towards the left side and being a resisting structure prevents any dilatation towards the left side.

In conclusion, I should like to express my thanks to Mr. A. Boyce Barrow for allowing me to publish this case, and to Dr. R. Knox, honorary radiographer to King's College Hospital, for his kind help in getting the tracings of the bismuth meal.

Reports of Societies.

THE RATIONALE AND PRACTICE OF CHEMOTHERAPY.

At a meeting of the Dermatological Section of the Royal Society of Medicine on April 13th Mr. J. E. R. McDONAGH gave a summary of his researches on syphilis, culminating in the introduction of some new remedies. The investigation of the chemistry of the parasite showed, he said, that it consisted mainly of lipid-globulin molecules, more resistant to reagents than the lipid-globulin molecules of the host's cells. The conditions leading to infection were conceived to be as follows: Should a spore be able to take some of the oxygen required by the cell it hoped to enter, the normal ratio between the oxygen and the carbon dioxide of that cell would cease to exist, the consequence being that the normal hydrogen ion concentration or the oxidase-reducase system would be temporarily deranged, with the result that the local surface tension of the cell would be such that the spore was easily able to enter it. Defence against the parasites was effected locally by the plasma cells, and generally by the serum antibodies, and was due in both cases to lipid-globulin molecules. The death of the parasites was due to the chemico-physical process of adsorption, and was regulated by three factors: (1) Specificity, which depended on the existence of homologous stereochemical molecular configuration on the part of the molecules of the host and of the parasite; this was regulated mainly by the amino-groups; (2) the high degree of permeability of the adsorbed molecules; and (3) the amount of active oxygen, which depended on an oxidase-reducase system associated with serum complement. Treatment assisted the host's resistance by increasing his amount of active oxygen; this could be effected both by metals and non-metals. They became attached to the lipid-globulin molecules, and acted as catalysts; strongly adsorbed metals (arsenic, aluminium, iron, and possibly antimony and mercury) produced extra active oxygen directly; non-metals (iodine and sulphur) acted indirectly by increasing the production of active hydrogen. These and other considerations led to the investigation of various drugs. A sulphur compound—diortho-aminothiobenzene ("intramine")—was found to act extremely well. It was absolutely non-toxic. The usual dose was 1 gram suspended in 9 c.c.m. of olive oil or liquid paraffin and injected intramuscularly. The pain which followed usually rendered the patient *hors de combat* for a week; but however bad the local reaction, no induration was left. In early syphilis salvarsan should be given first and followed by intramine; the arsenical preparation killed the spirochaete and the sulphur compound killed some of the other phases of the *Leucocytozoon syphilidis*, so that symptoms vanished more quickly than after salvarsan alone. In the recurrent and late stages the effect of intramine was most marked, and late syphilitic lesions, which had remained practically uninfluenced by salvarsan, with mercury and iodides subsequently, had been treated with immediate success. Good results were obtained in syphilitic glossitis of twenty-five years' duration and in degenerative myelitis and encephalitis, also in cerebro-spinal meningitis. Iodine, like intramine, adsorbed hydrogen and hydroxyl ions to form peroxide for the oxidase system, hence its action was more marked in late than in early syphilis. Iodine increased the action of intramine, and should be prescribed before the latter, intravenously in the colloidal form. The effect of intramine in late syphilis could be enhanced by following up with injections of metallic compounds. A striking case was cited by way of illustration of a patient suffering from the depressive type of degenerative encephalitis, who was given two intramuscular injections of intramine; most extraordinary improvement followed. A third injection made the case worse, according to the expectation of Mr. McDonagh, who hazarded the opinion that if a metallic compound were now to be given the improvement would be sudden and greater than on the first occasion. An intravenous injection of galyl was administered, with the result that in forty-eight hours the patient had become a rational individual. Interstitial keratitis, a lesion uninfluenced

by salvarsan, cleared up at once with intramine in a most marvellous way. Intramine might also be employed in the treatment of lupus, chronic gonorrhoea, and chronic ulcers. Ehrlich was led to experiment with arsenical preparations because the disease which he hoped to combat was sleeping sickness and arsenic was the body which appeared to have the greatest influence on that disease. Mr. McDonagh said that he had tested compounds of iron and of aluminium; an organic iron compound, "ferrivine," was non-toxic; a 1 per cent. solution was stable and did not oxidize in air. Occasionally typical shock or collapse followed the injection of 200 or 300 c.c.m. Experience gained with this compound had convinced Mr. McDonagh that the need for the use of a toxic metal like arsenic would soon no longer remain. In general, the symptoms of primary and generalized syphilis disappeared within four days after the second or third intravenous injection. Induration of chancres and dense infiltrated brownish papules resisted ferrivine as they did salvarsan, but disappeared within a fortnight if intramine were prescribed after the second or third injection. The theory of complement fixation was also touched upon, and Mr. McDonagh said that the Wassermann reaction did not afford an indication of the colloidal state of the lipid-globulin molecules or a measure of their number, but this knowledge was necessary both for diagnosis and for regulating treatment; thus it was no certain indication of active syphilis or that the patient required treatment. His emulsoid-suspensoid reaction overcame this difficulty.

On the suggestion of the PRESIDENT, it was decided to confine the discussion in the first instance to the chemical aspect of the work, and to discuss the clinical side later.

Professor BAYLISS asked for fuller explanation and experimental data with respect to a large number of Mr. McDonagh's statements. He considered that it was unfortunate that oxidation and reduction reactions should have been selected as the basis for the theory of chemotherapy. Of all processes taking place in the living body they were those the mechanism of which was most obscure. With regard to the use of the term "oxidase-reducase," it was impossible that the same system should be simultaneously both oxidizing and reducing in its action on a given body, hence the sense in which the expression was used appeared unclear. In speaking of the part played by lipid-globulin molecules, it had been stated that immunity and the formation of antibodies in the host was due to alterations in these molecules, while changes in similar constituents of the parasites led to their being killed. Professor Bayliss wished to know what proof there was of the existence of such changes and what their nature was. It had also been said that the development of immunity was due to an increase in size of these molecules, which increased their adsorptive power; but as adsorption had been shown to depend on surface, such an increase in size of the molecules would tend to diminish their adsorptive power. Professor Bayliss added that he could not follow the statements that specificity depended on amino-groups and that adsorption depended on active oxygen. Again, with reference to Mr. McDonagh's explanations as to why one substance, arsenic, should be toxic and another, sulphur, non-toxic, the speaker pointed out that these were fundamental differences the elucidation of which demanded knowledge not at present available.

Dr. C. H. BROWNING associated himself with Professor Bayliss's views and expressed a doubt whether in their present phase and without experimental proof the theories which had been advanced would contribute materially to the understanding of the subject by others. This, however, did not at all detract from the therapeutic results quoted. To be able to clear up with certainty and rapidly interstitial keratitis by an injection of intramine was an achievement of the first magnitude. It was highly interesting that the therapeutic value of this organic sulphur compound, which had been prepared upwards of thirty years ago, should now for the first time be recognized. The fact that this drug was closely similar to salvarsan in its molecular constitution was a striking testimony to the general soundness of the work of Ehrlich, who had not confined his attention entirely to arsenical compounds; work interrupted by his death had shown that the combination of salvarsan with copper yielded a

substance superior to salvarsan itself in the experiments which had been carried out.

In the course of further discussion Mr. J. WARD quoted investigations on the bactericidal action of various colloidal solutions, arsenic being exceedingly potent; he regarded this as in favour of Mr. McDonagh's theory; and Dr. F. H. TEALE pointed out that lipoids were not essential either to antigens or to antibodies. Sir MALCOLM MORRIS emphasized the necessity for a thorough discussion of the clinical aspect at an early date, in view of the great importance, especially at the present time, of deciding what therapeutic measures were the most efficacious in the treatment of syphilis. Lieutenant-Colonel HARRISON commented on the severe pain which he had observed to follow injections of intramine, and Mr. C. H. MILLS spoke of encapsulation of the unabsorbed drug.

Reviews.

CEREBRO-SPINAL FEVER.

As a result of their experience with cerebro-spinal fever during 1915 at the 1st Eastern General Hospital, Captains MICHAEL FOSTER and J. F. GASKELL have written an excellent practical account of the disease, its pathology, bacteriology, and management.¹

Beginning with a historical account, they note that cerebro-spinal fever made its first recorded appearance in the year 1805—at Geneva. Until 1902 it was comparatively little known in the United Kingdom; studies of its epidemiology emphasize the importance of human carriers in its spread, and Netter has given a most conclusive account of the way in which the disease was carried all over France, from the Pyrenees to the Rhine, by the French 18th Light Infantry during and after 1839.

The onset of the fever is generally marked by a rigor, followed by headache and vomiting in practically all cases; delirium often appears later, with restlessness and floccitation. That the height and duration of the fever give no criterion as to the severity of the case is remarkable; in the fulminating cases urgent dyspnoea is a highly characteristic sign. The authors describe four varieties of rash: a uniform macular rash, a fugitive erythema in different parts of the body, a petechial rash of a purple or copper colour at points of pressure, and a purpuric rash occurring in large purple spots or vibices, such as are common in all profound infections. Herpes was seen in 14 out of 39 patients. Inability to swallow was present in 6 out of 39 cases. The authors attach great diagnostic value to the presence of the sign first described by Kernig of Petrograd in 1884—contracture or flexion of the knee and hip when the patient is caused to assume the sitting posture; this is an early sign, present in all but the fulminating cases within twenty-four hours. Nystagmus was seen in 3 out of 39 cases; iridocyclitis leading to suppurative panophthalmitis occurred once in 91 patients; iridocyclitis was observed by Morax in from 3 to 6 per cent. of the cases in a Parisian epidemic. Implication of the respiratory and circulatory systems is said not to be common; constipation is almost the invariable rule, and haematuria without apparent permanent damage to the kidneys may occur during the acute stage.

Stress is laid upon the importance of early diagnosis. Kernig's sign is of great value here, more particularly as it points to the advisability of performing lumbar puncture. This operation, the authors state, should always be done under a general rather than a local anaesthetic; they find that no harm ever follows the general anaesthesia, but rather good, for the patient often gets several hours of peaceful sleep after it. From two to three ounces of cerebro-spinal fluid may be removed with advantage. When the fluid has been withdrawn, the further diagnosis rests with the bacteriologist.

From the clinical point of view the authors divide cases of cerebro-spinal fever into acute cases ending in death or convalescence within a fortnight, and subacute and chronic cases in which the issue remains doubtful for a longer period. In the chronic cases death, when it occurs, is due

to hydrocephalus, with increasing headache, perhaps a rigor, retention of urine, and unconsciousness. When hydrocephalus supervenes the optic discs show nothing beyond fullness of the retinal veins; Macewen's sign (a more resonant note on percussion of the skull about the pterion) may be of value in diagnosis here. No satisfactory treatment, surgical or otherwise, for this hydrocephalus is known.

As for the period of incubation in cerebro-spinal fever, the authors bring forward reasons for supposing that it does not surpass five days and may last only twenty-four hours. The prognosis is hopeless in fulminating cases; it is better the earlier treatment is instituted, and in patients aged between 23 and 30, and also in the later periods of an epidemic. The remote prognosis is usually good, as sequelae other than those pertaining to the nervous system are practically unknown; sequelae, too, are much rarer nowadays than they were last century. Treatment should consist in the early and daily repeated performance of lumbar puncture, fluid being allowed to run out until it issues at the rate of one drop in two or three seconds. The alleged danger from too rapid lowering of the pressure of the cerebro-spinal fluid may, it is stated, be disregarded. The authors performed lumbar puncture on thirty-two occasions in the course of sixty days in one patient, who made a complete recovery and returned to military duty. They note that the intrathecal injection of antimeningococcal serums has proved disappointing in their hands, as it has in the hands of many others. They have seen no good results from the exhibition of hexamine (urotropine). The headache of cerebro-spinal fever can be relieved by morphine only; there appears to be no danger of forming a morphine habit by giving it for this purpose.

About half the volume is given to the pathology, epidemiology, and bacteriology of the disease, the former being illustrated by eleven excellent plates, eight of them in colour. Many points of obscurity in the epidemiology of cerebro-spinal fever remain to be cleared up. Epidemic outbreaks are common in schools and among troops, but not, apparently, in other communities. In studying an epidemic one of the striking features observed is the disconnected or sporadic way in which the bulk of the cases occur. Infection may spread from case to case directly; more often it appears to be passed on by means of one or more carriers. No doubt the susceptibility of the individual is highly important here; it is also a very variable factor in the same person at different times, and it is often found that some comparatively slight illness (influenza, a sore throat) has preceded an attack of cerebro-spinal meningitis. Among a civilian population age appears to be a highly important factor, children and adolescents being particularly prone to infection; among soldiers fatigue does not seem to predispose to the disease. The disease is essentially one of the winter and spring, connected with rapid changes in the temperature and high winds. The authors come to the conclusion that the meningo-coccus is spread by being carried in the nose and throat of normal individuals, convalescent patients, and patients actually suffering from the disease, and is imparted to others by direct contagion—kissing, coughing, sneezing, and the like. It is impossible in this brief notice to give any account of the precautions to be taken to prevent the spread of cerebro-spinal fever, or of the pathology and bacteriology of the disease; the authors do ample justice to all of these subjects.

The book is excellently arranged, well written, and full of practical details that make it invaluable for the medical man and laboratory workers who have to deal with cases of cerebro-spinal fever. It may be most warmly recommended to their attention.

SWANZY'S OPHTHALMOLOGY.

THERE is, perhaps, no English textbook on the diseases of the eye that has enjoyed a wider popularity, and at the same time given its students a better introduction to the study of ophthalmology, than the work of Swanzy of Dublin.² Through ten editions it passed whilst it was directly the result of Swanzy's labours or in some later editions with the help of his colleague, Dr. Louis Werner.

¹ *Cerebro-spinal Fever*. By M. Foster, M.A., M.D., Captain R.A.M.C.(T.F.), and J. F. Gaskell, M.A., M.D., Captain R.A.M.C.(T.F.). Cambridge: The University Press. 1915. Imp. 8vo, pp. 230; 11 plates, 5 plans, 3 figures. 12s. 6d. net.)

² *Swanzy's Handbook of Diseases of the Eye and their Treatment*, edited by L. Werner, M.B., F.R.C.S.I., Sen. Mod. Univ. Dub. Eleventh edition. London: H. K. Lewis, 1915. (Demy 8vo, pp. 654; 9 plates, 261 figures. 12s. 6d. net.)

Now the eleventh edition is before us, and although the title of the work is the same, the task of editing the new edition has fallen solely to Dr. WERNER. All who knew Swanzy and his work will regret the loss of his genial presence and influence; but in the conduct of his textbook he has found a worthy successor in his former colleague, and the success of the past bids fair to be carried forward into the future. In appearance and general arrangement the new edition does not differ from the last, but much care has been expended on the revision of the work so as to bring it thoroughly abreast of the most recent gains in the diagnosis and treatment of eye conditions.

The chapter on glaucoma shows evidence of much care in revision. There is an excellent description of Schiötz's tonometer and the method of its use in determining the tension of the eye. In the same chapter the accounts of the several operations for chronic glaucoma are given with much lucidity. We particularly commend the manner in which these operations are arranged in chronological order; this has appreciable advantage to the student, who is able to see how the various procedures arose out of each other, one man's discovery leading to the improved technique of another. Not only is there a very real aid to understanding and memory in such a method, but there is the additional advantage that the credit of an advance in method is spread so far as is possible amongst those who helped to bring it about.

The chapters on the diseases of the retina have been rearranged. More attention has been given to the subject of retinal angio-sclerosis, and the result is a section that might well find a place in every textbook of medicine. Too few men in practice realize that there is no better means of determining the arterial condition of their patients than by the direct examination of a fine field of vessels in the fundus oculi. The judgement to be gained from such an examination is at least equal to and often better than that which can be gained by the use of a manometer.

Small details of practical value have not been overlooked by the editor. This is evidenced by the inclusion of a very useful note on the use and care of artificial eyes.

There are few English written books on eye diseases which can be recommended with greater certainty of satisfaction, both to the student and the practitioner, than the new "Swanzy."

NOTES ON BOOKS.

THE eighth edition of Southall's *Organic Materia Medica*³ has been brought up to date and revised by Mr. E. W. MANN, and is in accord with the *British Pharmacopoeia* of 1914. This well known book is designed for the use of teachers and students of pharmacology, chemists and druggists, and is a mine of valuable botanical, pharmacognostic, and chemical information. Dr. William Southall, author of the first edition, died many years ago; in the present edition his name is misspelt on the back cover, half-title page, and title page. *Sic transit!*

It is difficult to see what interest or amusement the general reader can find in an elaborate study of a born-tired, such as is presented by IVAN GONCHAROV in a novel entitled *Oblomov*,⁴ which C. J. Hogarth has been at the pains to translate into English. The thing is no doubt very well done, in that the description is very true to life, but was it worth doing? To study the processes of disease for the purpose of checking and overcoming them is a worthy and laudable occupation, whose repellent character is compensated by the object pursued; but to study the processes of disease for the purpose of depicting them to the morbid curiosity of the public, to revel and wallow in morbidity, is neither pleasant nor profitable, neither amusing nor instructive. If the study of *Oblomov*, if the description of his career from infancy to decrepitude threw any light on the causes of his malady or on the means of treating it, the book would have an undoubted value; but it does not. It is merely descriptive. It is a description of a subject that is morbid and unpleasant from beginning to end; and, worse than this, it commits the unpardonable literary sin—it is tedious. It is clean, indeed, and, as it belongs to the school of Zola, this is a merit to be recorded; but if it is not as dirty as Zola, it is

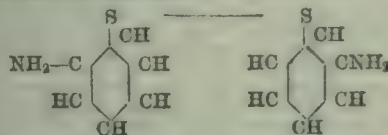
almost as tedious. There is evidently a market for the book, in Russia at any rate, and we can only say, in the well-worn phrase, that for those who like this kind of thing this is the kind of thing they will like. Incidentally it depicts the narrow, ignorant, limited life of the dwellers in a rural estate in Russia, and the explosion and turmoil that are produced in the family of the squire by the mere reception of a letter about nothing in particular.

In their elementary book on *The Body in Health*⁵ Messrs. O'SHEA and KELLOGG have endeavoured to present modern physiology in a form attractive for pupils in elementary schools. It is written quite clearly, and in a style alternating between that of the popular press on the one hand and the nursery on the other. A special chapter is given to "The Body's Enemies," which are, oddly enough, said to be tobacco and alcohol. Yet this is a book that may be recommended for use in Sunday schools and the like.

MEDICINAL AND DIETETIC PREPARATIONS.

"Intramine" in Syphilis.

As is well known, the late Professor Ehrlich put forward the "side-chain" theory, according to which the reaction between drug and parasite is due to the nature and conformation of portions of the molecules, so that one fits to the other somewhat in the same way as a key fits a lock. Mr. McDonagh dissents from this view, and some account of his views is given in a report of a discussion in the Dermatological Section of the Royal Society of Medicine published at p. 591. It is asserted that oxidizing enzymes have their action increased by metals, but that oxidation can also be increased indirectly by stimulating reduction by means of non-metals. Many of the statements made appear to be highly speculative, and in the present state of our knowledge not capable of proof; the practical outcome is that, in Mr. McDonagh's view, the alternate exhibition of certain metallic and non-metallic compounds may be expected to be a useful means of treating syphilis and some other diseases; in particular, attention is directed to di-ortho-amino-thio-benzene,



a compound to which Mr. McDonagh has given the name "intramine." This is a yellow crystalline powder, which is suspended in oil and injected intramuscularly; it is said to be quite non-toxic, and therefore capable of being given in large doses, and to be more efficient than salvarsan at certain stages in cases of syphilis. Compounds of aluminium and iron, known as "aluvine" and "ferrivine," which may be used alternately with intramine, are also described. In certain cases treatment by intramine is reported to have given excellent results; and the clinical effects of the drug are to be discussed at another meeting of the same section. Intramine is made and sold by the British Drug Houses, Ltd., Graham Street, N., and supplied in ampoules containing 1-gram of the solid in 10 c.cm. ready for injecting. Since it is not affected by the action of the air, it is not necessary for the whole contents of an ampoule to be used up at once.

Sanitas-Sypol.

We have recently received a sample of sanitas-sypol, a disinfectant manufactured by the "Sanitas" Company, Ltd., and intended to replace lysol for use in surgery. It is a clear fluid, perfectly miscible with water to form a bright transparent solution, and containing, according to our analysis:

Combined alkali, calculated as potassium hydroxide	3.32 per cent by weight
Cresols	48.5 per cent by weight.

No free alkali is present. These characters show that it is an excellent preparation, well adapted to the purpose for which it is put forward.

Indian Thymol.

Messrs. Smith, Stanistreet and Co., 9, Dalhousie Square, Calcutta, have submitted to us a sample of Indian thymol, which we understand they are now in a position to produce in large quantity. The sample in question is excellent in colour and odour, complies with

³ Southall's *Organic Materia Medica*. Revised and enlarged by E. W. Mann, B.Sc. Lond., F.I.C. Eighth edition. London: J. and A. Churchill, 1915. (Demy 8vo, pp. 410. 7s. 6d. net.)

⁴ *Oblomov*. By Ivan Goncharov. Translated from the Russian by C. J. Hogarth. London: G. Allen and Unwin, Ltd. 1915. (Cr. 8vo, pp. 317. 6s.)

⁵ *The Body in Health*. By M. V. O'Shea and J. H. Kellogg. Health Series of Physiology and Hygiene. New York: The Macmillan Co. 1915. (Cr. 8vo, pp. 332; illustrated. 3s. 6d. net.)

the requirements of the *British Pharmacopoeia 1914*, and altogether compares very favourably with the German product obtainable before the war. So far as quality is concerned, therefore, the product of this firm should have no difficulty in permanently replacing thymol manufactured in Germany.

MEDICAL AND SURGICAL APPLIANCES.

MR. H. S. SOUTTAR has designed, and Messrs. Allen and Hanburys have made, a glove to maintain the extended position of the hands and fingers in paralysis of the extensor muscles, and the relaxation of those muscles essential to their recovery. A leather armband above the elbow is connected by a detachable leather strap to the



wrist of a stout leather glove. Inside the glove elastic bands pass from the wrist to the top of each finger. On contraction of the flexors the fingers and wrist can be flexed and the hand used.

ROYAL MEDICAL BENEVOLENT FUND.

(Continued from p. 559.)

THE following is a continuation of the summary of cases relieved by the Committee at its meeting in March:

Widow, aged 47, of M.D. Edin. who practised at Glasgow and died in 1912. Applicant was left unprovided for with seven children. The older ones are now married, and unable to help, and the four younger children are at school. Only permanent income £22 from other charities. Tries to supplement this by taking in boarders, but unsuccessfully. Relieved four times, £72. Voted £20 in twelve instalments.

Daughter, aged 65, of M.R.C.S. Eng. who practised in London and died in 1853. Left totally unprovided for, and has worked in various ways to try and support herself, but was unable to provide for her old age. Her income now from a charity and friends totals £28, and she tries to supplement this by poultry-keeping. Relieved three times, £30. Voted £6 in twelve instalments.

Daughter, aged 67, of M.R.C.S. Eng. who practised in North Devon and died in 1903. Was left totally unprovided for, and her health is exceedingly unsatisfactory, which has prevented her from working. Her only income has been a few shillings weekly from friends. Previous help, £14. Voted £12 in twelve instalments.

Widow, aged 46, of L.S.A. Lond. who acted as ship's surgeon and died in 1912. Was left with three children, aged 8 to 24. The eldest is unable to assist, and the others are too young to do anything. Applicant is now working as a typist at £1 a week, but finds it insufficient to keep four persons. Relieved four times, £18. Voted £12 in twelve instalments, and referred to the Guild.

Widow, aged 66, of surgeon in the Army Medical Service who died in 1888. Only income a War Office pension. Was operated upon six years ago for cancer and had breast removed. Has four children, but all married, and none able to help. Wants a little help to furnish spare bedroom, so that she might take in a paying guest. Relieved once, £16. Voted £5, through the Guild.

Subscriptions may be sent to the honorary treasurer, Dr. Samuel West, at 11, Chandos Street, Cavendish Square, London, W.

THE ROYAL MEDICAL BENEVOLENT FUND GUILD.

The Royal Medical Benevolent Fund Guild has issued its sixth annual report. It was presented to the annual general meeting at the Mansion House on February 21st by the Lord Mayor, as reported in the *JOURNAL* at the time. All cases helped are either qualified medical men, their widows and children, or unmarried daughters of such practitioners. The Guild not only makes gifts in money and kind when satisfied that they are needed, but also gives personal service, and for the conduct of this part of the work has a special visiting committee. It is now called upon, as a result of the war, to deal with many widows and children who, in happier times, would not have thought of asking for assistance. It is glad to receive secondhand

clothing and household linen. The class of clothes most wanted are such as are suitable for boys and girls working in offices, for women, and for old men. The gifts should be sent to the secretary of the Guild, 43, Bolsover Street, W.

NOTIFICATION OF PREGNANCY.

By J. W. BALLANTYNE, M.D.,

EDINBURGH.

THERE has been some talk of late of the desirability of introducing notification of pregnancy into Great Britain, and there have even been whispers of its being made compulsory. Before, however, any such proposals are accepted by the medical profession, it will be well to inquire what benefits are expected to flow therefrom.

Pros.

I. If the country had a system of compulsory notification of pregnancies it would be put in possession of figures respecting the number of infants on the way, and when these were compared with the number of births of living children, it would be made aware of the antenatal losses incurred. It would know what percentage of the starters in life's antenatal race had failed to breast the tape; it would also, with the help of the returns as to premature births obtained under the Notification of Births Act, have an inkling of the proportion of competitors who fell out before the last lap was entered upon. This information would doubtless come as a shock to some, it would awaken all to a better realization of the amount of potential lives that are being lost annually, and it would enable a few to say, "I told you so."

II. It would impress upon the general public, and perhaps specially upon the woman's part of it, the emphasis which is now at last, after many years, being laid upon pregnancy, for it would be taken for granted that some good purpose was intended to be served, beyond the obtaining of an estimate of the forthcoming crop of babies. It would therefore be necessary to follow on with a clear statement of the advantages which would accrue to the women notifying their pregnancies, of the benefits likely to be conferred upon the infants thus antenatally taken stock of, and of, possibly, some financial aid to be given at or after the confinement, or, better still, during the few weeks which preceded that event.

III. It would undoubtedly be a stimulus to the study of all matters relating to the hygiene and pathology of pregnancy and antenatal life, and if this stimulus produced its expected effect there would be a great increase in the frequency of antenatal treatment, and the scope of pregnancy supervision would be widened. In the long run there would be saving of lives to an unknown but certainly not inconsiderable extent.

IV. In the fourth place, it might serve to check the frequency of abortions and the use of abortifacient means.

Cons.

On the other hand, any such system of notification, especially if it were made compulsory, would arouse opposition and give origin to difficulties of many kinds.

I. The necessity for the preservation of at least a certain amount of privacy in intimate home affairs would be pleaded. During the continuance of the war and with individual responsibility and national success each playing a part, the inhabitants of these islands are prepared to write "*fiction pro tem*," across the adage "an Englishman's house is his castle"; but the compulsory notification of pregnancy would not be proposed as a temporary but as a permanent measure, and in the intimacy of its application it would produce disquiet in the public mind. A public which, in certain places at least, is ready conscientiously to object to vaccination would be with difficulty led to put itself in the hands of the enumerators of this novel census. Neither can it be thought that "the men at the front" would easily be persuaded of the necessity of so great a degree of paternal solicitude on their behalf and in their absence.

II. There would be irritating difficulties in the details and methods of the notification. The diagnosis of early pregnancy is not very easy, and for the notification to be of real value it would require to be made early so as to check third and fourth month abortions. Perhaps it

could be called a provisional diagnosis and notification, but then its value would be greatly lessened, for sufficient care would not be taken to ensure accuracy. Then, again, what harmless and unobjectionable means would be taken to enforce notification, and what penalties would be proposed for non-compliance? Could women doctors be supplied in sufficient numbers to carry out the examinations if a demand was made for them? Would the doctors be asked to do this also gratuitously? And so on.

III. It is unnecessary to force on such legislation and introduce so many new difficulties into health affairs, for events are already spontaneously moving in the direction aimed at. Many of the advantages which may be claimed as likely to flow from compulsory notification are already in process of being gained, slowly, it is true, but surely, and with increasing facility, by means of an education of the public in the nature and hygiene of pregnancy (through the work of the Women's Co-operative Guild, antenatal consultations, books on expectant motherhood, and other bodies or means), in the necessity of propagation in a progressive nation, in the care of young and especially of neonatal life, and in a hundred other matters, amongst which the making plain of the causes, dangers, and prevention of the venereal diseases must be reckoned as an effective part. It may be confidently expected that the present falling birth rate and the rising death-rate (without taking into account the loss of life abroad) will not fail to keep the increased and increasing value of antenatal life prominently in the public mind.

Suggestions.

Let us by all means "lengthen our cords and strengthen our stakes" in every direction in such educational ways and plans. Let us, as a profession, welcome as coadjutors eminently fitted for the task the various women's associations which are imbued with a sense of the value of infantile life and are in touch with women of all classes, but especially of the working and middle; let us as doctors aid them by accepting the responsibility of supervising pregnancies from their earliest weeks, by establishing more and more maternity hospitals, centres, and homes with all the essential component parts of the prematernity system attached thereto, and by putting the best of our special knowledge and skill at the call of the women passing through pathological pregnancies and labours.

Let the midwives act in like fashion.

Let us accept as watchword the Parisian phrase of these days, "Let every necessitous woman who is pregnant or who is nursing a young child have the social, legal, and medical protection to which she is entitled as a member of a civilized society: let no mother be overlooked and no infant forgotten." Let us study what was done by Pinard and others for infant life in Paris, even when the tide of battle was daily rolling nearer and "the Medes were at her gates."

When some eight years ago Mr. Eden Phillpotts asked why we should not have a "State department for the unborn," I heaved a sigh and said to myself, "Because we should only be laughed at for our asking"; I am not so certain of the sequent amusement now. Pinard has said—and it is not unlikely that the phrase may remain after the war is over—"notwithstanding an intensive puericulture, babies are not being made and cared for as are munitions."

If there is to be compulsory notification of pregnancies, let it come spontaneously from the women's organizations; but in the meantime let us, as a medical profession, accept all the voluntary notifications which are made to us by expectant mothers, and watch over the pregnancies thus entrusted to our medical care; let us do our best to popularize correct notions of the nature, risks, and hygiene of pregnancy, and let us freely give our assistance to all agencies which have as their aim the comfort and health of expectant mothers and the welfare of young infants at the breast or in the womb. If the Insurance Commissioners can see their way to make grants to necessitous mothers before their labours, as is being done in Paris, so much the better. But let us be up and doing.

The programme of the *Office central d'assistance maternelle et infantile* in Paris in the early weeks of the war began with these appealing words:

PARISIENS,

LES PÈRES SONT À LA FRONTIÈRE;

DEFENDONS LES MÈRES ET LES PETITS ENFANTS!

À LEUR AIDE ET VITE.

The response was immediate; fresh milk for infants and hospitals through the military authorities; money to enable expectant and nursing and necessitous mothers to rest from hard bodily toil; and a supervision of mothers and infants which caused a decrease in infantile and maternal morbidity and mortality such as could hardly have been thought possible. We are in straits not quite so pressing, but the situation is full of depressing possibilities—

Qui non est hodie,
Cras minus aptus erit.

He who is not ready to-day will be less so to-morrow.

THE OPHTHALMIC HOSPITALS OF EGYPT.

THE third annual report of Mr. A. F. MacCallan, the Director of Ophthalmic Hospitals in Egypt, is a record of steady advance in work of a most excellent character. Not even the sacrifices which the department has made owing to the war has stayed the increase of its activity. Two medical officers left for military service and two fully staffed and equipped tent hospitals, together of 150 beds, were detached for the treatment of wounded Turks on the line of the Suez Canal. Nevertheless, the number of patients increased in the year by 9,456 and the attendances of out-patients by 141,745.

During the ten years ending with 1914 no fewer than sixteen ophthalmic hospitals have been opened; all except two are endowed. Of the total cost of provision of these hospitals only £17,000 has been contributed by the Government, £49,000 was obtained by gift, public subscription, or local taxation. This is apart from the Cassel fund. The hospitals are not costly; for £4,000 a hospital with a commodious out-patient department and beds for 16 patients can be built. This accommodation suffices for a daily clinic of 200 to 300 patients. Besides these there are travelling hospitals, large tents, with accommodation for 6 to 10 in-patients with attendants.

Four provinces still lack hospitals and they are too poor to provide them for themselves. Two of these provinces should have specially built dahabia hospitals, for the terrain is along the river. When a hospital is provided the Government will maintain it.

The outstanding feature of the clinical report is the note on glaucoma. Glaucoma simplex was found to be present in 2.3 per cent. of the patients seen. The cause of this prevalence is as yet undecided, though it is suggested the anatomical condition of the eye among the Egyptians, with frequently a very small cornea, is the predisposing factor. The figures for the three past years are as follows:

	1912.	1913	1914.
Glaucoma:			
Acute	3	12	17
Subacute	10	17	23
Chronic	829	902	574
Absolute	282	217	1,147
Operations for glaucoma:			
Iridectomy	60	28	25
Trephining with iridectomy	152	317	428

Care has been taken to follow up the cases of trephining to note if there is any danger of intraocular infection through the thin conjunctival covering of the new vent; only one case was found, and that in a boy of ten who had suffered from increased tension in an eye with adherent leucoma; even here there was a history of injury to the eye just preceding the final disorganization of the organ.

In the year 7,784 bacteriological examinations for the diagnosis of acute ophthalmias were made. The gonococcus heads the list with 43.6 per cent.; next come the Koch-Weeks bacillus with 19.5, and the Morax-Axenfeld bacillus with 16.6 per cent. Diphtheria accounts for only 0.96, and the streptococcus for 0.03 per cent. Gonococcal conjunctivitis is rarely accompanied by gonorrhoeal

urethritis. Infection appears to be from eye to eye. Chronic attacks are seen in cold weather, the acute being mainly seen in the hot weather. The organism, therefore, persists during the winter months on the conjunctiva of various sufferers without the necessity of a sojourn on the urethral membrane. Interesting charts are given showing the relationship of the incidence of the various forms of conjunctivitis to the meteorological conditions.

In the section dealing with the ophthalmic inspection of schools note is made of the campaign against trachoma. The general incidence in the schools is still high, being given as 92 per cent. Taking the more infective stages of the disease, there has been a distinct reduction in the incidence. From 95.5 per cent. in 1907 it has now been reduced to 11.7 per cent., and at the end of a school session it is brought still lower.

Conjunctivitis accounts for the greater number of blind eyes; 76 per cent. are referable to it either directly or indirectly.

THE EDUCATIONAL MENU CARD.

THE Educational Department of Public Health of the city of New York has opened a lunch-room for its employees at head quarters.

The object of this is primarily to provide a wholesome luncheon at cost price; secondarily, to educate the patrons in the subject of food and nutrition by the objective teaching of the lunch-room. The enterprise is being financed by the employees themselves; the city is put to no expense in its maintenance. The menu for the opening day is before us, and it sets forth not only the dishes but the quantity which is served and the calorie and protein value of each portion. Specimen lunches furnishing a balanced ration are given, one at a low and the other at a high cost.

The low cost luncheon is as follows:

	Price.	Quantity.	Calories.	Protein.
Cream of asparagus soup...	2½d.	½ pint	230	Grams, 7.0
Salade a la Santé ...	4d.	Average helping	370	2.0
Glass of milk ...	2d.	7 oz.	160	7.0
Apple pie ...	2½d.	One-sixth of pie	300	4.0
Whole-wheat bread...	—	2 slices	140	5.5
Butter ...	—	½ oz.	120	—
	11d.	—	1,320	25½

The high cost lunch contained:

	Price.	Quantity.	Calories.	Protein.
Cream of asparagus soup...	2½d.	½ pint	230	Grams, 7.0
Roast beef ...	10d.	4 oz., lean	140	30.0
Mashed potatoes ...	—	Average helping	150	4.0
String beans ...	2½d.	2 h. tbsp.*	110	0.5
Salade a la Santé ...	4d.	Average helping	370	2.0
Apple pie ...	2½d.	One-sixth of pie	300	4.0
Black coffee ...	1½d.	1 cup	—	—
Sugar ...	—	2 cubes	100	—
Whole-meal bread ...	—	2 slices	140	5.5
Butter ...	—	½ oz.	120	—
	1s. 11d.	—	1,520	53.0

* h. tbsp. = heaped tablespoonful.

The articles of food ready every day and those special for each day are set out with cost, quantities, calories, and protein values, so that the guest can select and calculate the nutritious value of his own lunch. We learn the following facts:

	Quantity.	Calories.	Protein.
Ginger bread ...	2 oz.	220	Grams, 3.5
Ice cream ...	2 h. tbsp.*	190	5.0
Tea or coffee with 2 cubes of sugar and milk	1 cup	80	—
Ditto with sugar and 1 oz. cream	"	160	2.3
Cocoa ...	"	185	9.0
Baked apple ...	1 med. size	130	0.5
Ditto with 1½ oz. cream	—	250	2.0
Whole-wheat bread sandwiches with cheese	1½ oz.	340	16.5
Ditto with ham	"	280	16.5
Egg (one) and ham	—	370	23.0
Potatoes (fried)	Average helping	120	3.5
Boiled rice ...	3 h. tbsp.*	330	8.0

The menu card not only gives the guest all this information but affords appropriate mottoes, such as "Since Eve ate apples much depends on dinner" (Byron); and what a subject for conversation it gives! If every hostess would only add the calorie and protein value to her dinner menu card there would be no more trouble in making conversation, and distress for the shy and nervous partner. Discussion as to how we are going to make up our physiological allowance—dare we exceed it and by how many calories? how do the food values compare with those of Mr. Grundy's dinner? is our hostess right in her protein value for the quail? and surely the calorie worth of asparagus is too high for the portion we have been given?

We measure the miles we walk, the temperature of our rooms and bath, the medicine we take, why should not we have the exact measure of the food we eat? The quack pill and salts vendors make their fortunes out of the gross guzzling habits of the nation. Feed up your strength, avoid the slightest exposure to cold—these are tenets held as fast as parts of a religious creed. They lead to digestive disturbances and impoverished health. The metabolism is reduced, excess food is eaten and not utilized, and the bowels become the seat of bacterial fermentations, which lead to chronic intoxication and a host of complaints.

How many clerks, shopmen, etc., have in the last nine months been changed by military service from pale, dyspeptic men, below par, unjoyous, into magnificent healthy soldiers full of the perfect enjoyment of life? This is due to hard physical labour, and exposure to cold and wind, which enormously increases the metabolism and the appetite and favours the complete digestion and utilization of the food. For many sedentary workers the appetite overruns the bodily needs. For these the menu card, with the calorie and protein values set out, would be useful. Not only does the over-eating work much harm to the national health, but the economic waste is enormous. Let us, then, in these scarce and dear times of war, spread the use of the Educational Menu Card.

LARVA MIGRANS, a creeping eruption of the skin, first reported by Robert Lee in 1874 and investigated by Dickinson, Tilbury Fox, and Duckworth, was traced by Sokolow to the *Gastrophilus haemorrhoidalis*, a horse fly. Dr. F. C. Knowles, of the University of Pennsylvania, has demonstrated (*Journ. Amer. Med. Assoc.*, January 15th, 1916) its histologic features and followed up the burrow and the larva in the epidermis. One of the two cases he records occurred in a girl aged 20 months; there were areas of the size of a palm of serpiginous gyrating lines on both nates and on the pubes. Treatment with nitric acid having failed, all three tracts were excised. The larva, however, made a fresh progression four days later at the edge of the excision on the left buttock, and in twenty-four hours advanced 2 in., burrowing down towards the lower edge of the mons veneris on the left side. A second excision was followed by permanent cure. The tracts differed from those seen in scabies. Under the microscope the burrows were explored and at some points the larva was detected. In almost all cases these passages ran in the upper portion of the rete, and the diameter of the burrow varied from 0.25 mm. to 0.75 mm.

British Medical Journal.

SATURDAY, APRIL 22ND, 1916.

THE CONTROL OF VENEREAL DISEASES.

On April 14th the President of the Local Government Board informed a deputation from the National Council for Combating Venereal Diseases that the Treasury was prepared to provide the necessary grant to carry out the recommendations of the Royal Commission with regard to the provision of facilities for diagnosis and treatment. The grants would cover 75 per cent. of the cost incurred by local authorities. It was not proposed to create special hospitals for the treatment of venereal diseases, as it was felt that treatment would be carried out more efficiently and with less danger of prejudice at the existing general hospitals.

The Royal Commission on Venereal Diseases entertained the hope that benefit would be derived from a wide public knowledge of the dangers of untreated venereal disease and the certainty of a real cure if the treatment of the disease was undertaken at the earliest stage of the infection. The Commission, indeed, laid great stress on its expectation that the report would give this desirable publicity. The hope is in process of realization. In the current issue of the *Edinburgh Review* (April, 1916) is an article which deals with the Report and the evidence given to the Commission in a broad-minded fashion. In quoting from the article we confine our attention to parts which emphasize certain findings of the Commission and certain points as to which there was some disagreement or total silence.

The article sets out with a statement emphasizing the urgency of dealing with these grave evils. Its opening sentence is: "The issue of the final Report of the Royal Commission on Venereal Diseases is an event of national importance, deserving the attention of all well-wishers of humanity, even in the stress and strain of a world-war. It may be doubted whether even this war at its finish will have shortened a larger number of lives and decreased the physical and mental efficiency of a larger number of persons than has venereal diseases during a single generation." Such a statement in such a place may help the nation to realize the urgency of the need for dealing with the evil. The stringent comment of the report on the evils of quack treatment is pointed by a quotation from the evidence of Dr. Johnstone, a medical inspector of the Local Government Board, who stated "that medical men in various parts of the country informed him that they were rarely consulted until the patient had spent some weeks in the hands of a herbalist or chemist, or in trying some advertised cure." Exception was taken by one at least of the Commissioners to the proposal to keep infected patients in Poor Law infirmaries until they are cured. On this the article makes the following comment: "The patients in question are usually inveterate prostitutes who have become diseased to an extent which disqualifies them from plying their unhappy traffic, and who consequently are destitute. Even with the knowledge that they will be detained until well, such women must enter the infirmary; and persons of practical experience appear to regard it as

certain that the exercise of powers of compulsory detention would not be likely to have a deterrent effect in preventing these women from accepting treatment. Such 'ins' and 'outs' at present are a serious scourge to the community. In maritime towns, for instance, such women, when still highly infectious, 'take their discharge' when a large ship arrives in port, returning as soon as their horrible business slackens! The amount of mischief thus done is incredible to those who have not come into actual contact with it; and at present there is no effectual remedy for it."

The final paragraphs of the article deal with prophylaxis. The report proper did not mention this matter, but a reference to it appears in an appendix. The article reads: "It is well known that the use of simple measures within one or two hours after exposure to infection will, in most instances, prevent the occurrence of the disease. . . . The Commission carefully refrained from expressing any opinion upon either method of guarding against the disease. The importance of the matter cannot, however, be ignored. Both at home and abroad our soldiers are grievously infected with venereal disease. . . . Short of imprisoning every woman who approaches a military camp and absolutely cancelling all military leave, it is impossible to begin to prevent soldiers from running the risk of venereal infection. Nor would even these impossibly drastic measures touch the case of soldiers living in billets. The seriousness of the matter is fully recognized by the military authorities, and lectures are given on the horrible character of the risks that a man runs in consorting with immoral women, but the results are disappointing. Therefore the question arises whether, in the interests of their health, of the health of their wives and of their unborn children, and also of the military strength of the nation, it is not desirable to give our soldiers the opportunity of guarding themselves against disease. It is not suggested that the soldiers should be in any way encouraged to indulge in irregular intercourse, or that anything should be done which would give them the idea that the military authorities look with tolerance upon irregularities. But the evil is so grave that the case is very strong indeed for putting into the hands of the soldier the means which will enable him to protect himself."

In another part of the article we find the following: "The experience of the world proves conclusively that in no country has the dread of venereal diseases ever prevented the existence of irregular sexual relationships. Few people who are able to look facts in the face can hold the belief that the world will ever reach a stage when the rules of monogamy are strictly and universally observed. But if that stage should ever be reached it is certain that the change will be due to moral causes, not to materialistic fear of specific diseases." Do the people who refuse to 'condone vice' really think that it is justifiable to allow the race to be saturated with syphilis while waiting for an epoch of universal purity?"

One more paragraph we will quote for its bearing on the present difficulties of the country: "Venereal diseases form a scourge which, with the possible exception of tuberculosis and cancer, in time of peace is chief among the Captains of Death and Disease. In war the ravages of venereal diseases form an even more serious calamity. Large numbers of our soldiers are rendered inefficient for considerable periods by these diseases, and this to an extent which seriously handicaps our military position. So far no recent figures as to the amount of these diseases among our troops have been published, but it is well known that the amount is serious, and that in several parts of the

country there are large hospitals which contain no patients except venereal patients."

We have preferred to deal with this important article mainly by way of quotation because we think that by the publication of the report of the Royal Commission the matter has now been put into the hands of the public and of Parliament to find solutions for the problems raised. As to the seriousness of the effects of these diseases there are no two opinions among members of the medical profession, who would probably generally accept the truth of the opinion Sir William Osler expressed on the Commission that "of the killing diseases syphilis comes third or fourth." If to this we added a mental estimate of the number of conceptions prevented by the consequences of gonorrhoea we might be justified in promoting venereal diseases to a worse eminence.

PILIMICTIION.

PILIMICTIION, or the passage of true hairs in the urine, is a phenomenon of very rare occurrence. It was noted by Hippocrates in his *Aphorisms*, with the erroneous explanation that the hairs were excreted by the kidneys. Galen and many medical writers after his day referred to pilimiction, often adding strange hypotheses or theories to account for the production of the hairs passed. It was not until 1849 that the true explanation was given, by the French surgeon Reyer. He found that the hairs originated in dermoid cysts, and reached the urine by the rupture of such cysts into the bladder. Naturally the other contents of the cysts would enter the bladder, so that teeth, carious teeth, bones, and fragments of other tissues might be found in it; but these do not seem, as a rule, to be passed in the urine by the patients to whom this unusual accident has occurred. Carraro¹ quotes from the literature to show that 56 cases have been recorded in which a dermoid cyst ruptured into the bladder—40 in women, 16 in men. Pilimiction was observed in 27 of these—16 of them women, 11 men; but owing to imperfection in the records considerable doubt exists with regard to the propriety of including 6 of these 27. In 21 of those without pilimiction, hairs were found inside the bladder. The patients varied in age between 2 months and 71 years; the hairs passed might be as much as 6 in. in length. The origin of the dermoid cyst in many of the patients remains wrapped in mystery for want of thorough examination either by laparotomy or obduction. In the case of the female patients, however, there is good reason for believing that the cysts almost always originated in the ovary. Exceptionally the dermoid cysts may have originated in the wall of the bladder itself, which is very rare, or, more probably, in the paravesical tissue and rectovesical ligaments. In any case these cysts grow within the pelvis, and by processes of growth, inflammation, and degeneration become adherent to the adjacent wall of the bladder, and finally rupture and discharge their contents into that organ. Carraro passes lightly over the vexed question of the mode in which such dermoid cysts come into existence. Some, at any rate, appear to be embryonic inclusions, the result of the cutting off of epidermal structures by maldevelopment and their inclusion deep inside the body. Others, particularly those containing mesodermal and endodermal as well as ectodermal tissues, represent fetuses (teratomas or embryomas) that are really abortive twins of the patients unknowingly harbouring them.

Whatever its origin, the cyst may become infected with bacteria by way of the blood or the lymph stream; it is thought that the gonococcus is often the infecting agent in these cases, but in Werth's patient it was proved to be the *Bacillus typhosus*. Rupture of the inflamed dermoid cyst into the bladder naturally gives rise to cystitis, with its train of local and general symptoms and its disturbance of micturition; a simultaneous rupture into the peritoneal cavity may take place, and even septicaemia or pyaemia may be set on foot. Carraro gives a full account of a case of pilimiction under his own observation. It occurred in an otherwise healthy stout married woman of 40. For a few months before she presented herself at the hospital she had complained of painful and increasingly frequent micturition. She came into hospital with acute fetid cystitis and incontinence of urine; a stone was found in the much-contracted bladder, and was removed under local anaesthesia by suprapubic cystotomy. It was the size of a walnut, and composed of short reddish hairs 1 or 2 cm. long, surrounded and bound together by calcareous matter. The woman had anuria for three days after the operation, and faeces appeared in the purulent urine on the sixth day, but this soon cleared up. A fortnight after the operation short hairs thickly incrustated with lime salts were being passed in the urine, and the cystitis reappeared. Cystoscopy showed that the dermoid tumour opened into the lower surface of the bladder to the left of the middle line. A few weeks later the bladder was opened again under spinal anaesthesia, and the dermoid cyst excised; a month after this second operation the patient was discharged cured. The tumour, 6 cm. long and from 1 to 2 cm. thick, consisted of typical hairy skin and subcutaneous connective tissue, with many vessels and very large sweat glands in it, some of the ducts having developed into hydrocystomas; both dermis and epidermis showed oedema and inflammatory infiltration. Carraro points out that there was nothing in the history of the case to show either whether pilimiction had actually occurred before the patient entered hospital, or how the acute cystitis originally arose; it may have been primary and have set up the infection of the dermoid cyst, or it may have been secondary to infection of the cyst from elsewhere. He believes that the communication between the cyst and the rectum had been established before the patient came to the hospital. He concludes his paper with four pages of advice to surgeons who may in the future be confronted by cases of pilimiction.

THE HORRORS OF WITTENBERG.

It was to be expected that an attempt would be made by the German Government to nullify the effect of the exposure of the horrors of the Wittenberg prison camp contained in the report issued by the British Foreign Office last week. A semi-official telegram from Berlin says that "the report is a repetition of former charges which were refuted when a committee of American doctors gave expression to their satisfaction at the sanitary and hygienic conditions of the camp." On April 13th Sir Edward Grey said in the House of Commons that, according to a statement of the Prussian Ministry of War issued to the press on February 14th, nearly all the camps in Germany had been visited on behalf of the United States Embassy and reports issued as soon as they were received. The staff of the Embassy had, it was added, been increased by four medical men to enable more frequent visits to be made to the camp. This, it may be presumed, is the "committee" referred to in the German denial.

¹ N. Carraro, *Il Morgagni*, Milan, 1915, Arch. ivii, 247.

But, as it is expressly stated that they were not allowed to visit the Wittenberg camp during the period covered by the recent report, the evidence of the American doctors, assuming that its purport is correctly given, cannot be accepted as a refutation of the charges made by the British Committee. We have strong proof of the truth of the charges in a report by Dr. Bert W. Caldwell, Director of the American Red Cross Sanitary Mission to the German prison camps, who, at the request of the United States Ambassador at Berlin, with the official approval of the German Government, made a thorough inspection of the camps at Münster, Wittenberg, Altdam and Gutersloh in November, 1915. His evidence is all the more convincing as his report, which is published in the March number of the *Military Surgeon*, the organ of the Association of Military Surgeons of the United States, is very favourable to the German authorities. Dr. Caldwell found the administration of the prison camps "humane, just, and of high order." But there was one exception. The name of the camp is not given, but there can be no difficulty in identifying it from the following description: "Typhus exanthematicus made its appearance in two or three of the camps, causing frightful morbidity and mortality in one. This regrettable occurrence was due to the inhumanity of the prison commandant, who, when typhus broke out in the barracks among the Russian prisoners, insisted upon the English, French, and other prisoners occupying the same barracks with the infected Russians, until some 800 of the prisoners became infected with the disease, and about 300 of them died. This epidemic, when the commandant was shorn of a part of his authority and effective measures were established within the camp was soon controlled." The epidemic came to an end in July, and Dr. Caldwell's inspection was made in November, when it is admitted that the state of things had greatly improved. But, as we said last week, as long as the care of sick prisoners is left to the tender mercies of a medical officer who has shown himself so inhumane as Oberstabsarzt Dr. Aschenbach we must feel misgivings as to their treatment. Every man of proper feeling will share the indignation expressed by Sir William Milligan in the letter published at p. 606, and we hope that a time will come when fitting punishment will be meted out to a man who has disgraced a profession of mercy in a manner which has excited the abhorrence of the civilized world. We are doubtful, however, whether the wholesale expulsion of Dr. Aschenbach's fellow countrymen from the honorary membership of our societies would be the most dignified or the most effective way of punishment for a man so destitute of decent feeling. Moreover, although German "intellectuals" have cut a sorry figure in the eyes of those of other countries, there is evidence that many members of the profession who have the misfortune to belong to that nationality have shown all the best qualities which are expected in the doctor in their treatment of wounded and sick enemies. In regard to the inspection of prison camps, we cannot help sharing the suspicion expressed by Professor J. A. Morgan that the Germans have hoodwinked the American Ambassador. "They stamp out the horrors in one camp and let him see it; and meanwhile these horrors break out in another camp, which he does not see." Unhappily the British Government, with all the experience of the last twenty months before it, does not seem even now to have learnt how the Germans make war. On April 17th Sir Edward Grey expressed regret that he and his colleagues had underestimated the brutality of our enemies. They had no suspicion of the horrors of the Wittenberg Camp, or of the gross and criminal cowardice of the German medical staff in abandoning their duties to those under their charge. So confiding were they that they did not think of demanding an independent examination of the camp. It is pretty certain that such a demand would have been met with a refusal, for during the prevalence of the epidemic

the Germans allowed no kind of communication as to the conditions existing at Wittenberg. There was too much they could not conveniently allow the outside world to know. Sir Edward Grey added that the Government had no reason to suppose that other typhus-infected camps in Germany were treated in the same way. It is deplorable that they should not have informed themselves more fully as to a matter so directly affecting the welfare of British prisoners. The evidence comes from too many sides and is too uniform in purport to be set aside by any semi-official denial. We need only refer to the account of the typhus-outbreak at Gardelegen given by Major P. C. Davy and Captain A. J. Brown in the *BRITISH MEDICAL JOURNAL* of November 20th, 1915, and to Dr. F. Léonetti's record of his experiences during similar epidemics at Cassel and Langensalza, a summary of which was given in the *JOURNAL* of March 18th, p. 421.

INFANT AND MATERNAL WELFARE.

THE Carnegie United Kingdom Trust proposes to prepare a comprehensive report upon the present position in regard to infant and maternal welfare, with special reference to the provision made or in immediate contemplation in various sanitary areas. To this end a schedule of questions has been drawn up and is being issued to medical officers of health of the larger districts of England and Wales. It has been drafted in a form which, it is hoped, will minimize trouble for each medical officer in preparing the information relating to his district. The schedule is on large paper, with room for the answers, and is divided into seven main sections. In Section A (general condition of the area) it is asked that statistical and other data may be given under a number of heads, including housing accommodation, birth-rate and infant mortality-rate, the diseases most fatal to infants, and maternal mortality. Section B refers to activities of local sanitary authorities and asks for particulars as to the staff of the M.O.H., the administration of maternity benefit and of the Children's Act, and as to the organization of infant welfare and maternity hygiene under the heads of "ante-natal," "natal," and "post-natal." Section C asks for particulars with regard to voluntary agencies, such as infant welfare centres, schools for mothers, hospital provision, and district nursing associations. Section D (Poor Law) asks for facts as to lying-in accommodation, and Section E (midwives) for particulars as to the relation with the municipality and the municipal staff and with voluntary agencies. Section F inquires how education in mothercraft is dealt with, whether by the education authority or by voluntary agencies, and how it is given to mothers, to young women, to schoolgirls, in school, and at day nurseries. Finally, there is a blank sheet for general observations by the M.O.H. We have endeavoured to give a general notion of the scope of the inquiry, but have not sought to enumerate every heading. The trustees desire to obtain the fullest information, in order that they may be in a position to decide what steps, if any, can be taken by the Carnegie Trust, and generally to assist in the solution of the problems which arise. The forms and all correspondence should be addressed to Dr. E. W. Hope at the offices of the Public Health Department, Municipal Buildings, Liverpool. We have no doubt that, if the inquiry is welcomed by the medical officers of health, as it ought to be, and as we feel sure as a rule it will be, a great deal of useful information will be brought together, and it is certain that under Dr. Hope's supervision it will be analysed in the very best possible manner, and the conclusions to be drawn from it judiciously worked out. The questions as to antenatal organization are full, and this fact is proof of the growing importance attached to this department of preventive medicine. It is asked, for instance, whether any special plan exists in a district for ensuring provision of medical advice for expectant mothers

at, for example, antenatal clinics conducted by gynaecological specialists, by ordinary medical practitioners, or by nurses, and it is also asked whether facilities exist for pathological and bacteriological examinations in relation to ophthalmia neonatorum, syphilis, and abnormalities. Under the heading "natal" there are questions as to the existence of any scheme in operation to provide for medical help in emergencies under the Midwives Act, and what provision is made for nursing cases of puerperal fever at home or in institutions.

THE CAMPAIGN AGAINST VENEREAL DISEASE IN GERMANY.

THE numerous articles on venereal diseases which have recently appeared in the German medical press fall into two groups—those that deal with preventive, social, and legal methods, and those that confine themselves to the purely medical aspects. Dr. F. Schaefer has discussed¹ the possibilities of continuing after the war the drastic regulations introduced on April 1st, 1915, by Hindenburg, who made it an offence in his army, punishable with two to twelve months' imprisonment, for women, whether they were prostitutes or not, who knew they were suffering from venereal disease, to engage in sexual intercourse with civilians or the military. Proof that they had exposed others to this danger was sufficient to ensure a conviction, even though their conduct had not actually led to spread of the disease. Dr. Schaefer expressed the opinion that, though in practice convictions would seldom be secured except when venereal disease had been conveyed, the threat of punishment, even when there was no proof that infection had occurred, would be a powerful deterrent to many women. He suggested that this regulation should be legalized after the war, and extended to include male as well as female offenders. Professor Blaschko has drawn attention² to the Danish and Norwegian practice, according to which medical men are prompted to induce their patients to sign a paper acknowledging that they have been informed as to the nature of the disease from which they are suffering, so that they may not afterwards plead ignorance should they convey the disease to others. Professor Blaschko has elaborated the scheme he put forward at the XIIIth International Medical Congress in London. He is not in favour of fines and imprisonment so much as of enforced medical control and treatment. Under the heading, "Is it really quite impossible to render prostitution physically harmless?" Professor Neisser has dealt³ at considerable length with various reforms he would like to see introduced in the regulation of prostitution and the prevention of venereal disease. Among many other suggestions he advocates more compulsory medical supervision and treatment and less police supervision, which is apt to entail unnecessary hardship. In dealing with the medical aspects of venereal disease Professor Zeissl⁴ has urged the early abortive treatment of syphilis by the combined use of salvarsan and mercury. In twenty-seven cases he succeeded in aborting primary syphilis completely. In view of the frequency of venereal disease among German soldiers on active service, he anticipates extensive infection of the civilian population when the soldiers are discharged after the war. To prevent this disaster he considers that before any soldier is sent home Wassermann's reaction should be applied, and a bacteriological examination made of any urethral discharge. Only when the absence of venereal disease was established by a medical expert should he be allowed to return home. Evidently Professor Zeissl would insist on compulsory treatment for the soldiers found suffering from venereal disease, but on this point he is not explicit.

TUNGSTEN.

THREE is considerable fascination in tracing the widening uses to which metals are put in the service of man. Tungsten affords a good example of fresh virtues being discovered in a very old servant. For many years tungsten has been mined in various parts of the world, and the powdered metal was mainly utilized in the processes of steel hardening, more especially for what are known as high-speed tools. The ultimate refining of the metal presents no particular difficulties, yet it appears that almost all the refining has in recent years been done in Germany. Mr. Hughes has recently driven home the lesson to be learnt by any industry which is dependent upon other countries for its necessities, and the criminality of such a procedure for the people of an empire which lacks nothing beneath the sun. Tungsten is a widely distributed element, and occurs chiefly in the ores wolfram or scheelite; to this latter mineral the name tungsten, signifying heavy stone, was given by the Swedes. We gather some interesting data as to the world's output of this material from a recent memoir of the geological survey on tungsten and manganese ores, the first of a series of *Special Reports on the Mineral Resources of Great Britain*. From it we learn that the total output of tungsten ores the year before the war was about 8,000 tons; Australasia, Europe, America, and Asia (Burma and Japan) all contributed, the last named accounting for about one-third of the total output. The quantity mined in England, chiefly in Cornwall, is roughly about 200 tons a year. Some of the new uses found for tungsten may be very briefly mentioned. The discovery of a successful method of welding the metal opened the way to the modern wire filament lamp, for by this process the metal, usually very brittle, is rendered quite ductile. This invention, which was made by Dr. Coolidge, led him to make further investigations, and the happy result was the new x-ray tube which bears his name. The novel features of this tube are not, of course, dependent upon the materials used, but some recent endurance tests on the tube described by Dr. Coolidge show to what a degree the qualities of tungsten contributed to the remarkable results recorded. To cite but one performance, we may note that the tube was allowed to run continuously for forty-two hours at 70,000 volts and a current of 100 milliampères, the heating current through the tungsten spiral only varying from 4.50 to 4.58 ampères. Its very high melting point and high atomic weight render tungsten the metal of choice as the anticathode of x-ray tubes, and the use of it in this connexion is increasing. In common with many other metals the open arc of tungsten is rich in ultra-violet radiation, and it may prove a useful addition to the other sources of this type of radiation which are already at the disposal of the medical profession. It is satisfactory to learn that the world-patents for the welding of tungsten are in the hands of a British firm, the British Thomson-Houston Company, Ltd.

THE HEALTH OF GERMAN EAST AFRICA.

THE German Colonial Office in Berlin published last year medical reports of all the German protectorates for the year 1911-12.¹ The sanitary staff in German East Africa consisted of 44 sanitary officers, 3 Government doctors, 11 sisters, and 68 junior sanitary officers. Thanks to the vaccination during the three previous years of nearly two and a half million persons, that is, about a third of the total population of the colony, only sporadic cases and slight epidemics of small-pox occurred. Plague was imported into the colony through Zanzibar, but was limited to a few cases. Other cases were, however, observed in the interior, which somewhat resembled plague, but their nature was obscure. Towards the end of the year under review plague broke out in a malignant form in one district. The war

¹ *Muench. med. Woch.*, December 7th, 1915.

² *Deut. med. Woch.*, January 6th, 1916.

³ *Ibid.*, No. 47, 1916.

⁴ *Berl. klin. Woch.*, January 10th, 1916.

¹ *Muench. med. Woch.*, February 1st, 1916.

against rats was carried on by putting a price on their heads, by the employment of rat catchers, and by a liberal use of poison. There was considerable rise in the incidence of malaria, and among Europeans malaria and blackwater fever accounted for a third of all the diseases treated and for a sixth of all the deaths. The sum of 350,000 marks was spent on sleeping sickness. The original plan of concentrating the sufferers in permanent camps had gradually to be abandoned, and efforts were concentrated on disinfecting the infected districts. Atoxyl was found to be the most potent drug, and was curative in about 15 to 20 per cent. The arrest of this disease in the district of Lake Victoria was traced by the medical authorities to the measures they had adopted. About Lake Tanganyika, however, the state of affairs was far less satisfactory. There was no change in the incidence of leprosy, typhoid fever, dysentery, and relapsing fever, but in the northern district small epidemics of cerebro-spinal meningitis occurred. Whooping-cough was also prevalent in some districts, and tuberculosis, which had previously been almost unknown, showed an alarming increase, especially in the coastal towns and commercial stations of the interior. Bilharziosis was prevalent in the southern area. The control of prostitution had failed to reduce the incidence of venereal disease.

A WORTHY MEMORIAL.

EXTENSIVE alterations and additions have been in progress at the Chester Royal Infirmary for some years, and on April 15th Lord Bryce opened an ophthalmic theatre and two adjoining wards, for which tenants on the Hawarden estate and friends had subscribed, as a memorial of the late Lieutenant William Glynn Charles Gladstone, squire of Hawarden, Lord Lieutenant of Flintshire, and M.P. for Kilmarnock Burghs, who was killed in the trenches in France on April 13th, 1915. Lord Bryce said that Mr. Gladstone, as Lord Lieutenant of the county when war broke out, had devoted himself with earnestness to recruiting, and in the course of doing so it was borne in upon him that when he was urging others to come forward to save their country he ought not to stay behind himself. He trained himself to be an officer, went as lieutenant to France, and within a fortnight the end came. "Never," Lord Bryce went on, "was there a time when so many of our best and noblest young men have gone from us, willingly, because they felt it to be their duty, and never was there a time when their parents had shown such an example of uncomplaining patience. Never had England shown herself worthier of the greatest tradition of her greatest days than she had in these last months. An England that could do this was an England worth fighting for. One of the most famous men of antiquity, in pronouncing a funeral oration over his Athenian fellow-citizens who had been killed in war, said: 'When the young men are taken out of the city spring is taken out of the year.'"

ANNUAL CONGRESS OF THE OPHTHALMOLOGICAL SOCIETY.

THE annual congress of the Ophthalmological Society of the United Kingdom, the mother of all ophthalmological societies in the world, will be held at the house of the Royal Society of Medicine, 1, Wimpole Street, W., on the last three days of the first week in May. On Thursday, May 4th, the president, Mr. Walter H. Jessop, will give the opening address at 10 a.m., and afterwards various papers will be read. Among them we notice one by Mr. Affleck Greeves, which will contain observations on a series of trephined eyes examined microscopically; another by Mr. Richardson Cross on severe kerato-iritis cured by tuberculin; and a third by Mr. J. B. Story on implantation of fat after enucleation. In the afternoon a discussion will be opened at 2.30, by Mr. Herbert Parsons and Mr. A. L. Whitehead, on foreign bodies in the eye and orbit, with

special reference to prognosis and treatment. On Friday morning, May 5th, at 10 a.m., Mr. J. B. Lawford and Mr. S. H. Browning will open a discussion on the treatment of syphilitic eye affections by the newer methods, and in the afternoon there will be a clinical meeting at the Central London Ophthalmic Hospital, Judd Street, W.C., when a number of interesting cases will be demonstrated, including one by Dr. N. Finzi, in which recurrent sarcoma of the orbit was successfully treated by radium. On Saturday morning, May 6th, other papers will be read. During the congress a collection of drawings, pathological specimens, etc., will be on view in the Bowman Library at the Royal Society of Medicine, and members desirous of exhibiting are requested to communicate with Mr. Stephen Mayou, 30, Cavendish Square, W. Members wishing to read papers, show cases, or take part in discussions, are asked to communicate as soon as possible with Mr. Elmore Brewerton, 84, Wimpole Street, W.

Medical Notes in Parliament.

War.

German Treatment of British Prisoners.

ON April 17th Captain Douglas Hall asked a question with regard to the treatment of Private A. C. Tulley, Royal Marines, with ten years' service, who died at Millbank, weighing only 5 stone. The Home Secretary said that there was no record of Private Tulley's weight at the time of his death, but it appeared from his statements that he was confined in the camp at Döberitz, where the men were covered with lice, and that after working in the wet he had no means of drying his clothes and could get no underclothes. In July, 1915, he got rheumatic fever through going on daily fatigue duty, getting wet through, and having no change. He was sent to hospital, and after five weeks was convalescent. He was sent to another camp, Dyrotz, about 7 kilometres from Döberitz. He had to carry all his kit on the march, and broke down and was never well afterwards. A little later he was put into hospital at Döberitz, where he had no treatment at all, and had to depend upon an English prisoner, one of the patients. They had no drugs. When he arrived in this country he was in an advanced stage of consumption and extremely emaciated. He died in hospital a fortnight after his arrival. The medical board which reported upon his condition stated that it was due to exposure, insufficient food and clothing whilst a prisoner in Germany. Tulley himself stated that the conditions in the camp had much improved before he left it, and other reports confirmed this. Improvements seemed to have resulted from the efforts of the American Ambassador. There was no record of any other prisoners of war released from Döberitz camp having died since their return to this country.

In a written reply to Mr. Malcolm, on April 17th, Sir Edward Grey said that the Germans permitted no kind of communication, either by letter or orally, as to the condition of Wittenberg camp during the many months that the camp remain unvisited, owing to the prevalence of typhus, by the American Ambassador at Berlin or by any of his staff. The British Government had no suspicion of the horrors that were going on there, or of the gross and criminal cowardice of the German medical staff in abandoning the duties they owed to those under their charge. Neither our allies—whose prisoners in the camp were far more numerous than ours—nor we demanded independent medical examination of the camp, and on behalf of the Government he could only express profound regret that it had so underestimated the brutality of our enemies. It was only right to add that the Government had no reason to suppose that other typhus infected camps in Germany were treated in the same way.

Steel Helmets.

In reply to Colonel McCalmont, who asked how soon a sufficient number of steel helmets would be available for every soldier whose duty took him into the trenches, Mr. Tennant said, on April 13th, that he had acquainted himself with the state of the supply, but did not propose to inform the House or the enemy about it in

detail. The active resumption of hostilities would not find the troops in the trenches unprovided in this respect. Not only had there been no diminution in the supply, but it was being accelerated. In a written answer to Mr. Annan Bryce, on April 17th, Dr. Addison said that the steel helmets (of which large quantities had already been supplied to the British troops in France and of which adequate supplies were assured) possessed higher protective properties than the French pattern. It was desirable that a uniform design should be adhered to, and it was not considered advisable to place orders in France because it was not known that steel of the requisite standard could be obtained in France; it was most important to maintain the reliance which, he was informed, our troops now placed in the helmets.

Army Medical Service.

On April 12th Mr. McNeill asked whether some of the most eminent specialists in the various branches of surgery had been for a long time during the war employed in field ambulances or otherwise where their special qualifications were wasted; and whether it was proposed to take steps to insure that doctors with special experience in different branches of medicine and surgery who had joined the R.A.M.C. should be utilized to the best advantage. Mr. Tennant said that the supply of efficient operating surgeons in military hospitals at home and abroad was fully adequate. It was necessary that a certain number of younger surgeons should be employed with field ambulances. Every effort was made to use the services of medical men joining the R.A.M.C. for such duties as their special acquirements and professional limitations best fitted them, but it was impossible to allow each individual to select the work which he considered himself most competent to undertake. Mr. McNeill suggested that Mr. Tennant had not observed that his question referred to eminent specialists and not to younger officers, and inquired whether Mr. Tennant was prepared to deny that eminent specialists in surgery had been employed in very inferior work. Mr. Tennant said that he was quite prepared to believe that eminent specialists had occasionally, when they were employed abroad, to do somewhat trivial duties. That must be part of every campaign; whereupon Mr. McNeill exclaimed "Not at all," but Mr. Tennant said that he did not agree. He thought it was inevitable in the ordinary routine of carrying on a great campaign that it might fall to the lot of the most eminent to do the most trivial duties. The army retained the services of these most eminent specialists, and if they had to employ them in that way occasionally he was very sorry, but it was part and parcel of the difficulty of carrying on a great campaign. Mr. McNeill next asked whether, with a view to economizing the supply of medical men available for the army, steps would be taken to provide that general practitioners should be, so far as possible, employed in part-time work in hospitals, or in looking after the health of troops quartered in the neighbourhoods where such practitioners lived, so as to release for duty men who had volunteered for whole-time service, thus obviating the necessity of asking an unnecessary number of men to take commissions in the R.A.M.C., whereby the supply of doctors for the civil population at home was in danger of being unduly depleted. Mr. Tennant said, in reply, that general practitioners were already being largely employed in local military work. Every effort was made to protect the needs of the civil population for adequate medical attendance, and the War Office was receiving in this connexion the advice and assistance of representatives of the civil medical profession and of the various Government departments concerned.

Pensions and Grants: Temporary Rank.

Mr. Tennant stated, on April 13th, that in the case of an officer having permanent rank and higher temporary rank, his widow got the benefit of the temporary rank should the officer die from wounds.

Weekly Rest for Munition Workers.—In reply to a question by Mr. Pratt, on April 17th, Dr. Addison said that Mr. Lloyd George was keenly alive to the importance of securing to munition workers an unbroken rest period of not less than twenty-four hours weekly. A circular recommending this weekly rest period (preferably on Sundays) had been sent out on December 7th, 1915, to all controlled establishments. This was followed by an inquiry addressed to each establishment, and a committee

was appointed to deal systematically with the subject. There were many practical difficulties in the way of securing entire abolition of Sunday labour, but substantial progress had been made, and out of 2,383 firms from whom particulars had been obtained, 1,440 were not now employing any Sunday labour. Of the firms which worked on Sundays, 60 had notified the department that all workers were provided with a rest period of at least continuously twenty-four hours each week. Constant and pressing attention was being given to the matter, and it was hoped that the number of firms employing no Sunday labour would shortly be largely increased.

Massage in Military Hospitals.—In reply to Major Chapple, Mr. Tennant, on April 12th, said that specialists in massage who held colonial qualifications were not being denied employment in military hospitals because they did not hold an Almeric Paget diploma; in fact, he was informed that there was no such thing as an Almeric Paget diploma. Six months' training was required before a masseuse could be accepted, unless her education took place some time ago. This was the rule for the qualification of masseuses in civil life.

Verandahs for Consumption.—On April 13th Major Astor asked how many military and Territorial hospitals had verandahs for the purpose, *inter alia*, of providing treatment for consumptive soldiers, and approximately the number of soldiers who could be accommodated and treated on these verandahs. Mr. Tennant replied that soldiers suffering from pulmonary tuberculosis were discharged from the service and admitted to sanatoriums under arrangements made with the Insurance Commissioners and the Local Government Board. It was true that a special type of hut had been designed with verandahs for the treatment of some cases, though not necessarily for consumptive patients. No data as to the number of patients who could be accommodated in existing verandahs were available.

Duration of Treatment in Military Hospitals.—In reply to Major Astor, Mr. Tennant said on April 12th that hospital treatment was continued until a cure was effected, or until it was obvious that the soldier would not be medically fit to remain in the service. In no circumstances was a soldier discharged from hospital (except to special institutions) unless he was able to leave without detriment to his health.

Hernia.—In reply to Mr. Jowett, Mr. Tennant stated, on April 12th, that carefully selected men suffering from slight hernia, if properly fitted with a truss, might be passed for general service. It was not anticipated that active service would incapacitate or harm these men.

Infant Welfare.—On April 13th Mr. King asked the President of the Local Government Board if he would issue instructions to local authorities that an expenditure not exceeding £d. in the £ might be judiciously undertaken, even in war time, on promoting infant welfare and combating infant mortality; and whether the Government was prepared to supplement such expenditure when efficiently carried out on approved lines. Mr. Long replied that he had already encouraged local authorities to undertake work for the promotion of infant welfare, and Parliament had been asked to vote money for furthering their efforts. He did not think that anything could be gained by an instruction of the kind suggested. Mr. King then asked whether it could be suggested to local authorities that health visitors should be, as far as possible, employed by local authorities in the proportion of not less than two for every 1,000 births; and whether provision was being made for the 1,600 health visitors who, under such arrangements, would be necessary to carry through a national policy of preserving infant life. Mr. Long said that the suggestion was included in a memorandum which had been circulated to all the medical officers of health. In a written answer to Mr. King, on April 17th, the President of the Local Government Board stated that the amount of the grant distributed in aid of maternity and child welfare work in 1915-16 to towns with a population over 250,000, including London, was £15,404 to local authorities and £4,809 to voluntary agencies. Grants amounting to £351 were paid to rural district councils, and a great deal of the sums of £6,130 paid to county councils and £2,475 paid to voluntary agencies in counties were for the benefit of rural areas. Grants were paid in 1915-16 to 308 local authorities in respect of expenditure on schemes for maternity and infant welfare incurred in the financial year ended March 31st, 1915. Since that date several new schemes and additions to existing schemes had been approved, but the actual number was not readily available.

MR. ARTHUR DU CROS, M.P. for Hastings, has generously promised a gift of £7,000 to the Extension Fund of the London (Royal Free Hospital) School of Medicine for Women, thus completing the £30,000 for which appeal was made.

THE WAR.

ARMOUR.

(From a Correspondent in Northern France.)

It must be at least ten months since the French first began to use helmets, and quite six since the appearance of a *poultu* in a helmet ceased to excite any attention, even at places far distant from the front. It is, in fact, rather the other way. The majority of all French soldiers seem now to wear helmets, the chief exception being certain classes of men rarely if ever employed in the fighting line, and those belonging to regiments provided with a cap which is a badge of national import. Of the latter the *Chasseurs d'Afrique*, who wear a kind of high, straight-sided, woolly fez, are a good example.

The helmet is made of thin steel enamelled a dull blue, and presents an outline which suits the majority of French faces. It is surprisingly light, and makes quite a comfortable headdress. That this is the case may be concluded not only from what the men themselves say, but also from the fact that they do not hasten to take off their helmets when sitting about off duty in cafés and elsewhere.

Among British troops the use of helmets has only recently become other than tentative, and it is still mainly at certain parts of the line that they are to be seen in any considerable number. It has been arranged now to issue them wholesale as rapidly as possible, but even when this has been done it seems likely that the British helmet will, like trench boots, remain for the most part a front line article of attire. It lacks the grace of the French helmet, and is too heavy to be willingly worn on all occasions.

On the other hand, the British helmet is considered to be better designed to meet its direct purpose than is the French; it has a wide downward sloping brim, and thus protects the side and back of the neck and the temples and upper part of the face as well as the top and sides of the head.

This breadth of brim makes the crown look shallower than that of the French helmet, but a more real difference is that the British helmet has a smooth round top, while the crown of the French presents a prominent ridge tapering centrally backwards. This ridge was initially intended to strengthen the helmet, but being hollow and open at one end it also provides a means of ventilating its interior. In addition, it adds to the headdress a style that the English helmet lacks. But it is open to question whether these advantages are not fully outweighed by the fact that a fragment which would glance harmlessly off the smooth round British crown, might be stopped by this ridge on the French helmet, and inflict on the wearer a stunning jar, if not worse.

Unlike the French helmet, the British recalls nothing ever seen in collections of the armour worn in early European warfare. It does, however, bring to mind the pith hats worn by civilians in certain parts of India, and resembles these all the more closely because like them it does not fit close. It stands away from the head about one third of an inch all round, the weight being borne by a padded leather band fixed to the inner side of the surrounding steel by a series of indiarubber buffers, each about the thickness of a lead pencil, and about 1 in. long. This detail of construction constitutes perhaps the most important difference between the British and French helmets. The buffers are capable of diffusing and neutralizing the force of a blow, which, falling on the closely-fitting French helmet, would be conducted direct to the brain-pan.

The heaviness of the British helmet is a drawback, and it is possible that its protective effect would be increased by lowering the brim still further, so as to guard against bomb fragments or other missiles rising upwards from a point within a yard or two of the wearer, but there is already clear evidence that its introduction is a step of great value.

On the basis of the experience of some recent wars head wounds have been written down as accounting for 15 per cent. of all casualties, but data obtained a month or two ago by the medical authorities out here suggest that in trench fights, at any rate, the numerical importance of head wounds really is considerably greater. The figures indicated, in fact, that even when cases surviving long enough to reach the casualty clearing stations are alone

taken into account the proportion of wounds of the head, neck, and face to all wounds must be in the neighbourhood of 25 per cent.

Consequently there can be no doubt of the military value of any measure proved to be capable of reducing that ratio materially without interfering with the fighting capacity of the men.

One of the measures tentatively adopted has been the use of helmets, and its efficacy has been put beyond doubt by some other figures that the medical authorities secured in connexion with a fight of some magnitude about the beginning of March, when the British troops engaged were wearing helmets. All the cases admitted at one particular casualty clearing station were analysed, and the resulting figures show that the number of penetrating gunshot wounds of the head was equal to less than $\frac{1}{4}$ per cent., while the total number of fractures of the skull was well under 1 per cent. of all injuries.

The number of casualties on which these percentages are calculated was in the neighbourhood of 1,000—a total sufficiently large to exclude the inference that the paucity of fractures of the skull was merely an accidental circumstance.

Furthermore, there was the direct evidence supplied by the helmets of a number of men who had been struck on the head by missiles of various kinds, but who had nevertheless sustained no injury more serious than a scalp wound. Indeed, some men whose helmets had been dented or pierced or broken were not even aware they had been struck on the head. It was clear, in short, that though the helmets were by no means bullet-proof, they commonly offered such resistance that a missile which succeeded in penetrating them thereby lost most of its force.

The success of these helmets seems to open up the question whether other armour formerly used could be usefully reintroduced. To settle this it must first be decided how much additional weight an average soldier can carry without materially lessening his activity, and what part of the body other than the head most requires protection. In this connexion it is to be remembered that a missile which anywhere else in the body or limbs would produce nothing more than an unimportant flesh wound might easily bring about a rapidly fatal result if it struck a man anywhere between the xiphoid cartilage and the pubes.

EYE INJURIES AND BLINDNESS IN THE GERMAN ARMY.

Eye Injuries and Diseases.

DR. W. UHTHOFF, consulting ophthalmologist to the 6th German Army Corps,¹ has analysed the statistics of about 600 eye casualties in a reserve hospital to which he was attached as consulting ophthalmologist. The proportion of non-traumatic to traumatic casualties was as 1 to 1.7. The most common of the inflammatory lesions of the cornea was keratitis dendritica—a herpetic condition; it constituted 25 per cent. of all the inflammatory diseases of the cornea, and was attributed to the strain and exhaustion of war. Though these patients remained long under treatment, the ultimate results were usually good; in some cases ordinary treatment was supplemented by superficial cauterization of the diseased cornea. In few cases was the disease apparently due to traumatism. *Ulcus serpens* was observed only in about 1 per cent., and the relative rarity of this disease was, no doubt, due to the soldiers being in the prime of life, and free from such complaints at the time of mobilization. Another disease found to be unexpectedly rare was gonorrhoeal conjunctivitis, only one case of which came under Dr. Uthoff's care. Yet, of other gonorrhoeal complications there was an abundance in the neighbourhood. Trachoma accounted for only 5 per cent. of the 600 cases, although the territory (Russia and Galicia) from which Dr. Uthoff drew his patients was supposed to be extensively infected with this disease; from the amount of scarring present in most cases it was judged that the condition must have been of old standing. This relative rarity of trachoma was also noted by Dr. Uthoff's colleagues, and he attributes it largely to the high standard of efficiency in the Army Medical Service. Iritis, which constituted about 8 per cent. of all the non-traumatic

¹ *Berliner klinische Wochenschrift*, January 3rd, 1916.

diseases of the eye, was due to syphilis in every third case, to rheumatism in every third case, and to unknown factors in the remaining third. Cases of nyctalopia represented about 3 per cent. of the non-traumatic diseases of the eye; they could also be grouped in three equally large classes: nyctalopia due to organic disease of the retina, and hereditary and idiopathic nyctalopia. There were 252 cases of direct injury to the eye, and the sight of one eye was totally lost in 46 per cent. The proportion of total blindness to blindness on one side only was as 1 to 10.

Care of Blind Soldiers.

Dr. Unthoff has dealt with the care and education of blinded soldiers in another article.² He expressed the opinion that the wisest and ultimately the most humane course was to keep them for a time in skilled hands and in surroundings calculated to stimulate them to build up a new mode of life which would give them occupation and relative financial independence. He thought it probable that the institutions established before the war would be able to cope with the demands of the army by a system of extension if every district undertook the care of its own men. He insisted that it would be folly to squander large sums, voluntarily subscribed, on new palatial residences, when so much more could be done by leaving the matter in the hands of district institutions already familiar with the education of the blind. He also objected strongly to the slipshod management of homes for the blind by amateurs incapable of carrying out a systematic course of education. It was all very well for these philanthropists to pamper blinded soldiers with concerts, lectures, and other festivities, but the time would come, after the war, when enthusiasm for the blind would die out, leaving them dependent on others' efforts for amusement and occupation. Dr. Unthoff considered it inadvisable to educate blinded officers together with their subordinates; and as the pensions for officers were as much as eight times as large as those given to privates, the former were not so dependent on education in an institution as privates. In the case of married privates, the best plan would be for their homes to be near an institution in which they could benefit from systematic teaching while living at home. Dr. Unthoff touched on the subject of the marriage of blinded soldiers by patriotic, tender-hearted women with great sympathy, and he also urged on his audience the need for providing the blind with large Braille libraries.

CASUALTIES IN THE MEDICAL SERVICES.

ARMY.

Died on Service.

Lieutenant-Colonel Cedric Barkley Prall, Bengal Medical Service, died at Mhow, Central India, on April 5th. He was the youngest son of the late Richard Prall, town clerk of Rochester, born on March 8th, 1870, was educated at St. Thomas's Hospital, and qualified as M.R.C.S. and L.R.C.P.Lond. in 1892. Entering the L.M.S. as surgeon-lieutenant on January 30th, 1893, he became surgeon-captain on January 30th, 1896, major on January 30th, 1905, and lieutenant-colonel on January 30th, 1913. He served on the north-west frontier of India in the campaign of 1897-98, when he was present in the operations at the Samana range and in the Kurram Valley during August and September, 1897, and in the defence of Fort Gulistan, being mentioned in despatches in G.C.O. No. 1417 of 1897; also in the Tirah campaign of the same years, when he took part in the actions of Chagru Kotai and of the Sampagha and Arhanga passes, the reconnaissance of the Saran Sar and action of November 9th, 1897, the operations in the Waran Valley and action of November 16th, in the operations at and around Dwatoi and action of November 24th, and in the operations in the Bara Valley, December 7th to 14th, 1897, receiving the frontier medal with three clasps.

Major Ernest Brice, R.A.M.C.(T.F.), died at Swansea on April 5th. He was educated at Mason College, Birmingham, and took the Scottish triple qualification in 1896. After serving for some time as a medical inspector of schools he went into practice at Swansea, where he was medical officer and public vaccinator of No. 5 district, Swansea Union. He was an examiner, lecturer, and honorary life member of the St. John Ambulance Association, also of the British Red Cross Society, medical

referee to several insurance companies, and honorary secretary of the Swansea Medical Society. On December 25th, 1911, he took a commission as captain in the 3rd Welsh Field Ambulance, was promoted to major last year, and was in command of the 3/3rd Welsh Field Ambulance.

Lieutenant John James Mackintosh, R.A.M.C., has died of gastritis at the age of 31. He was the eldest son of the late Mr. Donald Mackintosh of Stornoway and Mrs. Mackintosh of Inverness. He received his medical education at the University of Glasgow, and took the M.B., Ch.B. in 1908. When war was declared he was in practice in Johannesburg, Africa, and served with General Botha's forces in the South-West African campaign. He subsequently returned to this country and received a commission in the R.A.M.C.

Died of Wounds.

Lieutenant Malcolm Edward Ball, R.A.M.C., is reported as having died of wounds on April 10th. He was the fourth son of Edward Ball of Lewisham Hill, Blackheath, was educated at Guy's, and took the M.R.C.S. and L.R.C.P.Lond. in 1908 and the M.B. and B.S.Lond. in 1909. After filling the posts of clinical assistant, assistant house-surgeon, out-patient officer, and house-physician at Guy's he went into practice at Emsworth, in Hants, where he was honorary medical officer of the Emsworth Victoria Cottage Hospital and surgeon to the Havant Red Cross Hospital. He joined the army as a temporary lieutenant in September last.

Wounded.

Captain C. R. Woodruff, R.A.M.C.(T.F.).
Captain H. W. Greig, R.A.M.C.(T.F.).
Captain J. M. McKerchar, R.A.M.C., Special Reserve.
Captain G. J. Bowen, R.A.M.C. (temporary).
Lieutenant J. Coutts, R.A.M.C. (temporary).
Lieutenant W. G. Macdonald, R.A.M.C. (temporary).
Lieutenant J. M. Mackenzie, R.A.M.C. (temporary).
Lieutenant M. G. Pettigrew, R.A.M.C. (temporary).
Lieutenant R. R. Pirrie, R.A.M.C. (temporary).
Lieutenant N. McCall Smith, R.A.M.C. (temporary).

DEATHS AMONG SONS OF MEDICAL MEN.

Dobie, William Murray, Lieutenant Royal West Kent Regiment, son of Dr. Herbert Dobie, of Chester, killed in action on April 9th, aged 19. He was educated at Marlborough and at Caius College, Cambridge, got a commission on October 3rd, 1914, and had been at the front since last May.

Dobson, Harold Pierce, Captain Worcestershire Regiment, third son of Mr. Nelson C. Dobson, F.R.C.S., of Clifton, reported killed in the casualty list published on April 15th, aged 34. He got his commission in 1903, served in Ireland, Ceylon, South Africa, and India, was for three years adjutant of the second battalion, and for three years adjutant of the Simla Volunteers, becoming captain on September 22nd, 1914. He married in India the eldest daughter of Colonel Hore. His brother, Major M. C. Dobson, was killed at Loos last September.

Gross, Geoffrey Yates, Captain Royal West Kent Regiment, second son of the late Charles Gross, F.R.C.S., killed in action on April 9th. He was educated at Clifton College and at Oxford, and joined the army as second lieutenant on August 15th, 1914, became lieutenant on March 23rd, 1915, and captain last December.

Powell, Scott, Captain Royal Welsh Fusiliers, youngest son of Sir Richard Douglas Powell, K.C.V.O., M.D., died of wounds on April 4th, aged 30. He was educated at Charterhouse and at Christ Church College, Oxford, where he took the B.A., and was admitted a solicitor in 1912. He joined the Inns of Court O.T.C. before the beginning of the war, got a commission on August 22nd, 1914, and was promoted to captain on January 15th, 1915. He had served in Gallipoli from June till the end, and took part in the withdrawal from both Anzac and Cape Helles.

Nichol, John, Lieutenant Royal Scots Fusiliers, and Flying Officer, Royal Flying Corps, second son of Dr. Nichol of Margate, accidentally killed while flying on April 5th, aged 22. He was educated at Charterhouse, got his first commission in 1912, and joined his regiment at Pretoria. He was promoted to lieutenant on November 12th, 1914, served at the front from February to October, 1915, and then went through the training for the Flying Corps, qualifying as flying officer in January last.

NOTES.

HONOURS.

THE King has appointed the undermentioned medical officers to the Orders stated in recognition of their devotion to duty at the camp at Wittenberg, Germany, during the typhus epidemic which prevailed there from February to June, 1915:

C.M.G.—Major Harold Edgar Priestley, R.A.M.C.

D.S.O.—Captain Alan Cunliffe Vidal, R.A.M.C.; Temporary Captain James La Fayette Lauder, R.A.M.C.

² Berl. Klin. Woch., January 24th.

The President of the Scottish Women's Hospitals for Foreign Services has received intimation that the Crown Prince of Serbia, during his recent visit to London, had bestowed decorations upon the chiefs of the units who stayed behind with the wounded Serbian soldiers in Serbia, including the following:

Order of the White Eagle, Fifth Class: Dr. Elsie Inglis.
Order of Saint Sava, Third Class: Dr. A. Hutchison and Dr. Holloway.

Various grades of the latter order are bestowed upon the president, the treasurer, and chairmen of various committees.

Dr. E. Inglis, upon whom the Order of Saint Sava, Third Class, was bestowed during her work in Serbia, is the first woman decorated with the Order of the White Eagle.

The *London Gazette* of April 15th announces the grant of a number of decorations and brevet promotions, all dated January 1st. Among them were the following medical officers:

C.B.—Colonel H. M. Adamson, A.M.S., Lieutenant-Colonel J. F. Donegan, R.A.M.C.

D.S.O.—Captain P. B. Bharucha, I.M.S.

Military Cross.—Captain R. C. Clifford, I.M.S., Captain F. A. Robinson, R.A.M.C., Lieutenant (temporary) F. T. Simpson, R.A.M.C.

Brevet-Colonel.—Lieutenant-Colonel E. Jennings, I.M.S.

Brevet Lieutenant-Colonel.—Major S. Anderson, I.M.S.

The War Office announced on April 15th the grant of 11 D.S.O.'s, 37 Military Crosses, and 138 Distinguished Conduct Medals for gallantry and devotion to duty in the field. Among the recipients are three men of the R.A.M.C.: Sergeant H. Langley, 38th Field Ambulance, and Privates S. Mackenna and S. A. Smith, both of the 37th Field Ambulance.

Ireland.

Owing to the large number of children unvaccinated in the Athy Union, the guardians decided last week to direct the officials to issue summonses against a number of the parents.

The Local Government Board have, after a long correspondence, yielded to the wishes of the Swinford Board of Guardians and sanctioned the temporary appointment of Dr. Sweeney as medical officer of the Charlestown dispensary district.

ROYAL VICTORIA HOSPITAL, BELFAST.

At the annual meeting of this institution, held in the Central Hall of the King Edward Memorial Building of the hospital, the president, Lady Pirrie, occupied the chair, and there was a large attendance. The finances are in a sound condition, although the excess of expenditure over receipts amounted to £2,157, owing to the increased cost of supplies and to the opening of the unused wards and of the Memorial Hall. Mr. R. J. Johnstone, F.R.C.S. Eng., honorary secretary of the medical and surgical staff, proposed the adoption of its report. A number of the full and of the auxiliary staff, he said, were serving in either East or West; the staff, therefore, was short-handed, and he desired to express gratitude to those medical men who had filled to a very large extent the places of those of the staff who were away. During the year 2,404 surgical and 785 medical cases had been admitted and 1,598 operations had been performed. Dr. W. Calwell seconded, and the motion was carried.

Scotland.

THE LATE SIR ALEXANDER SIMPSON.

At the meeting of the managers of the Edinburgh Royal Infirmary on April 10th Dr. MacGillivray, the convener of the medical managers' committee, said that Sir Alexander Simpson's distinguished career, and the worthy manner in which he maintained the reputation of the name of Simpson in the Edinburgh medical school had been expressed in the appreciation presented to the board on his retirement from active work in the infirmary in 1905. It remained for the managers to convey to his family an expression of their sorrow and sympathy with them in the sudden loss they had sustained. Sir Alexander Simpson has by his will left the museum of his uncle, Sir James Y. Simpson, to the University. He gave his own library and his uncle's to the Royal College of Physicians.

England and Wales.

At the annual meeting of the County of London Branch of the British Red Cross Society on April 13th, Mr. Martin Holland, C.B., who was in the chair, said that sixteen V.A.D. hospitals (soon to be increased to twenty-three), with 600 beds, had been established by the branch since November, 1914, and the thanks of the meeting were accorded to the various medical officers who had given their services to the hospitals. Colonel James Cantlie, F.R.C.S., vigorously defended his action in organizing emergency classes for first-aid immediately on the outbreak of the war. He drew a sharp distinction between Red Cross work and hospital work. The place for Red Cross work, he said, was along the lines of communications, and not in the hospitals.

In a leading article published last August we referred to the scheme for the educative convalescence of crippled soldiers, initiated last midsummer in the Princess Louise Military Wards at Chailey. In this Sussex village there is established a centre for the training of crippled children in various handicrafts, and the new idea has been to introduce wounded soldiers into this environment, so that, under the influence of children similarly afflicted, the men may learn more readily to accustom themselves to their privations, and to engage in such tasks as bookbinding, carpentry, and basket work. At a meeting at Carpenters' Hall, London, to further the repetition of the experiment this year, Mrs. G. T. Kimmins showed a large number of lantern slides of the work at Chailey, and Bishop Forrest Browne made an appeal for funds. He said that to equip the schools for this enterprise anything from £2,000 to £4,000 would be needed, but any building put up, after serving its immediate purpose, would remain for the benefit of crippled children, who would receive more intelligent and scientific care than had been the case in the past. Some gratifying donations were announced.

Correspondence.

THE "SOLDIER'S HEART" AND ITS RELATION TO THYROIDISM.

SIR,—In his valuable paper under the above title Sir James Barr deals with a subject of considerable importance—namely, the part played by morbid blood plasma in the causation of functional nervous disorders. His observations suggest that many of the symptoms of the war neuroses, hitherto thought to be immediately due to injury of the nervous system, may be the result rather of the action upon the nervous system of a morbid condition of the blood consequent upon the stress and strain of active warfare.

That the blood can be morbidly affected through the nervous system there can be no doubt, and it is equally certain that a morbid blood plasma is capable of giving rise to wellnigh every known variety of functional nervous disturbance, from the mildest neurasthenia to the most virulent type of insanity. Consider the manifold nervous symptoms which arise from the various toxæmias, such as those due to drugs, defective digestion (in the widest sense), pathogenic bacteria, and metabolic disorders, such as diabetes, nephritis, and malignant jaundice. Consider, again, the profound nervous disturbances which result from abnormalities as regards hormonal activity. Now we know that the hormonal tissues (for example, the thyroid and adrenal glands) are highly susceptible to nervous influence, and I have no doubt that Sir James Barr is correct in attributing many of the phenomena of the war neuroses to disordered activity of these tissues. Certain of the symptoms of Graves's disease (for example, tachycardia, tremor, sweating, extreme nervous agitation) are common among soldiers invalided from the front—a fact which has been commented upon by more than one French physician; but I am not aware that the possibility of these symptoms actually being hormonal in origin has been previously suggested. Sir James Barr's observation on the condition of the thyroid in soldiers suffering from irritable heart is of great interest in this connexion.

We meet with all sorts of anomalous vasomotor and secretory disturbances in soldiers suffering from war neuroses, and it seems highly probable that many of these are the result of disordered hormonal function.—I am, etc.,

London, W., April 16th.

HARRY CAMPBELL.

SIR,—The paper of Sir James Barr is very interesting and useful; but without the fact that thyroidism itself is due to a toxic cause or to some deficiency in diet, hardly appears to cover the whole ground.

For instance, whilst a civil surgeon in the South African war, I was aware that men were occasionally in the habit of chewing cordite, with the idea of getting a rest in hospital owing to weak cardiac action. Lately I saw a pronounced case of irregular heart action due—according to the man's own opinion—to his being an habitual taker of small doses of cocaine. I have seen two similar cases due to the action of veronal taken in large doses. Tobacco is admittedly a common cause. Tea is also a cause, which any practitioner who has treated charwomen and washerwomen in faints will probably have guessed. In scurvy and beri-beri heart failure is the usual cause of a fatal ending; and in my opinion a good deal of the excessive mortality amongst artificially fed children is due to a minor degree of scurvy causing the heart and nervous systems to be unable to withstand the strain of minor infantile ailments.

Now soldiers are exposed to nitrite fumes, they smoke too much, their diet consists for long periods principally of preserved meat, white bread, and biscuits, and tea taken from early morning until late at night, owing to water, unboiled, being taboo.

I have used calcium for many years, probably because I was formerly house-physician to Sir James Barr, and can witness to its efficacy. The breakfast tea should be discontinued, as well as smoking before lunch, and all inhaling particularly. Brown bread and oatmeal porridge with fruit and vegetables materially assist.—I am, etc.,

Wallasey, April 16th.

F. WILLIAM INMAN, M.B.

THE HORRORS OF WITTENBERG CAMP.

SIR,—The horrible and ghastly tale of the inhuman conduct of Dr. Aschenbach, the medical officer in charge of the Wittenberg prisoners of war camp, as reported by the Government Committee on the treatment by the enemy of British prisoners of war, is only one more illustration of the infamous effects of German Kultur.

I doubt if the medical profession of any country in the world could produce such a specimen of depravity as this inhuman beast, to whom the Kaiser has presented that, to our minds, symbol of infamy, the Iron Cross, as a reward for the perpetration of systematized murder on a colossal scale.

It is time, Sir, that the medical profession in this country raised its voice in abhorrence and in condemnation of the conduct of a confrère who, trusted with the care of suffering and defenceless prisoners of war, so betrays his trust as to be capable of such cowardly and devilish barbarity as this traitor to our profession.

Man's inhumanity to man
Makes countless thousands mourn.

To mark the feelings of indignation and disgust shared by the medical profession of the British Empire I beg to suggest that the councils of the various sections of the Royal Society of Medicine forthwith delete from their list of honorary or corresponding members the name of any German physician, surgeon, or specialist who may have, in our hour of illusion and delusion, been accorded this honour.

I may say that I have given notice of a resolution on these lines to the secretary of the Laryngological Section and of the Otological Section of the Royal Society of Medicine for discussion at the first possible opportunity.—I am, etc.,

Manchester, April 17th.

WILLIAM MILLIGAN.

PERNICIOUS ANAEMIA AND ERYTHRAEMIA.

SIR,—The treatment of pernicious anaemia by injection of polycythaemic blood, recorded by Dr. O. Leyton in the BRITISH MEDICAL JOURNAL for April 1st, 1916, p. 484, had

also been tried, as Dr. Leyton thought it might have been, some years previously. Walter recorded a case of pernicious anaemia treated by injections of polycythaemic blood in which the effect on the patient's blood state, etc., was satisfactory—that is to say, a very great improvement followed the injections. I do not know whether details as to relapses were published later. I am inclined to think that similar therapeutic trials have been made both in Germany and France. Treatment by normal blood (intramuscular injections, etc.) has, of course, been tried repeatedly.—I am, etc.,

London, W., April 15th.

F. PARKES WEBER.

Obituary.

JOHN KENT SPENDER, M.D.LOND.,

LATE PHYSICIAN, ROYAL MINERAL WATER HOSPITAL, BATH.

DR. J. K. SPENDER, who died on April 14th, was the last of the generation of physicians who laid the foundation of modern Bath as a health resort.

He was the son of the late Mr. J. C. Spender, who practised at 36, Gay Street. Dr. Spender's medical education began there in a little dissecting-room at the bottom of the garden, and he also attended, in 1846, a private institution for diseases of the chest in Chatham Row, Bath, where the late Dr. James Watson, of 13, The Circus, the Nestor of the local profession, taught him the elements of auscultation. On October 1st, 1848, he entered as a student at King's College, London, took the diplomas of M.R.C.S. and L.S.A. in 1852, and later on, in 1868, while in the midst of a busy practice, graduated M.D.Lond. On returning to Bath, he joined his father, on April 21st, 1852, residing at 37, Gay Street. On January 1st of the following year he was elected a member of the local Branch of the British Medical Association, of which he lived to be the oldest member. He had also, we believe, been, although it has not been possible definitely to verify the fact, a member of the Association for a longer period than any other person. He was always an energetic supporter of and regular attendant at the Bath and Bristol meetings. In describing the annual meeting of 1854 he says: "It was held in a small room at the Castle Hotel, and we sat down afterwards to dinner, about 10 all told. The late Dr. Wm. Davies, of 10, Gay Street, presided, and we were a merry lot." It was in consequence of Dr. Spender's efforts that the annual meeting of the Association was held in Bath in the year 1878. The benefit derived by the city as a health resort is very generally recognized. In 1882 Dr. Spender was appointed President of the Branch.

As physician to the Mineral Water Hospital he devoted much time to the institution. His special interest in rheumatoid arthritis is shown in the number of contributions to the press on the origin and etiology of that congeries of diseases. By his knowledge of his subject, clearly expressed in the simplest words, Spender was known to a wide circle. He was one of the earliest investigators to recognize some of the premonitory and initial symptoms of that disease, and his views have been amply ratified by subsequent writers. The "affinities," as he called them, existing between rheumatoid arthritis and Raynaud's disease, such as sweating, were pointed out by him, and also the analogies, such as the rapid pulse, to exophthalmic goitre, a disease, by the way, which was first described by Parry, a Bath physician.

Early in his career Spender made for himself a high position in medical literature, and his contributions were uninterrupted from 1854 to 1894. He never wrote for writing's sake, but there was always something new and something interesting in his articles and in his books. *Therapeutic Means for the Relief of Pain*, which gained for him the Fothergill Gold Medal in 1874, was a masterly summary, which, even in these days of synthetic drugs, is well worthy of study. He himself accounted for his success in literature by the fact that he began to write early in life, and also by his love of English classics. That the gift was largely congenital is shown by the high literary attributes of his family. Acquired attributes are not transmitted to the next generation. A glance round his library showed that Spender's horizon was not bounded

by medicine alone. "Homo sum; humani nihil a me alienum puto"; and his catholicity was seen on his bookshelves—Burke, Landor, De Quincey, Ruskin, and a host of others.

Life was a joy to Spender in the happy family circle with which he was surrounded. Mrs. Spender, the well-known authoress, had congenial ideals. Of his sons, Mr. J. A. Spender is editor of the *Westminster Gazette*, Mr. Harold Spender and Mr. Hugh Spender are well known to literature, as is also his sister Miss Spender.

The death of Mrs. Spender in 1895 was a crushing blow from which Dr. Spender never recovered. Life was no longer life, and he retired from practice. From thence onwards he was an invalid. Devotedly nursed by his daughter, Miss Spender, the evening of life was peaceful.

In reviewing the life of Dr. Spender as a physician, it may be said that his most striking characteristic was the great value he placed upon general principles, while at the same time no detail was too small to receive his attention. Aided by a marvellous memory, every word in speaking or in writing was carefully weighed, and every quotation accurate. As an instance of his observation in small things reference may be made to the spots on the skin in rheumatoid arthritis, which have since been known as "Spender's spots."

In a lecture on the "Automatic Ways of Man," delivered before a local society, he dealt with the subconscious neurological phenomena of daily life so lucidly that an audience of laymen had no difficulty in following him. The lecture was afterwards published, and is an excellent illustration of his literary style.

Probably his last article was published in the *Westminster Gazette* of March 22nd, 1912, with a title reminiscent of Elia, "On the Decay of the Art of Medical Prescribing."

The city for which he did so much will long remember the charm of his personality; his large circle of friends, the courtly grace of his hospitality; and his professional brethren, the scholarly physician and genial colleague.

ARTHUR E. J. BARKER, F.R.C.S.,

PROFESSOR OF SURGERY, UNIVERSITY COLLEGE, LONDON;
TEMPORARY LIEUTENANT-COLONEL, A.M.S.

MR. ARTHUR BARKER, who died on April 8th of pneumonia and nephritis while on active service, was born in Dublin on May 10th, 1850, and was therefore within a month of completing his 66th year. He was the son of Dr. William Barker, and was educated at the Royal College of Surgeons in Ireland and the University of Bonn. He qualified as L.R.C.S.I. in 1870 and L.R.C.P.I. in 1875. He became F.R.C.S.I. in 1876 and was admitted a Fellow of the Royal College of Surgeons of England *ad eundem* in 1880. He was for some time surgeon to the City of Dublin Hospital, and in 1875 he was appointed assistant surgeon to University College Hospital, London, becoming full surgeon in 1885. In 1893 he was appointed professor of surgery in the college. He was also consulting surgeon to the Queen Alexandra Military Hospital, Millbank, and to the Osborne Convalescent Home for Officers. He was Hunterian Professor of Surgery and Pathology at the College of Surgeons in 1889, and had served as Examiner in Surgery at the Victoria University, Manchester, and the London University. He was the author of a *Manual of Surgical Operations* (1887); *Hunterian Lectures on Intracranial Inflammations* (1890); and of articles on diseases of joints in *Treves's System of Surgery* (1895); and *caries of the spine*, etc., in *Holmes's System of Surgery*, vol. ii (1883); and operations on hernia in *Burghard's System of Operative Surgery* (1909). He delivered the Address in Surgery at the annual meeting of the British Medical Association at Belfast in 1909, taking as his subject the progress of intestinal surgery. He had taken an active part in the development of this branch of his art. His attention may have been called to it by the fact that he himself in his early career suffered from a severe attack of what was then known as perityphlitis. In 1886 he recorded in this JOURNAL what he claimed to be the first successful case of gastro-enterostomy for cancer in England. He also contributed many papers to the medical journals on spinal anaesthesia, on the treatment of gangrenous herniae by enterectomy, and other subjects of abdominal surgery, and on the surgery of

joints. In November, 1914, he was appointed temporary lieutenant-colonel in the Royal Army Medical Corps, and served as consulting surgeon to the Southern Command. He found his death in the service of his country at Salonica.

In his early days in London Mr. Barker had to contend with difficulties which might have discouraged a weaker man. But his quiet strength of character bore him up, and as the value of his work came to be recognized he lived down the unpopularity caused by his appointment. He was a lucid and graceful writer and a bold and successful operator. He was a member of the *Deutsche Gesellschaft für Chirurgie*. In 1874 he published a translation of Heinrich Frey's *Histology and Histo-chemistry of Man*, and his knowledge of German, which was a rarer accomplishment at that time than it is nowadays, was useful to him in his professional advancement.

Colonel Barker married, in 1880, Emilie Blanche, daughter of Julius Delmerge, of Rathkeale, county Limerick, by whom he had one son and four daughters.

Medico-Legal.

IMPRISONMENT FOR ILLEGAL OPERATION.

IN the High Court of Justiciary, Edinburgh, on April 14th, a middle-aged woman, named Jane Robertson, or Edward, was charged with having on October 9th and 11th, 1915, performed, in concert with a man unknown, an illegal operation on a young woman, in consequence of which certain complications resulted and she died in the Maternity Hospital, Glasgow, on November 13th. After evidence had been heard, the jury, by a majority, found the accused guilty, and the Lord Justice-General passed sentence of three years' penal servitude.

Universities and Colleges.

ROYAL COLLEGE OF PHYSICIANS OF LONDON.

ELECTION OF PRESIDENT.

A COMITIA was held on April 17th, Dr. Frederick Taylor, the President, being in the chair.

The President announced that he had nominated the following Fellows to serve on the Committee of the Royal College of Physicians of London and the Royal College of Surgeons of England for the consideration of matters referred to it by the Central Tribunal and other duly authorized bodies: The President, Dr. W. Pasteur, Dr. Sidney H. C. Martin, and Dr. J. Galloway.

President's Address.—The President delivered the usual annual address, in the course of which he referred to the honour conferred on Fellows, Members, and Licentiates during the year, including those received in connexion with war service. He also mentioned the lectures delivered in the College, and the medals, prizes, and scholarships which had been awarded. Reference was also made to the report which had been adopted by the College on the duties of medical practitioners in connexion with criminal abortion. He briefly explained the formation of the Central Medical War Committee, of which he had become a member, and also the election of an Advisory Committee in conjunction with the Royal College of Surgeons of England, to advise the Government through the Central Medical War Committee. The President then read obituary notices on ten Fellows who had died during the year: Dr. Henry Lewis Jones, Sir Peter Eade, Dr. David Bridge Lees, Sir Robert Michael Simon, Dr. Robert Maguire, Dr. George Allan Heron, Dr. George Oliver, Sir William Richard Gowers, Dr. Henry Charlton Bastian, and Dr. Thomas Colcott Fox. The President concluded by thanking the College for the courtesy and assistance extended to him by the officers and Fellows. Sir William Church proposed a vote of thanks to the President for his services during the past year, with a request that the address might be printed. This was duly carried, and the President vacated the chair.

Election of President.—The election of President then took place, and Dr. Frederick Taylor was re-elected by a large majority, and expressed his thanks.

Representative on General Medical Council.—Dr. Norman Moore was re-elected the representative of the College on the General Medical Council.

Reports.—A report from the committee of management was received and adopted, recommending that the Leighton Park School, Reading, should be added to the list of institutions recognized by the Examining Board in England for instruction in chemistry, physics, and biology.

The President then dissolved the comitia.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

A QUARTERLY council was held on April 13th, when Sir Frederic Eve, Vice-President, was in the chair.

Musk Oxen.—A vote of thanks was given to Lady Strathcona for a donation to the museum of two skeletons of musk oxen.

Prizes.—The Jacksonian Prize for 1915 was not awarded. The

subject for this prize for 1917 is "The causation, diagnosis, and treatment of traumatic aneurysm." The Triennial Prize was not awarded. The subject of this prize for 1916-18 is "The development of the hip-joint and of the knee-joint of men." The Walker Prize was awarded to Mr. William Sampson Fandley, for "The improvement in the surgical treatment of mammary carcinoma, due to his pathological investigation." *Election of Members of Twenty Years' Standing to the Fellowship.*—Fleet Surgeon Percy William Bassett-Smith, C.B., and Mr. James Frank Colyer were elected Fellows.

The Services.

EXCHANGE.

LIEUTENANT R.A.M.C., Regt. M.O., desires to change with officer holding a position in base hospital, casualty clearing station, or ambulance train, the latter preferred. Address, No. 1500, BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C.

Medical News.

WE regret to announce the death of Dr. Thomas Colcott Fox, physician to the skin department of Westminster Hospital, which occurred on April 11th at the age of 66. We hope to publish an obituary notice in a subsequent issue of the BRITISH MEDICAL JOURNAL.

THE National League for Physical Education and Improvement has arranged a course of lectures on the care of the school child, for school care committees, teachers, and others, to be held at the London Day Training College, Southampton Row, W.C., on Wednesdays at 5.30 p.m., from May 3rd to July 19th; and also a course of lectures, beginning on May 8th, on infant care, for nurses and midwives, on Mondays at 3 p.m. at the Royal Society of Medicine (1, Wimpole Street), and on Fridays at 8 p.m. at the Coll. of Ambulance (3, Vere Street).

THE report of the King Edward Memorial Sanatorium for Tuberculosis at Bhowali, in the hills of the United Provinces, India, for 1915, shows that 15 patients remained from 1914 and 130 were admitted during 1915. Eight were under treatment less than a month, and 14 were found non-tuberculous. In the remaining 123 tubercle bacilli were found in 80 per cent. The results were: Arrested 30, much improved 35, improved 20, stationary 27, worse 8, died 3. Treatment is on general open-air lines and by the use of tuberculin. The institution was visited by the Viceroy, Lord Hardinge, and by the Lieutenant-Governor of the United Provinces in October.

THE *Southport Visitor* of April 15th contains an interesting account of the work of the St. John Voluntary Aid Detachment Hospital, Southport, which is said to be the largest in England. The illustrations show that the equipment for every detail of hospital work, including amusements for the patients, is very complete. Since it was opened, a little more than a year ago, 366 men have been returned to their fighting units. There have been only four deaths, a proportion of 1 in 200 of cases admitted. All the officers in charge, medical and lay, and all the workers give their services gratuitously, and the inhabitants of Southport have been most liberal in their support. We are informed that 50 per cent. of the proceeds of the advertisements in the issue of our contemporary containing the article is being given to the funds of the local hospitals.

THE monthly meeting of the Central Midwives Board was held on April 13th. Sir Francis Champneys was in the chair. In reply to its inquiry with regard to the opinion of the Central Midwives Board as to the propriety of visits by a health visitor to the house of a lying-in woman, during the period of a midwife's attendance on the case, it was decided to furnish the Local Government Board with copy of correspondence on the subject, which contained a resolution stating the Central Midwives Board's opinion that, "generally speaking, the inspector of midwives is the only person who ought to visit the house of a lying-in patient during the attendance of the midwife, and that any visit paid to a lying-in woman by any other person than the doctor or midwife must be made by the express permission of the patient." On April 14th a penal session was held, when Sir Francis Champneys again presided, and charges against nine women and an interim report were considered. One midwife was censured, one was cautioned, and the other eight were struck off the roll. Most of the women were registered as in practice before the Act, and the charges against them were the usual ones of ignorance and want of cleanliness, but there were also other serious charges, principally that of neglect in cases of ophthalmia neonatorum.

Letters, Notes, and Answers.

THE telegraphic addresses of the BRITISH MEDICAL ASSOCIATION and JOURNAL are: (1) EDITOR of the BRITISH MEDICAL JOURNAL, *Antology, Westrand, London*; telephone, 2631, Gerrard. (2) FINANCIAL SECRETARY AND BUSINESS MANAGER (advertisements, etc.), *Antology, Westrand, London*; telephone, 2630, Gerrard. (3) MEDICAL SECRETARY, *Mediscra, Westrand, London*; telephone, 2634, Gerrard. The address of the Irish office of the British Medical Association is 16, South Frederick Street, Dublin.

Queries, answers, and communications relating to subjects to which special departments of the BRITISH MEDICAL JOURNAL are devoted will be found under their respective headings.

ANSWERS.

PAIN AT ROOT OF NECK AND CARDIAC IRREGULARITY.

DR. ALEXANDER FRANCIS (London, W.) writes: Dr. D. Owen Williams has drawn attention (BRITISH MEDICAL JOURNAL, April 15th) to a symptom which I have found is very common in patients who suffer from the effects of high blood pressure. I have been at a loss to explain the mechanism of the pain, but it disappears on the reduction of the pressure. I have little doubt that high blood pressure was the cause of the trouble in Dr. Williams's patient.

LETTERS, NOTES, ETC.

THE Boylston Medical Prize for 1915 has been awarded to Dr. Wilson G. Smillie of Cambridge, Massachusetts, for an essay entitled *Studies of the Streptococcus of Smith*. The next prize is offered for the best dissertation on the results of original research in medicine; the choice of subject is left to candidates. Dissertations must reach the secretary of the committee, Dr. Harold C. Ernst, Harvard Medical School, Boston, on or before December 31st, 1916. The prize, which is open to public competition, is a sum of £60, with a gold medal.

SMALL-POX IN PERSIA.

DR. JOSEPH SCOTT (Teheran) writes: During some twenty years' practice in the East, where small-pox is always with us, the importance of revaccination has been strikingly brought home to me. The British colony is a small one numbering about 120 persons, yet during the past ten years seven cases have occurred in my practice; three of these were confluent, and all died; the other four made good recoveries. All had been vaccinated in childhood but not since: the average number of marks was two. This is a strikingly high percentage, as it includes children who had been vaccinated and adults who had seen fit to be revaccinated.

OSMOSIS IN THE TREATMENT OF CANCER.

MAJOR C. W. DUGGAN, R.A.M.C., writes: I suggest the following treatment in external carcinoma: After removal of the growth the wound should be left open and painted in the morning and evening with equal parts of ichthyol and glycerine; gauze absorbent wool and a bandage should then be applied. If ichthyol cannot be obtained a dry, non-irritating antiseptic should be substituted. The object of this treatment is to take advantage of the osmotic action of glycerine with a view to preventing a recurrence of the growth and its subsequent diffusion. I also hope that by this method some assistance will have been given to the solution of the cancer problem.

AN ANODYNE POWDER.

LIEUTENANT-COLONEL J. HARDIE NEIL, N.Z.M.C., states that he has found a powder consisting of 5 grains each of veronal, phenacetin, and Dover's powder a very useful combination to combat the pain or distress arising from surgical procedures. After a submucous dissection for instance the patient is given four powders, one to be taken immediately on getting home, a second four hours afterwards, and a third after another four hours if not asleep; the fourth is taken on the succeeding night if the patient does not come up for dressing next day. Usually the patient has a quiet sleep, and awakes in the morning feeling well. In tonsillitis a powder should be taken every four hours, and if relief is not obtained a complication such as peritonsillitis may be assumed. Lieutenant-Colonel Neil thinks that the powder would be useful for quieting patients after injuries received in warfare.

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

	£	s.	d.
Seven lines and under
Each additional line
A whole column
A page

An average line contains six words.

All remittances by Post Office Orders must be made payable to the British Medical Association at the General Post Office, London. No responsibility will be accepted for any such remittance not so safeguarded.

Advertisements should be delivered, addressed to the Manager, 429, Strand, London, not later than the first post on Wednesday morning preceding publication, and, if not paid for at the time, should be accompanied by a reference.

NOTE.—It is against the rules of the Post Office to receive *poste restante* letters addressed either in initials or numbers.

Notes on Military Orthopaedics.

I. REMARKS ON POSITIONS OF ELECTION FOR ANKYLOSIS FOLLOWING GUNSHOT INJURIES OF JOINTS.

BY

LIEUTENANT-COLONEL ROBERT JONES, Ch.M.,
F.R.C.S.I. (Hon.),

INSPECTOR OF MILITARY ORTHOPAEDICS, ARMY MEDICAL SERVICE.

THERE are certain injuries to joints occurring after gunshot wounds which must inevitably end in bony ankylosis. From their very nature some of these will not admit of excision.

When a joint has been shattered, and the muscles governing it have been in part or wholly destroyed, excision is not merely difficult from the point of view of surgical technique, but often results in a flail articulation which renders the limb quite useless. This is especially the case when such joints as the shoulder, elbow, and wrist are concerned. Excisions of the upper part of the humerus are frequently practised as a conservative procedure in the presence of acute or persistent sepsis, especially at the French front. This may be very necessary, but the resulting condition will at a later date require further surgical intervention. The question has often been put to me, "What should be done with these flail joints, and, if ankylosis is to be expected, in what position should the joint be placed in order to be of the greatest use to the patient?" The question as to flail joints will be considered at the end of this article, but in the first place it may be of service to indicate briefly the conclusions as to the positions for ankylosis to which experience has led me.

SHOULDER-JOINT.

Position.

The arm should be abducted to about 50 degrees (Figs. 1 and 2). The elbow should be slightly in front of the coronal plane of the body (Fig. 2), so that when it is at right angles and the forearm supinated, the palm of the hand is towards the face. The arm is placed in this position while the scapula retains its normal position of rest.

Reasons.

If the arm be correctly placed the hand (Fig. 3) can be brought easily to the mouth by bending the elbow. Further, the humerus, being fixed to the scapula at the angle indicated, the arm can be lifted to a considerable height by scapular action (Fig. 4); moreover, pockets can be reached, the hair brushed, and the patient can pick up a plate or cup without spilling the contents.

The arm should never be kept to the patient's side if

ankylosis is feared, for in such a case the functional result must be most unsatisfactory; not only will it be difficult to reach many parts of the body, but difficult also to reach across a table or to perform many simple movements constantly recurring in everyday life. Flail shoulder-joints also should be ankylosed in the position described, and joints which have been allowed to ankylose in an adducted position (Figs. 5A, 5B) may require osteotomy of the humerus high up to correct this faulty position. The shoulder-joint should never be allowed to become fixed at right angles to the side in adults, as in that case the patient will be unable to bring his arm down to his side.

It is to be clearly understood that I am dealing with injuries to soldiers and sailors, and not with children in whom other means can be adopted owing to anatomical considerations.

ELBOW-JOINT.

Position.

The proper course to adopt will depend upon the patient and his calling, but by far the greater number of men would prefer the fixation to be at just below a right angle—that is, about 100 degrees (Fig. 6). It is important to bear in mind that in cases in which *both* elbows will become ankylosed it is necessary to fix the one at an angle of 80 degrees and the other at 100 degrees as recommended for one-sided trouble (Fig. 7). The ankylosis commonly met with at 130 degrees is not useful.

Reasons.

This position enables the patient to move his hand to his mouth, button his clothes, brush his hair and to reach over a table. At an angle less than a right angle it is certainly more easy to get the hand to

the mouth and to various parts of the head, but limitations in other directions more than counterbalance these advantages.

FOREARM.

Position.

If the movements of pronation and supination are lost, the radius should be fixed midway between pronation and supination.

Reasons.

The hand is more useful for dressing and eating and for manual labour in this position. A minor advantage is that of appearance.

WRIST-JOINT.

Position.

All injuries of the wrist-joint should be treated with the wrist dorsiflexed (Fig. 8).

This is a priceless surgical axiom, the neglect of which is grave.

It is an urgent necessity where ankylosis is

expected, or where even limitation in movement is likely to occur.

The common deformity of palmar flexion occurs when no splint is applied, or from the use of a straight splint; in all cases in which the arm and fingers are kept on such

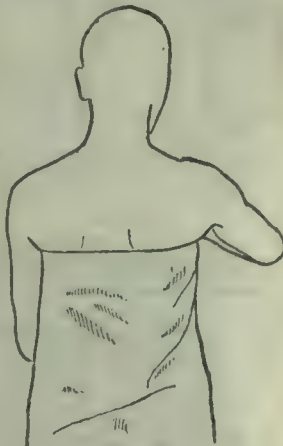


FIG. 1.



FIG. 2.

FIGS. 1 and 2.—To illustrate the position for ankylosis of the shoulder in abduction.



FIG. 3.



FIG. 4.

FIGS. 3 and 4.—Ankylosis of the shoulder in abduction to show, (Fig. 3) degree of abduction, (Fig. 4) the degree of power of lifting the arm.

a splint palmar flexion of the wrist occurs, and this condition is a lifelong handicap to the usefulness of the hand.

Reasons.

The grip of the fingers is diminished if the wrist is palmar-flexed. The strong flexors overpower the extensors

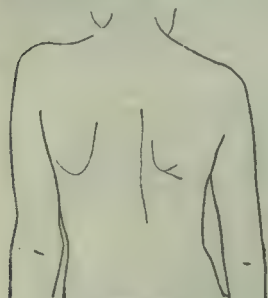


FIG. 5A.



FIG. 5B.

FIG. 5A shows faulty adducted position of arm, and Fig. 5B the consequent extremely limited power of abduction.

of the fingers, and in consequence proper co-ordination of the finger movements is impaired. The grasp of the hand is strongest when the wrist is in the dorsiflexed position, the balance between the flexors and extensors is better preserved, and the co-ordinated movement of the fingers is secured.



FIG. 8.—Dorsiflexion of the wrist.

The splints required are simple.

In proof of the importance I attach to the dorsiflexed ankylosed wrist, I may state that I always restore hyper-extension of the ankylosed joint from the position of



FIG. 6.—Ankylosis of elbow-joint at 100 degrees.



FIG. 7.—Right elbow at 80 degrees, left elbow at 100 degrees.

flexion by manipulation or incision. This invariably improves the grip of the fingers.

Apart from the impairment of function, a flexed wrist is unsightly.

HIP-JOINT.

Position.

Ankylosis should be encouraged in a position of very slight abduction, with thigh extended and very slight outward rotation (Fig. 9).

Reasons.

The common deformity in ankylosis of the hip is flexion, adduction and internal rotation (Fig. 10), which is the characteristic position we find in an untreated or imperfectly treated tuberculous hip-joint; it leads to lumbar lordosis and an ugly limp. Adduction deformity brings the limb too near the middle line, interferes with the normal position of the sound limb in walking, and by involving abduction of the sound limb, interferes also with a free gait.

If the hip-joint is ankylosed in the fully extended position lordosis and the consequent trouble from back-ache is avoided, and there is freer pelvic movement in walking if the thigh is slightly abducted.

The limb should be very slightly rotated outwards, to avoid the unsightly lift of the pelvis as the patient rises on his toes when walking, due to the immobile condition of

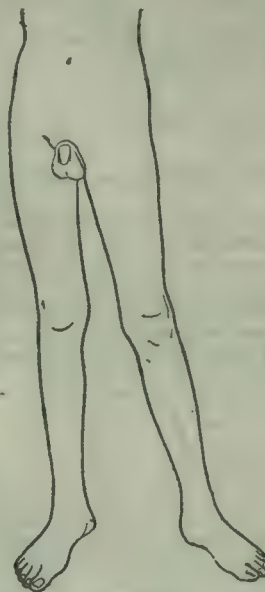


FIG. 9.

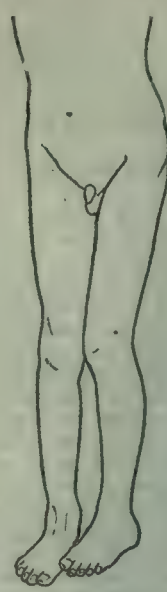


FIG. 10.

FIGS. 9 and 10.—Ankylosis of hip. (9) Correct position, in slight abduction with extended thigh and slight outward rotation. (10) Faulty position of ankylosis in flexion with adduction and internal rotation.

the hip-joint. This gives an easier walk than if the toes are pointed straight forward.

KNEE.

Position.

This joint should be fixed in an extended position.

Reasons.

Very good reasons may be given in favour of slight flexion from the point of view of elegance in repose and that of ease in mounting stairs. Due weight should be given to these arguments, but in the case of war injuries the straight position obviates many risks. Ankylosis, as we know, is not necessarily bony; when it is fibrous the tendency is for the flexion angle to increase by exercise. The incidence of the body weight on a slightly bent knee, unless the ankylosis is sound and bony, will increase the flexion. The position, therefore, is mechanically a weak one for carrying body weight. Even when new bone is forming its complete consolidation is sometimes a slow process, and if the surgeon places such a knee in a slightly flexed position the degree of ultimate flexion is often much greater than he would wish. The advantage of increased strength and stability ensured by an extended joint will generally outweigh all other considerations.

ANKLE.

Position.

The foot should be kept at a right angle with the leg, so that the sole impinges on the ground in a slightly varus rather than a valgus position (Fig. 11).

Reasons.

If the reader will recall the ankylosed ankles he has seen, he will remember that most of them were in a valgoid position. A varoid position conduces to a strong type of foot; a valgoid (flat-foot) to a weak foot, and all the disability associated with erroneous deflection of body weight.



FIG. 11.—Ankylosis of ankle with foot at right angle and sole in slightly varus position.

JOINTS OF THE TARSUS AND METATARSUS.

In gunshot wounds and other injuries of the tarsus and metatarsus, the deformities to be feared correspond to the

common static deformity of flat or pronated foot—a subject with which I propose to deal more at length in a subsequent article—that is to say, to pronation at the mid-tarsal joint, flattening of the longitudinal arch, and sometimes flattening of the transverse arch associated with pain in the metatarso-phalangeal joints. Callus exudation added to plantar malposition results in a very crippled foot. In all gunshot injuries of tarsus and metatarsus the surgeon should take care during the later stages of healing not to bandage the sole rigidly against a flat foot-piece, for if that be done every irregularity of bone will conduce to



FIG. 12.—Boot with bar behind heel to relieve injured metatarsal joints and phalanges from pressure.

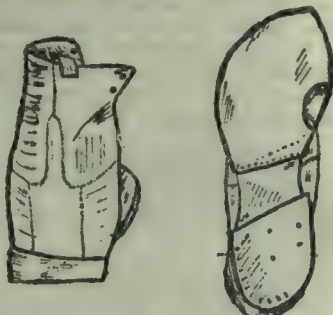


FIG. 13.—Heel elongated and raised $\frac{1}{2}$ in. on inner border, with small piece on inner side of sole.

callosity when walking is resumed. It is necessary, therefore, at this stage to adjust a splint having an inside arch padded to conform to the natural shape of the foot. Eversion of the foot should be guarded against, and the hollow of the arch should, when possible, be emphasized. Later, the heel of the boot should be raised on the inner side to obviate eversion, and, if the metatarsals are involved, in order to allow of early walking, a bar should be placed across the sole of the boot behind the tread (Figs. 12, 13). Light duty can then be undertaken at a much earlier date.

FLAIL JOINTS.

In answer to the question "What should be done with flail joints?" I would say, "Secure by operation an ankylosis in the most useful position." The only exception is in the case of the hip-joint where by means of simple mechanism a very useful limb may be obtained in spite of the joint being flail.

Preliminary Note

ON

A METHOD FOR THE PREPARATION OF A NON-TOXIC DYSENTERY VACCINE.

BY

H. R. DEAN, M.D., F.R.C.P.,

AND

R. S. ADAMSON, M.A., B.Sc.

(From the Pathological Laboratory of the University of Manchester.)
(Report to the Medical Research Committee.)

THE susceptibility of the rabbit to *B. dysenteriae* (Shiga) is well known, and constitutes a practical difficulty in the preparation of agglutinating serums for use in the recognition of this micro-organism. During attempts to produce antiserum we ascertained that the intravenous injection of one-twentieth of a loop* of the culture of the particular strain which we were using, killed by heating for one hour at 58° C., invariably produced the death of a rabbit in five to seven days. Smaller quantities frequently produced a

fatal result. One strain of Shiga's bacillus was used in all our experiments.

The very marked success obtained by Lorrain Smith, Ritchie, and others by the employment of eusol¹ in the treatment of toxæmia and septicæmia suggested the possibility of its employment *in vitro* for the destruction of the toxins of the bacillary emulsion. The object of our experiments has been to modify the toxic properties of a bacillary emulsion of the Shiga bacillus without interfering with its capacity for producing immunity.

That bacillary antigens are not destroyed by hypochlorous acid has been shown by the successful use of antiformin extracts in the complement fixation reaction by Altmann and Schultz.² In 1912 Dean³ prepared a soluble typhoid antigen by precipitating an antiformin extract of typhoid bacilli with alcohol. By this method a fine white powder was prepared, which was freely soluble in water. The solution so obtained was injected into a rabbit, and induced the formation of agglutinins against *B. typhosus*.

The results of our experiments on forty-seven rabbits have convinced us that it is possible by the use of dilute solutions of hypochlorous acid to prepare a Shiga vaccine, the injection of which is practically harmless to the rabbit, but is nevertheless followed by the production of a satisfactory degree of immunity.

The first few experiments showed that eusol very effectively destroys the Shiga toxin *in vitro*. The entire growth from three agar plates, which had been profusely inoculated with the Shiga bacillus on the day before, was emulsified in 15 c.cm. of saline solution. To the emulsion was added an equal quantity of eusol, and the mixture was allowed to stand at room temperature for twenty-four hours. Of this mixture quantities containing $\frac{1}{10}$, $\frac{1}{20}$, and $\frac{1}{100}$ of the entire growth on an agar plate were injected into the ear veins of three rabbits. No symptoms of any kind were observed, and all these rabbits remained in excellent health during the next seven days, when they received further inoculations. On the seventh day a sample of blood was taken, and agglutination tests were carried out. No formation of agglutinins could be demonstrated.

What is the smallest quantity of eusol which, when allowed to act on an emulsion of Shiga bacilli, will render the mixture non-toxic for rabbits?

In the endeavour to supply the answer to this question we have carried out experiments on twenty-four rabbits. The method employed throughout the series was the same. An emulsion was prepared by rubbing up one or more loops of a twenty-four hours' agar culture in a measured volume of saline. In the later experiments of the series the bacilli were killed by heating the emulsion for one hour at 58° C. In the earlier experiments we relied on the bactericidal action of the eusol. The emulsion was mixed with an equal volume of diluted eusol and left for twenty-four hours at room temperature. The amount of the mixture that was injected was usually 1 c.cm. If, for example, it was decided to inject one-fifth of a loop of culture in a 1 in 1,000 solution of eusol, an emulsion of bacilli was prepared which contained two-fifths of a loop in 1 c.cm., and added to an equal volume of 1 in 500 eusol. The following examples are fairly typical of the results obtained:

Rabbit 27.

This animal was one of the three mentioned above. It had been inoculated on February 26th with one-hundredth part of the entire growth of an agar plate previously digested with an equal volume of eusol. On March 6th it was given an intravenous injection of Shiga emulsion, half a loop, in eusol, 1 in 1,000. (The mixture was shown to be sterile.) The animal remained perfectly well, and on March 10th Shiga emulsion, half a loop, in eusol, 1 in 1,000, was injected. This mixture was found to contain living bacilli, for a few colonies of *B. dysenteriae* developed on an agar slope which had been inoculated with several loops of the mixture. We had been using throughout the experiment the same solution of eusol which had been prepared on February 25th. It will be seen that a 1 in 1,000 dilution of this solution sterilized the emulsion on March 6th, but was unable to do so completely four days later. This result was probably due to the deterioration of the eusol solution. If we had titrated our eusol solution before use and determined the hypochlorous acid content, we should probably have obtained more constant results. The result was, however, of interest, for the rabbit survived the inoculation with the living organism, and had evidently developed a high degree of immunity as a result of its previous inoculations with eusol-treated Shiga emulsion. The rabbit, in fact, showed no

* Throughout this series of experiments we have expressed the quantities injected in loops and fractions of a loop. In all experiments we have used the same platinum loop, and cultures of the same strain, previously grown for twenty-four hours at 37° C. If one loopful of the culture is emulsified in 1 c.cm. of saline solution and of this emulsion 1 c.cm. is injected, the amount injected is reckoned as one-fifth of a loop. The method is old-fashioned but provides comparable measurements, provided that the above precautions are adhered to. We have ascertained that one-fifth of a loop in our series of experiments contains from 160 to 180 million bacilli.

signs of illness after this inoculation. On March 17th a sample of its serum agglutinated a Shiga emulsion in a dilution of 1 in 200.

On March 24th the animal was given an intravenous injection of Shiga emulsion, half a loop, previously killed by heat at 58° C., but without the addition of any eusol. This represents at least ten minimal lethal doses, and a normal rabbit would almost certainly have died within forty-eight hours. The animal was quite well until March 27th, when very slight signs of illness were observed. It was quite well on the following day. On April 3rd the agglutination titre of the serum was found to be 1 in 100. Marked complement fixation was observed in a dilution of 1 in 160. On April 10th it was given an intravenous inoculation of two loops of heat-killed Shiga without eusol. No signs of illness developed, and the animal was quite well ten days later.

The emulsion which was injected into rabbit 27 on March 10th, and which was proved to contain living Shiga bacilli, was injected on the same day into three other rabbits, all of which had previously received two inoculations of a mixture of Shiga emulsion and diluted eusol. Two of these animals survived and one died.

Thus, in three cases out of four, rabbits immunized with a mixture of Shiga emulsion and eusol survived the injection of the living micro-organism. The injection of a living culture at so early a stage in the immunization of these animals was unintentional, but afforded evidence of the efficacy of the eusol-treated emulsions for the production of immunity.

We decided, however, to use in subsequent experiments emulsions of dead bacilli, and with this object all the emulsions used in subsequent experiments were heated for one hour at 58° C. before the eusol was added. Cultures were made immediately before the eusol was added, and the emulsions were in every case found to be sterile. The mixture of killed bacillary emulsion and diluted eusol was allowed to stand for twenty-four hours at room temperature.

It is generally held that the pathogenic action of the Shiga bacillus is due to the presence of an endotoxin, and it is certain that heat-killed cultures of this micro-organism are very virulent for rabbits. We decided, therefore, to determine the action of hypochlorous acid on the toxin of dead cultures. As the result of several experiments, we determined that eusol, in a dilution of 1 in 1,000, greatly reduced, if it did not actually destroy, the toxic action of heat-killed emulsions of Shiga bacillus. Our next step was to determine the minimal quantity of eusol which would abolish the toxic action of a given quantity of emulsion of killed bacilli. The result of our experiment is shown in Table I. The dose of Shiga employed was one-fifth of a loop (160,000,000 bacilli), a quantity which could be relied upon to kill a normal rabbit within a few days.

TABLE I.—Minimal Quantity of Eusol to Abolish Toxic Action.

A.

No. of Animal.	Weight in Grams.	Amount of Killed Shiga Culture.	Eusol.	Date of Inoculation.	Result.
43 (control)	2,230	One-fifth loop	0	March 15	Died March 16.
42	2,130	"	1 in 16,000	"	Died March 25.
46	2,060	"	1 in 8,000	"	Died March 16.
44	2,030	"	1 in 4,000	"	Died March 16.
45	2,000	"	1 in 2,000	"	Died March 19.
47	1,900	"	1 in 1,000	"	No sign of illness

B.

51 (control)	2,210	One-fifth loop	0	March 25	Died March 27.
52	2,100	"	1 in 8,000	"	Died March 31.
54	2,100	"	1 in 4,000	"	Died March 27.
55	2,030	"	1 in 2,000	"	Ill on March 29, but recovered. No signs of illness.
53	2,000	"	1 in 1,000	"	No signs of illness.
50	1,750	"	1 in 500	"	No signs of illness.

It appears from the experiment shown in Table I, A, that the toxin of one-fifth of a loop of culture of this Shiga strain was neutralized by the 1 in 1,000, but not by the weaker

dilutions of eusol which were employed. The survivor of the series, rabbit 47, showed no signs of illness and remained in perfect health. On April 4th we tested its immunity by the intravenous injection of two-fifths of a loop of a killed Shiga culture without any eusol. The animal remained perfectly well and had apparently developed a satisfactory immunity as the result of one immunizing dose of Shiga treated with 1 in 1,000 eusol.

The result of a similar experiment is shown in Table I, B. It entirely confirms the result shown in Table I, A. The animal (No. 48), which was inoculated with 1 in 2,000 eusol in this case, survived after a transitory illness which we noted on the second day after inoculation.

On April 10th the immunity of the three survivors was tested by the intravenous injection of one loop of killed culture—a very large dose. The test proved too severe, and all the animals died.

On the Nature of the Immunity Produced by Eusol-treated Emulsions of Shiga Bacilli.

The experiments above quoted and others, of which we have notes, lead to the conclusion that it is quite possible to produce an effective and almost non-toxic vaccine by allowing a weak solution of eusol to act on a heat-killed emulsion of *B. dysenteriae* (Shiga). We have employed both intravenous and subcutaneous methods of injection, and, except in cases where we have intentionally given enormous doses, we have never observed any at all serious results. Intravenous inoculation commonly produces no sign of illness, and subcutaneous injections are followed at the most by a very slight degree of inflammation at the site of the injection. Rabbits after three, two, or exceptionally one inoculation with eusol-treated Shiga emulsion are able to survive the injection of a heated Shiga emulsion which contains many times the lethal dose for a normal unprotected rabbit. We have on many occasions tested the agglutinin content of the serum of the immunized rabbits, and on one occasion the antibody content of several serums was tested by the complement fixation method. The titre of the serum was in no case a high one, and, in the case of many animals, which were subsequently proved to be highly immune, there appeared to have been no production of agglutinins.

The result is not surprising in view of the fact that the agglutination titre of the serum from cases of Shiga dysentery is usually low as compared with the titre of serum from patients suffering from infections produced by typhoid and paratyphoid bacilli. It is more or less difficult to obtain from a rabbit a really powerful anti-Shiga agglutinating serum by any method of immunization. In any case the presence or absence of agglutinins is, from the practical standpoint, of much less importance than the presence of active immunity, as demonstrated by a test injection of a large dose of virulent toxin.

The following experiments illustrate the method of immunization:

Rabbit 34.

On March 6th Shiga $\frac{1}{2}$ loop + eusol 1 in 1,000 subcutaneously.

On March 15th Shiga 1 loop + eusol 1 in 1,000 subcutaneously.

On March 25th Shiga 2 loops + eusol 1 in 500 subcutaneously.

No evidence of immunity could be obtained by agglutination and complement fixation tests.

On April 10th (test injection) two loops of heat-killed Shiga intravenously without eusol. This enormous dose produced no signs of illness, and the animal was alive and well on April 22nd.

Rabbits 39, 40, and 41.

These three animals were immunized as follows:

On March 10th Shiga $\frac{1}{2}$ loop + eusol 1 in 100 subcutaneously.

On March 18th Shiga $\frac{1}{2}$ loop + eusol 1 in 500 subcutaneously.

On March 24th Shiga $\frac{1}{2}$ loop + eusol 1 in 500 intravenously.

On April 4th Shiga $\frac{1}{2}$ loop + eusol 1 in 1,000 intravenously.

The immunity was tested on April 10th by the intravenous injection of one loop of heat-killed Shiga (without eusol) in the case of rabbits 39 and 41. Rabbit 40 was given two loops of Shiga without eusol. No signs of illness developed, and all three animals were quite well on April 22nd.

We are inclined to think that the inoculations induce the formation of an antitoxin, the presence of which we are at present endeavouring to demonstrate in the serums of our immunized animals.

The Action of Hydrogen Peroxide on Emulsions of the Shiga Bacillus.

We do not venture to express an opinion on the nature of the chemical reaction which takes place between the Shiga toxin and the hypochlorous acid. The result is that the bacillary emulsion loses its toxicity but not its capacity for acting as antigen. It is, of course, easy to say that toxin is converted into toxoid. But this is only another way of saying the same thing, and brings us no nearer to an explanation of what has happened. It is commonly believed that the poisonous properties of toxins are reduced by oxidation, and the possibility that hypochlorous acid destroyed the Shiga toxin by oxidation occurred to us. We have, in consequence, carried out a similar but limited series of experiments with hydrogen peroxide.

Rabbit 37.

An emulsion of Shiga bacilli containing one loop of culture in 1 c.cm. was mixed without preliminary heating with an equal volume of a 1 in 50 dilution of hydrogen peroxide in saline solution. After twenty-four hours 1 c.cm. of the mixture was injected subcutaneously. Cultures made from this mixture showed that it contained a few living Shiga bacilli. The animal died five days later.

Rabbit 36.

An emulsion of Shiga bacilli, containing one loop of culture in 1 c.cm., was mixed without preliminary heating with an equal volume of a 1 in 5 dilution of hydrogen peroxide in normal saline solution. The mixture was allowed to stand for twenty-four hours, and then proved to be sterile; 1 c.cm. of the mixture was injected beneath the skin of a rabbit on March 6th. On March 13th a sample of serum was obtained and produced slight agglutination of a Shiga emulsion in a dilution of 1 in 25. On March 15th another subcutaneous injection was given (Shiga emulsion 1 loop, hydrogen peroxide 1 in 10). The Shiga emulsion had been previously killed by heat, and was subsequently allowed to digest with the diluted hydrogen peroxide. On March 24th a Shiga emulsion was agglutinated by the serum in a dilution of 1 in 50. On March 25th two loops of Shiga emulsion (previously killed at 58° C.) in 1 in 10 hydrogen peroxide solution were injected subcutaneously. The immunity of this animal was subsequently tested by the intravenous injection of two loops of killed Shiga emulsion. No signs of illness were noticed and the animal remained perfectly well.

Rabbit 38.

An emulsion containing one loop of Shiga culture (not killed by heat) was mixed with an equal quantity of undiluted hydrogen peroxide. After standing for twenty-four hours the mixture proved to be sterile, and 1 c.cm. was injected subcutaneously. In this case the concentrated hydrogen peroxide probably destroyed not only the toxic but also the antigenic properties of the emulsion, for the second inoculation of one loop of heat-killed culture in 1 in 10 peroxide proved fatal after five days.

Rabbit 55.

This animal was immunized by the subcutaneous inoculation of one-fifth of a loop of killed Shiga emulsion in 1 in 10 peroxide and later by a second dose of Shiga emulsion, half a loop in 1 in 10 peroxide. The immunity of this animal was tested by the intravenous injection of one loop of killed Shiga culture. No signs of illness were noticed and the animal remained perfectly well.

The results obtained in this limited series indicate that hydrogen peroxide yields results of a similar character to those obtained by the employment of eusol.

Experiments on Man.

The results obtained from rabbits encouraged the hope that a harmless and effective prophylactic Shiga vaccine might be prepared on similar lines.

The vaccine was prepared by digesting a killed bacillary emulsion of double the required strength with an equal volume of eusol (diluted 1 in 250 or 1 in 500) for twenty-four hours at room temperature. The injections were subcutaneous. Up to the present time three persons have been inoculated.

CASE I.

H. R. D. March 11th injected one-eighth of a loop killed Shiga in 1 in 1,000 eusol. Slight redness of skin developed around site of puncture after twenty-four hours. After forty-eight hours a circumscribed swelling developed in the subcutaneous tissue. The skin over the swelling became red, and firm pressure was slightly painful. The swelling increased slightly up to the sixth day, then became smaller and disappeared about the tenth day. It was never very tender and the discomfort produced was trivial; there were no constitutional symptoms.

The second dose, given on March 25th, consisted of half a loop of Shiga in 1 in 500 eusol; the local reaction was slightly more severe. On April 10th one-fifth of a loop (160 million

bacilli) of killed culture without eusol was injected as a test of immunity. The local reaction was so slight that it could only be detected with difficulty.

CASE II.

R. S. A. On March 15th one-eighth of a loop killed Shiga in 1 in 1,000 eusol was injected, and on March 30th one-fourth of a loop killed Shiga in 1 in 500 eusol. There was no constitutional disturbance, and the local reactions were similar to those described in the first case.

CASE III.

R. W. On March 16th one-eighth of a loop killed Shiga in eusol 1 in 1,000 was injected, and on March 30th half a loop killed Shiga in eusol 1 in 500. The local reaction after the first dose was a trifle more marked than in the other cases. The local reaction produced by the second dose was hardly appreciable. On April 10th one-fifth of a loop (160 million bacilli) of killed culture without eusol was injected. There was practically no local reaction.

In all three cases constitutional symptoms were entirely absent. The local reaction was a little more marked than that which follows an injection of typhoid vaccine in an average case. It was usually well marked at the end of the second day, and reached its maximum on the fifth or sixth day. It caused none of us any appreciable inconvenience. Up to the present time we have not been able to demonstrate the presence of agglutinins in our serums.

SUMMARY AND CONCLUSIONS.

Our experiments up to this time show that:

1. The toxicity of an emulsion of *B. dysenteriae* (Shiga) can be enormously reduced, or even entirely destroyed, by the action of a dilute solution of eusol or of hydrogen peroxide.
2. The injection of such an emulsion in which the toxin has been destroyed is followed by the production of a satisfactory degree of immunity.

These results appear to us of sufficient interest to justify the publication of a preliminary note, but we are aware that there are several points which require further investigation.

The original object of these experiments was to diminish or destroy the toxicity of a Shiga emulsion without interfering with its immunizing properties.

The results have been obtained by rather rough methods. In subsequent experiments we propose to use mixtures of counted bacillary emulsions with solutions of eusol in which the content of hypochlorous acid has been determined by titration. It may then be found possible to determine the time which the reaction requires at any given temperature. It will also be of interest to us to ascertain if it is possible to produce agglutinins against typhoid and paratyphoid bacilli by similar methods. It is possible that the method may be found useful in reducing the symptoms which follow the injection of *B. typhosus* and *B. pestis* vaccines.

With regard to the production of a suitable Shiga vaccine we suggest the following procedure:

Prepare an emulsion containing 200 million bacilli per cubic centimetre. Heat for an hour at 58° or 60° C. Mix with an equal quantity of a 1 in 500 solution of freshly prepared eusol in normal saline. Allow mixture to stand at room temperature for twenty-four hours. Inject subcutaneously 1 c.cm. of this mixture; 1 c.cm. will contain 100 million bacilli in a 1 in 1,000 dilution of eusol. The second dose might be given ten days later. Prepare an emulsion containing 800 million in 1 c.cm. Heat for one hour at 58° or 60° C. Mix with an equal quantity of 1 in 500 eusol. Allow to stand for twenty-four hours at room temperature and inject 1 c.cm. A third dose of 200 million or more bacilli, sterilized with heat but without the addition of eusol, may possibly be necessary to complete the production of a satisfactory immunity.

The above suggestions are put forward tentatively as the result of a very limited number of experiments on man. It is quite likely that the dose might be considerably increased as the result of further experience. It is also possible that it may be found feasible to increase the relative amount of eusol in the mixture without diminishing its immunizing properties. Such an increase would be accompanied, in all probability, by a still further reduction in the local reaction.

Of the nature of the action of the eusol on the Shiga toxin we are not in a position to offer an opinion. The

fact that hydrogen peroxide appears to exert a similar action to ensol suggests that the reaction is of the nature of an oxidation process.

REFERENCES.

¹Lorrain Smith, Drennan, Rettie, and Campbell, Experimental Observations on the Antiseptic Action of Hypochlorous Acid and its Application to Wound Treatment, BRITISH MEDICAL JOURNAL, July 24th, 1915; Fraser, The Value of Hypochlorous Acid in the Treatment of Cases of Gas Gangrene, BRITISH MEDICAL JOURNAL, October 9th, 1915; Lorrain Smith, Ritchie, and Rettie, On a Case of Septicaemia treated by Intravenous Injection of Ensol, BRITISH MEDICAL JOURNAL, November 13th, 1915; Fraser and Bates, The Treatment of Acute Toxaemia Secondary to Gas Gangrene by the Intravenous Injection of a Solution of Hypochlorous Acid, BRITISH MEDICAL JOURNAL, January 15th, 1916, p. 83; Clinical Report on the Applications of Ensol, *La cet.*, 1916, February 5th and 12th. ²Altman and Schultz, Verwendung von Bakterien-Antiformin-Extrakten als Antigene bei der Komplement Bindung, *Zeitschrift f. Immunitätsforschung*, vol. iii, p. 98, 1909. ³A Method of Preparing a Soluble Typhoid Antigen, Proceedings of the Pathological Society of Great Britain and Ireland, June, 1913, *Journal of Pathology and Bacteriology*, vol. xviii, p. 117.

THE THERAPEUTIC AND REACTION EFFECTS OF KHARSIVAN.

A RECORD OF 600 INJECTIONS.

BY

H. C. LUCEY, M.D., B.S.LOND.,

TEMPORARY CAPTAIN, R.A.M.C., ROYAL HERBERT HOSPITAL, WOOLWICH.

When kharsivan, the British preparation of the same chemical constitution as salvarsan, was introduced last year, the Medical Research Committee made an appeal to members of the medical profession to furnish it with accurate records of the results, both as regards its therapeutic efficacy and the occurrence of any special incidental symptoms.

For such records, in the treatment of syphilis, to be value, it is necessary that (1) some definite scheme for recording results should be adopted, (2) all disturbing factors, such as errors in technique, should be eliminated.

A scheme such as that shown in the next column will be found useful.

It is convenient to keep a ledger embodying some such scheme as this, the details of which should be filled in every time a patient receives an injection.

In this way, besides noting the immediate reaction to a dose given on a particular date, a permanent record is kept of the patient's syphilitic history. The third case in the reaction scheme may be taken as an example. In the column "Previous Treatment" it will be seen that the patient had an injection of kharsivan 0.6 gram on January 19th, with two mercurial injections to follow. On referring to the page in the ledger recording injections given on January 19th, details of his condition and reaction on that date will be noted, and it will be observed what progress he has made in the interval.

At the present time, as a routine for primary and secondary syphilis, I give three injections of kharsivan 0.6 gram at fortnightly intervals, with two weekly injections of mercurial cream in the intervals. This is a short intensive course, designed to render a soldier fit for active service as quickly as is possible consistent with a reasonable chance of a permanent cure.

That this course of treatment does give him a reasonable chance is shown by Gibbard and Harrison's statistics produced at the International Congress of Medicine, 1913. On a precisely similar course, but using the German preparation "606," they found that only 3.9 per cent. of cases relapsed clinically and 19.4 per cent. serologically within a year of the suspension of treatment. It is, of course, not possible during war time to carry out systematic Wassermann tests or to examine patients at stated intervals for signs of relapse; but up to the present I have had only one man return to me, and that not for a relapse, but for a fresh infection.

I give this case with reserve as an example of re-infection with syphilis, because, unfortunately, the diagnosis of primary syphilis in the first instance, though supported on clinical grounds, was not established beyond all doubt by the finding of *Treponema pallidum*. No examination of the exudate from the sore was made on the first occasion.

D. A. was admitted into hospital on August 12th, 1915, with a sore on the glans penis. This was typical of a syphilitic chancre in this situation, being of the papulo-erosive type,

Name.	Syph. Stage.	Date.	Condition.	Previous Treatment.	Urine before injection.	Temp. before injection.	Preparation Used.	Dose.	Batch.	Amount of 4 per cent. NaOH.	Temp. after 4 hrs. after 8 hrs.	Headache.	Rigor.	Vomiting.	Diarrhoea.	Urine 24 hrs. after.	Other Symptoms.
J—	Sy ¹	Feb. 2	Pr. Sore. In coronal sulcus; active 15 days. Glands. Both inguinals +. Skin. Nil. Mouth. Nil. Anus. Nil. Other Evid. Tr. pall. present.	Nil	N	98.2°	K	0.6 gm.	142	4.2 c.cm.	99°	101°	Slight	Nil	Nil	N	Nil
S—	Sy ²	Feb. 2	Pr. Sore. Under surface of prepuce; active 5 weeks. Glands. Both inguinals +. Skin. Roscolar rash on body and limbs. Mouth. Nil. Anus. Nil. Other Evid. —	Nil	N	99.4°	K	0.6 gm.	142	4.2 c.cm.	100°	103°	For 6 hrs.	Once	5 times	N	Merxheimer reaction.
B—	Sy ²	Feb. 2	Pr. Sore. Scar from sore 6 months ago. Glands. General +. Skin. Pigmentation from old rash. Mouth. Mucous patches healed. Anus. Condylomata healed. Other Evid. Headache better.	K 0.6 gm. Jan. 19. Hg B.	N	98.4°	K	0.6 gm.	142	4.3 c.cm.	98.2°	98.4°	Nil	Nil	Nil	N	Nil
Y—	Sy ³	Feb. 2	Pr. Sore. History of 1908. Glands. Nil. Skin. Nil. Mouth. Glositis. Anus. Nil. Other Evid. Wassermann +.	Treated with iodo- in 1908 and 1909.	N	96°	K	0.6 gm.	142	4.2 c.cm.	98.6	98.2	Nil	Nil	Nil	N	Nil

K - Kharsivan.

N = Normal.

Hg - Injection of mercurial cream.

circular, and evenly circumscribed, denuded only of epithelium and possessing a glazed surface. There was no pus. The patient had exposed himself to infection three to four weeks previous to its appearance. The incubation period, therefore, favoured a diagnosis of syphilis rather than soft sore.

The inguinal glands on both sides were discrete and enlarged, but they showed no signs of active inflammation. The nature of the glandular enlargement was, therefore, in favour of syphilis. On these grounds the case was diagnosed as primary syphilis, and an examination of the exudate for *Treponema pallidum* was not considered necessary. He received the 1.2.1.2.1 course of treatment, as indicated above. The sore rapidly healed and the inguinal glands were reduced.

On January 24th, 1916, he was readmitted with a fresh sore. This was in the coronal sulcus, and well away from the site of the previous sore, so that this could not be a case of "redux chancre." The sore was a typical Hunterian chancre. He had exposed himself to infection four weeks previous to its appearance, and the inguinal glands on both sides were enlarged. There were no secondary signs. This time the exudate was examined for *Treponema pallidum*, which was found to be present. The evidence therefore, though not complete, is in favour of this being a case of reinfection with syphilis, the previous infection having been completely cured by a course of treatment consisting of three injections of kharsivan (0.6 gram) and four of mercurial cream.

I confess, in peace time, I would prefer to give a longer course than this, especially for secondary cases, but my object in this paper is not so much to discuss the merits of any particular course of treatment, but rather to state my experience of the immediate therapeutic and reactionary effects of kharsivan.

The Immediate Therapeutic Effect of Kharsivan.

I believe kharsivan to be every bit as potent as the original German preparation. It may be objected that by adding mercurial injections to the course of treatment the effect of the drug cannot be properly determined. But the immediate effect of kharsivan given without the addition of mercury is apparently as rapid as when mercurial injections are added. The type of lesion which clears up most rapidly is, as would be expected, one in which the blood supply is good, and in which there is no breach of surface. This is particularly well marked in those cases of syphilitic infiltration met with in the later stage of syphilis, around the mouth and nose, causing great disfigurement. A patient suffering from such a lesion looks a different person a few days after a single injection.

Primary sores are rendered inactive after one injection; the time taken, however, before they become completely healed varies according to the extent of breach of surface, the degree of added infection, and the situation of the sore. Those situated on the skin as a rule take rather longer to heal than those on mucous membrane. I find the average time for all primary sores to be fifteen days, using in addition to the general treatment some local application such as lotio nigra or calomel.

The activity of a rash is immediately checked after the first injection, and it disappears in a few days or weeks according as to whether it is a roseolar or a pigmented papular rash. A very deeply pigmented rash may take months to fade completely. Condylomata and mucous patches usually clear up within a week.

Enlarged lymphatic glands are reduced at the end of a course of treatment, though, as a rule, if this has lasted only a few weeks, not sufficient time has been allowed for their complete subsidence. This is only what one would expect owing to their solid consistence. They subside completely later. That incomplete reduction of the lymphatic glands, at the end of a short intensive course of treatment, does not signify incomplete destruction of the *Treponema pallidum*, is shown by the absence of relapses in the great majority of such cases. Experimental evidence is afforded by Iversen,¹ who punctured the glands in 10 cases of secondary syphilis before and after an injection of salvarsan. He found that, whereas before the injection the organisms were present in large numbers, they could not be detected three to five days after an injection.

Reactions following Injections of Kharsivan.

I am in the habit of injecting six to a dozen cases in one morning. It is useful to do them in groups like this, because each case serves to control the others. Thus the technique, dosage, and batch of kharsivan being the same for all, if only one or two cases show a marked reaction of the usual febrile type, it is only reasonable to look for the cause in the individual rather than the solution injected.

If all, contrary to the rule, show marked reactions, then it is only reasonable to suppose that some common disturbing factor has been introduced—for example, bacterial contamination of the saline. Similarly one is able to test one batch of kharsivan against another.

Saline fever can be ruled out of this series, as freshly distilled water has been used throughout.

Except in a few cases where it has been thought safer to go gently, the full dose (0.6 gram) dissolved in 200 c.cm. of saline, has always been given, and in no case has one full dose followed another at a shorter interval than fourteen days.

No breakfast is allowed previous to the injection, and bed for twenty-four hours and no food for six hours after the injection has been the rule.

The absence of any unpleasant symptoms in the great majority of cases is very striking; 72 per cent. of the injections were followed by no symptoms whatever. The figures given below, relating to the various reactionary symptoms, must not be taken to indicate the number of patients who react, but only the frequency of the symptoms, a combination of which may occur after a single injection in one individual.

Pyrexia—The two chief factors (the saline being pure) which determine whether or no an injection will be followed by a rise of temperature to 100° F. or more are: (1) The absence of previous treatment; (2) the stage of syphilitic infection.

To catch a rise it is necessary to take the temperature four and eight hours after the injection. It is often not marked until after the first four hours. There are two types of cases in which after the first injection a reaction of the usual febrile type can be predicted.

(1) A previously untreated case of primary syphilis which is two weeks or more old.

(2) A previously untreated case of early secondary syphilis, particularly when associated with an active primary sore.

In reality these two types represent one stage, that is, generalized infection in the host who is fresh to it, only in (2) this is more advanced and apparent, and is usually marked by a more severe reaction. The temperature in such a case may rise as high as 103.5° F., and this may be associated with any or all of the following symptoms—rigor, headache, vomiting, diarrhoea, and occasionally a Herxheimer reaction. (See Case II in the reaction scheme.) Very often, however, and especially in primary syphilis, the reaction is limited to a temporary pyrexia, and no symptoms whatever are complained of.

It is most unusual for a reaction of this type to take place after a second injection given a fortnight later. It is rare for very early primary, and later secondary, and tertiary cases to show much of a reaction.

It would seem, therefore, that the freshness of the patient to the infection is a factor as well as the degree of infection in determining whether a reaction takes place or not. It is interesting, when injecting a group of men, to pick out beforehand those who are likely to react, and it is surprising how accurate it is possible to be. It must be remembered that a patient who has an acute superadded infection, such as a tonsillitis or influenza, may show a febrile reaction after an injection. As a result of the administration of the drug some of the pyogenic organisms are probably killed off and their toxins set free, hence the sudden rise in temperature.

Douglas and Colebrook² have recently shown that the blood possesses a marked bactericidal power an hour after an injection with neo-salvarsan, but that this diminishes rapidly in a few hours. The bactericidal power was not so marked when salvarsan was used.

Headache occurred in 17 per cent.

Rigor occurred in 5 per cent.

Vomiting, usually only slight but occasionally severe, occurred in 7 per cent.

Diarrhoea occurred in 10 per cent. This varied from two to eight motions in twenty-four hours. It is possible that in a few of these cases the looseness of the bowels was aided by a purgative given on the previous night.

Transient albuminuria developed on the day following the injection in 0.3 per cent. The urine was always tested before and twenty-four hours after. One of the cases gave a history of previous kidney trouble, though no

albumin was present just before the injection. In this case transient albuminuria occurred after each injection.

Herrheimer's reaction occurred in 2.3 per cent. These were all early and previously untreated cases of secondary syphilis, and in most of them the primary sore was still active. The rash became more prominent a few hours after the first injection, and subsided again almost as quickly as it arose.

Herpes labialis occurred in one case. This was an early and previously untreated secondary case, with an active primary sore. As was to be expected, the immediate reaction was severe. The temperature rose to 103.5°, and was accompanied by a rigor, headache, and diarrhoea. He felt quite fit next morning, and the herpes did not appear until forty-eight hours later. Herpes does not occur apart from pyrexia. In the days when impure saline was used its occurrence was far more frequent.

Thrombosis of the vein at the site of injection occurred in 0.5 per cent. In two out of the three cases the needle had frequently to be readjusted, as the fluid flowed in very slowly and at times stopped altogether. It is a question whether this slow rate of flow, in conjunction with the local injury to the vessel wall due to the needle, caused the thrombosis, or whether the thrombosis was due to the irritation of the fluid injected. The former seems the more probable, as one would expect to get a higher percentage of these cases if the latter was the explanation. The amount of sodium hydroxide used in each case was the normal.

Dermatitis occurred in one case only. The rash was of a very mild character; it was limited to the limbs, and required no treatment. It started forty-eight hours after the second injection, and cleared up within a fortnight. It recurred after a third dose—this time a half dose (0.3 gram)—and subsided as before.

A reaction due probably to an abnormal arsenical toxicity in a particular batch occurred in 0.5 per cent. This reaction, which came on towards the end of, or a few minutes after, an intravenous injection, consisted in slight oedema of the lips and eyelids, a sense of fullness in the throat, and epigastric pain. Two patients fainted as they walked to bed. The localized oedema subsided almost as quickly as it arose, but the epigastric pain lasted longer. In addition there might be a rise of temperature, headache, and diarrhoea. In Case A the reaction occurred after an injection with 0.6 gram of batch No. 85. This was the third injection, and it was given twenty-five days after the second. The batch used for the first and second injections was No. 82, the dose in each case being 0.6 gram. These injections were not followed by any such reaction.

In Case B the reaction also occurred after an injection with 0.6 gram of batch No. 85. This was the second injection, given twenty-seven days after the first, when 0.6 gram of batch No. 82 was used with no ill effects. A third injection with 0.6 gram of batch No. 91 was given in this case, fourteen days after the second, with no ill effects.

The occurrence of this reaction on both occasions with batch No. 85 naturally made this batch suspect. I find I have used it forty-eight times, and, besides the two cases mentioned, I find only one case which showed any special symptoms. This man turned pale and fainted as he was walking to his bed. His pulse was soft, but the rate did not rise above 72, and he was well again in a few minutes. He had no oedema or epigastric pain. The injection was his first, and the full dose was given. When an injection gives rise to a reaction out of the ordinary, the question is apt to arise whether or not the addition of the alkali, to the drug in acid solution, was omitted. There is no chance, however, of this error having been committed in any case in this series, as a point has always been made of tabulating in the reaction scheme the amount of alkali required for each dose before injecting it. Some such precaution as this is necessary, as it is a mistake made more easily than might be supposed.

I have gone into detail over these cases, not because they caused any real anxiety, but because they showed a reaction out of the ordinary; a reaction, in fact, which cannot be put down to the stage of infection of the patient or to faulty technique in the administration of the drug. Neither can it be put down to "cumulative action." The reaction was too sudden for this; moreover, the interval

between the successive doses was in the two cases A and B twenty-five and twenty-seven days respectively, and in Case B a subsequent full dose, though from a different batch, was given fourteen days later with no ill effect.

Nor can these patients be said to have shown an idiosyncrasy for arsenic as given them in the usual form of the disodium salt of dioxidiamido-arsenobenzol, as they did not show any toxic symptoms to full doses given with any other batch than batch No. 85.

I believe this reaction to be an indication that the particular batch used contains a rather higher percentage of arsenic in a toxic form than should be the case. The symptoms suggest a toxic action on the vascular endothelium, with effusion of serum in certain localities where the tissues are lax, and a general lowering of blood pressure. In view of the fact that only two, or possibly three, patients out of forty-eight injected with the batch in question—which was one of the earlier ones—showed a toxic reaction, it cannot be said that the increased toxicity in this case was very marked.

It is known that different samples of salvarsan and neo-salvarsan vary slightly in their toxic (organotropic) properties. The total toxicity of these complex arsenical preparations can only be tested by experiments on animals. By this means batches which are found to be distinctly toxic are prevented from reaching the public, but it must happen occasionally, and more particularly when a preparation is first brought out, that a rather doubtful batch is passed, and I think this is a case in point. Certainly I have had no such reaction with any of the later batches, all of which have proved highly satisfactory.

REFERENCES.

¹ Iversen, *Muench. med. Woch.*, 1910. ² Douglas and Colebrook, *Lancet*, January 22nd, 1916.

THE HISTORY OF ORGANIC COMPOUNDS OF ARSENIC IN THE TREATMENT OF PROTOZOAN DISEASES.

By BENJAMIN MOORE, D.Sc., F.R.S.

THE man who welds the last link in the chain, especially if he assigns a name to the link, often gains the reputation of having forged the whole chain, and this is especially true in regard to the series of discoveries which have led up to salvarsan and neo-salvarsan.

But the pioneers are the real discoverers, and it appears necessary to make some attempt to keep history correct in this field at the present moment, or the labours of the pioneers may become forgotten. The whole history of the therapeutics of organic compounds of arsenic revolves around the discovery and applications of atoxyl, the first of these compounds to be synthesized and applied in the treatment of protozoan diseases.

Salvarsan and neo-salvarsan are simply derivatives of atoxyl obtained in attempts to suit the original discovery more accurately to treatment.

It is noteworthy that the contributions of the observers of France, Britain, and Germany towards the evolution are just those which might have been expected from experience in the scientific history of these nations.

Atoxyl, the mother substance of the group, was discovered by the famous French chemist A. Béchamp in 1863. Béchamp was the author of a long series of papers on organic chemistry and bio-chemistry, and in 1863, when the properties of aniline and its coloured derivatives were attracting much attention, and shortly after the first of the aniline dyes had been obtained by Perkin, he obtained atoxyl by heating a mixture of aniline and arsenic pentoxide to a temperature of about 190° C. In his original paper Béchamp stated how he had isolated atoxyl, and accurately described its properties and those of its more important salts. By an error easily excusable in a first paper at the date 1863, he described his newly-discovered compound as an anilide of arsenic acid.

The discovery lay dormant for many years until the compound was exploited as a remedy for cutaneous infections by the Berlin firm called the Lanolinfabrik Martinikenfelde. The substance, now labelled atoxyl, was made by Béchamp's process, and misleadingly described as an anilide of arsenious acid. The process of manufacture

was entirely concealed, and the description as a compound of arsenious acid, which is not used at all in the manufacture, was obviously introduced in order to throw chemists off the track. The formula published—namely, $C_6H_5NHAsO_2$ —is entirely erroneous and misleading. The name atoxyl was given because the compound was found to be many times less poisonous than inorganic arsenical compounds.

The substance was first recommended in Germany as a therapeutic agent in skin diseases—an obvious application from the known properties of the inorganic arsenical compounds.

The new remedy, however, entirely failed in this field; it became discredited as a remedy in skin affections, not merely from its failure as such, but because it caused in certain cases optic atrophy and blindness.

If no fresh research had been made at this point atoxyl would have become forgotten, the whole development of organic compounds of arsenic in therapeutics would have been delayed, and there would have been no salvarsan ("606") or neo-salvarsan in our generation.

The first movement, it will thus be seen, arose in France from Béchamp's discovery, the next step came from Britain; it was not made by Koch, as erroneously stated in a recent paper in this JOURNAL. Thereon arose the whole harvest of the later therapy of organo-compounds of arsenic in the treatment of syphilis and other protozoan diseases. This is a point worth emphasizing at a moment when many are lauding German scientists as the discoverers of the remedy for syphilis and related protozoan diseases.

A Canadian observer, H. Wolferstan Thomas, working in the School of Tropical Medicine at Liverpool, found that arsenical compounds had a distinct therapeutic value in the treatment of various diseases due to trypanosomes, and was searching for an arsenical compound less toxic to the host and more fatal to the protozoans. He applied atoxyl, and found that this drug, the first organic arsenical compound to be thus utilized, had a wonderful effect in prolonging life in infection with several different types of trypanosomes.

This paper was published long in advance of Koch's report on the treatment of sleeping sickness, and in it Thomas distinctly advocated the use of atoxyl in human trypanosomiasis.

Therein lay the germ of all future discoveries as to the application of organic arsenical compounds in the therapeutics of protozoan diseases. The future lay in the detailed experimentation as to the best compounds of the organo-arsenical compounds to be used.

Although the origin of atoxyl and its chemical constitution had been concealed, Ehrlich himself at a later period acknowledged its discovery by Béchamp and the priority of the English in its application; thus he writes in *The Experimental Chemotherapy of Spirillooses*, translated by Newbold and Felkin (Rebman, Limited, 1911):

I myself, at the very beginning—January, 1903—of my trypanosome researches, employed atoxyl in conjunction with Dr. Shiga, but abandoned it because it did not exercise any destructive action on the parasites in the test-tube. Therefore directly I became acquainted with the positive result obtained by the English authors, I again took up the study of atoxyl in the summer of 1905, and set myself the task of finding out new preparations which belonged here, and which were of greater curative power and less toxicity.

This somewhat self-protective acknowledgement is all very well at such a late period, but it is to be remembered that nothing regarding the application of organic arsenical preparations of arsenic in trypanosomiasis or other protozoan diseases had appeared in Germany till long after Thomas had published his paper, and that atoxyl, discovered in France, was only exploited in Germany as a secret proprietary drug and described under a most misleading formula. It is again to a French chemist, M. E. Fournéau, that the world owes the merit of having shown that atoxyl was the substance discovered by Béchamp in 1863. He stated this quite clearly in the *Journal de pharmacie et de chimie* in April, 1907, in a passage which may be translated as follows:

According to a circular sent out by the manufacturers of atoxyl "atoxyl is the anilide of meta-arsenic acid; its constitutional formula is $C_6H_5NHAsO_2$, and consequently it contains 37.69 per cent. of arsenic."

The formula assigned to atoxyl by the manufacturers, probably with the object of defeating competition, is false.

Atoxyl is not a new product, but a product which has been known for a long time. It was not discovered by a German, but by Béchamp in 1863; he obtained it by heating arseniate of aniline.

This is established by the analysis of atoxyl, by the examination of its properties, and by a comparison of atoxyl of German origin with ortho-arsenanilide prepared according to Béchamp's method, the two bodies being identical.

It was only some time after this exposure by Fournéau of the identity of Béchamp's original compound with atoxyl that any publication of the real constitution of atoxyl appeared from any German laboratory.

As the use of atoxyl in the treatment of protozoan diseases had been introduced from the Liverpool School of Tropical Medicine, it was natural that the constitution and mode of action of the drug should interest other workers in the school, and in 1906 the present writer, in collaboration with Nierenstein and Todd, commenced work upon the subject.

It was soon discovered that it was not an anilide from its resistance to hydrolysis and general stability to reagents. No modern chemist capable of producing the substance and experimenting on its properties could possibly make such a gross error as to its nature, and one is driven to the view that, like the concealment of the process of manufacture discovered by the French chemist, the formula given and the statement that it was an anilide of arsenious acid, were both meant to deceive and lead away from any use of arsenic acid in the process of synthesis.

The substance is obtained by the simple process of heating molecular proportions of arsenic pentoxide and aniline above the boiling point of aniline and separating from other products in the melt. In their work, Moore, Nierenstein, and Todd showed that:

The substance atoxyl is in all probability not an anilide, but a sodium salt of an organic acid containing an amidogen group and an arsenic radical directly united to a benzene ring.

The only known organic arsenical compounds showing a similar stability to the action of alkalis are those containing the arsenic directly united to the benzene ring—such as phenyl-arsenic acid and its salts ($C_6H_5As(OH)_2$ and $C_6H_5As(OH)(ONa)$).

Its toxic properties are neither those of arsenic nor of aniline, even when pushed to excess, and its therapeutic action is rapid; from this and its high conductivity showing high dissociation the conclusion is drawn that its activity must be ascribed not to free inorganic arsenical ions or to free aniline, but to a complex organic ion containing both the arsenical and aniline radicals.

Before the introduction of atoxyl into the therapy of trypanosomiasis by Thomas a great deal of research had already been expended on the subject by observers all over the world. Ehrlich and his school were at work upon the subject, and had been experimenting with aniline colours, usually with negative results, except in one or two instances. One colour which produced the greatest effect, but still only acted feebly, being named "trypanroth" on account of its action.

As soon as Thomas published his results, Ehrlich and his collaborators set to work, as recorded in Ehrlich's own words earlier in this paper, and, practically simultaneously with the paper from the Liverpool school described above, Ehrlich and Bertheim published a paper showing that atoxyl was para-amido-phenyl-arsenic acid.

From this stage onward to salvarsan and neo-salvarsan the experimental work consisted in experimenting with various derivatives of atoxyl to find those most suitable for therapeutic use.

These are all aniline derivatives, containing, like atoxyl, an arsenical group directly attached to the benzene nucleus, and hence atoxyl may be regarded as the mother substance for them all. Salvarsan was originally obtained by using atoxyl as a starting point and condensing so as to obtain two derived amino molecules united by the arsenical groups.

Neo-salvarsan is obtained by the introduction of a simple side-chain group giving a substance with more favourable solubilities for administration.

This last stage in experimentation requires a battery of working chemists and therapeutists producing a large number of small variants and testing them patiently in a large number of experiments.

The rôle here is exactly that which suits Teutonic talent, and it was here that the combination of the chemical staff of the Höchst Anilinfabrik and the Frankfurt School of Therapy achieved the success which repaid them commercially and gave them the credit of

making a discovery when they had really only succeeded in exploiting at the concluding stages the pioneer work of others.

Soon after the publication of the constitution of atoxyl the writer met Ehrlich in Liverpool on his way to receive a medal at a sanitary congress being held in Douglas, Isle of Man, and congratulated him on his recent paper with Bertheim establishing the constitution of atoxyl, remarking that he had an able and energetic young man in Bertheim. The Geheimrath laughed heartily and said: "Energetic young man! Why he is a director of the Höchst Anilinfabrik, one of the greatest aniline dye works in Germany, and turned the whole staff on to the work."

It is in this combined team work, dealing with minute details, that Germany excels, and the history of the production of organic arsenical therapeutic agents is very similar to that of the aniline dye industry.

SUMMARY.

To conclude this brief sketch of the history of the therapy of protozoan diseases by the use of organic arsenical compounds, a history which only pretends to present the salient points and not to give any complete account of the literature, the following summary may be given:

Atoxyl, the mother substance, was discovered in France, the application to protozoan diseases was made by a Canadian working in a British laboratory, and the chemical nature of atoxyl was shown simultaneously in England and Germany; then German observers finessed amongst the derivatives to find the compounds best adapted for therapeutic use.

The details of production of the compounds were not revealed by Germany, and it is a matter for congratulation that these can now be manufactured in Britain.

REFERENCES.

A. Béchamp, *Comptes rendus Acad. d. Sciences*, Paris, tome 56, 1863, p. 1172. H. Wolferstan Thomas, *Proc. Roy. Soc., B.* 1905 (April), p. 589. Ehrlich and Bertheim, *Berl. klin. Woch.*, Nos. 9 to 12, 1907. Moore, Nierenstein, and Todd, *Bio-Chemical Journal*, vol. II, 1907, p. 316. M. E. Fournieu, *Journal de pharmacie et de chimie*, Series 6, tome 25, 1907, pp. 332 and 528.

THE PREVENTION, SYMPTOMS, AND TREATMENT OF TETRYL DERMATITIS.

BY

ENID SMITH, M.B., B.S.LOND.

For the past nine months I have acted as medical officer to munition works employing about 250 women, where tetryl (tetra-nitro-methyl-anilin) is used.

This note, on the means used to avoid the dermatitis and other troublesome symptoms caused by handling this explosive, is written at the suggestion of Dr. Legge, H.M. Medical Inspector of Factories.

I. SELECTION OF WORKERS.

Experience showed that women with obvious eye or skin diseases should be excluded, and all workers should be taken on probation. It is quite impossible to foresee who will prove susceptible.

II. PROPHYLAXIS.

On entering the factory the workers remove their outdoor clothes, put on special overalls and slippers, and pass through a toilet room, where a responsible person sees that each worker hardens her hands in spirit lotion (filtered methylated spirit 20 per cent., water 80 per cent.) and dusts her face freely with powder (zinc oxide 1, starch 3).

In the rooms the workers are warned against touching their faces with their hands. The trays and tables are regularly wiped and the floors swept and scrubbed, so that the quantity of tetryl is limited. Tetryl-laden dust, or finely divided tetryl seems to be more injurious than tetryl in bulk. Some workers use veils or muslin across the mouth to avoid inhaling the dust. The rooms should be airy and cool, but not draughty. Hot, close weather increases the trouble, so that provision must be made for keeping the rooms cool in summer.

On leaving the works, the workers should wash their hands, using olive-oil soap or bran. Each worker should

have her own towel. The face is wiped free of powder and a simple greasy preparation may be used at the end of the day.

Washing of Clothes.—It should be noted that those living with workers get affected, especially if they wash the workers' clothes. All clothes should be soaked in cold water and paraffin and rinsed before being boiled, or the steam from the boiling clothes will be very irritating.

III. SYMPTOMS.

The hands of all workers are stained yellow, and in most of them the faces and hair. They are known in the town as the "canaries." The conjunctivæ are never stained, nor the covered portions of the body, but the feet may get "yellow as duck's."

Dermatitis, by which almost all workers are attacked, consists, in its mildest form, of irritation and roughening of the exposed skin. More serious is a papular eruption; in the severest cases there is acute oedema of the whole face, closing the eyes and making the features unrecognizable; any variety of eczematous eruption may be seen. The attack may occur at any time, but usually after a fortnight's exposure.

Conjunctivitis may occur with or without dermatitis.

Nasal irritation manifests itself in excessive sneezing and in epistaxis, but is never severe enough to keep a worker at home.

Pharyngeal irritation has occurred in a few cases. Asthmatic attacks compelled two workers to leave.

Constitutional symptoms are almost absent. Insomnia perhaps occurs out of proportion to the cutaneous irritation. "Biliousness" at the monthly periods has been noticed. It has not been found necessary to give the workers rest days on this account. The appetite is excellent, and the general health of some delicate women has certainly improved.

TREATMENT.

If the symptoms are slight the worker is encouraged to remain at work, perhaps changing to a room where tetryl is not used. The symptoms will then, as a rule, subside in the course of a few days and not recur.

If the symptoms are more severe—if, for example, there is oedema or a papular eruption, or conjunctivitis of moderate degree—the worker must stay at home. She should not return until quite well, as a convalescent seems unusually susceptible. If, after recovery, the worker gets a second severe attack, I advise her to find other work. In some cases, however, where the worker has remained at her own risk, she has gradually improved, and the skin, apart from pigmentation, has become practically normal.

For the dermatitis, in the severest cases, steaming the face with subsequent application of wet cloths reduces the swelling and allays the irritation. Later on, and in less severe cases from the first, calamine lotion acts well, though some prefer an ointment composed of zinc ointment, lanoline, and castor oil, equal parts. I have avoided lead lotion, as lead has a dangerous affinity for tetryl.

For conjunctival irritation colloidal silver acts well, though it smartens on application. For nasal irritation we use liquid paraffin.

RELAPSING PARATYPHOID "A" INFECTION.

BY

ALEX. MILLS KENNEDY, M.D.GLASG.,

TEMPORARY LIEUTENANT, R.A.M.C.,

BACTERIOLOGIST TO THE ROYAL HERBERT HOSPITAL, WOOLWICH,
AND

B. R. G. RUSSELL, M.D.ABERD.,

TEMPORARY CAPTAIN, R.A.M.C.

SINCE the outbreak of the war paratyphoid fever has received a considerable amount of attention, and, with the extension of bacteriological laboratories, further opportunity has been afforded for its study. So far as recognized, the cases have presented more or less definite clinical manifestations, and the diagnosis is usually confirmed by the bacteriologist. That the infection may present itself in anomalous or atypical forms seems very probable, yet, so far, there has been little reported on the subject.

The case of paratyphoid A infection herein recorded is one presenting several remarkable and unusually interesting features, and a correct diagnosis might not have been made had we not succeeded in isolating the organism from the patient's own blood.

The patient, aged 32, a private in the New Zealand Force, left Gallipoli about the second week of September, 1915. He stayed for seven days at Malta, and arrived in England in October. At the end of the previous June he had had an attack of diarrhoea lasting seven to ten days only, and not necessitating his being invalided, but, with this exception, he had been quite well until arrival here.

On October 10th, 1915, three days after landing in this country, he was taken ill with shivering, pains in the back and legs, and vomiting, and was admitted to the Royal Herbert Hospital on October 15th. On admission he was found to be febrile, with a temperature over 102° F., pulse 100, and respirations 24. He had headache and some vomiting but no diarrhoea, and there was nothing to be made out in any of the viscera; the spleen was not appreciably enlarged.

The fever persisted for eleven days. For the first five days after admission the evening temperature was always about 103° F., and there were morning remissions to 100° F. and 101° F.; thereafter the morning remissions became more marked and the evening rise tended to get less, so that the temperature curve resembled the defervescence of an ordinary typhoid fever. From the twelfth to the twentieth days after admission the temperature did not quite settle; the morning temperature was usually normal but there was a persistent evening rise to about 100°, and on two occasions it reached 102°.

From the twenty-first day after admission until the morning of the thirtieth day there was practically no fever, the evening temperature never being above 99° and the morning temperature always normal, and the pulse usually ran about 80.

On the evening of the thirty-fifth day of illness (that is, the thirtieth day after admission), the temperature rose to 101.2° F. and reached 103.8° F. the following night, and with occasional slight morning remissions the fever persisted till the forty-seventh day; on the thirty-ninth day the morning temperature was 104° and the evening 105.8°; during the next three days the temperature remained about 104°; on the forty-third day the morning temperature was 103° and the evening 104°; on the forty-fourth day the morning temperature was 101.8° and the evening temperature 103°. With increasing morning remissions the temperature gradually fell to normal on the morning of the forty-eighth day of illness. From the forty-eighth day until the fifty-seventh day of illness the temperature remained practically normal, except on the evenings of the fifty-second and fifty-third days, when it rose suddenly to 102° and 100° respectively.

On the evening of the fifty-eighth day the third relapse was ushered in by a rise of temperature to 102.4°; the following night the temperature reached 104.6°, and remained between 103° and 104° until the sixty-fifth day, when it again showed morning remissions with a gradually falling evening rise. By the seventy-fifth day the evening rise was only to 99.8°, and thereafter both morning and evening temperatures remained normal until the ninety-fifth day. On the evening of the ninety-fifth day a fourth and similar febrile attack was ushered in by the temperature rising to 103°. The following night it rose to 105°, and remained between 104° and 105° for two days longer; then it gradually fell by morning remissions as before until the hundred and eighth day, when the evening rise was only to 99° and the morning temperature 97°. The temperature touched 99° on the two following nights, but remained normal for the rest of the time that the patient was under observation—namely, forty-five days.

Taking the onset of the fever as dating from the onset of symptoms (shivering, etc.), we see that there was an attack of pyrexia lasting about sixteen days; this was followed by a period of eight days in which, although the morning temperature was normal, there was an evening rise to about 100°. An apyrexial interval of ten days followed, and this was succeeded by a second pyrexial attack lasting about fourteen days. Thereafter an apyrexial interval of nine days ensued, to be succeeded in turn by a third pyrexial attack lasting sixteen to seventeen days. A period of apyrexia lasting twenty days followed, and this was succeeded by the fourth and last period of pyrexia lasting fourteen to fifteen days.

The pulse throughout varied more or less with the temperature. During the first three attacks of fever it varied between 90 and 116, but during the fourth attack it tended to be faster, being usually over 100, and sometimes going up to 114–120. In the apyrexial intervals the pulse was normal.

The pyrexial attacks were all more or less alike—a fairly sudden onset, the fever reaching its height in about two days and persisting at its height for five to ten days, then falling by gradually increasing morning remissions like the lysis of ordinary typhoid fever. During the early stages of each pyrexial attack there were occasional rigors, headache was present more or less throughout the attack, there was occasional vomiting, and the defervescence was

associated with considerable sweatings. The patient was always quite clear mentally, and never really seemed quite so ill as the fever suggested. There was never any diarrhoea.

There was a slight leucocytosis during the first pyrexial attack, but practically none later. On the fifteenth day of illness, that is, about the end of the first attack, the leucocyte count was 11,200; about the middle of the second relapse the leucocytes numbered 8,800, and during the third relapse they only numbered 7,000.

On the second day of the second relapse (thirty-sixth day of illness) we withdrew 6 c.cm. of blood from a vein and made cultures in broth and in sterilized ox bile, and obtained a pure growth of an actively motile Gram-negative bacillus which proved to be *B. paratyphosus* A. It fermented glucose and mannite but with scanty gas production, gave no change in lactose, turned milk acid, and agglutinated strongly only with a specific paratyphoid A serum. During the third relapse and during the height of the fourth relapse we again obtained pure cultures of *B. paratyphosus* A from the blood. A point worthy of note is that the primary cultures required three and four days' incubation before growth became apparent.

On the thirty-ninth day of illness, during the height of the second relapse, we tested the agglutination reaction of the patient's serum against known organisms, using the macroscopic method, and found that it gave a positive reaction with *B. typhosus* up to 1 in 40 dilution, but with *B. paratyphosus* A a positive result could not be obtained beyond a dilution of 1 in 5. The reaction with *B. typhosus* was probably dependent upon two antityphoid inoculations which the patient received in November, 1914. On the fifty-second day of illness—that is, during the apyrexial interval after the second relapse—we tested the agglutination reaction of the patient's serum against a known strain of *B. paratyphosus* A, and also against the *B. paratyphosus* A isolated from his own blood, but failed to find any evidence of a positive result in a dilution of 1 in 20.

We prepared a vaccine from the organism isolated from the patient's blood, and two to three days before the termination of the third relapse administered an initial dose of 20 million. There were no ill effects, and three days later we gave a second dose of 40 million. Three days after the administration of the second dose of vaccine we estimated the agglutination titre of the patient's serum against the autogenous *B. paratyphosus* A, and found a partially positive result up to a 1 in 40 dilution. The supernatant fluid in the agglutinating tubes was not clear, but several small clumps floated about, and some were deposited. A week after the second dose of vaccine we administered a third dose of 80 million, and six days later found the agglutination titre of the patient's serum to his own *B. paratyphosus* A to be raised to 1 in 80, with a trace at 1 in 160. Nine days after the third dose of vaccine we gave a fourth dose of 120 million.

The administration of the vaccine was commenced shortly before the termination of the third relapse, and as the apyrexial period following this relapse—nearly three weeks—was much longer than either of the preceding intervals, we imagined that we had overcome the infection. Our hopes were dispelled, however, when the fourth attack set in. Nevertheless, during the fourth relapse the agglutination titre of the patient's serum to his own paratyphoid A bacillus was found to be considerably raised; a positive result was obtained up to a dilution of 1 in 600, with a definite trace up to 1 in 1,000.

Probably the dosage of vaccine was too small, but we were dealing with an acute case of unusual type, and had had no experience of paratyphoid A vaccine in treatment, so that we preferred to feel our way with smaller doses in the first instance.

The long duration of the illness, with pyrexia and apyrexial intervals, perspirations, and absence of diarrhoea, gave it a certain resemblance to Malta fever, and on several occasions we tested the agglutination reaction of the patient's serum against *M. melitensis* and *M. paratuberculosis*, with uniformly negative results.

The faeces and urine were only submitted to us for bacteriological examination twice—once during the second relapse and once during convalescence, twenty-seven days after the termination of the last relapse. On both occasions we failed to recover any paratyphoid or other organisms of the typhoid-dysentery group.

We have not been able to determine the source of infection. We have made inquiries of the M.O.H. for the district in which the patient lived after arrival in this country, but cannot trace any possibility of infection there. If he contracted his infection in Gallipoli this would entail an incubation period of at least three and a half weeks, but it is, of course, possible that he acquired the disease at Malta or even on board ship.

Summarizing the principal features of the case, we note:

1. A relapsing fever, due to infection with *B. paratyphosus* A.
2. Cultivation of the organism from the patient's own blood during the relapses.
3. Absence of diarrhoea.
4. Little or no leucocytosis.
5. Attempt to treat the infection with autogenous vaccine.
6. Absence of agglutinins to the infecting organism until after inoculation of vaccine.

We desire to express our indebtedness to Lieutenant Home Ross, R.A.M.C., from whose notes and charts the above account of the clinical aspect of the case was made.

NEW APPARATUS FOR BACTERIAL FERMENTATION TESTS: FERMENTATION BULBS.

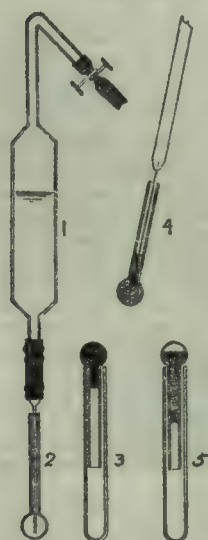
By S. DELÉPINE,

DIRECTOR OF THE PUBLIC HEALTH LABORATORY, MANCHESTER.

Soon after the beginning of the war the price of various sugars and other products used in fermentation tests was so high, and it was so difficult to get sufficient stocks of them, that it became at times impossible to carry out all the tests required for the identification of bacilli isolated from the very large number of cases which had to be examined bacteriologically in Manchester for the 2nd Western Military Hospital.

To meet this difficulty I adapted a method which I devised about sixteen years ago and have used from time to time for the purpose of studying, collecting, and measuring the gases generated by definite quantities of fermentable fluids. In order, however, to meet the difficulty mentioned above, I reduced the size of my apparatus to a minimum.

This small fermentation apparatus consists of a tube 4 to 5 cm. in length, with a 2 or 3 mm. internal



1. Burette containing one of the sterilized fermentable media. The medium has been sterilized in the burette. The capillary delivery pipe is protected by a glass sheath until it is going to be used.

2. Fermentation bulb (sterilized) ready to be filled with the fermentable medium through the capillary delivery pipe of the burette. (A long hypodermic needle is suitable for this purpose.)

3. Fermentation bulb in a sterilized supporting glass tube. Sets of these tubes containing series of fermentable media are kept ready for use in racks.

4. Fermentation tube taken out of its supporting tube and inoculated by means of a platinum or palladium* needle. A Pasteur's pipette of suitable shape can also be used in the same way, but care has to be exercised to avoid an excess of fluid.

5. Result of a test with production of gas and change of reaction of the medium.

*Owing to the difficulty of obtaining platinum at the present time, I have adopted palladium as a substitute for platinum, after ascertaining that this metal has no appreciable lethal action on bacteria.

bore. The closed end of the tube is in the form of a small bulb, measuring 7 or 8 mm. in diameter, and of a capacity not exceeding 0.5 c.cm. The tube looks very much like the bulb end of a thermometer. These little tubes are inserted mouth downwards into other glass tubes of suitable diameter, which are themselves kept vertical by being inserted into the holes of a wooden rack. The bulb of the fermentation tube closes the upper end of the supporting tube. The two tubes can be sterilized together

by steam. After sterilization they must be thoroughly dried in the hot-air oven.

To introduce the fermentable medium into the bulbs, special burettes are used provided with a capillary delivery tube which can be pushed down to the bottom of the fermentation bulbs.

Each burette contains enough fluid to fill about 100 fermentation bulbs. After the burettes have been filled with the fermentable fluid, they are sterilized with their contents, the delivery pipe being protected by a glass sheath. When the fermentable tubes have to be filled they are held vertical, mouth upwards; the delivery tube (after flaming it, if it has been exposed to contamination) is inserted to the bottom of the fermentation bulb, and enough fluid is allowed to flow to fill the bulb, and about 8 to 10 mm. of the stem. The tube is then inverted and placed again mouth downwards in the supporting tube.

A set of tubes with the various fermentable media can easily be arranged in the rack provided for the purpose. A great number of such sets can quickly be prepared.

It is best to place these racks with the fermentation tubes ready for use in the incubator at 37° C. for twelve hours previous to using them. At the end of that time any gas which may be in solution in the fluid will have separated in the shape of minute bubbles. This gas is got rid of by shaking the bulb like a clinical thermometer and heating the tube gently near the free surface of the fluid.

When the bulbs have been prepared in this way they can be kept for several weeks ready for use. The fluid remains in position, provided the tubes have been filled exactly as stated above. When the bulbs have to be stored for several days before being used, it is best to keep them with the bulb down, the mouth remaining protected by the supporting tube.

The fermentation tubes are easily inoculated by means of a platinum needle or loop brought in contact with the surface of the fluid, and gently shaken in it. The needle must be removed carefully, so as not to cause any of the fluid to be carried to the mouth of the tube. This does not happen readily if the tubes are kept mouth upwards during inoculation.

All the reactions which can be observed in other kinds of apparatus are observed clearly in my bulbs, which present important advantages over the Durham's tubes at present in general use:

1. The total amount of gas generated under aerobic and partly anaerobic conditions out of a certain amount of medium is collected.
2. The first stages of the reaction are easy to observe, can be detected very early, and can be easily timed.
3. The colour of the litmus, when this indicator is used, is not affected by sterilization as it is in the Durham's tubes.
4. The amount of fluid used is very small.
5. The fermentation bulb is not expensive.

The fermentation bulbs can easily be prepared in the laboratory, or they can be obtained from Messrs. Charles Hearson and Co.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

TWO CASES OF TETANUS TREATED SUCCESSFULLY BY SUBDURAL INJECTIONS OF ANTITETANUS SERUM.

I HAVE treated many cases of tetanus in China, India, and, during the war, in France, but have hitherto been unable to save a single one of them.

Every treatment has been given a trial—magnesium sulphate intraspinally, Baccelli's carbolic acid injections, antitetanic serum intramuscularly, chloral, bromides, etc. Death was the result in every case. The success following on the administration of large doses of serum subdurally in two consecutive cases of tetanus is very gratifying, and, although no definite conclusions can be drawn from such a small number so treated, the result is at least encouraging.

Case 1.—A private was wounded in the lower extremity, symptoms of tetanus developed—spasm of the muscles of neck, back, and abdomen—and on January 16th the patient received 1,500 units intraspinally and 1,500 intramuscularly. Decided improvement was the result. On January 21st the trismus and other muscular spasms were increased. The above treatment was repeated, and again he improved to a certain extent. On January 26th 3,000 units were given intraspinally. On January 30th the temperature rose high and risus sardonius was marked; 1,500 units were given subdurally through a drill hole in the cranium, and 3,000 units intramuscularly also. On February 15th, 1916, gradual and uninterrupted recovery was noted. I have to thank Captain H. Chapman, R.A.M.C., for giving some of the injections, and for the notes of the case.

Case 2.—A sepoy showed advanced symptoms when this treatment was commenced—risus sardonius, locked jaws, and opisthotonos. In three days he was given 9,000 units intraspinally (in addition to local treatment), and great improvement was remarked. During the next week he received 36,000 units intravenously and intramuscularly. His recovery was uneventful, although he is still very weak and emaciated. Temporary Lieutenant Daboo, I.M.S., assisted in giving these injections.

Neither of these cases had received a prophylactic dose of serum.

N. W. MACKWORTH, F.R.C.S.E.,
Major, I.M.S.

Reviews.

TYPHUS FEVER.

IN his recent book on exanthematic typhus, Dr. JEANNERET-MINKINE¹ states that he has treated hundreds of cases and seen thousands, and, in addition, has had a severe attack of the disease himself. His claim to speak with some authority upon the subject may therefore be accepted.

The incubation period varies from six to fifteen days, but is usually a week; the patient often feels unwell for several days before the onset, and may even have irregular fever. At the onset a rigor is not the rule; the temperature rises to over 102° F. in the first twenty-four hours, the conjunctivæ are congested, the face is flushed, and a scarlatiniform prodromal rash may appear, vanishing next day. The spleen enlarges at once and is often palpable, usually returning to its normal size a week later. The patient may not feel ill early in the disease; the author himself ascended the Acropolis at Athens and enjoyed seeing the Parthenon, went on to Brindisi, and passed a medical inspection during the first three days of his attack; twenty-four hours later he was in a state of coma vigil. Nausea and vomiting are often among the early symptoms, with sore throat or bronchitis. On the fourth day the patient rapidly becomes seriously ill and has rigors. The characteristic rash comes out on the fifth day, a macular roseola that is easily overlooked; petechiæ are seen in only 10 per cent. or less of the patients, and in those who are over 45 years old. The rash disappears in from four to eight days. During this period of his attack the author was, he says, in an agreeable bellicose delirium. Constipation is often present, the mouth tends to be dry and foul; there is no special odour about well-kept typhus patients. Complete insomnia is a common feature of this period of the disease, with stupidity in the milder cases, delirium in the severer. The twelfth day is often a critical period, with syncope and a temperature rising to 106° F., a thready pulse, and the pupils contracted or dilated; death occurs at this time in three-quarters of the fatal cases. Otherwise the temperature falls by lysis in three or four days, during which the patient becomes much less ill. Convalescence is more rapid than it is after an attack of typhoid fever, though the heart's action is often weak, and there may be shortness of breath on exertion for several months.

Dr. Jeanneret-Minkine recognizes various milder forms of typhus fever: abortive types of the disease ending abruptly in a week; benign forms with mild fever lasting

up to a fortnight; typhus fever without any rash, in 5 per cent. of the epidemic cases; petechial forms with a relatively good prognosis occurred frequently at the end of the Serbian epidemic of 1915; and adynamic types of typhus, often with low fever and very rapid pulse, among the well-to-do patients. The rash may appear from the fourth to the seventh day; sudamina on the chest are common, herpes labialis is not rare; in general the severity of the disease varies with the degree of development of the roseolar rash.

The cardiac symptoms are important; the pulse-rate is 100 to 120 after a few days in the severe cases, and the arterial tension is low; the heart becomes dilated in the second week, when venous thrombosis and gangrene of the extremities may occur, signs of bad omen. The spleen enlarges at first, as has been noted already; at autopsy it was of normal size in nine out of ten fatal cases. The lymphatic glands are not generally enlarged. Suppurative parotitis is a frequent and serious complication; it often leads to very great wasting. Jaundice is not common in typhus not complicated by recurrent fever; the abdomen shows no characteristic physical signs, but albuminuria and acute nephritis are not rare. About half the cases seen in the Austro-Serbian epidemic of 1914-15 had bronchitis or laryngitis; bronchopneumonia should be suspected in patients with fever lasting more than fourteen days.

The severity of the mental or psychological symptoms is very characteristic of typhus fever; even the mild cases have very severe headache and talk little after the fourth day. Toxic delirium, usually of a quiet type, is the rule; the patient is comatose, and so the delirium is agreeable. Mental confusion (from exhaustion) is not rare during convalescence; mania may also occur. Deafness without otitis is often seen, and clears up.

The blood showed a slight leucocytosis in eight cases examined by the author during the second week. *Post mortem* the blood, it is said, is unusually fluid, the renal cortex is often congested, and the cutaneous arterioles in the roseolar macules show necrotic or inflammatory changes.

Discussing the prognosis, the author states that at the beginning of the Serbian epidemic in November, 1914, the mortality was 15 per cent., rising three months later to 60 per cent.; in May, 1915, at the end of the epidemic, it fell to 15 per cent. There were 120 cases among the medical men in Serbia, with a mortality of 70 per cent. The prognosis varies with the race, and was five times better among the Russian prisoners than among the Serbians and Germans. It is better among the well-to-do and the courageous than among the poor and depressed; patients over 50 years of age did not recover, in the author's experience, and female generally did better than male patients.

The disease is transmitted by the louse, and only so five days after the louse has ingested infected blood; the louse can then transmit the infection for a period of two days. Experiments upon apes have shown that the virus of typhus fever becomes very much more virulent by its five days' sojourn in the louse; and further passages from human patients to lice exalt the virulence of the infection still further. The author thinks that in all probability bugs cannot transmit typhus, and is almost sure that fleas cannot; he believes, with Nicolle, that the virus is a filter-passing protozoon.

Treatment of the disease consists in putting the patient to bed in the fresh air; supporting the heart by digitalis, strophanthus, large injections of camphorated oil, injections of rum, and injections of adrenalin if syncope attacks occur. Antipyretic drugs should be carefully avoided; hydrotherapy is excellent for the reduction of the pyrexia. The patients should be encouraged to take plenty of fluid, and the mouth should be kept as clean as possible. Lumbar puncture is indicated in cases with prolonged coma or deafness. A recent paper by three German physicians (*Berl. klin. Woch.*, 1916, liii, p. 178) attributes excellent results to the treatment of typhus with large doses of the drug optoquin (*BRITISH MEDICAL JOURNAL*, 1915, ii, p. 542), the alleged specific against pneumococcal infections. From 1 to 2.5 grams of optoquin should be given daily by the mouth so long as the patient can swallow. When coma supervenes the drug may be administered, dissolved in oil, by hypodermic injection. It

¹ *Le typhus exanthématique.* Par le Dr. M. Jeanneret-Minkine. Paris: Librairie Payot et Cie. 1915. (Cr. 8vo, pp. 189; 1 plate. Fr. 2.50.)

is said that optoquin cuts short the febrile period in typhus fever gradually, and lessens the mortality of the disease.

So far as prophylaxis is concerned these authors, like all others, emphasize the importance of destroying the louse in every way possible; in addition, they recommended that all persons who have to do with typhus patients or run great risks of infection should have all the hair shaved from every part of their bodies, so as to minimize the cover and hold left for the lice. Dr. Jeanneret-Minkine devotes over sixty pages to the description of the louse and of the measures that should be taken to destroy it in countries where it is common, at frontier stations, in armies, and in hospitals.

PARATYPHOID FEVERS.

PROFESSOR CARLES of Bordeaux has written a useful little book on paratyphoid fevers,² based on an experience of 170 cases seen in France during the war. Paratyphoid bacilli were cultivated from the blood in 107 of the cases, the A variety in 67, the B in 40. Great stress is laid on the variety of the clinical aspects of paratyphoid fever, which may simulate with considerable accuracy attacks of meningitis, cholera, influenza, food poisoning, and acute dysentery; although it is recognized that the disease usually resembles a frank attack of typhoid. In spring and summer paratyphoid fever is benign; in bad weather and winter its mortality may reach 6 per cent. Professor Carles finds the onset usually sudden, even "brutal"; during the disease the arterial tension is low, the temperature often irregular and "spiky" on the chart; attention is drawn to the paratyphoid rashes, which are sometimes morbilliform, scarlatiniform, or even purpuric, and are most prominent in the severest cases. The febrile period lasted for six to ten days in 16 cases, ten to twenty days in 50 cases, twenty to thirty days in 63 cases, one to two months in 38 cases, three months in 2 patients, and four months in one instance. During convalescence the patient often has persistent gastro-intestinal troubles. Relapse occurred in 20 of the 170 instances.

As for the chief complications, perforation occurred once, intestinal haemorrhage fifteen times, haemorrhagic nephritis twice, cholecystitis with peritonitis twice, parotitis four times (once with suppuration, incision, and recovery), and phlebitis in two patients. The author observes that there may be no intestinal lesion present in fatal cases of paratyphoid, as is, indeed, also the case with enteric fever; as a rule the large intestine is more seriously affected than the small in paratyphoid, and fibrinous pericarditis was twice recorded. Eight of the 170 patients died, 3 of bronchopneumonia, 2 of haemorrhage, and 3 of tuberculosis, parotitis, and perforation respectively.

Professor Carles goes very thoroughly into the question of the diagnosis of paratyphoid fever, which is entirely a matter for the laboratory; it is simulated by blood infections with *B. typhosus*, *Micrococcus tetragenus* (7 cases met with), *B. coli*, and various diplococci, and streptococci that are Gram-positive (12 cases). Here the diagnosis can only be made by blood cultures, though it can be checked by agglutination tests; the evidence may be very confusing, as in the case of a patient whose blood gave positive cultures of *M. tetragenus*, no growths of typhoid or paratyphoid A and B bacilli, but did agglutinate the last three. As the author points out, repeated blood cultures and examinations of the stools and urine for these bacilli would have to be made and would have to prove negative before it would be legitimate to conclude that they were definitely absent in any given case. He has employed vaccine treatment in only four cases, and concludes that it is effective. The book is well written, and should be in the hands of all who have to diagnose or deal with typhoid and paratyphoid fevers.

ANAESTHETICS.

To emphasize the importance of maintaining thorough and unembarrassed breathing during anaesthesia, Mr. GARDNER states, has been his main object in writing *Surgical*

Anaesthesia.³ This teaching is in harmony with modern views on anaesthesia, and is unquestionably correct. The exposition of the subject is clear and precise, although in some instances the procedures suggested appear to be unduly severe. The last nine chapters offer useful hints. That dealing with emergencies errs on the side of brevity. In the present, the second edition, fresh sections have been added on spinal analgesia, intravenous ether infusion, intratracheal ether insufflation, and on Crile's anoci-association. The descriptions and directions given, however, are inadequate in view of the complicated techniques involved. No mention is made of the lateral position during intradural injection, although it is that commonly employed; in some cases it is indeed essential. Professor Meltzer's name as the originator of the intratracheal insufflation method should, we think, be mentioned when the method is described. In giving a description of the Vernon Harcourt chloroform inhaler, Mr. Gardner quotes a trade circular, although the British Medical Association, in its published report of the Special Chloroform Committee, gives a full and accurate account of the apparatus. Some slips occur which should be corrected in future issues. Thus, Sir Frederic Hewitt and Sir T. Lauder Brunton are repeatedly called Dr. Hewitt and Dr. Brunton. Mr. Gardner still adheres to the alkaline treatment of acetonaemia arising after anaesthesia, and regards post-anaesthetic vomiting as due to a central nervous cause, and not to gastric irritation set up by the swallowing of condensed anaesthetic vapour. In spite of minor blemishes the book should prove useful, for its pages focus much valuable instruction. The illustrations are good and help to elucidate the text.

The first edition of Dr. HERTZLER's excellent book on *Local Anaesthesia* was reviewed in the *BRITISH MEDICAL JOURNAL* less than two years ago. The second edition⁴ is half as large again as the first and has many more illustrations; without giving an extended review of the book's undoubted merits, it suffices to say that it gives a thoroughly sound and practical account of the subject, and may be recommended to the attention of all who are in search of a trustworthy exposition of the surgical operations possible and advisable under local anaesthesia.

COLLOID CHEMISTRY.

THE study of colloid chemistry has made great strides during the last few years, largely owing to the energy and initiative with which it has been pushed by WOLFGANG OSTWALD. He is the author of the most authoritative book on this highly complex subject, and an American translation of the third edition of his handbook has now been made by Dr. M. H. FISCHER, with the assistance of Drs. OESPER and BERMAN.⁵ The volume is divided into three parts. The first gives a practical introduction to the science; Part II contains an account of general colloid chemistry; the third part is devoted to the consideration of special colloid chemistry. The science is one of increasing importance, not only from the point of view of the knowledge of the properties of matter, but also from the practical standpoint. A brilliant contribution to the study of colloid chemistry as applied to the science of physiology has recently been published by Professor Bayliss (*BRITISH MEDICAL JOURNAL*, 1916, i, 279) in this country; from the practical point of view it may be noted that rubber is a colloid of ever-increasing commercial importance, and, as a sop to Americans, it may be added that the national dish ice-cream is a chemically heterogeneous water colloid second in lickerishness to none of those that appear on the table. Colloids exist in vast numbers and in very various forms; the terminology of the subject is still in a state of flux, and this fact undoubtedly militates against its intelligibility to the inexperienced reader, whether he be a chemist or no. Perusal of Ostwald's book leads

³ *A Manual of Surgical Anaesthesia*. By H. Bellamy Gardner, M.R.C.S., L.R.C.P. Lond. Second edition. London: Baillière, Tindall, and Cox. 1916. (Demy 8vo, pp. 232; 8 plates, 36 figures. 7s. 6d. net.)

⁴ *Surgical Operations with Local Anaesthesia*. By A. E. Hertzler, A.M., M.D., Ph.D., F.A.C.S. Second edition. New York: Surgery Publishing Co. 1916. (Demy 8vo, pp. 325; 173 figures. 3 dols.)

⁵ *Handbook of Colloid Chemistry; the Recognition of Colloids, the Theory of Colloids, and Their General Physico-Chemical Properties*. By Dr. W. Ostwald of Leipzig. First English edition, translated from the third German edition by Dr. M. H. Fischer, Professor of Physiology in the University of Cincinnati, with the assistance of Dr. R. E. Oesper and Dr. L. Berman.

² *Les fièvres paratyphoïdes*. Par le Prof. J. Carles. Les Actualit s M dicales. Paris: J. B. Baill re et Fils. 1916. (Cr. 8vo, pp. 96; 15 figures. Fr. 1.50.)

one to the conclusion that as the protagonist of the present science of colloid chemistry he has a rival in von Weimarn, a prolific author with whom he finds himself in perpetual conflict. The book is written clearly, but it has been translated without any attempt at literary style, and is disfigured by numerous misprints. It furnishes abundant references of the literature of the subject up to the year 1910, and should be in the hands of all who wish to make a serious study of the subject.

NOTES ON BOOKS.

A COLLECTION of the occasional writings of Dr. A. LEWERS,⁶ of Melbourne, has recently been published, containing a number of brief essays on various medical points that interest the public at large. They deal with such subjects as "eugenics," "euthanasia," "physical culture," "diathesis," "alcohol," and fifty other such topics. Dr. Lewers writes clearly and holds soundly conservative views on the matters with which he deals. There is hardly room for much originality of thought or diction in a book such as this; yet the essays make pleasant reading and may be recommended as a successful attempt to teach the layman common sense in medical matters of general interest.

The thirty-first annual report of the *American Climatological Association*⁷ contains a number of slight but interesting articles on medical and climatological subjects. Dr. C. F. Gardiner reports favourably on the results of heliotherapy in Colorado, even in patients who have advanced phthisis and those who are of the extreme blonde type and have been regarded as unsuitable subjects. Dr. J. M. Anders discusses the antisiphilitic treatment of cardiac syphilis; Dr. G. Hinsdale sums up the evidence that goes to prove that Bright's disease is amenable to climatic treatment and improves in warm climates that are sunny and reasonably dry. The volume contains several other papers of general medical interest.

Dr. STARR has written a popular account of the general features and management of adolescence⁸ that should be of great service to narrow-minded and fussy parents. They, however, are probably the last people who would read or act on the recommendations of any such book, a fact that is to be regretted in view of the soundness and temperance of the author's opinions. The book contains six chapters, devoted to such topics as growth, physical education, the diseases of adolescence and its faults, menstruation, and the advisability of giving sexual enlightenment.

⁶ *Medicine and Meditation*. Occasional writings by A. Lewers. M.R.C.S.Eng., L.R.C.P.Lond., D.P.H.Lond. Melbourne: Ford and Son, 1915 (Post 8vo, pp. 127.)

⁷ *Transactions of the American Climatological Association for 1915*. Vol. xxxi. Philadelphia: Printed for the Association. 1915. (Med. 8vo, pp. 241; illustrated.)

⁸ *The Adolescent Period: its Features and Management*. By I. Starr, M.D., LL.D. London: H. K. Lewis and Co., Limited. 1916. (Post 8vo, pp. 218. 4s 6d. net.)

ROYAL MEDICAL BENEVOLENT FUND.

At the last meeting of the committee, held on April 11th, twenty-six cases were considered and £234 granted to twenty-two of the applicants. Two additional annuitants of £20 each were elected, to be known as the Margaret Harker-Smith annuitants, the committee having recently received the amount of £1,000 from the trustees. The following is a summary of the cases relieved:

Widow, aged 70, of M.R.C.S.Eng. who practised at Heywood and died in 1894. Was left totally unprovided for, and earns a somewhat precarious living by acting as a day cook. Owing to age is unable to obtain permanent work. Relieved twice, £14. Voted £12 in twelve instalments.

M.R.C.S.Eng., aged 83, who had practised at Fulham. Practically blind, and has to help to support one of his son's family. Only permanent income a small pension from another society and the old age pension. Previous relief five times, £34. Voted £12 in twelve instalments.

Daughter, aged 58, of L.S.A.Lond. who had practised in London and is now a pensioner of the Fund. Applicant has tried to make a living by keeping a haberdashery shop, but, owing to the increased cost of commodities, is unable to make it pay. Father lives with daughter. Voted £10 in two instalments and referred to the Guild.

M.R.C.S.Eng., F.R.C.S.Edin., aged 76, married, and has practised at Lincoln and London. Owing to age and inability to get about is unable to practise. Only income a small annuity. Requires help towards the education of his youngest daughter, aged 16. Two other children married and unable to help. Voted £12 in twelve instalments.

Widow, aged 63, of M.R.C.S.Eng. who practised at Burton-on-Trent and died in October, 1915. Owing to long illness of husband, and three sons having joined the army, all her savings are exhausted. Receiving a little help from her son's employers and a little from dividends. Voted £5.

Widow, aged 74, of L.R.C.P.Edin. who practised at Ross, Mon., and died in 1889. Was left totally unprovided for, and only income a pension of £15 from another society. Lives with two nieces, who have to earn their own living. Voted £5, and referred to the Guild.

Widow, aged 45, of M.D.Edin. who practised at Sheffield and died in 1906. Was left unprovided for, and health is very indifferent. Has recently undergone an abdominal operation. One son, aged 16, at school and maintained by relatives. Previous relief twice, £20. Voted £10 in two instalments.

Widow, aged 59, of M.R.C.S.Eng. who practised in London and died in 1904. Applicant suffers from chronic rheumatism and general ill health, and has no income. Previous relief thirteen times, £133. Voted £15 in twelve instalments.

Widow, aged 62, of L.R.F.P.S.Glasg. who practised at Rothsay and died in 1899. Endeavours to make a living by taking in lodgers, but has not been successful of late. Suffers from rheumatism and neuritis. Relieved twice, £24. Voted £12 in twelve instalments.

Widow, aged 64, of M.R.C.S.Eng. who practised in London and died in 1914. Was left with insufficient means, and has an invalid daughter to keep. Other children only able to help slightly. Relieved twice, £24. Voted £12 in twelve instalments.

Daughter, aged 54, of M.R.C.S.Eng. who practised at Newport, Mon., and died in 1892. Is blind and health indifferent. Only income a pension of £21 from another society. Relieved five times, £60. Voted £12 in twelve instalments.

Widow, aged 46, of M.B.Edin. who practised at Strathspey and died in 1910. Was left quite unprovided for, with four children, aged 9 to 17. Tried to make a living by keeping a boarding house, but has recently had to give it up. Only permanent income a small pension from another society. Relieved five times, £50. Voted £10 in two instalments.

Daughter, aged 67, of M.D.Edin. who practised in Lincolnshire and died in 1898. Is matron of an orphanage, but owing to lack of subscriptions her salary has been suspended. Relieved once, £5. Voted £12 in twelve instalments.

Daughter, aged 58, of M.D.Edin. who practised at Kirkdale and died in 1867. Is a dressmaker, but owing to indifferent health her business has declined, and she cannot make sufficient to meet expenses. Relieved once, £12. Voted £12 in twelve instalments.

Widow, aged 68, of M.R.C.S.Eng. who practised at Sheffield and died in 1884. Has endeavoured to make a living by teaching languages, but owing to the war her pupils have left her. Has a small pension from another society. Relieved five times, £25. Voted £12 in twelve instalments.

Daughter, aged 50, of F.R.C.S.Eng. who practised at Biggleswade and died in 1890. Suffers from chronic gastritis and epileptic fits. Only income £20 from another society. Relieved seventeen times, £153. Voted £12 in twelve instalments.

Daughter, aged 60, of M.R.C.S.Eng. who practised at Peckham and died in 1885. Owing to the weak state of her health she is unable to undertake any permanent work. Lives with sister, who has to earn her own living, and is unable to help applicant. Relieved eighteen times, £209. Voted £12 in twelve instalments.

Widow, aged 58, of M.R.C.S.Eng. who practised at Sydney, N.S.W., and died in 1901. Has no income, but receives occasional help from friends. Has a house in the country which she cannot let, owing to its bad condition. Has one daughter, a professional singer, but owing to the war she cannot obtain any engagements. Relieved twice, £20. Voted £10 in two instalments.

Widow, aged 68, of M.R.C.S.Eng. who practised in London and died in 1898. Endeavours to make a living by taking in boarders, but has been unsuccessful of late owing to ill health, applicant suffering from a cancer. Has five daughters, all unable to help. Relieved seventeen times, £205. Voted £12 in two instalments through the Guild.

Widow, aged 53, of M.B.Aberd. who practised in Warwickshire and Australia and died in 1908. Was left unprovided for, with only a little help from relatives. Has three children aged 29 to 31, but none able to help. Applicant is suffering from asthma and heart trouble. Relieved seven times, £73. Voted £12 in twelve instalments.

Subscriptions may be sent to the honorary treasurer, Dr. Samuel West, at 11, Chandos Street, Cavendish Square, London, W.

The Royal Medical Benevolent Fund Guild is now called upon, as a result of the war, to deal with many widows and children who, in happier times, would not have thought of asking for assistance. It is glad to receive secondhand clothing and household linen. The class of clothes most wanted is that suitable for boys and girls working in offices, for women, and for old men. The gifts should be sent to the secretary of the Guild, 43, Bolsover Street, W.

British Medical Journal.

SATURDAY, APRIL 29TH, 1916.

MILITARY ORTHOPAEDICS.

WE are glad to be able to announce that we have been given the privilege of publishing a series of articles by Lieutenant-Colonel Robert Jones, Lecturer on Orthopaedics in the University of Liverpool, whose appointment by the War Office to be Inspector of Military Orthopaedics was announced a fortnight ago. In these articles, the first of which appears to-day, he will discuss, from an experience probably unrivalled in extent and variety, the principles by which the treatment of war injuries of bones and joints and their after-consequences should be guided, and the means which surgery—by preventive measures, by operation when necessary, and by efficient after-care—affords for completely restoring or greatly improving the functions of the damaged limb.

The establishment of special military orthopaedic hospitals or sections of hospitals at various centres is proof that the chiefs of the Army Medical Service appreciate the importance of the application of the principles of modern orthopaedic surgery to the cure or relief of injuries of limbs produced in the war. It is to be feared that to a great many people the mention of orthopaedics immediately suggests elaborate instruments and special boots. But this is a mistake. The instruments and boots are really confessions of failure; the true aim of orthopaedics is to correct deformities of bones and joints so that the natural action of the muscles upon them is restored. The classes of cases which come within the scope of the military orthopaedic scheme include derangements of joints, malunited and ununited fractures, injuries to ligaments, tendons, and muscles, and injuries of nerves calling for nerve suture or tendon transplantation followed by appropriate treatment for a sufficient length of time, as well as cases requiring in the last resort the fitting of mechanical appliances.

The military orthopaedic hospitals will be concerned especially with men who have received injuries of the limbs which, while they are disabling, are yet of such a nature that orthopaedic treatment—using the word in its widest sense—affords good hope that the power of earning a living may be regained in whole or in part. Such cases must be regarded from two points of view—that of the welfare and happiness of the individual and his family on the one hand, and on the other that of national economy and the maintenance of the productive power of the nation.

It may be noted in passing that, speaking quite generally, injuries of the upper limbs are, from either point of view, undoubtedly more important than wounds of the lower, since many skilled sedentary occupations are open to men who have lost a leg, or a foot, or the free use of those parts, which cannot be filled by men who have been deprived of the use of the forearm or hand.

The Financial Secretary to the War Office, in his statement in the House of Commons on March 22nd, said that in assessing permanent pensions payable to men disabled in the war it did not matter what a man earned at the moment; what was taken into account was his capacity to earn. His pension was calculated

on his physical condition; it followed, therefore, that if there were nothing in a man's physical condition to prevent him from earning something, if so inclined, his pension would be reduced if he did not earn what he could. On the other hand, a man earning a very considerable rate of wages might at the same time be drawing a considerable pension. Mr. Forster did not deal specifically with cases other than those of amputation, but appeared to take them as exemplifying the principle by which the Commissioners of Chelsea Hospital would be guided. When a man has lost a limb he is treated by the Chelsea Commissioners as totally incapacitated for a certain length of time, and gets the full rate of pension of 25s. a week for at least two months after he has been fitted with an artificial limb. After a certain time, say six months altogether, the case is reviewed and the man's physical condition closely examined. If the medical opinion be that his physical condition is sufficiently good to enable him to earn his living to the extent of, say, one half, his pension is reduced accordingly. The amount of the reduction, Mr. Forster said, was quite irrespective of what the man was earning at the time; if his physical condition had so much improved as to permit him to earn in the open market at least half of the full living, his pension was adjusted on that account, and not on account of the particular amount of money he might happen to be earning at the moment.

The Parliamentary Secretary to the Local Government Board, in moving, on March 23rd, the vote of £1,000,000 to the Statutory Committee constituted under the Naval and Military War Pensions Act, 1915, said that the duty of the Statutory Committee is to grant pensions to supplement those granted by the Greenwich or Chelsea Commissioners, and to make provision for the training and employment of disabled sailors or soldiers. The Committee has power to grant a supplementary pension in a case in which, after consideration of all the circumstances, it appears that the State pension, either to the individual soldier or sailor or his dependants, is not adequate; it has power also to grant pensions in cases of hardship in which for one reason or another pensions have not been given to disabled soldiers and sailors. Further, it has recently been decided that State pensions may be granted in cases in which the disease has been aggravated by military service; that is to say, it will not be necessary for a man to prove that the disease from which he suffers is due wholly or directly to military service. Mr. Hayes Fisher stated that down to March 9th, 1916—a date antecedent to that on which this concession was made—the number of disabled men discharged from the army as unfit owing to wounds and disease who had been awarded pensions and grants by the Chelsea Commissioners was 30,255; 5,470 had received final pensions, 1,356 provisional pensions, and 23,429 conditional pensions, which would be reviewed later, apparently in the manner indicated by Mr. Forster on March 22nd.

We may also note here, though not directly bearing on the orthopaedic hospitals now being established, that the number of cases of amputation notified to the hospital for limbless men at Roehampton down to March 1st, 1916, was 3,818; of these, 1,628 had already been admitted to the Roehampton Hospital, and 932 had been discharged with properly fitted artificial limbs. At the date mentioned there was a waiting list of 2,027, and the cases, Mr. Hayes Fisher added, were being notified at the rate of 300 a month. In future, Scotsmen will, we understand, be admitted to the new hospital for limbless soldiers and sailors at

Glasgow, which, like the Roehampton hospital, has been established by private benevolence, with the assistance and approval of the War Office and the Red Cross.

These statistics will help to an understanding of the magnitude of the problem with which the country is confronted, for it is certain that the number of men who suffer from injuries of bones and joints not requiring amputation must be very many times greater than the number who have to be submitted to an operation so drastic, yet, if not wisely treated, many of them may be quite as badly crippled.

FAT EMBOLISM.

Fat embolism, noted by Zenker and others in 1862, was first accurately described by von Recklinghausen in 1864. His account was founded on the case of a man who died of fat embolism of the brain a few hours after being kicked by a horse on the shin; the process was investigated by his pupil Busch, who came to the conclusion that the escape of blood into the marrow of the injured bone had driven the fat into the veins.

During the last fifty years the occurrence of fat embolism has often been noted and investigated. It has been seen to follow mechanical shock or concussion without the fracture of any bone, although the traumatic or operative fracture of bones remains its commonest cause. Bürger, for example, recorded death from pulmonary fat embolism in the case of a woman who was very severely beaten with a stick on the back; the bruised and loosened subcutaneous tissues were the source of the fat in this instance. Fat embolism is said to occur frequently as a complication of osteomyelitis, and in diabetes mellitus. Its occurrence has been noted exceptionally in a number of medical conditions, such as lobar pneumonia, burns, endometritis, senile marasmus, anthrax, and poisoning by phosphorus, potassium chlorate or bichromate, or alcohol, in which there is no obvious cause for its appearance. It has, indeed, been found in the lungs in a high proportion of persons dying from all sorts of diseases. Scriba (1880) observed it in 24 out of 46 cases examined, counting a single fat-droplet in a pulmonary capillary as evidence of fat embolism. More recently, Nicolai¹ found elongated droplets or "snakes" of fat in the pulmonary vessels of 8 out of 57 cadavers; all had died of phthisis, heart disease, or renal disease, without trauma or osteomyelitis. He notes that the occurrence of occasional droplets of fat in these vessels must be regarded as normal, quoting the experience of Cornil and Ranvier, who found similar droplets in the pulmonary vessels of 18 out of 20 normal dogs. As these authors point out, the difference between the physiological and the pathological here must be one only of degree.

It is generally stated that fat embolism may be fatal through either the lungs or the brain. Nicolai quotes a case of his own in which fat embolism of the brain was the cause of death. The patient, a man of 40, was struck on the chest and leg by a falling beam. He sustained fracture of the left tibia and multiple fractures of the ribs, but lost consciousness for only a moment. Next day his temperature, respiration-rate, and pulse-rate rose, and he became mentally dull; the day after that he died comatose, the temperature rising to 104° F., the pulse to 116, the respirations to 40. At the *post-mortem* examination

fat was found in the vessels of the glomeruli and the capillaries between the renal tubules; the heart also exhibited fat embolism and parenchymatous degeneration of the muscle fibres. The brain presented highly characteristic appearances. The centrum ovale on section showed numerous small haemorrhages, which, under the microscope, displayed small vessels plugged with fat and surrounded with extravasated blood and necrotic white matter. The grey matter was free from these haemorrhagic and necrotic areas—a fact which Nicolai explains by saying that the grey matter has a better blood supply than the white. The foramen ovale of the heart was closed, and Nicolai draws special attention to the fact that his case shows that it is possible to have fat embolism of the greater circulation without the occurrence of paradoxical embolism, or the transit of fat emboli from the right auricle to the left through a patent foramen ovale. He believes that the fat reaches the circulation directly by way of the veins, but notes that Wilms (1910) and Fritsche state that it may also be picked up by way of the lymphatics, and be poured into the circulation through the thoracic duct. Wilms has even made a temporary fistula of the thoracic duct to stem the onset of symptoms of fat embolism, with success; the lymph discharged from the fistula was found to contain large drops of fat. Nicolai is of the opinion that the small and frequent pulse and the precordial pain noted in some instances of fat embolism may really be primary heart symptoms from blocking of cardiac arterioles and capillaries.

Fat embolism has been made the subject of numerous experimental investigations, such substances as olive oil or melted lard having been injected into the veins of the experimental animals. Among these investigations is that published last year by Maccagno,² who gives a rather patchy summary of the subject. It has been found that death follows if fat to the amount of about 0.2 per cent. of an animal's weight is injected into one of its veins. The fat is very slowly eliminated, partly by saponification and absorption, partly by excretion in the urine. Scriba, indeed, detected fatty droplets in the urine of 26 out of 33 patients suffering from fat embolism. Maccagno's experiments were made with lard and olive oil on rabbits, with the object of finding out, first, the size of the fatal dose; and, secondly, of determining the length of time required for the absorption of the emboli. He concludes that 0.1 per cent. of the animal's weight generally constitutes a fatal dose; but considerable individual variations were noted here, up to 0.2 per cent. of the body weight being tolerated in a few instances. The fat is slowly disposed of after injection. If small amounts are injected daily, death occurs when 0.1 per cent. of the body weight has been injected, but if the injections are made every four days, death is not caused until the quantity of fat injected amounts to 0.136 per cent. of the weight of the body. Even forty-one days after an intravenous injection fat emboli may be found in the lungs and kidneys, with more or less extensive infiltration with small round cells and fat-containing cells around the occluded vessels, and interstitial haemorrhages. Maccagno concludes that fat embolism is a cumulative process, a point that ought, perhaps, to be kept in mind in the treatment of comminuted fractures of bones and the like. The exact cause of death in his experimental animals he does not specify very clearly. Recovery after extreme dyspnoea was sometimes noted, as if great embolic obstruction to the passage of blood through the lungs

¹ A. Nicolai: *Nederl. Tijdschr. voor Geneeskunde*, Amsterdam, 1914, li 1605.

² M. Maccagno, *Il Policlinico*, Sez. chirurg., Rome, 1915, xxii, 209.

was not necessarily fatal; it may be added that in the case of human beings fat embolism is said to be fatal by means of pulmonary obstruction in a little more than half the cases (Gröndahl). Almost all Maccagno's animals died in convulsions, and showed fat embolism of the brain and heart on section; at the same time, the right ventricle displayed considerable or extreme dilatation, and oedema of the lungs which was roughly proportional to the amount of fat injected, with areas of pulmonary infarction. He is, in fact, unable to determine to what extent fat embolism of the lungs, of the heart, and of the brain are respectively to be held responsible for death in fat embolism.

The practical conclusion he draws from his experimental work is this—that patients with fractured bones should be kept as quiet as possible for several days before any operative treatment of their fractures is undertaken, in order that the injured vessels in the bones may have time to become thrombosed; in this way the danger of further fat embolism may be minimized.

TUBERCULOSIS SCHEMES.

In common with many other organizations, philanthropic and otherwise, the tuberculosis campaign has of necessity been checked in its course of activity by the national campaign against the more obvious enemy. But the work begun nearly thirty years ago and steadily pursued up to the present time has not been barren of results. Knowledge of the disease and of the means whereby its progress may be checked has been spread far and wide by various agencies throughout the kingdom, and, indeed, throughout the civilized world. Although they are all striving to the same end, these agencies have not as yet been co-ordinated, nor, except by means of scattered reports, have the experiences of each been made available for all. In order to remedy this defect and to bring all the various boards and committees into touch with one another, the National Association for the Prevention of Tuberculosis has caused a small handbook¹ to be prepared in which are recorded the answers received to a number of questions addressed to tuberculosis authorities of every degree in Great Britain and Ireland. The main difficulty of all such authorities has been to reconcile conflicting interests. In the metropolitan area a lead has been given to lesser communities by making the county council into the central organizing authority, but the detailed work has for the most part been placed in the hands of the metropolitan boroughs, who have to share with the Local Government Board and the local Insurance Committees the duty of providing dispensary and sanatorium treatment, in association, wherever possible, with the existing general and special hospitals. It is obvious that a vast amount of work has had to be done and still remains to be completed before smooth working between so many different bodies can be attained. The publication of an index, by which the extent to which the work is being carried on can be easily and quickly ascertained, is an important step in the direction of a more definite central co-ordination of which the whole antituberculosis movement stands in great need. For purposes of such reference the counties in England, Wales, Scotland, and Ireland have been separately considered, and the provisions made are set out in tabular form, a similar plan being adopted as regards the boroughs and after-care committees. Examination of these tables will show very plainly that although a great deal has been projected and approved by the authorities concerned, there still remains a very great deal to do. The

effects of the war have been keenly felt in many places, not only in the shortage of well qualified tuberculosis officers, but in lack of funds, and, in some cases, lack of accommodation, the buildings hitherto used for tuberculosis cases being now required for military purposes. The work in the English boroughs would appear to have lagged somewhat behind that in the counties, except in the provision of after-care committees, which are doubtless easier to administer in crowded than in scattered areas. Scotland and Ireland have not been behindhand either in the provision of dispensaries or sanatoriums. In Wales, the King Edward VII Welsh National Memorial has done a great deal of valuable work, except in Pembrokeshire, where the authorities would appear to be unwilling to co-operate in a common scheme for the whole Principality. The work of co-ordination thus started under the auspices of the National Society is deserving of recognition, support, and assistance from all the tuberculosis authorities concerned, for every one of them may, directly or indirectly, profit by it as experience increases, and the need for mutual interchange of ideas becomes more distinctly felt.

THE CONTROL OF TYPHOID FEVER.

A DETERMINED effort is being made in New York to reduce the prevalence of typhoid fever, and the results are already very encouraging. The number of deaths per 100,000 of the population has fallen from 14.78 in 1905-09 to 6 in 1914. Every case of typhoid fever in New York City reported to the department of health is visited by an inspector, who makes careful inquiries into the history of the case and records the facts elicited on a special history card. The cards are analysed by the chief of the division of epidemiology, and if necessary additional investigations are undertaken to learn the source of infection and to prevent its further dissemination. It is not believed that all the cases come to the knowledge of the department of health, but it is thought that over three-quarters do. One result of the investigation of the whole mass of material by Dr. Charles F. Bolduan, director of the Bureau of Public Health Education, has been to show that a considerable proportion of the cases of typhoid fever occurring in New York and other cities in the United States arise in rural districts. Thus, in 1915 in New York, out of 874 cases the origin of which was definitely traced, 484 were of rural origin—that is to say, the infection was in 372 cases contracted outside the city, and in 112 was due to milk infected at a creamery. As 2,456 cases altogether were reported those definitely attributable to extra urban infection constituted at least 20 per cent. In 1905 they were estimated to constitute 50 per cent., and this great reduction is attributed to two measures—the effective chlorination of all the water of the Croton supply, and the effective pasteurization of milk. It is also considered that the small proportion of cases due to direct exposure to another case (165), and of those due to the consumption of food contaminated by flies carrying typhoid infection (95) is very creditable to the sanitary conditions and medical supervision of the city. It is, however, added that, as typhoid immunization is now everywhere recognized as an efficient preventive, all who are called upon to treat cases of fever should insist on the use of this valuable prophylactic in order that the occurrence of the infection through direct exposure may be reduced to a minimum. No cases were attributed during the year to the ingestion of water or oysters, but 118 were found to be due to carriers. The rate of deaths from typhoid fever in New York is still much too high, however, compared with London, Berlin, Hamburg, or Vienna; it is possible that by the continuance of the system of inspection of every case the source of a larger proportion of those now unknown may be discovered; at any rate, what has already been accomplished will encourage the department to persevere.

¹ *Handbook of Tuberculosis Schemes*. National Association for the Prevention of Consumption and other Forms of Tuberculosis. London: Adlard and Son. 1916. (Large 8vo, pp. 43. 1s.)

SHAKESPEARE'S ENGLISH IN ULSTER.

IN an article entitled, "Shakespeare and the Ulster dialect," which appeared in the *Northern Whig* of April 22nd, Sir John Byers has made a very appropriate and interesting contribution to the literature of the tercentenary we are now celebrating. Many of the words and phrases used by Shakespeare which have since been lost are still found in the dialect of his native Warwickshire and the surrounding counties; and as it was from those districts that many of the English colonists went to Ulster at the time of the great Plantation in the reign of James I, a large number of those words and phrases are still found in the local speech of Ulster. Sir John Byers says that until the end of the eighteenth century there was a tradition in that province of Ireland that pure English was spoken at Lisburn, and so recently as in 1878 it was estimated that while a glossary of more than 2,000 words would be required to enable a modern Englishman to read Shakespeare, probably one of about a tenth of that number would be all that would be needed for the same purpose by an intelligent person who had learnt his mother tongue in the North of Ireland. "Many of the so-called 'vulgarisms,'" says Sir John, "met with in the spoken language or dialect of the people of the North of Ireland, belong to the Augustan age of English literature, and have come down from the period of Queen Elizabeth through the English planters. These people, having once acquired the vernacular English of that wonderful time, have fortunately handed it down through their descendants as a spoken language, despite the absurd attempts of some pedants to stamp it out." As a result this vigorous English, with its supposed "vulgarisms," used with such effect by Sidney, Spenser, Bacon, Ben Jonson, Marlowe, and, above all, Shakespeare, "has added greatly to the recognized force, the crisp clearness and the subtle humour of the Ulster dialect." A number of illustrative quotations show the zeal with which the distinguished gynaecologist of Belfast has laboured in a comparatively unexplored field of Shakespearean study. The limits of our space will allow us to give only one or two examples of more or less directly medical character. "Child" or "chile," used in Ulster for a female infant, is found in *A Winter's Tale*:

Mercy on's, a barne; a very pretty barne!
A boy or a child, I wonder?

A North of Ireland doctor often hears that a patient cannot "digest (disgist)" his food, or that he is suffering from "indigestion." This form was common in the sixteenth and seventeenth centuries; it is found in *Julius Caesar*:

This rudeness is a sauce to his good wit
Which gives men stomach to digest his words with better appetite.

Hamlet says: "The toe of the Pesant comes so neere the heeles of our courtier, hee galls his kibe." Sir John Byers says that "kibe," or "kibey heel," is used in Ulster in the sense of a sore or chipped heel, often the result of chilblains. "Puke," meaning to vomit, still survives in Ulster. Sir John Byers says that Shakespeare was the first writer to use the word; that was in 1599 or 1600, and there is no other instance of its employment by him.

THE SPIROCHAETE OF WEIL'S DISEASE.

As was noted in the *BRITISH MEDICAL JOURNAL* of April 1st, page 491, the spirochaete that causes epidemics of infectious jaundice in Japan has lately been discovered by Inada, and the disease to which it gives rise has been identified with what is known as Weil's disease in Europe. Drs. Ito and Matsuzaki have recently succeeded¹ in cultivating this spirochaete, which is known as *S. icterohaemorrhagiae*, on a variety of media besides Noguchi's, and have published full details of the methods and media

they have employed. It would seem that this spirochaete is not so fanciful a feeder as had been supposed. It will grow on either solid, semi-solid, or fluid media, and is a facultative anaërobe. The solid and semi-solid media must contain blood, such as that of the guinea-pig, which has the disadvantage of making them opaque; blood agar and blood gelatin have both been used with success at any temperature between 15° and 37° C., and with or without the addition of a supernatant layer of liquid paraffin. No odour, gas formation, or liquefaction of the media were observed, and the growth was slow. Of the various fluid media employed, a pleural exudate rich in fibrin gave the best results. It appears that the method of multiplication of the spirochaetes is still undetermined, whether by longitudinal or transverse division. The organisms do not take any of the ordinary aniline dyes, but assume a pinkish or purplish colour when stained with Giemsa's solution. The authors have cultivated three different strains of the *S. icterohaemorrhagiae*, and find that the organism retains its pathogenicity for guinea-pigs through many generations.

TROPICAL SANITATION.

IN an address to the Conference of Health Officers of New York, held recently at Rochester, Surgeon-General Gorgas said¹ that the great awakening in tropical sanitation during the last twenty years had its first beginning (he was speaking, no doubt, of America) in the Spanish-American war (1898-99). It had been known for three or four hundred years that military expeditions in which large bodies of white troops were required could not be undertaken in the tropics on account of the loss from disease. The French army in Santo Domingo in 1798, out of a total strength of 25,000, lost over 22,000 from yellow fever, and four years later, out of a total of 40,000, it lost 20,000. Where the disease prevailed it was equally fatal to the civil populations, as was shown by the United States records and those of Spain. About the beginning of the nineteenth century there seemed to be a serious risk of yellow fever spreading over the whole world. It was evident that the epidemics which visited the United States were imported from Havana. When that city fell into the hands of the Americans in 1898 every effort was made to control the disease. In 1900 it had been made one of the cleanest cities in the world, but yellow fever was worse than it had been for years. The antimosquito campaign in Havana was begun in February, 1901, and the disease was eradicated in September of the same year, and had since then practically disappeared in the northern hemisphere. In 1898 Sir Ronald Ross had demonstrated that malaria was conveyed from man to man by another species of mosquito, the *Anopheles*, and the same conditions existed as to the transmission of malaria as with that of yellow fever. It was evident, therefore, that a very slight extension of the measures taken for the repression of yellow fever should be sufficient against malaria, and this had proved to be the case. A brief account of the sanitary work done during the construction of the Panama Canal was given and Gorgas showed how near it came to failure in the beginning, before the members of the Commission were won over to the views of the sanitarians. In June, 1905, they asked that Gorgas and his fellow workers should be replaced by "men more practical and sane." Fortunately, this request was not acceded to, and the last case of yellow fever occurred in Panama in September, 1905; since then only one case had occurred in the Republic. Sanitary conditions also rapidly improved in other ways, and soon the isthmus, in respect of health, compared favourably with many parts of the United States. Gorgas attributed the extraordinary improvement in the general health conditions of Panama to the social betterment caused by the high wages paid the workers. He added that if such

¹ *Journ. Experim. Med.*, Baltimore, 1916, xxxiii, 557.

¹ *Journ. Amer. Med. Assoc.*, December 25th, 1915.

wages were paid now in New York, "all the poverty, sickness, and degradation caused at present by low wages would be rapidly ameliorated." He had laboured in a field where great results in the improvement of the public health had been achieved, but he was sure that these would be small compared with the results that would be produced by the payment of a sufficient wage to the toiler.

CONTROL OF PETROL SUPPLIES.

THE President of the Board of Trade has appointed a committee "to control the supply and distribution of petrol, and to consider what measures are necessary to the national interest (1) to ensure that adequate supplies of petrol shall be available for the purposes of war and for other essential needs; (2) with the above object to regulate the use of petrol for other purposes in the United Kingdom during the period of the war; and, subject to the direction of the Board of Trade, to give executive effect to the measures decided on." The members of the committee are Mr. Oliver Bury (chairman), Mr. Albert Edward Bowen, Sir John Prescott Hewett, G.C.S.I., and Mr. Philip G. L. Webb; the secretary is Mr. H. W. Cole, to whom communications may be addressed at 29, Abingdon Street, Westminster, S.W. The Committee will not consider individual applications for supplies of petrol. A few weeks ago a communication was addressed to all medical practitioners asking them to answer certain questions with regard to their use of petrol-driven vehicles, and the amount of petrol consumed. We are informed that some 8,000 or 9,000 members of the profession have as yet failed to return the form of inquiry. It is important that this should be done whether or not the practitioner uses a car or motor cycle, in order that full statistics may be laid before this committee, which, as will be noted, has executive powers, and will have to estimate the amount of petrol which should be liberated for the use of medical practitioners. Any members who may have mislaid the form can obtain another on application to the Secretary, National Health Insurance Commission, Buckingham Gate, S.W.

ARSENICAL NEPHRITIS.

MEDICATION with arsenical drugs is in all probability more general nowadays than ever before. The most recent arsenical preparations are chemical substances that are supposed to attack the organisms of disease rather than the tissues of the patient—to be, that is to say, parasitotropic rather than organotropic, in Ehrlich's nomenclature. Yet even with the use of the best types of arsenical compounds, such as salvarsan, kharsivan, neo-salvarsan, galy, and the like, cases of poisoning occur from time to time, and acute nephritis is one of the forms in which this arsenical poisoning makes itself manifest. Drs. Pierce and Brown¹ have recently investigated this nephritis in guinea-pigs treated with toxic but sublethal doses of various arsenical drugs. Speaking generally, they find the renal changes here to be much the same in dogs as they are in guinea-pigs; the arsenical compounds used were arsenious acid, arsenic acid, sodium cacodylate, salvarsan, neo-salvarsan, arsacetin, arsenophenylglycine, and atoxyl, and they were administered by intraperitoneal injection. The authors find that the renal changes are of two main varieties: In one of these the kidneys are red, hyperaemic, and haemorrhagic; the toxic lesion is mainly vascular. Arsenious acid, arsenic acid, sodium cacodylate, salvarsan, and neo-salvarsan all produce an acute nephritis of this type, with comparatively little necrosis of the tubal epithelium. The other variety of nephritis is that produced by arsacetin, arsenophenylglycine, and atoxyl; here the main lesion is tubal necrosis, the vascular injury is subordinate. There is a more or

less rapid attempt at regeneration of the epithelium of the secreting tubules; numerous mitoses are seen in the microscopical sections, and there is a well-marked leucocytic exudate in the interstitial tissue. In both types of nephritis there may be pronounced proliferation of the fibroblastic cells in both cortex and medulla of the kidney. The general conclusion to which the authors come is this, that various arsenical drugs may inflict injury mainly or entirely upon either the vascular, the epithelial, or the interstitial tissues of the kidney in different cases; the injury to the interstitial cells can only be estimated by the examination of the kidneys when some little time has elapsed for the processes of stimulation or repair to show themselves. They hold that the mode of action of an arsenical compound as a renal toxic agent is bound up with the chemical constitution of the drug.

SCHOOL CLINICS FOR LIVERPOOL.

LIVERPOOL has been slow in making adequate arrangements for the treatment of its school children found on inspection to be suffering from medical defects. Other great cities have had organized clinics in existence for several years, and the advantage to the children and the work of education has been proved beyond dispute. The Liverpool venture is of no great magnitude, certainly not when the greatness of the city, the number of its school children, and the area of its poor quarters are taken into consideration. The venture is to consist in the establishment of a clinic for the treatment of enlarged tonsils and adenoids. It is proposed to provide for the necessities of 800 to 1,000 cases in each year at a cost of £995. Truly it is not a great scheme for so great a city; there is no provision for the teeth, or eyes, or the several minor ailments that ruin school attendance and reduce the Government education grant, and incidentally make school work somewhat of a purgatory to the little ones. But, may be, this is only a beginning, a foreshadowing of a more ample scheme, and as such the local profession will welcome it. The time has gone when children judged to fail of the physical standard rightly set up by the school doctors should be expected to plead for charitable medical attendance; the community, through the voice of Parliament, has clearly made it the duty of local authorities to consider and meet such necessities, and no local authority which has undertaken this duty has found cause to do other than congratulate itself on the results.

It has been suggested that benevolent societies be formed for the benefit of the families of officers and other ranks of the medical services auxiliary to the Regular Royal Army Medical Corps—namely, the Special Reserve, the Territorial Force, and new army. Funds would be raised by voluntary subscriptions, and it has been proposed that each branch of the service should appoint a committee of five to seven members to administer its own funds. A meeting, presided over by the Director-General, will be held in the Lecture Theatre of the Royal Army Medical College, Grosvenor Road, S.W., on Wednesday, May 10th, at 3 p.m., and it is hoped that as many officers as possible will attend. In the meantime any inquiries may be referred to Lieutenant-Colonel G. St. C. Thom, R.A.M.C., War Office, S.W.

A COMMITTEE, among the members of which are Dr. L. B. Aldrich-Blake, Dean of the London School of Medicine for Women, and Mrs. Henry Fawcett, has been formed to raise a fund for a memorial to the late Dr. Mary Murdoch of Hull, an obituary of whom was published in the *BRITISH MEDICAL JOURNAL* of April 1st. It is proposed that the memorial shall take the form of a bursary or bursaries in connexion with the school, to be applied for the assistance of young women in their first years of practice. Subscriptions should be sent to the honorary treasurer, the Hon. Mrs. Franklin, 50, Porchester Terrace, London, W.

¹ *Journ. Experim. Med.*, Baltimore, 1916, xxiii, 443.

Medical Notes in Parliament.

War.

Pulmonary Tuberculosis.—Major Astor asked, on April 19th, the grounds on which the Army Council had decided that a soldier must be discharged from the army directly it was determined that he was suffering from pulmonary tuberculosis, and without giving him any period of treatment, such as was given in the case of all other diseases. Mr. Tennant replied that it was considered that a man suffering from pulmonary tuberculosis was unfit to serve as a soldier. It was essential that these cases should be specially treated in a sanatorium at as early a date as possible. Arrangements had been made, in the man's own interest, with the Insurance Commissioners and the Local Government Board, so that a soldier found to be suffering from tubercle of the lung should be discharged the service at once and admitted to a sanatorium. Discharge took place under paragraph 399 of the King's Regulations. Mr. Tennant was pressed on the point by various members, who alleged that there was no sanatorium accommodation available either for soldiers or civilians who live in the London district; and, further, that there was difficulty in getting men to go to sanatoriums owing to the fact that no separation allowance was granted if they went. Mr. Tennant agreed that men discharged from the army would get no separation allowance, but promised to have the whole matter of their being given treatment before discharge looked into. On April 25th Mr. Glyn-Jones asked how many men had been discharged from the army and navy during the past year suffering from tuberculosis, and in what proportion of such cases had the Insurance Commissioners been able to provide immediate accommodation in sanatoriums. The Chairman of the Joint Committee of Insurance Commissioners said that the first part of the question should be addressed to the War Office and Admiralty. As to the second part, he said that since the special arrangements for the immediate residential treatment for discharged tuberculous soldiers and sailors came into force—in April and August, 1915, respectively—approximately 2,450 cases had been reported to the several Commissions by the War Office and Admiralty as cases in which residential treatment was essential, and he was not aware of any such case in which accommodation had not immediately been made available.

Medical Examination Fees.—On April 19th Mr. Joynson-Hicks asked the Under Secretary of State for War whether he was aware that a number of doctors were appointed by recruiting officers in the early period of the war to examine recruits at a fee of 2s. 6d. a head; whether such fees were from time to time paid; whether he was aware that many doctors, during the period of rush in December, 1915, gave up their private practice, and, with the help of assistants working twelve to fifteen hours a day, examined and passed a number of recruits, but had been refused payment of anything more than £2 per day, representing sixteen recruits; and whether he would cause an inquiry to be held into the matter. The Financial Secretary to the War Office (Mr. Forster) said that the ordinary fee was 2s. 6d. per recruit examined, and this regulation was in force at the beginning of the war. But in February, 1915, it was modified to the effect that where considerable numbers were examined £2 should be the maximum for a full day's work.

Steel Helmets.—In reply to Mr. Percy Harris (Market Harborough), who asked whether the steel helmet issued to the troops weighed 32 oz. and was not ventilated, and whether there was in existence a pattern helmet, properly ventilated, and only weighing 16 oz., Dr. Addison said, on April 19th, that the service steel helmet weighed 32 oz., and improved internal fittings which would improve the ventilation and render the helmet more comfortable were now being made. The helmet had given great satisfaction and had saved many casualties; it was not proposed to alter the pattern. He knew of no helmet weighing 16 oz. that possessed equal resisting properties. In reply to another question, he said that experience had shown

that the smooth dome of the helmet might reflect the light to some extent in bright or wet weather, and steps were being taken to remedy this defect, not by the provision of covers, but by an alteration in the helmet itself. In reply to other questions, Mr. Tennant confessed himself unable to state the date at which the steel helmets would all have been supplied. Light soft caps had been ordered for issue to men who, in the trenches, were provided with steel helmets. Steel helmets had not been supplied to the forces in Mesopotamia, as it was understood that they were not suitable for use in that climate.

Compulsory Service.—The official report of the proceedings of the secret session of the House of Commons on Tuesday, April 25th, states that the Government, recognizing that the necessary numbers required for the discharge of our military obligations will not be available for service by the time required under the present arrangements, agreed that an immediate effort should be made to obtain the men required by voluntary enlistment from among the unattested married men, and that if at the end of four weeks ending May 27th 50,000 of these have not been secured by direct enlistment, the Government would forthwith ask Parliament for compulsory powers; that if in any week after May 27th, 15,000 were not secured by direct enlistment the same course would be taken, and that these arrangements would hold good until 200,000 unattested men had been obtained. A special committee has been appointed to consider a scheme for meeting cases of hardship arising out of civil liabilities, applicable to all who joined since August 4th, 1914, or who might hereafter join, and to single as well as to married men. The items in respect of which assistance will be granted include rent (including ground rent and rent of business premises), mortgage interest, payments in instalments in virtue of contracts such as purchase of premises, business, or furniture, taxes, rates, insurance premiums, and school fees. It is not contemplated that the assistance granted in any individual case shall exceed £104 a year.

Hours of Work in Munition Factories.—In reply to questions on April 18th Dr. Addison said that the number of hours of work of women or young persons engaged in the manufacture of munitions, as of all women or young persons employed in factories or workshops, was governed by the Factory Acts and orders made thereunder. The ordinary limit of hours in the Factory Acts was sixty a week, but this limit might be extended by general or special orders of exemption, and the Home Secretary had found it necessary, in consultation with the other departments concerned, to make such orders in certain cases. The maximum hours of work permitted for women and young persons on the two-shift system in munition works had hitherto been ten and a half a day and sixty-three a week. The actual hours worked had varied in particular cases, and in a very large number had fallen considerably short of this maximum. Under the new general order now under consideration by the Ministry of Munitions and the Home Office it was contemplated that the maximum allowed should be sixty hours a week. In every case in which night work was sanctioned for women or young persons the firm was required, as a condition of the order, to provide proper messing facilities to the satisfaction of the factory inspector. Further, the Canteens Committee, wherever a need was shown to exist, took active steps to deal with the matter. In a written answer to another question on the same day the Home Secretary also referred to the new general order mentioned by Dr. Addison, and pointed out that the existing order did not, as seemed to be supposed, allow seven and a half hours overtime a week for girls or for boys under 16. In the case of women, it permitted it only for those employed on certain specific classes of work of an exceptionally urgent character.

Infantile Mortality.—The President of the Local Government Board has, in a written answer, given the following statistics of the number of deaths of infants under one year of age in England and Wales for the periods referred to:

Six months ended March 31st, 1913	...	...	47,274
" " " 1914	...	...	48,965
" " " 1915	...	...	50,219
" " " 1916	...	...	41,971

Income Tax.—In a written answer to Sir J. D. Rees, the Chancellor of the Exchequer has stated that the exemption as to increases in income tax granted in 1915-16 to officers of the navy and army whose incomes did not exceed £300 a year, and the exemption granted in 1916-17 to all officers, without exception, do not apply to the widows of such of those officers as were killed in action or lost their lives in connexion with the war.

THE WAR.

PERSONAL HYGIENE.

Baths.

At a meeting of the Third Corps Medical Society held on January 15th, 1916, with Colonel B. M. Skinner in the chair, Lieutenant (temporary) A. Cowe, R.A.M.C., read a paper on Divisional Baths. They had, he said, largely been established in disused factories and a proper staff appointed, as far as was possible. Thus in one instance a disused starch factory was made half into a bathroom and half into a laundry. Existing tanks or vats were used; a steam heating apparatus was arranged for each vat which was of sufficient capacity to hold from fifteen to twenty men at a time; they served solely as "soakage vats," and no soap was allowed. There were in addition two large shallow baths, in which the men would wash themselves all over first, using paraffin soap, and then jump into the deeper ones. The water in the shallow baths was changed after each party, while that in the deep vats was removed and replaced about three or four times daily. The shallow baths, Lieutenant Cowe observed, took ten minutes to fill, the deep vats an hour and a half. Parties of ninety men went through undressing, bestowal of clothes and valuables in a cloak-room, bathing and dressing, half-hourly. Subjects with skin diseases were treated separately. In the meantime a staff of women were at work in the laundry department, ironing with hot irons the tunic and trousers, dusting sulphur into the seams and smearing them; in bad cases, with the mercury pomade after ironing. Caps and puttees were sprayed in the cloak-room with 5 per cent. formalin. Dirty underclothing was put direct into a 3 per cent. cresol solution for two hours, then removed to the laundry and boiled in a cauldron in a 1 per cent. solution of the same compound for another two hours, when the laundress scrubbed them on a hard board, using a compound of crude paraffin 5½ pints, water half a pint, and soft soap 3 lb. The clothes were then hung in a large drying room, and dispatched thence to a mending room, where, if vermin were detected, they were soaked for twenty-four hours in a 1 in 1,000 solution of mercury perchloride and washed again. In the mending room as much of the old material as possible was used. About 15 per cent. unfit for reissue, had to be made good by new clothes. After the still wearable underclothing was mended it was ironed, folded, and put up into bundles of ten for reissue.

Lieutenant Bramwell, R.A.M.C., said that the men should bring their blankets for sterilization. Major Puddicombe said that packs should be inspected before bathing parade, as men often changed their shirts before going to the baths so as to obtain a new garment in place of a discarded ragged one. Major E. Alderson recommended trichlorethane made up into soap for killing pediculi. One part of petrol in four of vaseline was also efficient.

Lice.

Captain N. A. Dore, R.A.M.C.(T.F.), read a paper on this subject. Infection of the troops with lice had reached high proportions, mainly because at the outbreak of the war many reservists who joined the Expeditionary Force were infected with *Pediculus vestimentis*. The female, he said, was extremely prolific, producing 8,000 young in its natural life of six weeks; it was also very tenacious of life. The ova, when they were deposited in the seams and folds of the clothing, were so resistant that "sterilized" clothing would yield young adults for a week after treatment. The German method for its extermination, which would not destroy the ova and was thus only satisfactory for the adult, was fumigation with 2 lb. of sulphur to a thousand cubic feet. Camphor and pyrethrum powder were good deterrents, hung in muslin bags round the neck. The best preventive measure was the avoidance of damp straw or hay in billets. The men should be supplied with palliasses which kept the straw dry. In his division, Captain Dore said, wooden platforms were made, raised about a foot from the ground, sacking or canvas being stretched across them so that the men could dispense with straw altogether, and sleep entirely off contact with the ground. Billets were washed with chloride of lime. Reinfection had been much reduced by this means.

Speaking of destructive agents, Captain Dore said that a 7.5 per cent. solution of formaldehyde applied with a Mackenzie's sprayer destroyed adults; about 25,000 blankets were treated monthly by this method, and decrease in pediculi as well as scabies had been noted in the division. The best destructive agent for the ova was to smear a two to one solution of ammoniated mercury in soft soap on the clothes, a hot iron being passed up and down the seams. Petrol and paraffin were destructive, but had objectionable qualities, causing great skin irritation in some subjects. A dusting powder of ammoniated mercury, zinc oxide, and magnesium silicate was highly effective. A powder of naphthalin 96 per cent., iodoform 2 per cent., and creosote 2 per cent. was the very best disinfectant of blankets, but there was a shortage of naphthalin. Steam disinfection of clothing and blankets by the Thresh disinfectant was efficient, but only 600 blankets daily could be disinfected, even in the new double cylinder Foden Lorry Thresh.

During the occupation of Gallipoli an Anzac Medical Association was formed, and held its first meeting at No. 1 Australian Casualty Clearing Station on November 7th, with Colonel N. R. Howse, V.C., C.B. (D.D.M.S.), in the chair. The first subject discussed was the lessening of the incidence of infestation by the clothes louse. Major Butler, D.S.O., enumerated the following as the most practical methods at disposal for dealing with the pest, as many combinations as possible being used:

1. Steam sterilization of clothes and blankets.
2. Deposition under the seams of the clothing of some substance, as vermijell or a mixture of soft soap and crude oil or the use of some mineral oil—for example, kerosene, petrol, etc.
3. The use of N.C.I. powder (2 per cent. iodoform, 2 per cent. creosote, and 96 per cent. naphthalene).
4. The use of "Keating's" or other insect powders, or a bag of sulphur worn round the neck.
5. Mercurial ointment on strands of wool worn round the neck, waist, and calves of legs.
6. Hot ironing the seams of the clothing.
7. Individual search and picking of all clothing.
8. Regular changing of clothes once a week.
9. Regular bathing and general personal cleanliness.
10. The use of an emulsion of ¼ per cent. lysol and 20 per cent. soft soap, to be lathered on the skin and allowed to dry.
11. The cleaning and sterilization or fumigation of blankets and dug-outs—for example, by sulphur dioxide.
12. The immediate destruction by burning of all discarded clothes, etc.

Captain Phipson (6th Gurkhas) said that it was not the fact that the louse always anchored itself to clothing before feeding, and added that while feeding it excreted a substance attractive to flies. This, he thought, might be a factor in the spread of some diseases. Lieutenant-Colonel Fremantle said that in lieu of steam disinfection for blankets he had tried steeping them in cresol (1 in 20) for twenty-four hours, then drying in the sun and storing for two to four weeks before use, so that if any ova had escaped alive and hatched out later the larvae would die from inanition. Major Battye, I.M.S., said that sulphur dioxide properly used killed both lice and nits. Lieutenant-Colonel Dudgeon recommended the Serbian barrels for disinfection by steam as being cheap, effective, and easily installed and run. Solar oil (kerosene without benzine) was much used along the Suez Canal for rubbing into the seams of the clothes; failing this, kerosene was good.

THE BELGIAN FIELD HOSPITAL.

Dr. E. C. THOMPSON, of Omagh, who has been acting as commandant of the Belgian Field Hospital, has sent us an account of his experiences. The hospital has been maintained by the Belgian Field Hospital Committee, but is now about to be taken over by the Belgian military authorities. The post of commandant, which had become vacant, was offered by the chairman, Lord Sydenham, to Dr. Thompson, who writes:

The post at Hoogshatte suited me very well because it was a field hospital; it was located behind the third line of Belgian reserve trenches, and was close down to the firing line at the front in Flanders. Hitherto the commandant had been a civilian and had had no experience of surgical necessities or the management of a large institution, and the consequence was that the hospital organization was not up to date, and there was a good deal of looseness in administration and wasteful expenditure. There was also some friction between the Belgian

and British surgeons; all these matters were soon arranged. The hospital was served by nurses who were all British from home or overseas. I never came across any hospital with a more devoted body of sisters or able nursing staff. They were all thoroughly experienced and well taught, and had been carefully selected before leaving England. The chief surgeon was Major Williams, Professor of Surgery in the University of Ghent, a first-class operator and a surgeon of European reputation. Associated with him were two Belgian assistant surgeons, both able young men, two surgical dressers, and a radiographer. The British staff consisted of the commandant whose duties were chiefly administrative, the commandant's secretary, and two surgeons, one of whom was an American, a very able and experienced surgeon, and the other from St. Bartholomew's Hospital, also a well known and distinguished specialist and a captain R.A.M.C.(T.). The hospital, for administrative purposes, was located in a large convent situated a short distance off the main road leading from Furnes to Ypres, and had four pavilions, or barracks as they are called by the Belgians. It could house about 140 patients, and in case of a serious demand might be enlarged without trouble to a capacity of 200 beds. The hospital has had a chequered but very noble career. It was founded in October, 1914, and was first located in a fine building in Antwerp. After six weeks' very useful work there it was badly shelled, and had to be evacuated. Such was the devotion of the doctors and sisters that they were able to leave the tortured city and retreat safely with all their patients to Furnes, where the hospital was again started in a monastery, and did splendid work during the severe fighting of April, 1915, thousands of very badly wounded being housed, treated, and sent on, when able to be removed, to a base hospital. Unfortunately the hospital came under severe shell fire again, and one of the devoted sisters lost her life from injury by a shell; in consequence the hospital had to be again evacuated. This was successfully accomplished towards the close of April, and a portion of a large convent before referred to was secured for it by the Belgian Government. From this time until now the hospital has carried on its admirable work under the very able guidance of Major Williams and his associated surgeons, both Belgian and British.

There is no hospital at the front better located for the reception of wounded soldiers or placed closer to the firing line. I had a very pleasant time while at the hospital, and was greatly helped in every way by every member of a most capable, plucky, and energetic staff. I saw a great deal of the work of the Royal Army Medical Corps both at the base hospitals at Boulogne and in some of the field hospitals and dressing stations close to where the Belgian Hospital was situated. I cannot speak too highly of the splendid and thorough organization of the R.A.M.C. or of the pluck and energy of every officer with whom I came in contact. I saw the officers at work under heavy shell fire both in dug-out and dressing stations, and they were always plucky and unconcerned. The administration of the corps, in every particular, under the very capable control of Sir A. Sloggett and his assistants, could not possibly be excelled. Everything was well thought out, supplies were plentiful, and every officer and soldier I met—and they were many—was loud in his praises of the skill, attention, and devotion of both the officers and men of this grand army department. If other departments of the army were unorganized and tardy in expanding to the necessary requirements of a large army this cannot be said of the R.A.M.C., which in previous years had been thoroughly reorganized under the able supervision of Sir Alfred Keogh, the present Director-General of the Army Medical Corps at home, who, when previously in office, had rendered his country such splendid services both in the South African war and afterwards in preparing for what all soldiers anticipated for years previous to 1914—namely, the present terrible world-war. It has been said by some people (politicians, I believe) that the Director-General should control the R.A.M.C. both at home and in France. The idea is nonsense. The present arrangement is the only possible one, and it is carried on most thoroughly and efficiently and without any friction, because the two Director-Generals are most suitable and practical men, devoted to the service and with a single eye to do their utmost for the good of their own corps, of which they are such efficient and experienced chiefs, and of the soldiers of the British army, in whose interests they have left nothing undone to lessen suffering or to help to restore them again to the blessings of health and strength. When the history of the war comes to be written one department at least, namely, the R.A.M.C., will shine forth triumphant.

When I left Belgium, after more than five months' service there, the Belgian Field Hospital had been thoroughly reorganized and was working in every department with efficiency and success.

LAND MINE WOUNDS.

In the fighting between the Italians and the Austrians among the mountain passes much use is made of the land mine or torpedo, which is carefully concealed somewhere in a narrow mountain track. As used by the Austrians this mine consists of a wooden or tin box, packed with explosives and iron nails, and connected with a fuse and wire in which the unwary enemy catches his foot, firing the mine. During seven months' service in the Southern Tyrol, Dr. P. R. von Walzel¹ observed thirteen casualties inflicted by this weapon only a few hours before the patients reached hospital. A characteristic feature was the great variety and number of wounds in each case. The nails, the outer case of the mine, the fuse, splinters of wood and stone, earth and the material used to hide the mine, all left their mark on the unfortunate victim, one side of whose body would be liberally peppered, while the other scarcely showed a scratch. The wounds included bruises of every size, incised wounds of almost every possible variety, and burns of every degree. The wounds were comparable to those inflicted by shell fire, but showed an even greater diversity. Their severity was mainly due to their cumulative effect, and within a few hours of their infliction the general condition of all the patients was very bad. The temperature usually rose early, owing to the great number of abscesses provoked by foreign bodies. The iron constituents of the mine usually penetrated furthest, but sometimes they could be felt under the skin, or seen projecting from the wounds. Owing to the jagged shape of the nails, the wounds were often very irregular and lacerated. Stones, as large as chestnuts, might be found buried just under the skin, and in one case a fragment of stone no larger than a grain of rice was found embedded under the skin of the penis. In the same case a splinter of wood, of the size of a pen, had entered just above the left clavicle, and had passed to the region of the right lower jaw, whence it was removed. On admission to hospital the patients complained of intolerable pain and were most restless. An injection of morphine was given at once, as well as 20 units of antitetanus serum. The wounds were then cleaned with benzene and alcohol, usually under a general anaesthetic (ether). Every visible and palpable foreign body was removed, the frayed edges of the wounds were trimmed, pockets formed by projectiles were opened up and irrigated with hydrogen peroxide, and the injured limbs were raised to reduce oedema. The wounds were dressed with sterile rice-powder and lint. The numerous abscesses which began to develop within twenty-four hours were incised under ethyl chloride spray. With one exception, the patients rapidly recovered.

CASUALTIES IN THE MEDICAL SERVICES.

Wounded.

Captain P. R. Woodhouse, R.A.M.C. (temporary).
Captain H. G. Peake, R.A.M.C. (temporary).
Lieutenant G. L. Kennedy, R.A.M.C. (temporary).

DEATHS AMONG SONS OF MEDICAL MEN.

Welstead, Harold Wilfrid, Sergeant Canadian Force, third son of Dr. F. Welstead, of Kimbolton House, Alleyn Park, West Dulwich, killed on April 4th, aged 28.

NOTES.

DR. JAMES GALLOWAY, senior physician to Charing Cross Hospital, has been appointed a consulting physician to His Majesty's forces in France with the rank of Colonel A.M.S.

The Society of Old Students of the Val-de-Grâce Military Hospital, Paris, held its general meeting on April 20th. M. Godart, Under Secretary of State, who presided, paid a tribute to the medical service of the French army. He said that since the beginning of the war 571 doctors and pharmacists had been killed in battle or had died of contagious diseases.

¹ *Wien. klin. Woch.*, February 10th, 1916.

Canada.

CANADIAN DEPARTMENT OF PUBLIC HEALTH.

A BRIEF debate recently took place in the House of Commons on the advisability of establishing a Canadian Department of Public Health. Dr. Michael Steele, member for South Perth, in the province of Ontario, in moving that the organization of a department of public health was desirable in order to conserve in the largest measure possible the physical welfare of the people of the Dominion, said that the various branches of public health were at present administered by several separate departments at Ottawa, and urged the advantage of centralization. The establishment of hospitals, charities, and similar matters was in the hands of the provincial governments in accordance with the British North America Act, but by this same Act the question of creating a public health department was left with the Federal Government, which already administered such branches of public health as quarantine, adulteration of foods, and inspection of meat. The Hon. J. D. Hazen, while admitting the advantage of centralizing the branches of public health work already in the hands of the Dominion Government, thought that serious consideration should be given to the question before matters now administered by the provincial governments were transferred to the Federal Government. He thought that as the war was the one great problem occupying the attention of the country at present the question of creating a public health department should be adjourned until a more opportune time, and this view prevailed.

ONTARIO MEDICAL ASSOCIATION.

The annual meeting of the Ontario Medical Association will take place this year at Toronto from May 30th to June 2nd, when several matters of great importance to the profession will be considered. Particular interest centres round the Commission on Medical Education, which recently concluded the taking of evidence. The profession maintained in evidence given before it that the practice of medicine should be limited to those who conformed to the educational requirements of the Ontario College of Physicians and Surgeons and passed the examinations prescribed by that body. It is understood that the report of the Commission will not come before the Legislature during the present session, and it is hoped at the forthcoming meeting of the association to obtain further expression of the views of the profession. Another question of particular interest is the Workmen's Compensation Act, which, in its present form, makes no adequate provision for the payment of the doctor's fee. This point was included in the questions taken up by a deputation representing the Trades and Labour Congress of Canada and the Ontario Labour Educational Association, which waited on the Ontario Government on March 17th last, with the request that the Workmen's Compensation Act should be so amended that hospitals would receive payment for first-aid services out of the funds provided under the Act. The address in medicine will be delivered by Dr. E. P. Joslin, of Boston, on the treatment of diabetes; Dr. DeWit Lewis, of Chicago, will give the address in surgery; and Dr. J. F. Percy, of Galesburg, Illinois, that in gynaecology. A session will be devoted to the problem of the returned soldier, from the medical, military, vocational, and economical standpoints. It is hoped that representatives from the military convalescent hospitals throughout the country will be present, and that it will be possible then to make arrangements for a uniform policy and procedure in such institutions.

FREE ANTITOXIN IN ONTARIO.

The Hon. J. W. Hanna, provincial secretary for the province of Ontario, recently stated that 300,000 soldiers had been inoculated with typhoid antitoxin supplied free of charge by the Ontario Government, and that the regular price of this amount of antitoxin would have been 225,000 dols. The new arrangement whereby various vaccines are also supplied free of charge to municipalities and physicians throughout the province came into force on February 1st last, and during that month, in addition to the typhoid antitoxin, vaccines to the value of 7,000 dols. were supplied free. The provincial Health Act has been amended to provide that any person who sells, publicly or

privately, any of the free vaccines supplied by the Government shall be liable to a fine of 100 dols. or three months' imprisonment.

India.

THE BOMBAY MEDICAL UNION.

At the annual general meeting, on February 26th, of the Bombay Medical Union—a body which consists of Indian medical men in the Bombay Presidency, many of whom also hold European qualifications—the President, Dr. B. S. Shroff, L.M. and S., delivered an address, in the course of which he dealt with three important points. The first was the readiness with which the Indian medical profession came to the aid of Government during the war. In Bombay alone 150 men volunteered for general service. The number of temporary commissions granted was stated to be 166, and of these 32 were given in England. Out of the total perhaps a dozen were Europeans or Eurasians. Dr. Shroff observed that, while all temporary lieutenants in the R.A.M.C. have been promoted to captain on completion of a year's service, those in the I.M.S. have not been thus promoted, and complained of "this invidious distinction in the treatment of Indians," but we understand that the permanent lieutenants in the I.M.S. have not been promoted, so that the disability is one which has affected all officers of the I.M.S., Europeans and Indians alike. The second point was the Bogus Medical Degrees Bill, designed to prevent the assumption and use by unqualified persons of titles implying qualification in Western medical science. Of this bill the President heartily approved, though it had met with much opposition from some educated Indians. As regards the advisability of Government recognition of the Yunani (Muselman) and Ayurvedic (Hindu) systems of medicine, the union, we gather, holds an open mind and reserves its opinion. The third important subject was the proposal to found a second medical college in Bombay. Such a college, the union suggests, might utilize the services of qualified Indians as an honorary staff, as in British hospitals. An independent medical college, it is urged, would enter into healthy rivalry with the Government medical school, and competition would stimulate progress in both institutions.

SANITATION IN BENGAL.

Mr. G. B. Williams, the Sanitary Engineer to the Government of Bengal and President of the local section of the Institution of Mechanical Engineers, has published, for the use of those who contemplate entering the new local service of municipal sanitary engineers, an excellent manual of the various branches of engineering which will come within their ken. It is replete with practical illustrations derived from a wide experience of conditions in Bengal. Discussing building construction, for example, Mr. Williams is not content with a few jejune rules as to desirable elevation, stability of foundations, etc. He assumes that the Indian sanitary inspector, in this sphere, as in others, will desire to exercise an improving influence. There is probably no country in the world, he observes, where a dissemination of the elementary principles of building construction is more desirable, and he adds: "It would, at all events, be hard to discover one where they are more consistently and universally disregarded. In respect of the choice of situation, the materials used, the design of the buildings, and the manner in which they are erected, it would be difficult to find anything much worse than many of the dwelling houses which disfigure the Indian towns and villages."

COCAINE IN CALCUTTA.

The evil progress of the drug habit in India is illustrated by some unpleasant particulars given in a lecture at the University Institute in Calcutta by Captain W. J. Clifford. He said the drug habit in Calcutta had great centres at Taltola and Chitpore. The two principal drugs used were, he said, opium and cocaine. It was usually found that opium was taken by Chinese and Obriahs, and cocaine by young lads. Captain Clifford appealed to those present not to leave all the action to societies, but to study the problems themselves, and make personal efforts to help. Captain Clifford said he had

spent ten years in social work in Calcutta, and on looking back over that period felt bound to come to the conclusion that both drinking and the drug habit were on the increase. Cocaine used to reach India from Germany and Austria.

ST. JOHN AMBULANCE AND RED CROSS WORK.

It has been announced that Sir C. P. Lukis, K.C.S.I., K.H.S., V.D., Director-General of the Indian Medical Service, and Chairman of the Executive Committee of the Indian Council, St. John Ambulance Association, has been appointed Commissioner for the St. John Ambulance Brigade Overseas within the empire of India. It is announced, further, that Lieutenant-Colonel Jay Gould, Indian Medical Service, is to proceed to Mesopotamia for duty in connexion with the formation of an advanced medical stores dépôt, and as the Red Cross representative of the Indian Council of the St. John Ambulance Association. Lieutenant-Colonel Swinton, Medical Storekeeper to Government, Calcutta, will succeed Lieutenant-Colonel Jay Gould as Deputy Director-General of the Indian Medical Service.

THE LADY HARDINGE MEDICAL COLLEGE.

In response to the appeal made by His Excellency the Viceroy at the opening on February 17th for further funds for the Lady Hardinge Medical College, the following generous donations have already been received: His Highness the Maharajah of Gwalior, Rs. 50,000; Her Highness the Begum of Bhopal, Rs. 20,000; and His Highness the Maharajah of Bikaner, Rs. 12,000.

MEDICAL INSPECTION OF SCHOOLS IN MADRAS.

The Madras Government has approved of the proposal of the Surgeon-General to entrust the work of supervising the medical inspection of schools opened by the corporation of Madras to Lieutenant-Colonel C. Donovan, I.M.S., and the payment to that officer of an honorarium of Rs. 200. The Director of Public Instruction has been requested to submit a copy of the report of the inspection, with such remarks as he may have to offer on the success of the experiment and on the question of extending the inspection to other educational institutions. The scheme for the inspection of schools for Europeans in the city of Madras will be allowed to lie over, pending the receipt and consideration of that report.

HOSPITALS IN INDIA.

In the course of an interesting address delivered on the occasion of the opening of a hospital at Tinnevely, Surgeon-General Bannerman explained the origin of hospitals in India and their development. He said that in the very old days of the Emperor Asoka there were a few hospitals under his auspices, but with the overthrow of his kingdom the hospitals disappeared from that time until the advent of the English. There were no hospitals at all when the English arrived and began to maintain soldiers and an army. A hospital to treat soldiers was built in Madras in 1664, and was the first institution of its kind in India. As hospitals for soldiers multiplied in the cantonments of India, the civil population also wished to avail itself of the treatment accorded therein, and the nucleus of the Madras General Hospital was built in 1772. Since then hospitals had spread throughout the length and breadth of the Presidency and of India. They arose out of the charity of the people, and he appealed to Indians to send the stream of their charity in this direction.

Ireland.

THE Irish Medical Secretary of the British Medical Association has addressed a letter to the Chief Secretary for Ireland drawing his attention to the increased motor taxes and their effect on medical practitioners. Mr. Birrell replied that the existing concession under which registered medical practitioners pay only half rates will extend to the new duties, and with regard to the inequality in the burden of taxation on the owners of old and of modern motor cars,

stated that this and all other relevant questions relating to the proposed increases in motor car licence duties would be considered before the Finance Bill dealing with this matter was introduced.

Further leave of absence for twelve months has been granted to Captain G. H. Russell, R.A.M.C., by the Committee of Management of the County Tipperary Infirmary, of which he was in charge before the war.

The Local Government Board has objected to the Rath-down board of guardians paying remuneration at the rate of four guineas a week to the locumtenent for Dr. Roan-tree, who has accepted a commission in the R.A.M.C. The Board considers that in all cases of prolonged temporary employment, the fixed salary of the officer, and not the fee (four guineas a week) for a short period, should be paid. The clerk stated that the difference between the two allowances was £73 8s. a year, and the guardians decided to communicate again with the Local Government Board.

Correspondence.

TIME IN SURGERY.

SIR,—In the midst of so much that engages our attention in connexion with the war it was refreshing in the issue of the JOURNAL of April 15th, p. 549, to have attention diverted to a practical subject in general surgery so cogent in its bearings on successful treatment as that contained in a short article by Mr. Rowlands on "Time in Surgery." It is with the hope of still further drawing attention to the great significance of such a factor in our work that I am tempted, with whatever weight I may possess, to endorse the sentiments so well and clearly expressed and advocated by him.

It is more particularly in connexion with abdominal surgery that I would emphasize adequacy in diagnosis and rapidity in operating. It is, I think, from America that the very pertinent saying emanated, "Get in as soon as possible and out as quickly as you can." No one who has taken the trouble to contrast the results of his abdominal work can have failed to note how marked is the difference in the after-effects upon a patient the interior of whose abdomen has received but a short exposure, and on one in whom such exposure has been prolonged. So impressive is the result that if only boldness and rapidity be adequately coupled with discretion and precaution the surgeon may be ready to endure the taunt of having "one eye on the clock and the other on the patient," a reflection, however, which, when cast, is usually the expression of ignorance and inexperience. Unfortunately, I cannot recall the actual time the operation took; but it is so essential a part of my practice to complete every "abdominal" well under the hour, that I know the case did not nearly extend to that period. But I give it as an example, because although some years have now elapsed since its occurrence, it impressed me at the time and served as a source of encouragement to me in my subsequent work. I had performed a partial gastrectomy for gastric carcinoma. The next morning on visiting my patient I found him reading the morning paper; he had had a comfortable night and felt quite well. Indeed, for all that he suffered, I might have done nothing more than have washed out his stomach on the previous day. Such results cannot possibly be obtained where an operation has necessitated the prolonged administration of an anaesthetic and entailed an amount of shock consequent on lengthy exposure and manipulation of the abdominal viscera.

Mr. Rowlands's three recommendations to ensure rapidity of operation are so tersely and clearly expressed that I should like to be allowed to conclude my letter by repeating them, for they not only constitute the essential requisites for the patient's immediate comfort and welfare, but they render more certain the surgeon's success.

1. By making all possible preparations and calculations beforehand.
2. By improving and simplifying the technique of the operation in every possible way.
3. By concentrating the full attention upon the operation.

—I am, etc.,

Glasgow, April 17th.

A. ERNEST MAYLARD.

JEJUNOSTOMY AND JEJUNO COLOSTOMY.

SIR.—Mr. Victor Bonney's achievement in saving by jejunostomy the lives of six patients with obstruction from pelvic or general peritonitis demands, and will receive, general recognition.

Yet the treatment by jejunostomy, however successful, is in my opinion far from ideal. Mr. Bonney says, in his letter of April 11th:

Mr. Handley suggests jejuno-colostomy and caecostomy, which is in effect a jejunostomy, with the difference that the drainage from the jejunum takes a course through a segment of the large intestine instead of reaching the exterior direct.

In reply to this let me quote Mr. Bonney himself (BRITISH MEDICAL JOURNAL, April 22nd, 1916) on jejunostomy:

At the end of a week or ten days closure of the jejunal opening has to be undertaken. As by this time the skin is very red and excoriated around the opening, the preparation of the operation area should be limited to the application of iodine solution on the table. It is no use attempting a paring operation: the whole opening must be removed, the bowel sutured end to end, and the abdominal wound separately closed.

In contrast to this severe procedure, a caecostomy will usually close spontaneously. Moreover, jejunostomy is an unphysiological operation, which is not consistent with the indefinite prolongation of life. It impairs the patient's nutrition, and must therefore lessen his resisting power, and in really severe infections his chance of recovery. I have not been able to verify Mr. Bonney's three zones of intestine: (a) A collapsed portion; (b) a portion above it much distended by gas but containing no fluid matter; (c) a portion above that, distended with gas and fluid matter, which must be drained by a jejunostomy. What I have observed is paralysis of the intestines, usually accompanied by collapse, up to a varying horizontal level in the abdomen. Above this level the small intestine is distended but not paralysed, and here, as I have shown, a physiologically complete and functionally active intestinal canal can be improvised.

I have compared this policy to that strategic retirement upwards to the first floor which is necessary when a house is invaded by a flood. I would compare Mr. Bonney's policy of jejunostomy to a retreat to the roof, involving unnecessary discomfort and bringing dangers of its own.—I am etc.,

London, W., April 24th.

W. SAMPSON HANDLEY.

THE INCREASED MOTOR LICENCES.

SIR.—May I be allowed, on behalf of the very large number of medical owners of Ford cars, briefly to criticize the article by Mr. H. Massac Buist in your issue of April 15th, 1916? He recognizes, as must every one, that the new motor taxes are so arranged that Ford owners will stand in a class apart. They will pay an annual tax of 18 guineas on a car which cost them (in all cases except the few which have been bought since the importation duties increased the price) from £115 to £125.

When this is compared with the tax paid by the owner of the average English car, say a Sunbeam or a Vulcan, who will pay only 8 guineas on a car which costs £400 to £500, the difference is so startling that Mr. Buist feels bound to offer some explanation. As all such imports are now stopped, it cannot be said that the intention is to prevent the public from buying American cars; it is only the present owners who are sacrificed, so the explanation offered is that the new tax will assist the mechanical development of the motor. The old "long-stroke *versus* short-stroke" controversy is raked up; but let us look the facts in the face. The Ford car is cheaper to buy, and cheaper to run, than any English car of similar size, power, and degree of comfort. Why? Not because the American has stuck to the same relatively large bore all the time, and twiddled his thumbs, as Mr. Buist implies; but because he has found that with the short-stroke, low-compression engine, though theoretically less efficient, there is so much less stress upon the parts of the engine and chassis that it is possible to turn out a car with much lighter parts than with the long-stroke, high-compression engine.

So much so, that the slight theoretical relative inefficiency is much more than compensated by the lightness

of the car both in transmission and framework. This also makes for cheapness of manufacture, which is assisted by standardization, a word which is not yet in the vocabulary of the English maker. To mention a few of the chief reasons why Fords are so much cheaper to run: They are (1) economical of petrol, because they are so light that the slightly less efficient engine is rarely working at more than a quarter throttle; (2) economical of tyres, for the same reason, and also because the lower compression gives less "kick"; (3) economical of oil, because of the efficient yet cheap oiling system; (4) immensely more economical in repairs, because of the standardization and accessibility of parts, which ensure that any part can be replaced easily, at a moment's notice, anywhere. Furthermore, Mr. Buist states that Americans are beginning to copy from us the long-stroke motor. This is merely a question of the adoption or rejection of a principle of debatable value, which has been recognized from the beginnings of motor engineering—for example, the original Ford model had a long-stroke (horizontally-opposed) engine. But when he says that "this type of motor has contributed nothing to the world's knowledge," etc., he is, in my opinion, mistaken, for if any type has been a pioneer this one has. Its system of detachable cylinder-head and crank-chamber base, of transmission, of suspension, of steering, of ignition, of lubrication, are every one original, and have many of them since been copied by English makers. The Ford owner did not buy his car because he was a fool, but because he wished to get the best value for his money; and it seems hard that he should now have to pay so very much more than his share of the motor taxes just because he exercised his common sense and powers of observation.

In conclusion, I think I shall be fairly representing the medical Ford owners when I say that we do not object to the tax because of its size. We only pay half what the layman pays, and in any case it all goes towards killing Germans. But we do object to having to pay more than twice as much tax as another man who could afford to buy a car which cost four times as much as ours.—I am, etc.,

York, April 15th.

J. C. LYTH, M.B.

SIR.—Mr. Massac Buist says Mr. McKenna is treating the profession with fairness and understanding! If so, why should a doctor have to pay nine guineas tax on a Ford car whilst tradesmen, poultry and rabbit merchants, etc., drive Ford cars and lorries and pay no tax? Surely "utility" motor vehicles should bear the burden of taxation as well as the unfortunate medical man.—I am, etc.,

North Molton, April 19th.

F. C. J. BAKER.

SIR.—I think Mr. Massac Buist's article on motor cars for medical men should not be allowed to pass without comment.

The majority of the profession are not men of large capital, and it is therefore in most cases compulsory to buy the cheapest car that will suit their purpose, hence many like myself own American cars.

It so happens that I am able to make an illustrative comparison. A colleague who had more capital to lay out has

A foreign-made 12 to 14-h.p. car, cost £350; I have a Studebaker 20-h.p. car, cost £200.

In one case £350 goes out of the country, in the other £200 goes out of the country.

Our running expenses are practically the same. His tax was £2 2s., is now £4 4s.; mine was £3 3s., is now £9 9s.

Why should I be penalized for keeping £150 in the country?—I am, etc.,

Epsom, April 25th.

E. C. DANIEL.

DR. HERBERT WILLIAMS, Medical Officer of the Port of London, left estate of the value of £7,363.

THE fourth annual meeting of the American Association of Anaesthetists will be held on June 12th at Detroit, Michigan. Among the communications promised is a report by Dr. George W. Crile of an experimental research into nitrous oxide and ether, with special reference to (a) certain effects on the organs of the body, (b) certain relations to normal sleep and certain relations to infection.

Universities and Colleges.

UNIVERSITY OF GLASGOW.

At the graduation ceremony on April 25th the following were among the degrees conferred:

M.D.—Dagmar Florence Curiel, M.B., Ch.B.
Ch.M.—R. B. Carshaw (with high commendation).

The Bellahouston gold medal for eminent merit in thesis for M.D., and the Struthers gold medal and prize of £20 for research in anatomy has been awarded to Dr. Matthew Young. Mr. Kenneth J. T. Wilson has won the Asher Asher gold medal for laryngology and rhinology.

UNIVERSITY OF DUBLIN.

On Wednesday, April 19th, in the theatre of Trinity College, the degrees of M.B., B.Ch., and B.A.O. were conferred upon:

Eileen G. Gwynn and Millicent Hamilton-Johnstone.

NATIONAL UNIVERSITY OF IRELAND.

The degrees of M.B., B.Ch., and B.A.O. were conferred, on April 19th, upon the following:

J. J. A. O'Connor, J. P. Moran, M. O'Sullivan, A. Ryan, Eileen M. E. Bonchier-Hayes, L. Blake, T. J. Bourke, J. C. Carroll, M. A. Clements, E. P. Coyne, J. Curtin, Annie Doherty, Anne Donley, J. Dwan, D. Hughes, W. M. Morris, P. Murphy, P. O'Connell, D. V. O'Malley, H. E. Owens, J. Jollard.

CONJOINT BOARD IN ENGLAND.

The following candidates have been approved at the examinations indicated:

FIRST COLLEGE, Part I (Chemistry) and Part II (Physics).—D. R. Ainsworth, M. L. Barst, A. H. Bean, H. Beger, W. R. B. Booth, H. L. Bowen, P. C. Brett, H. S. Chadwick, J. W. Chadwick, G. W. Cheater, J. J. Coghlan, R. G. Dansie, H. S. Davies, R. M. Ealand, M. N. Eldin, M. A. K. El Hennawy, R. A. Fanous, J. H. France, W. Gothe, M. Hall, R. R. Hallsall, T. H. J. Hargreaves, S. Hazeldine, D. Hoole, A. R. Jones, P. T. Jones, J. D. Kelson, R. O. Lahmann, M. H. Lichtenstein, R. C. Lightwood, J. E. C. McColl, Elizabeth E. McCulloch, J. A. Mackay-Ross, E. D. Macmillan, O. E. J. McOustra, D. Maximos, H. Nosrat, Madeleine P. Parker, L. P. Phillips, H. C. Powell, E. L. J. Reason, J. J. Redelinghuys, T. R. Rees, B. R. Reynolds, Constance E. M. Ridout, Mary J. Ripley, H. L. Sackett, M. Sidky, S. Snelson, J. Sonenberg-Berson, J. Spira, E. H. Strange, H. J. V. Sutton, J. C. Twomey, J. O. M. Wade, J. G. Walker, A. C. Z. Wijayarathne, T. Williams, S. B. Winnick, C. F. Young.
Part III (Elementary Biology).—C. S. Anderson, H. B. Archer, D. A. R. Aufraque, G. F. Baxter, Ivy C. Beach, A. H. Bean, Margaret G. Best, I. Blain, H. B. Beger, H. B. Bramley, E. Brazao, P. C. Brett, Mary Burfield, K. E. Bury, E. J. J. Buyc, L. E. K. Carroll, J. W. Chadwick, G. W. Cheater, Marion C. V. Clarke, Alice M. Clegg, D. H. Cockell, J. J. Coghlan, G. C. W. Curson, R. G. Dausie, H. S. Davies, T. Draper, H. Dryver, R. G. Flintan, H. B. Flocks, W. F. Gawne, B. Goldfoot, W. Göthe, M. Hall, H. J. Henderson, J. Herbert, D. Hoole, F. J. Janch, H. Jennings, S. G. Jones, T. T. Jones, H. D. Kelf, J. D. Kelson, H. A. C. Kne, Agnes Knowles, F. Kuoyle, G. V. C. Last, M. H. Lichtenstein, R. C. Lightwood, H. D. Llewellyn, J. A. Mackay-Ross, C. C. MacKinnon, O. E. J. McOustra, C. B. Martin, A. E. Mills, J. A. Morton, D. J. O'Meara, L. P. Phillips, H. C. Powell, Mary C. Pridcaux, T. R. Rees, B. R. Reynolds, Constance E. M. Ridout, Mary J. Ripley, W. S. Roberts, Edith M. Rooke, Margaret C. Seace, R. C. Shaw, S. Snelson, E. H. Strange, H. J. V. Sutton, J. G. Taft, T. B. Thomas, N. V. Walsworth, W. Walsham, J. S. White, Cathrine M. Williams, Greta I. Yeoman.
Part IV (Practical Pharmacy).—A. M. Ahmad, A. E. Bendix, I. R. R. Brogen, G. E. Burton, H. A. Chodak, A. B. Dummer, J. R. K. Fenning, G. H. Fitzgerald, P. C. A. Friih, T. H. Gunewardene, N. H. Harrison, S. G. Harrison, W. S. Herman, D. L. Lees, H. S. N. Menko, F. M. Mesely, W. P. Nelson, A. L. Packham, D. F. Pantou, W. H. A. Pratt, J. S. Ranson, C. N. Ratcliffe, J. J. Redelinghuys, Florence M. Rhodes, A. H. Richardson, N. F. Smith, C. H. Terry, W. J. Walters, H. P. Warren, I. G. Williams, S. B. Winnick, G. Winter, S. A. Withers, A. F. Wyatt.

SECOND COLLEGE (Anatomy and Physiology).—Y. Abdel-Messiah, A. Abelson, N. D. Ball, Margarita S. Barfield, J. S. Bernuchwitz, J. A. A. Bouie, O. H. Brown, N. C. Cooper, A. N. M. Davidson, E. S. Davies, F. S. Browe, A. Eidinow, F. K. Escritt, F. A. Evans, P. Faraci, J. E. Fishburn, J. O'F. Fletcher, R. Gainsborough, E. S. Gawne, Nannie Gibson, C. Gill-Carey, P. E. Gorst, L. Handy, H. W. Hill, T. E. E. Hillier, A. B. Isaacs, G. H. Johnson, E. F. Kerby, H. H. Khan, F. W. Lemarchand, P. Lloyd-Williams, D. McClean, J. J. M. Macdonnell, C. Moffatt, J. S. Moore, A. R. Neckles, C. Nickory, A. G. Ord, L. D. Porteous, P. G. Quinton, W. E. Quinton, D. H. Richards, E. Sanders, M. C. Sarkies, H. M. Savery, W. M. Savery, E. A. Sparks, V. A. T. Spang, G. McK. Thomas, J. H. Tighe, B. M. Tonkin, W. S. Tunbridge, J. Eliza de Villiers van der Merwe, E. F. Wheeler, H. E. Williams, R. Wolff.

* Passed in Part I only.

† Passed in Part II only.

CONJOINT BOARD IN IRELAND.

The following candidates have been approved at the examinations indicated:

FIRST PROFESSIONAL.—L. S. Clifford, J. L. Courtney, A. E. Dempsey, J. A. Flynn, J. E. Hudson, P. Kelly, T. J. Kerr, C. Kidd, J. F. Lyne, J. J. Lee, W. H. Mosbey, P. J. Osborne, W. P. Reynolds, T. J. Ryan.
SECOND PROFESSIONAL.—M. Barden, J. Cockburn, B. Epstein, S. J. Halpin, B. F. Homan, J. McAleer, B. T. McMahon, R. H. Newman, J. Pousner, J. Power.

THIRD PROFESSIONAL.—J. J. Brennan, S. J. Healy, R. J. Bassett, J. P. Brennan, J. J. Campbell, E. M. Lloyd Dodd, D. J. M. O'Flanagan, L. Finnegan, J. A. Hamilton, F. B. Harrison, J. K. Holland, D. B. McNairy, J. A. McSweeney, B. F. O'Reilly, J. G. Smyth, D. E. Young.
FINAL.—J. F. Coffey, K. Elmes, H. Gerrard, J. Magner, C. A. R. McCay, D. McCormack, J. A. McKinnon, A. J. Neilan, J. P. Pegum, G. C. L. Woodroffe.
* With honours.

SOCIETY OF APOTHECARIES OF LONDON.

The following candidates have been approved in the subjects indicated:

SURGERY.—*H. Archer, *E. V. Beaumont, M. J. Byrnes, *E. N. Glover, *E. O. Morrison.
MEDICINE.—M. J. Byrnes, M. Dwyer.
FORENSIC MEDICINE.—J. S. Bhajiwalla, H. N. D. Richards, G. G. Higby, C. Segal, M. B. M. Tweed, L. Zarchi.
MIDWIFERY.—C. P. Barber, T. F. Reason, I. H. Syed.
* Section I. † Section II.

The diploma of the Society was granted to Messrs. E. V. Beaumont, M. J. Byrnes, and E. N. Glover.

Obituary.

WILLIAM ALLAN JAMIESON, M.D., LL.D., F.R.C.P.,

CONSULTING PHYSICIAN FOR DISEASES OF THE SKIN,
EDINBURGH ROYAL INFIRMARY.

DR. ALLAN JAMIESON died at his house in Edinburgh on April 21st after an illness of some months. We are indebted to a colleague for the following admirable account of his life and appreciation of his character.

Allan Jamieson was a son of the manse, his father being minister of the parish of Dregghorn, in Ayrshire. He was born in 1839, and received his early education at Irvine Academy, of which school he was equal Dux in 1856. Fifty-two years later, when he was President of the College of Physicians, he and his fellow Dux renewed their acquaintance. After a few months—not very happy ones—spent as a clerk in an insurance office, he matriculated at the University of Glasgow, where he laid the foundation of that love of Greek and the Grecians which endured all his life. He was an enthusiastic member of the Hellenic Society, and spent some of his leisure after his retirement from the infirmary in visiting and revisiting Greece.

After a couple of years in the arts classes, glowing accounts of Australia from some relatives tempted him to cross the seas, and he began work on a sheep run in Queensland. The life was not congenial to him, but the youth did not like to complain to his father about it. One Sunday afternoon he confided his troubles to a lady relative, and it was on her advice that he wrote home his desire to return and study medicine.

The autumn of 1861 saw him a student at Edinburgh, a little older than most of his fellows, determined to justify his action. He worked hard, and graduated in 1865 as the first man of the year. His first experience in practice was at Preston, where he acted as assistant to a relative for two years. He then migrated to Berwick, where he bought a practice. Here began the friendship with the MacLagan family which was to have such an influence on his career. After nine useful years in Berwick he moved to Edinburgh, and put up his plate in Rutland Street. It was on the advice of Douglas MacLagan and Argyll Robertson that he decided to turn his attention to dermatology. MacLagan taught what dermatology was taught in Edinburgh in those days, and therefore his advice was all the more disinterested. Jamieson took the advice, abandoned his growing practice, and went to Vienna to study his subject under Hebra. On his return he commenced practice as a dermatologist, but for long it was an uphill struggle. Specialists, especially skin specialists, were not popular in those days, and for long he knocked at the doors of the infirmary in vain. He attributed his ultimate success to his having cured a very influential manager of eczema of the legs.

At first he had an out-patient department only, and it was in this that he developed the famous Saturday clinics, which grew so popular with the students that the large Clinical Theatre was often insufficient to hold those who desired to attend. He was a modest man, but he was proud of the fact that he taught dermatology to larger classes than any other English-speaking teacher.

For many years these clinics were his only opportunity of teaching, but his success gradually wore down opposition, and his career was crowned by his appointment as lecturer on dermatology in the university in 1897. He retired from active duty on the infirmary staff in 1906, but till a few months ago, when death had obviously laid its hand on his shoulder, he visited the department regularly once a week to see anything of interest and to give his successors the benefit of his experience, and every now and again a clinic to the students.

He kept up his interest in dermatology to the last, was always on the alert for advances in treatment, and, on his deathbed, was making notes for use in the Critical Summaries he used to write regularly in the *Edinburgh Medical Journal*.

His textbook, published in 1888, was at first very successful and rapidly ran to a fourth edition. The English in which it is written is a pleasure to read and the descriptions of the cases are models, but for some reason it fell out of favour, possibly because it was too big for some readers and too small for others.

He had two recreations—archery and cycling. Born in the year of the Eglinton tournament, he was brought up in a district where archery is endemic, and he won the Kilwinning Papingo in 1858. So devoted was he to archery that he took his bow with him to Australia, and with the same bow his son won the King's Prize in 1904. Jamieson himself won the Queen's Prize on two occasions, and on the breast of his full uniform as Surgeon to the King's Body-Guard for Scotland (The Royal Archers) he wore a star indicating that he had won over fifty prizes in their competitions. Cycling he took to late in life, but he became an enthusiastic tourist and spent many of his holidays cycling in France. Only last summer he might often be seen taking a spin before breakfast.

He took little part in affairs, but he served the usual period of two years as President of the Royal College of Physicians with dignity and acceptance; he was a devoted vestryman in St. John's Episcopal Church, and for the last eight years of his life he was an active governor of Donaldson's Hospital.

He wore the Royal Household Medal (1897), and the Coronation Medal (1911), and was a Knight of Grace of the Order of St. John of Jerusalem, in which Order he took a deep interest, and presented a window for the crypt of the chapel in Clerkenwell.

His personal qualities I, who was closely associated with him for twenty-four years, would sum up in a word. He was a typical Scottish gentleman. May the earth rest lightly on his ashes. N. W.

Dr. R. C. MACLAGAN (Edinburgh) writes: It is more than half a century since I made the personal acquaintance of my distant relation, William Allan Jamieson. He had just returned from Australia, though a less likely man to round up a mob of horses would be somewhat difficult to conceive. But a visit to Australia seeming to him necessary in his father's interests, he carried it out even to the flourishing of a stock whip. He entered himself as a student of medicine at the University of Edinburgh and began his studies with enthusiasm and a whole-hearted determination to make the best of his opportunities, choosing his friends among others—I do not include myself—as much devoted to the same study. I saw a great deal of him at this time, and in our evening walks and week-end talks came to the conclusion that if devotion to his profession meant success, Jamieson was marked out for it. One other live interest we had to which Jamieson was as much addicted as a relaxation as he was to medicine as work—archery. Subsequently he became a member of the Royal Company, and there took more than his fair proportion of prizes, attending also with regularity the national meetings. In the earlier days the centre of attraction was the Kilwinning meeting, at which his attention to detail to make his shooting effective was as evident as in the study of his profession. We attended together the last competition for the Kilwinning Papingo, and I have a clear recollection of Jamieson's appearance topped with the large Scotch bonnet, coloured in rings like a target, the visible token of a Kilwinning archer. When he took up dermatology as a speciality his success was marked, the absence of a genial sick-room manner not being so potent in the consulting-room as at the

bedside. Of strong convictions himself, he was apt to give the dicta of acknowledged authorities more credit than was necessary. For a long period he took daily a fixed quantity of Metchnikoff's preparation of milk, in the firm belief that milk so treated was a much more valuable aid to health than the unsophisticated fluid. He was a determined cyclist and much enjoyed a holiday in not too distant foreign parts, and made frequent excursions to the Continent, where the scenery and the daily record of his cyclometer both received consideration. I must not forget his fondness for the study of Greek, which first found development when a student of the Humanities at Glasgow. He enjoyed reading it, and his liking for it took him more than once to the classic shores of Greece and Troy. He had also a good working acquaintance with French and German. He was a successful man as a result of determination and good ability, and as reliable a friend and medical attendant as any one need wish for.

THOMAS COLCOTT FOX, M.B., F.R.C.P.,

PHYSICIAN FOR DISEASES OF THE SKIN, WESTMINSTER HOSPITAL.

Dr. COLCOTT FOX, who died on April 11th, was a son of Dr. L. O. Fox of Broughton, Hants, where he was born in 1849. He was educated at University College School, London, and at the College, from which he went to Peterhouse, Cambridge, as Natural Science Scholar. After taking his degree in Arts at Cambridge he returned to University College as a student of medicine. He obtained the diploma of M.R.C.S. in 1876 and graduated M.B. at the University of London in the same year. He became M.R.C.P. Lond. in 1883, and was elected a Fellow in 1892.

Dr. Colcott Fox was a younger brother of Tilbury Fox, and this doubtless determined his choice of dermatology as a speciality. After holding for some time the post of medical superintendent of the Fulham Small-pox Hospital, he was appointed physician for diseases of the skin at Westminster Hospital; he was also visiting dermatologist to the ringworm schools of the Metropolitan Asylums Board. He was at one time physician to the Victoria Hospital for Children, to the St. George and St. James's Dispensary, and to the Skin Department of the Paddington Green Children's Hospital. Dr. Colcott Fox collaborated with his brother in an *Epitome of Skin Diseases*, which ran through several editions; he was also the author of numerous contributions to medical literature, mainly on diseases of the skin, published in the *British Journal of Dermatology* and the *Transactions* of various societies.

In 1890 he married Ida Mary, daughter of Mr. J. S. Hay-Newton of Newton Hall, Gifford, N.B. He was disabled by illness while still in the full tide of active professional work, and spent the last years of his life in retirement.

Though perhaps somewhat overshadowed by the fame of his distinguished brother, Colcott Fox won for himself a considerable reputation. He was a recognized authority on ringworm, in the treatment of which he had an exceptionally large experience. His modesty and dislike of publicity, however, stood in the way of his securing any great measure of what is popularly regarded as success. But he achieved something much better and greater by gaining the respect of his professional brethren and the affection of all who knew him.

In his early days Dr. Fox, who was fond of games and sports, played cricket for Hampshire and the Incogniti.

JAMES HARPER, M.D. LOND.,

A.D.M.S. 1ST LONDON DIVISION.

By the death of Dr. James Harper, of 25, Rosary Gardens, S.W., the profession has lost a very able and notable member, and South Kensington one of its most prominent and trusted practitioners.

James Harper was born at Leith in 1857, but his father, a medical practitioner, very shortly afterwards moved to Windsor, where Harper's boyhood was spent. He was educated at Amersham Hall School, Reading, and having matriculated at the University of London, he entered as a student at St. Bartholomew's Hospital. His career there was very successful; from the first he was a marked man, for his great ability and industry were associated with such a robustness of character and also such a merry humour that all who knew him were drawn to him and

were helped by his example. He passed his medical examinations with ease, took honours in Obstetric Medicine at the Final M.B. Examination in 1881, and in 1883 graduated M.D.Lond. He filled the office of house-surgeon at St. Bartholomew's, and afterwards was successively house-physician to the Royal Hospital for Diseases of the Chest and resident medical officer and anaesthetist to the Hospital for Women, Chelsea.

Having thus fitted himself for practice, he took a house in South Kensington, and quickly gathered about him a large practice. His patients highly valued him, for his medical knowledge and experience were combined with such kindness of heart and strong common sense that they found him to be not only a wise medical adviser, but a strong and true friend. The high esteem in which he was held was strikingly shown by the large gathering of mourners who attended the funeral service.

But Harper's activities were not limited by the demands of his practice, and for many years he devoted a good deal of time to the medical corps of the Volunteers. Joining the Volunteer M.S.C. in 1894, he in due course became captain, major, and then lieutenant-colonel in that force. In April, 1908, he was appointed to the 3rd London Field Ambulance, and in 1912 was promoted to the rank of colonel and made A.D.M.S. 1st London Division. He was intensely interested in his military duties, and threw himself into the work of training his ambulance units with great enthusiasm and success. At the outbreak of the war he laid aside his practice and devoted himself wholly to his work as A.D.M.S.; he only gave it up when he was a broken man, too ill to do it. He was secretary of the Army, Navy, and Ambulance Section of the annual meeting of the British Medical Association held at Ipswich in 1900, and Vice-President of the Section in 1910 when it met in London.

Harper was a man of fine presence, and in his physical vigour as well as in his strength of character, tempered by a deeply religious spirit, he showed the influence of his Scottish parentage. About four years ago he underwent a serious operation, and although he recovered and resumed his practice, his work afterwards was often carried out under difficulty. Early this year signs of increasing illness showed themselves, and, in spite of rest and the efforts of trusted and attached medical friends, his weakness increased, and he passed away on March 24th. None who ever knew James Harper will ever forget him. His elevation of character placed him quite above the ordinary run of men. His perfect integrity made him a tower of strength.

Dr. Harper was twice married—first to Miss Helen Watson Brand, daughter of the late Alexander Brand, U.S. Consul, Aberdeen, and later to Miss Annette Ellen Grant, youngest daughter of the late Admiral Henry Duncan Grant, C.B. He left three sons and two daughters; one son was lost in the war, in the explosion of the *Princess Irene*.

COLIN G. CAMPBELL, L.R.C.P.I., M.R.C.S.,

SOUTHPORT.

In less strenuous times the recent death of Dr. Colin Campbell of Southport would have attracted more attention from the members of the British Medical Association, in the welfare of which he always took a warm and often lively interest. He was born in Dublin on April 24th, 1852, and died in Southport on March 10th, 1916. He was thus in the sixty-fourth year of a busy life in which there had been many striking episodes.

He obtained his medical qualifications in 1874, but prior to that he had much medical and surgical experience in the Franco-German war of 1870-71. Like practically every Irishman of that day, his sympathies were with the French, and he put his sympathies into action by joining the Irish ambulance, with which he served throughout the war, and for some time was in charge of a clearing hospital. For his services he received the French Bronze Cross, and was described in his discharge paper as assistant surgeon. He always took an active interest in military matters, and during the Boer war was mainly instrumental in raising a volunteer company in Saddleworth, in which he then practised. In Southport he was one of the founders of the National Reserve, and a short time before his death he was a civil surgeon to the forces in Southport.

He was for some years in practice in Tamworth; in 1882 he went to Saddleworth, where he remained till 1902, and in that year he removed to Southport, where he carried on the treatment of lung diseases until his death. He often obtained marked success in the treatment of respiratory affections by means of medicinal injections through the larynx. He was not widely followed in this method of treatment, possibly because it required an amount of dexterity which very few could acquire. He frequently injected half a pint or more of a preparation of iodo into the lungs at one sitting. He was able to direct this fluid into any part of either lung by means of a chair which he invented, and in which the patient could be suddenly inverted to either side. The writer has not an unpleasant recollection of sitting in the chair when, without the slightest warning from the operator, he found his head pointing to the ground and his lower extremities in the opposite direction. Dr. Colin Campbell's successes in treatment were all the more marked when it is taken into account that nearly all his cases had been failures in the hands of many others.

With the exception of one year he was a member of the British Medical Association from 1878 till his death. He was on the Council of the Lancashire and Cheshire Branch from 1895 to 1898, and represented that Branch on the old Parliamentary Bills Committee from 1899 to 1901, and on the Council of the Association from 1900 to 1903. He was vice-president of the Section of Industrial Hygiene and Diseases of Occupation, 1902.

Colin Campbell was an excellent speaker, and his clear, clean-cut language always commanded attention in any audience. He was a reformer of a moderate type, and when he thought the more active members of that class were carrying the Association beyond the true interests of the profession, he ceased his former interests in the propaganda. He was a great friend and admirer of the late Lord Ilkeston (Sir Walter Foster), and his long and intimate friendship with Mr. Walter Whitehead only terminated with the death of the latter. He was a most genial and warm-hearted man, endowed with a large measure of wit and humour. After some unfortunate experiences at the hands of the dermatologists he wittily described them as superficialists, and his description of Donnybrook Fair was exceedingly humorous.

He leaves a widow, son, and daughter to mourn his loss. The son is in the R.A.M.C. and is at present serving in France.

Colin Campbell will always remain a green spot in the memory of all who knew him.

HENRY COLLEY MARCH, M.D.,

FORMERLY SURGEON TO THE ROCHDALE INFIRMARY.

DR. HENRY COLLEY MARCH, J.P., died at his residence in Portesham, Devonshire, on February 15th, at the age of 78. He was well known in Rochdale, Lancashire, where he had been in practice for over thirty years, but he was compelled to leave that town in 1896 on account of ill health, and to live in a southern part of England, visiting the Pyrenees in winter. His father was the Rev. Henry March, a Congregational minister at Newbury, well known in the south of England. Henry Colley March studied medicine at St. Thomas's Hospital, holding the appointment of resident accoucheur after taking the diplomas of M.R.C.S., L.M., and L.S.A. in 1860. He took honours in anatomy and physiology in the first M.B. examination of the University of London in the same year, and received the degree of M.D. in 1867. After holding a resident appointment at Reading Dispensary, Dr. March went to Rochdale, where his brother had been in practice as a solicitor since 1852. Dr. March became surgeon to the Rochdale Infirmary and soon acquired an extensive practice. At the same time he took an active share in scientific investigations, being among the earliest authorities who undertook in earnest the investigation of the archaeology and geology of the Rochdale hills. Dr. March made a fine collection of neolithic flint implements from the district, which he presented to the town of Rochdale on his retirement from practice. A Fellow of the Society of Antiquaries, he was one of the founders of the Rochdale Literary and Scientific Society and president from 1891 to 1893. He was also a member of the Archaeological Institute of Great

Britain and Ireland, and after his retirement he joined the Dorset Natural History and Antiquarian Field Club. Dr. March was also a prolific writer on archaeology and philology, and discussed metaphysical questions, discoursing on "Life and Death" in South Place Chapel, Finsbury. Though very active in practice, Dr. March wrote but little on medical subjects, but at the Liverpool meeting of the Association, 1883, he read, in the Section of Surgery, a paper on "Resection of the ankle by an artificial Pott's fracture," based on a remarkable case under his care in the Rochdale Infirmary; it is to be found in the JOURNAL, 1883, vol. ii, p. 907.

He leaves a widow, who is also known in the literary world; a son, Dr. Geoffrey Colley March, in practice in Southampton; and a daughter.

THE LATE MR. ARTHUR E. BARKER.

SIR THOMAS BARLOW writes:

As Mr. Arthur Barker and I were colleagues for thirty years, I should like to be permitted to add a few words of personal reminiscence to your obituary notice. The remarkable developments of surgery during our generation in respect of abdominal disease as well as of lesions of the chest and of the nervous system have greatly increased the clinical and pathological interest of hospital consultations between physicians and surgeons. This was well illustrated in respect of Barker's early work on brain surgery in relation to ear disease and otherwise, and in his pioneer experiments on the surgery of the kidney and of the stomach, and, later still, in his study of spinal anaesthesia.

He was most painstaking in summarizing the results of the investigations of his predecessors, but he brought to his task a technique all his own and a critical judgement and infinite patience in attention to every practical detail which inspired his colleagues with great confidence.

He had a facile pencil, and was a clever carpenter, and was skilful in making his own models. He was an example to all of us in devotion to duty. With him the hospital always came first both night and day, and he was kindness itself to the patients, and secured the greatest efficiency from his residents, dressers and nurses.

As a clinical teacher he gave considerable—perhaps excessive—attention to the technique of surgery. But this was essentially his *métier*, and it eventuated in his circle of influence being especially that of senior and post-graduate students, who, long after they had left the hospital, referred to him for guidance and encouragement from all parts of the world. He was uniformly courteous to his fellow-workers, and singularly fair in his references to his contemporaries.

The general public has taken little account of the great sacrifices made by many medical men in the present war. Circumstances which I need not specify led to my becoming aware of Barker's absolute readiness to go anywhere and do whatever he was told without a moment's thought of his own comfort or advantage. He spoke of his experience at Netley in the simple, unquestioning discharge of duty as the time of his life, and whilst there he was in splendid physical condition.

When he was asked to go to Malta he did not hesitate, and a few days before he died he wrote to me from Salonica full of enthusiasm in his work, which was only clouded by his grave anxiety about the health of his soldier son.

In years to come I believe that his important contributions to surgical science will more and more secure their just recognition, and that his unfaltering devotion to duty and his loyalty to the highest ideals of conduct and life will remain an abiding memory to those who worked with him and knew him well.

A SURGICAL COLLEAGUE writes: The retirement of Arthur Barker from the active staff of University College Hospital last year, when he attained the age of 65, was naturally not felt as fully as would have been the case in normal times, as he had already been absent on active service for several months, but now the news of his untimely death at Salonica makes us realize that his activities in the hospital and medical school are really things of the past. Only those who were closely associated with him in the hospital know how entirely his whole heart

and soul were in his work, and there can be no doubt that in many directions British surgery owes more to Barker than is perhaps generally recognized. He possessed the faculty of quickly appreciating the value of any new discovery or development in surgery, and this, coupled with an unusual degree of manual dexterity and a striking aptitude in the elaboration of practical details, enabled him quickly to adopt such new developments and often to improve them in many important respects. Thus, while it cannot be claimed that Barker originated any important advance in surgical treatment, it may certainly be claimed that in several instances he brought new methods to the notice of British surgeons, and was largely responsible for elaborating the practical details upon which the success of the procedures depended. For instance, Barker's name would be deserving of memory, if for no other reason, on account of the prominent part which he took in introducing the use of spinal analgesia in this country. The papers which he published on this subject are a striking example of most painstaking clinical work. Every detail was so fully described that the majority of those who now employ the method will willingly own their indebtedness to Barker's work, and a few years ago surgeons and anaesthetists from all parts of the country came to obtain their first experience of spinal analgesia at his hands. Barker's final work in this direction followed on several years of the keenest interest in the whole subject of local and regional anaesthesia—a subject in which want of attention to a detail may so readily convert a success into a failure.

Throughout the whole of his hospital career Barker always had something new in hand; and, to mention only a few of his many activities, one remembers how at one time he was studying and elaborating the newer aseptic methods, at another keenly interested in the treatment of tuberculous joints and spinal abscesses, and at another taking a prominent part in promoting the surgery of the abdomen, especially in connexion with gastro-enterostomy and enterectomy. A reference to the surgical literature of the last thirty years will bring to light not a few proofs of Barker's share in the trend of surgical advance. The present position of abdominal surgery makes it difficult to remember that thirty years ago it was almost non-existent. It was at that time, in 1886, that Barker published what he believed to be the first successful case of gastro-enterostomy in this country, and it is interesting to note that in that year at University College Hospital the abdomen was only opened on seven occasions, exclusive of operations for hernia, and the ovariectomies performed in the gynaecological department. Not many men would show a better record of sustained activity for a period of nearly forty years.

As a teacher Barker was at his best when discussing and explaining some subject with which at the time he was particularly interested, and thus he was most attractive to really keen senior men. Such specialized and advanced teaching has its own value and takes its proper place side by side with that of a more general and ordinary kind. Those who now carry on the surgical work of the hospital unite in feeling that Barker's retirement, so soon to be followed by his death, leaves a gap which cannot easily be filled.

THE death occurred on April 13th of Dr. DAVID HADDEN, of Wexford. Dr. Hadden, who was 39 years of age, was the son of the late Dr. Hadden, infirmary surgeon, Wexford, and for the last fourteen years had had an extensive practice in Wexford, where he was held in high esteem by all creeds and classes.

Dr. HENRY MARTYN-CLARK, whose death occurred at his house in Comely Bank, Edinburgh, on April 10th, was the son and biographer of Robert Clark, the distinguished missionary of the Church Missionary Society, after whom Clarkabad in the Punjab was named. Henry Martyn-Clark was educated at George Watson's College and Edinburgh University, where he graduated M.B., C.M. in 1881, and M.D. in 1892. For twenty-five years he served as a medical missionary under the Church Missionary Society as head of the Amritsar Medical Mission in India. He then retired and returned to Edinburgh, where for several years he had held the post of lecturer on diseases of

tropical climates in Surgeons Hall School of Medicine, and had acted as university examiner in Oriental languages. He had a large private practice, and was much respected. He took a deep interest in the Edinburgh Jewish Medical Mission. In 1909 he was made an elder in St. George's United Free Church, and served also on the Foreign Missions Committee of the United Free Church of Scotland. He is survived by a widow and two sons, both medical men, one of whom is at the front, whilst the other is on his way home from the Cameroons. The funeral, to the Dean Cemetery, was on April 11th.

Dr. THOMAS PULLAR MONTEATH, B.A., R.U.I., died at Stocksbridge, near Sheffield, on March 8th, after a short illness, aged 56. He graduated M.B., C.M. at Edinburgh in 1893, and afterwards practised in Shaw (Lancs), Blackpool (Lancs), and Holme (Yorks). After leaving Holme, Dr. Monteath retired to Harrogate, but on the outbreak of the war acted for a time as house-surgeon to the York County Hospital, and also assisted several doctors with their extra work in Edinburgh, and latterly in Stocksbridge. He was a member of the British Medical Association, a good sportsman, and at one time a keen Rugby football player. He was of a kindly disposition, much liked by his patients and colleagues. Dr. Monteath, who leaves a widow and two children, was buried at Shaw.

COLONEL EDWARD ORD TANDY, Bengal Medical Service (retired), died at Mount Pleasant, Northam, North Devon, on April 10th. He was born on June 8th, 1835, educated at Trinity College, Dublin, and took the diploma of L.R.C.S.I. in 1857. He entered the I.M.S. as assistant surgeon on February 10th, 1859, became surgeon on February 10th, 1871, surgeon-major on July 1st, 1873, brigade surgeon on September 2nd, 1886, and deputy surgeon-general on April 2nd, 1889, retiring on April 2nd, 1894. He was given a good service pension on January 5th, 1894. He spent his whole service in military employ, and had seen a good deal of service on the frontiers of India. He was on the North-East Frontier in the Sikkim campaign of 1861; on the North-West Frontier in 1863, when he took part in the forcing of the Umbeyla Pass, receiving the medal and clasp, and in the Bezot expedition of 1868; also in the Afghan war of 1878-80, gaining the medal.

Dr. ISAAC OTT, a distinguished American physiologist, who died recently in his 69th year, took his doctor's degree at the University of Pennsylvania in 1869. In 1875 he was appointed demonstrator of physiology, and in 1877 lecturer on experimental physiology, in that university. In 1894 he became professor of physiology in the Medico-Chirurgical College of Philadelphia, a position which he occupied till 1914, when ill health compelled him to resign. He was a man of remarkable energy, for he combined research work and teaching with an exacting medical practice. Living at Easton, where he had his own laboratories, for more than twenty years he travelled three times a week to Philadelphia, where he lectured and demonstrated for five hours continuously. He was at one time president of the American Neurological Association. He was the author of a *Textbook of Physiology*, a fifth edition of which is now in the press, and of a large number of papers on physiological and pharmacological subjects.

DEATHS IN THE PROFESSION ABROAD.—Among the members of the medical profession in foreign countries who have recently died are Dr. L. R. Lorentzen of Copenhagen, for a long period president of the Danish Medical Association, aged 63; Dr. A. Mendonça, head of the bacteriological institute of the medical school of San Paulo, Brazil, and founder of the *Revista Medica de San Paulo*; Dr. F. L. von Neugebauer, the well known gynaecologist of Warsaw, author of numerous writings on hermaphroditism and kindred subjects; Dr. Tiburcio Padilla, a leading member of the profession in the Argentine, sometime Governor of the Province of Tucuman, aged 80; Dr. F. Roques, physician to the Paris hospitals, aged 76; Dr. Henry Baird Favill, professor of clinical medicine in Rush Medical College, Chicago, and a very active social and political reformer, aged 55.

The Services.

INDIAN MEDICAL SERVICE.

PAYMENT OF SPECIALISTS.

A PRESS communiqué states that the Government of India has decided to modify for the period of the present war and to the extent noted below the rules for the grant of specialist pay laid down in Army Regulations, India, vol. i, par. 155 (D) (4):

(1) When an officer of junior rank is not available a lieutenant-colonel of the Royal Army Medical Corps or Indian Medical Service may, if considered qualified, be appointed to hold one of the sanctioned appointments of specialists, and he will be eligible for the extra pay authorized for such appointment.

(2) When two officers are not available to hold two special appointments an officer of either service may, if considered qualified, be appointed to hold both, and he will receive the pay authorized for them. The above decision has retrospective effect, to cover any cases in which lieutenant-colonels have held specialist appointments and where officers have held two specialist appointments.

EXCHANGES.

LIEUTENANT R.A.M.C., Regt. M.O., desires to change with officer holding a position in base hospital, casualty clearing station, or ambulance train, the latter preferred. Address, No. 1500, BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C.

M.O. in Field Ambulance (T.F.), near London, gazetted Captain January, 1916, wishes exchange with medical officer on active service in any capacity. Address No. 1700, BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C.

Public Health

AND

POOR LAW MEDICAL SERVICES.

POOR LAW MEDICAL OFFICERS' ASSOCIATION.

A MEETING of the council of the Poor Law Medical Officers' Association of England and Wales was held on April 14th, when Dr. Gidley-Moore was in the chair. Correspondence was read from the Local Government Board, from which it appeared that boards of guardians would not be compelled to provide the cost of drugs that had become expensive owing to war conditions. The Board pointed out that the arrangements to be made in individual cases will depend on the terms of the agreement with the medical officer and the guardians, and expressed the hope that the guardians would be willing to take into account any case of an exceptional nature, if brought to their notice by the medical officer. The honorary secretary observed that guardians generally throughout the country had for many years agreed to pay the cost of certain drugs, and by raising the salaries of medical officers in not a few cases during the war had practically met in some cases the additional cost of drugs due to the war. The council thought that the Local Government Board ought to have made regulations, and that the obligation on the guardians should be made compulsory. The association's memorandum on the present Poor Law Orders advised that guardians should be required to find the drugs used in the treatment of their sick poor.

The council expressed general approval of the resolution of a conference of sectional Poor Law associations declaring that to create a new organization would be contrary to the interests of the service, but expressed the view that the rules of the National Poor Law Officers' Association should be altered so as to permit sectional associations to become branches.

A letter was read from the London and Counties Medical Protection Society, drawing attention to an instance in which a district medical officer who had accepted service in the R.A.M.C., and finding it impossible to get his practice carried on in his absence, had sold it, had been refused by the guardians repayment of deductions from his salary for superannuation. The honorary secretary considered that legally no return of such deductions could be claimed where the resignation of office was voluntary, but thought that a plea of legal compulsion might be urged if the medical officer was a Territorial before the war, or if he came under the Medical Service Act. The council registered its opinion that it was a great hardship that where a man resigned to serve his country and was practically compelled to sell his practice, he should be mulcted of contributions paid in the past for a superannuation he could never enjoy.

It was reported that the honorary secretary, Dr. Major Greenwood, and Dr. Withers Green had attended, as representatives of the association, a meeting of the Central Council for District Nursing in London, and together with all the other medical representatives had strongly opposed a suggestion that in connexion with the compulsory notification of measles, trained nurses should be permitted to attend mild cases, calling in a doctor only if urgent symptoms appeared.

The annual meeting of the association will be held during the first week of July at its office, 9, Copthall Avenue, and only formal business will be transacted.

Medical News.

DR. GEORGE OLIVER, formerly of Harrogate, left property of the value of £46,979.

PROFESSOR JOHNSON SYMINGTON has been appointed the representative of the Queen's University, Belfast, on the General Medical Council in succession to Sir William Whitla.

At a joint meeting of the Assurance Medical Society and the Medico-Legal Society to be held at 1, Wimpole Street, W., on Wednesday next at 5.30 p.m., Sir John Collie will read a paper on the effects of recent legislation upon sickness and accident claims.

A COURSE of eleven lectures on welfare work among women in factories will be given at the London School of Economics, Clare Market, Kingsway, London, beginning on Wednesday, May 3rd, at 5 p.m., when Mr. Seebohm Rowntree, director of Welfare Supervision for the Ministry of Munitions, will give an inaugural lecture.

MR. S. G. SHATTOCK, pathological curator of the Museum of the Royal College of Surgeons of England, will give demonstrations to medical students and practitioners on fractures, foreign bodies, and the results of inflammation, on Mondays, May 1st, 8th, and 15th, at 5 p.m. First-aid and ambulance students desirous of attending will also be admitted.

THE annual meeting of the Invalid Children's Aid Association will be held, by kind permission of the Speaker and Mrs. Lowther, at the Speaker's House, Westminster, on May 10th, at 3 p.m., when Cardinal Bourne will preside. Tickets of admission can be obtained from the Secretary, 69, Denison House, 296, Vauxhall Bridge Road, London, S.W.

A RECEPTION by the President and Council of the West London Medico-Chirurgical Society will be held at the West London Hospital, Hammersmith Road, W., on Wednesday, May 10th, at 8.30 p.m., when an address on the work of the British Red Cross Society will be given by Mr. James Cantlie, and methods and appliances will be demonstrated.

IN connexion with the annual oration of the Medical Society of London to be delivered on Monday next, at 8.30 p.m., by Sir StClair Thomson, M.D., F.R.C.P., on "Shakespeare and medicine," there will be an exhibition of portraits, books, drugs, and other objects of Shakespearean interest, which it is hoped will be kept open on the three following days from 10 a.m. to 5 p.m.

THE Wellcome Historical Museum, 54a, Wigmore Street, London, W., will be reopened on Wednesday next, when a special exhibition of Japanese charms and amulets, collected by Mr. W. L. Hildburgh, M.A., will be on view. The collection is concerned especially with medical folklore. Visitors will be admitted on presentation of a visiting card on any week-day. The museum opens at 10 a.m. and closes at 6 p.m., except on Saturday, when it closes at 1 p.m.

THE *Journal of Immunology* is a new bi-monthly periodical, the first number of which appeared in February of the present year. It is the official organ of the Society for Serology and Hematology, and of the American Association of Immunologists. The editor is Dr. Arthur F. Coca, with an international advisory board of nine members, among whom are Drs. Simon Flexner, Robert Muir of Glasgow, F. Nuttall of Cambridge, W. H. Welch of Baltimore, and Sir Almroth Wright. The new journal is published at Baltimore, and has an English office at the Cambridge University Press.

THE work which the brothers Neve are doing and have been doing in connexion with the Church Missionary Society Medical Mission at Kashmir is admirable. The report for 1915 shows that the war has not injuriously affected subscriptions, donations, and offertories, which are indeed more than in the preceding year. Dr. Arthur Neve was at home on war service ("Kitchener" Hospital at Brighton). The work in Kashmir was carried on by Dr. Ernest Neve and Dr. Somerton Clark. As usual, surgical cases were very numerous; chloroform was administered in 1,309 cases with no fatality. There were 4,287 operations in all, with 18 surgical deaths; over 16,500 out-patients were seen. A sinister feature in the returns is the increasing frequency of tuberculosis; "deaths in childbirth and deaths from tuberculosis head the list of fatalities in the city" of Kashmir.

B. M. IWANOW has performed (*Medizinsk. Obosreniye*, 1916, N13-17) sixty-three operations under local anaesthesia by the quinine and urea hydrochloride solution prepared by Parke, Davis, and Co. They included operations on fibromata, cysts, tuberculous glands in the neck,

varicose veins, on bones, for removal of shrapnel particles, and for hernia. The effect of the anaesthetic lasted sometimes several days. The fact that the fluid was issued in ampoules was accepted as guaranteeing its sterility. Besides the subcutaneous injection, Iwanow sometimes dropped some of the liquid over the cut tissue; in this way the anaesthesia was deepened and prolonged. The anaesthesia developed about ten to fifteen minutes after the injection; the longer the interval the more complete was the anaesthesia; Iwanow, therefore, recommended that the injection should be used half an hour before the operation. His conclusions are: (1) Quinine and urea hydrochloride caused in most of the cases full anaesthesia of the tissue; (2) the preparation acts as a vaso-constrictor and diminishes haemorrhage; (3) it is not injurious; (4) the liquid should be injected half an hour before the operation; (5) the anaesthesia, as a rule, lasted two to three days.

Letters, Notes, and Answers.

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the BRITISH MEDICAL JOURNAL alone unless the contrary be stated.

CORRESPONDENTS not answered are requested to look at the Notices to Correspondents of the following week.

CORRESPONDENTS who wish notice to be taken of their communications should authenticate them with their names—of course not necessarily for publication.

AUTHORS desiring reprints of their articles published in the BRITISH MEDICAL JOURNAL are requested to communicate with the Office, 429, Strand, W.C., on receipt of proof.

THE telegraphic addresses of the BRITISH MEDICAL ASSOCIATION and JOURNAL are: (1) EDITOR of the BRITISH MEDICAL JOURNAL, *Atiology, Westrand, London*; telephone, 2631, Gerrard. (2) FINANCIAL SECRETARY AND BUSINESS MANAGER (advertisements, etc.), *Articulate, Westrand, London*; telephone, 2630, Gerrard. (3) MEDICAL SECRETARY, *Medisecra, Westrand, London*; telephone, 2634, Gerrard. The address of the Irish office of the British Medical Association is 16, South Frederick Street, Dublin.

Queries, answers, and communications relating to subjects to which special departments of the BRITISH MEDICAL JOURNAL are devoted will be found under their respective headings.

QUERIES.

PRURITUS OF FACE.

COUNTRY DOCTOR asks for suggestions on the treatment of a girl, aged 22, healthy except that she has been subject from childhood to attacks of intolerable itching over the cheeks and jaws at irregular intervals. The attacks, preceded by subcuticular roughness, last for an hour or two but recur daily for about a week. The application of x rays brought on an exceptionally severe paroxysm of pruritus.

ANSWERS.

ENLARGED TONSILS IN A SINGER.

F. F. T. H. will find much information in our review of Dr. Harry Barnes's work, *The Tonsils: Faucial, Lingual, and Pharyngeal*, in the JOURNAL, 1915, vol. ii, p. 569, in Dr. Mechan's letter, *ibid.*, p. 948, and in further correspondence in the JOURNAL of January 1st, 1916, p. 33; January 8th, p. 71; and especially January 15th, pp. 111, 112, where Dr. J. B. Horgan and Dr. Syme dwell on the enucleation of the tonsils in professional voice producers. Dr. William Hill published a review of tonsil operations from Celsus to the present day in the *Journal of Laryngology*, December, 1914.

LETTERS, NOTES, ETC.

INHERITED ABNORMALITY OF THE FINGERS.

DR. H. DRINKWATER (Wrexham) has been asked by an American surgeon to find the whereabouts in Great Britain, probably Scotland, of a family having inherited abnormality of the fingers consisting of ankylosis of the proximal and middle phalanx in each finger.

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

	£	s.	d.
Seven lines and under	0 5 0
Each additional line	0 0 8
A whole column	3 10 0
A page	10 0 0

An average line contains six words.

All remittances by Post Office Orders must be made payable to the British Medical Association at the General Post Office, London. No responsibility will be accepted for any such remittance not so safeguarded.

Advertisements should be delivered, addressed to the Manager, 429, Strand, London, not later than the first post on Wednesday morning preceding publication, and, if not paid for at the time, should be accompanied by a reference.

NOTE.—It is against the rules of the Post Office to receive *postes restant* letters addressed either in initials or numbers.

Notes on Military Orthopaedics.

II. ON SUTURE OF NERVES, AND ALTERNATIVE METHODS OF TREATMENT BY TRANSPLANTATION OF TENDON.

BY

LIEUTENANT-COLONEL ROBERT JONES, CH.M.,
F.R.C.S.I. (HON.),

INSPECTOR OF MILITARY ORTHOPAEDICS, ARMY MEDICAL SERVICE.

THERE are few problems more urgently needing solution at the present moment than those involved in the treatment of limbs disabled by injuries involving nerves. The conditions vary and are often very complex. The nerve may be irretrievably injured beyond all hope of suture; it may be entangled in cicatricial tissue; one or more of the muscles it supplies may have suffered grave lesions, varying from partial to complete destruction; the tendons or muscles themselves may be bound down by adhesions, or the joint or joints the muscles govern may be stiff or ankylosed, or held in a deformed position by a skin cicatrix, or more than one of these hampering conditions may be present. The simple condition, where the nerve or some of its fibres receive a clean severance, is exceptional.

If once these facts are realized it will require no argument to establish the proposition that certain orthopaedic problems must be mastered in connexion with the suture of nerves if proper restoration of motor function and of the normal efferent and afferent connexion between muscle and the central nervous system are to be secured. In certain fortunate cases the conductivity of the nerve is restored and good muscular function may result. In other instances, although the conductivity is restored, the function of the muscles and joint may not be regained because certain fundamental principles have been neglected. There are other cases in which the conducting power of the nerve is not properly restored, and yet others in which, owing to extensive destruction of the nerve, any attempt at suture would be futile. We must therefore be prepared with alternative methods in order to secure for the patient a satisfactory limb.

LATE SUTURE OF NERVE.

With regard, however, in the first place, to late suture of the nerve, certain general principles must be borne in mind. These are:

1. The correction of contractures of skin or muscle and all the anatomical constituents, from skin to bone, on the concave aspect—that is to say, on the side of the abnormal direction the contracture takes.
2. When possible, the freeing of joints from all adhesions and the restoration of the mobility of the joint in all cases where ankylosis is threatened.
3. The maintenance of the paralysed muscles in a position of relaxation throughout the period of recovery.
4. The practice of massage during the recovery, but without once allowing the relaxed muscles to be stretched.

In short, the principles and their application coincide with those I have so often emphasized in the treatment of poliomyelitis.¹

1. Freeing the Muscles.

In the first place, it is necessary to free the muscles from all mechanical obstructions to their action. If this be not done they cannot respond to stimuli sent to them through the nerve, and therefore cannot in their turn send the answering afferent impulse which is necessary to bring the apparatus into proper working order. It is essential to dwell on this point, inasmuch as many operations are being performed while the muscles and joints are stiff. This stiffness is not due to the nerve injury, but to the consequences of trauma and sepsis affecting the muscles, tendons, blood vessels, nerves and ligaments about the joint. When we realize how anaemic an unused muscle becomes, we shall not delay in giving help to prepare it for the reception of nerve impulses.

2. Mobility of Joint.

In the second place, where the joint is threatened with ankylosis, every effort should be made to restore its function.

Operation on the nerves is doomed to failure if these fundamental principles be disregarded.

3. Relaxation of Muscles.

Thirdly, the importance of keeping the partially paralysed and overstretched muscles in relaxation during treatment has been so forcibly brought home in ordinary civil practice in the treatment of residual paralyses after poliomyelitis, lead palsy, injuries of the brachial plexus and of isolated nerves, that it should be scarcely necessary for me again to call attention to it. Nevertheless, visits to wards prove that this elementary orthopaedic measure is too frequently entirely omitted by surgeons who have performed suture of injured nerves. Thus we find men who have had the musculo-spiral sutured allowed to walk about with the hand dangling in palmar flexion instead of its being kept continuously in dorsiflexion! By letting the hand hang in palmar flexion the muscles supplied by the sutured musculo-spiral, which can only recover if kept relaxed, are allowed to become stretched. The result is that the fingers and hand do not regain, can hardly be expected to regain, full normal function. A similar grave error is perpetrated often in the case of the external popliteal nerve also, with the same disappointing result in the foot. Frequently I have noticed that the foot of a patient whose popliteal nerve has been sutured is allowed to remain in an equinus position! Sometimes, indeed, the operation is even performed while the tendo Achillis is contracted. Were it not so frequently happening I should feel ashamed to refer to this matter, but as it is happening I again urge surgeons who suture nerves to insist that the affected muscles be kept in complete relaxation until power returns. The most skilful operation performed on the most suitable case will prove a fiasco unless the affected muscles are continuously kept relaxed until recovery takes place.

In some cases it will be found not only that no provision is made for the muscle to be in the most favourable condition to respond to the earliest motor impulses which come through the block in the nerve, but, further, the mechanical condition of the muscle as to function seems to be entirely neglected, and suture of the nerve is performed when the paralysed muscle or the joint on which it acts is immobilized by cicatricial adhesions. If restoration of function is to follow nerve suture, the new axis cylinders growing through a cicatrix must of course be enabled to establish some sort of normal relation as to function with the end organs in muscle. If the muscle is mechanically disabled from making any response, it is absurd to hope for good functional result, even though the physiological processes of repair of the nerve be perfect. I desire to emphasize again the fundamental principle of procedure—namely, that the restoration of the mobility of joint and muscle must precede the operation of nerve suture. It is useless to attempt it otherwise.

4. Voluntary Use and Massage.

Fourthly, for precisely similar reasons, it is important that the patient should as soon as possible exercise the limb in normal movements. In the case of the lower limb this usually means the application of some apparatus designed to prevent strain on the recovering muscles while the patient is permitted a moderately free physiological use of his limb. In order to make the foregoing observations more lucid to those who have not followed my writings, which are based on the late Mr. H. O. Thomas's theory of "muscle lengthening," I will briefly indicate their tenor.

It is well, in view of the enormous number of injuries to nerves occurring in this war, to emphasize the fact that principles applicable in poliomyelitis are applicable here. When speaking, some years ago, of the results of acute poliomyelitis, I pointed out² that, though the disease might permanently destroy motor cells in the anterior horns of the grey matter, so rendering the muscles dependent upon them for ever useless, unless nerve transplantation might at some later date come to their rescue, yet complete destruction was fortunately the rarer condition. The clinical evidence afforded by rapid and

complete recoveries from complete paralysis and the very many partial recoveries proved that the motor cells concerned had suffered from temporary injury and had not been destroyed. Something had happened to make the muscle incapable of responding to motor stimulus. Whether this was to be attributed to the absence of afferent muscle-sense stimulus, as seemed probable, or whether it was due to some other cause, it was clinically certain that the nerve cells became partially inactive, not extinct, and that with appropriate treatment of the muscle or group of muscles functional activity could be reinstated. When a muscle governed by a live cell, or rather a group of live cells, fails to act, the disability may be spoken of as functional. Of this disability the great outstanding cause is overstretching of muscle fibres. A surgeon must recognize the difference between a truly paralysed muscle and a muscle which is over-stretched, and must know how to distinguish the one condition from the other.

The first essential of treatment is that the muscle or muscular groups must be prevented from being over-stretched. If the wrist is, for instance, allowed to remain flexed the flexor muscles undergo adaptive shortening, and the extensors become over-stretched and consequently placed at a mechanical disadvantage. This point is well illustrated by dropped wrist from lead poisoning. The lesion here may be either in the cord or in the nerve trunks; in either case the muscles cease to be controlled by their nerve centres, and the patient goes about with his wrist flexed by gravity, and the extensor muscles become disabled by continuous overstretching. As the condition is usually bilateral, an interesting experiment to test my contention may be made, if the case be of some weeks' standing, by placing one of the paralysed arms on a splint to keep the hand dorsiflexed. It will be found that recovery will be much more rapid on the side on which the extensors are relieved from overstretching than on the other neglected side. When a muscle is deprived of the natural motor stimuli, its condition from the point of view of function and nutrition is the same, whether the absence of stimuli be due to inactivity of the central nerve cells or to interruption of the conducting paths along the peripheral nerves. Its motor function is suspended, its nutrition suffers, it becomes anaemic, and it may easily be over-stretched by gravity, by the unrestrained action of the opposing muscle, or by these two forces acting in combination. If the wrist and fingers are kept in extreme dorsiflexion, the extensor muscles, thus relieved of strain, undergo adaptive shortening, and soon begin to respond to the constant stream of tonic stimuli sent to them by efferent impulses; later they come under the higher control of the voluntary centres.

Another cause of persistence of functional disability is an unequal degree of recovery in opposing muscular groups.

Deflection of Body Weight.

A most potent factor for evil is what I have called the erroneous deflection of body weight, which, for physical reasons, operates chiefly in the lower limbs. If, for example, there be weakness in the tibial group and the patient be allowed to walk, the valgoid deformity will

constantly increase, the tibial muscles will be more and more stretched, adaptive contraction will affect the peronei, and structural alteration will ensue in the tarsal bone, terminating in a troublesome flat-foot. All these untoward results may be avoided by simple treatment on sound scientific principles; a little alteration of the boot which, by raising the inside of the heel of the boot, will deviate pressure from the inner to the outer side of the foot, may suffice. When we have to deal with a group of muscles in which the power is only slightly impaired, the muscular

balance may be restored by over-developing the weaker group. If, for instance, the peronei are weak, but the foot can quite easily be placed in the everted position, then massage and exercises may reasonably be expected to succeed. But if the foot cannot be everted because of adaptive shortening of the tibial tendons, then massage and exercise of the peronei will be perfectly useless until such time as the deformity has been corrected and the over-stretched muscles kept relaxed for a sufficient period to permit them to recover by interstitial shortening.

LATE RECOVERY OF MUSCLE POWER.

But before any operations are performed affecting the mobility of a joint, every use should be made of available muscle power. No surgeon should operate on these cases until he has fully satisfied himself whether or no it be possible to restore the apparently paralysed muscle. Neglect of this precaution produces such a distressing occurrence

as the unexpected recovery of muscles which were ignored because assumed to be paralysed. For example, a patient was brought to me once with a partially ankylosed knee. The operation of arthrodesis had been performed with a view of bringing about bony ankylosis. As an arthrodesis the operation had failed, for the knee had a short range of movement. As an experiment, illustrating the principle we are discussing, it was very successful, because the quadriceps was acting with considerable strength. Prolonged fixation had relieved the quadriceps from all strain, and restoration of function resulted. This case exemplifies the mistake of taking for granted that a muscle is paralysed without first making quite certain that it is *really* paralysed. It is only possible to make quite certain by relaxing the muscle and thus putting it into the position most favourable to recovery for a sufficient length of time. Electrical tests cannot be relied upon to give this information.

Treatment to Promote This.

The first stage of treatment is the correction of existing deformity. When deformity has been corrected the limb should be kept immovable until the ligaments, muscles, and even bone have become of normal length and shape. The continuity of treatment must be maintained or a relapse will result. This point is fundamental, and neglect to observe it spells failure, as the slightest stretching of a muscle on the point of recovery disables it again. All the good work may be thwarted by a single indiscretion. I cannot emphasize this point too strongly. For instance, let us take the case of a drop-wrist which has been placed in a splint designed to dorsiflex the hand and wrist. The position must be constantly maintained. The hand must



FIG. 1.—Showing action of dorsiflexing after transplantation of tendons. Captain McMurray's case.

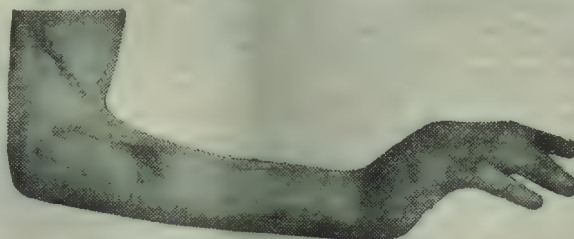


FIG. 2 illustrates a similar result in another of Captain McMurray's cases.

DIAGRAMS ILLUSTRATING TRANSPLANTATION OF TENDON INTO TENDON UNDER VARIOUS ANATOMICAL CONDITIONS.



FIG. 3 A.—Showing the tendon which is to be transplanted about to be passed through a tunnel in the other tendon. The tunnel is being dilated to receive the transplanted tendon.



FIG. 3 B.—Transplant in position. The angulation is dealt with as shown in Fig. 3 C.



FIG. 3 C.—In order to overcome angulation a slit is made in the upper part of the receiving tendon, which is then wrapped round the transplanted tendon.



FIG. 4 A.—Tendons about to be pulled through another before suturing.



FIG. 4 B.—The divided ends of three tendons passed through another tendon in its course.



FIG. 5 A.—Showing transplanted tendon about to be passed along a tunnel in the receiving (active) tendon.



FIG. 5 B.—Tendon passed along course of active tendon.

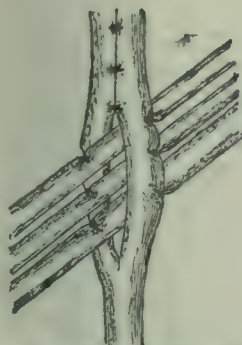


FIG. 6.—Three tendons passed through another tendon, which has been split to receive them.



FIG. 7.—Tendons inserted into either side of active tendon.

not be allowed to flex for a single moment until recovery has occurred. Even while the patient washes, the hand must be held dorsiflexed.

The clinical test of the recoverability of a muscle, therefore, depends on an experiment. Let it be kept for a prolonged period—for at least six months—in a position of relaxation. This test should always be made before condemning any muscle, no matter how long the period for which it may apparently have been paralysed. When, therefore, one reads in textbooks statements to the effect that we are to despair of the return of power after a certain length of time, we can quite well afford to ignore the advice unless in addition to this time test there has been an uninterrupted muscular relaxation during that time.

These are views which I have without ceasing urged upon my professional brethren as applicable to infantile paralysis. They are equally applicable, with certain modifications, in the case of gunshot injuries. It is obvious that in infantile paralysis long mechanical treatment can do no harm. This is not so in the case of a soldier in whom a nerve has been injured. If suture is to give any promise of success there must be a limit to conservative methods. In any case, an exploration of the nerve is a harmless procedure.

TENDON TRANSPLANTATION IN GUNSHOT INJURIES OF NERVES.

In recommending tendon transplantation in gunshot injuries I have profited by the experience gained in anterior poliomyelitis. I have frequently performed tendon transplantation with success in the adult in cases in which isolated nerves have been destroyed. Similarly unrecorded cases have been operated upon by my friends Mr. Thelwall Thomas and Mr. Bickersteth. At the Military Orthopaedic Hospital, Liverpool, my colleague, Captain McMurray, has at this moment three successful cases in which transplantation has been done for musculo-spiral paralysis. As

I have previously indicated, the object of a transplantation is to improve or restore muscular balance. It is not justified unless it improves function. There is little satisfaction to a patient if the transplanted muscle merely responds to faradism, or even makes a feeble movement by the effort of the will. It must be, or give the promise of becoming, a substitute for the muscle it supplants. It can only be judged by its ultimate usefulness.

A tendon may be transplanted in order to restore the balance between opposing groups of muscles by helping a redistribution of power, or its attachment may be slightly altered to prevent deformity.

Recognizing that the principles involved in tendon transplantation are the same in both conditions, I will briefly describe in the second part of this communication certain transplantation operations I recommend for various injuries.

As a preliminary I give here a series of diagrams Figs. 3, 4, 5, 6, and 7, illustrating methods of transplantation of tendon into tendon applicable under various anatomical conditions.

REFERENCES.

¹ The Annual Oration, Medical Society, May 18th, 1914, on Infantile Paralysis: its Early Treatment and the Surgical Means for the Alleviation of Deformities. ² BRITISH MEDICAL JOURNAL, December 9th, 1911.

(To be continued.)

LIEUTENANT-COLONEL C. C. MCCULLOCH, Medical Corps, U.S.A., Librarian of the Surgeon-General's Office, Washington, D.C., informs us that the Army Medical Museum there possesses a valuable collection of medals relating to medicine, started and fostered by the late Dr. John S. Billings. It is desired to add to this collection and complete it as far as possible. Colonel McCulloch invites the assistance and advice of physicians who are collectors of medical medals. Gifts of medals are asked for, and also copies of catalogues for sale, as the museum is in command of money for the purchase of individual medals or private collections.

A CASE OF CONGENITAL ATRESIA OF THE DUODENUM TREATED SUCCESSFULLY BY OPERATION.

By N. P. ERNST,

CHIEF SURGEON AT ST. ELIZABETH'S HOSPITAL, COPENHAGEN,
DENMARK.

THE following report may prove to be of some interest, because there is only one instance known to me in surgical literature of a case of congenital atresia of the small intestine in which a surgical operation was successful. In that case, however, recorded by P. Fockens, of Rotterdam, the atresia lay a little above the ileo-caecal valve, so that the following will be the first instance ever reported of congenital atresia of the duodenum successfully treated by an operation.

Congenital Atresia of the Duodenum below Vater's Papilla: Duodeno-enterostomy: Recovery.

The patient was a boy, born on November 19th, 1914; labour was spontaneous. I was present at the birth, and for some time saw the infant almost daily. The parents were healthy, but although they had been married for three years this was their first child. The child was robust at birth, and there was no history of deformity in its family. It weighed 4,300 grams, and showed no external sign of any malformation. From the first the child always vomited after suckling. On the third day it took the breast more actively than at first, but two or three hours later it began to vomit, with almost explosive violence. Very little urine was passed, and the motions were limited to a small amount of typical meconium, without a particle of digested milk. The child was treated both with castor oil and enemata, and the oil, at all events at first, caused a larger quantity of meconium to come away. Rectal examination revealed no abnormal condition of the bowels. The child lost weight rapidly, to the amount of about 700 grams during the first week.

I diagnosed the case as high-seated intestinal stenosis or atresia and suggested to the parents that it would be best to operate on the infant; but they wished first to consult a children's specialist, Professor Monrad. In all essentials he shared my view about the condition of the child; but its general health being otherwise so remarkably good, he considered that we could not exclude the possibility that the stenosis might perhaps be remedied by suitable medical treatment, such as that which he successfully used for congenital pyloric stenosis. He thought it therefore advisable to change the infant's diet, and wash out the stomach daily; but the vomiting continued, and during each of the following three days the infant lost 30 grams, so that its weight on November 29th was 3,490 grams. We both saw that an operation was imperative, and on the morning of November 30th the child was removed to St. Elizabeth's Hospital. Its general condition was still fairly good. The temperature, taken daily during the last days at home, was normal. Stethoscopic examination showed no thoracic disease. The abdomen was soft to the touch, without distension or swelling; now and then faint peristaltic movements were noticeable on the left side. The umbilical wound was well healed; it had been dressed since the shrivelling of the cord with cotton-wool moistened with 1 per cent. silver nitrate solution.

Operation.

Directly after admission the stomach was washed out, and the skin having been disinfected with soap, water, and spirit, abdominal section was undertaken under ether. The incision was made a little to the left of the middle line, and was between 7 and 8 cm. long. After the anterior sheath of the rectus had been laid bare, Mosetig batiste was sewn to the edges of the skin with continuous silk

suture so that the integuments were completely covered. On opening the peritoneum the dilated stomach protruded into the wound, and was traced along the dilated pylorus into the duodenum, which was uniformly of about two fingerbreadths in width, as far as it could be traced to the upper side of the transverse mesocolon. But below the colon, where the intestine reappeared, at the flexura duodeno-jejunalis, it was seen to have collapsed to the calibre of an ordinary pencil, about 8 millimetres in diameter. The remaining part of the small intestine was examined quickly, especially its lower portion, but no stenosis was discovered.

On that account I made a duodeno-entero-anterior anastomosis—that is to say, a coil of small intestine about four inches below the flexura duodeno-jejunalis was drawn up in front of the transverse colon, and united to the duodenum about the junction of the pars superior and pars descendens. Anastomosis to the lower part of the pars descendens was impracticable.

The intestines were held during the operation by Doyen's straight soft intestinal forceps; first, continuous sero-serous suture was applied, then a continuous suture through all the layers the whole way round; and, finally, a continuous sero-serous suture on the front (all sutures of Turner's silk No. 1). When a stomach tube was passed through it a good deal of air and greenish fluid was discharged. The intestinal forceps was removed, and immediately afterwards the jejunum began to fill. The walls of the abdominal incision were united with deep catgut sutures, and interrupted silk sutures were applied to the sheath of the rectus and skin. The dressing was fixed with mastisol. The child was little affected either by the anaesthetic or by the operation, which lasted about 1½ hours. It took 35 c.cm. of ether.

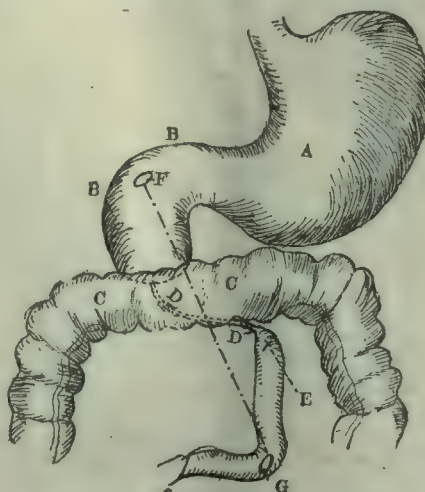
A few hours after the operation I began to give the infant a weak mixture of milk and water, about 30 c.cm. every two hours; it vomited a little several times in the course of the day, and at 8 p.m. more violently, so that the stomach tube was used, and a little greenish fluid evacuated. At 7 p.m. an enema was given, but without any result.

On December 1st the rectal temperature was 37.7° and 37.4° C. There was again much vomiting. On December 2nd the temperature was 37.4° and 37.1° C. Since the previous day the infant had had eleven meals of 30 c.cm. each. He had vomited three times during the day, and on December 1st was given one teaspoonful of castor oil twice and three enemata, and had altogether four alvine discharges, which without any doubt contained digested milk. The child's appearance was good. No more violent vomiting occurred, but there was slight sickness for some days; the bowels acted daily, and the stools soon appeared quite normal. The temperature also fell to normal. Five days after the operation the child was sent home to be suckled by his mother, who could not be admitted to the hospital. The dressings remained untouched till the fourteenth day, when all sutures were removed; the wound had healed by first intention.

The infant's weight decreased during the first five days 90 grams more, and was now 3,400 grams, or 900 grams less than at its birth; but afterwards it increased continuously, and considerably more than 250 grams a week for several months. We soon allowed meals every third hour, and when a few weeks had passed the child could sleep the whole night without food. He is now remarkably quiet for his age and is vigorous and well developed; his weight in the middle of October, 1915, was 11,200 grams.

COMMENTARY.

As I mentioned in the first part of this report, medical literature relates but one instance of the recovery of an infant operated on for congenital atresia of the small intestines.¹ The child was a boy, born at term November 6th, 1910; he was taken to a free consultation; it was stated that he had never had any movement of the bowels and that he had vomited constantly ever since his birth



Duodeno-enterostomy performed on an infant. A, Stomach and dilated pylorus. B, B, Duodenum above transverse mesocolon. C, C, Transverse mesocolon. D, D, Atresic portion of duodenum behind and below transverse mesocolon. E, Flexura duodeno-jejunalis. F---G indicates the anastomosis between the duodenum at F, about the junction of the pars superior and pars descendens, and the jejunum at G, four inches below the flexura E, the jejunum being drawn up in front of the mesocolon.

The abdomen was rather swollen and flatulent. On November 14th laparotomy was performed, and complete atresia of the small intestine detected. At a point normally between the middle and lower third of the small intestine the bowel was completely missing, being represented by a cord along the edge of the mesentery connecting the blind ends. After applying Doyen's intestinal forceps, entero-entero-anastomosis was performed with two rows of silk suture. After the operation the temperature rose to 105.8° F., but soon fell and became normal, and five months later the child had quite recovered.

Congenital atresia of the small intestines is, on the whole, very uncommon. In the foundling hospital at Petrograd Theremin reported nine cases among 150,000 children, and I myself have come across only two cases among 41,000 children in the Royal Lying-in Hospital at Copenhagen.

Different hypotheses have been advanced to explain the pathogeny of atresia of the small intestine, but the most probable is that advanced by Tandler,² the Viennese anatomist. On examining eleven human fetuses aged from 30 to 60 days he found that on the thirtieth day an epithelial proliferation begins in the duodenum, and results in a more or less complete obstruction of its lumen. This obstruction is greatest on about the forty-fifth day, and seems to have ceased on about the sixtieth day. According to Tandler's theory, congenital atresia of the small intestine is due to persistent physiological epithelial obstruction.³ This theory was afterwards confirmed by E. Kreuter, and especially by H. Forsner⁴ of Stockholm; the latter writer maintains that a narrow epithelial stenosis may become a complete atresia later on in fetal life, and in this way he explains the presence of meconium below the atresia, as noted above in the report of my own case.

I think all will agree that the treatment of atresia of the small intestine must be surgical, but as to the kind of operation opinion still differs greatly. From the perusal of cases recorded (even during the later decennia), it will be noticed that in an astonishing majority only enterostomy has been performed, and it has always resulted in sudden death, associated with an enormous rise of temperature; yet even in 1902 H. Braun⁵ recommended this procedure as the normal method for deep-seated atresia of the small intestine. Naturally, I cannot share Braun's view; on the contrary, I maintain that if we are dealing with a fairly strong infant, without any other signs of bad deformity, we ought to perform a laparotomy, making the abdominal incision large enough to enable us to see where the obstruction is seated, and also to make sure that no second stenosis be present. Then the operator should make the anastomosis which the particular case demands. It will very seldom be possible to postpone the operation as long as in my case. As yet I have not been able to discover any account of anastomosis being performed for atresia of the duodenum. It will be noticed in the history of the recorded cases that while almost all the infants that have undergone this operation developed an exceedingly high temperature, although only enterostomy was undertaken, the infant operated on more radically by Fockens also got very high fever, yet completely recovered.

As we cannot suppose that failure is due in every case to defective personal asepsis on the part of the surgeon, we must direct our attention to the special source of the infection in the child itself. There is a risk on two sides—namely, from the skin and from the contents of the intestines. As is well known, the integuments of an infant during the first weeks of its life are always infected from the umbilical wound, and the delicate skin cannot stand any strong disinfectants. In order to eliminate this danger, I in the first place dressed the umbilical wound with cotton-wool moistened in a 1 per cent. solution of silver nitrate, before the putrefaction of the cord; and what was of still more importance, I sewed Moseig batiste to the margins of the wound before laying open the sheath of the rectus, so that the intestines and compresses could not touch the skin. It cannot be doubted that the stagnant and decomposed contents of the stomach involve a great danger of peritonitis; it is necessary, therefore, if there be any suspicion of atresia, that the greatest care and cleanliness be taken in the feeding of the infant, hence only an experienced nurse should be entrusted with a case of this kind. The strictest care

should be taken to prevent any of the contents of the intestines getting into the peritoneum during the operation. I chose the antecolic type of anastomosis as being the easiest to perform. The fact was that I was not able to apply it to the lower part of the duodenum on account of the adhesion of that part of the bowel to the posterior abdominal wall. A retrocolic anastomosis might for purely theoretical reasons have seemed to allow of almost normal anatomical conditions, but I consider that the drawing of the gut through the mesocolon and the more difficult application of anastomosis would have increased the risk of the operation considerably. Later, on reading Fockens's report, I was greatly interested in the fact that he had argued in a similar way.

REFERENCES.

¹ P. Fockens, *Nederland. Tijdschr. f. Geneesk.*, 1911, vol. i, No. 18; and *Zentralbl. f. Chir.*, 1911, p. 532. ² *Morphologisches Jahrbuch*, 1902, Bd. 29. ³ *Deut. Zeit. f. Chir.*, 1905, Bd. 79; and *Arch. f. klin. Chir.*, 1909, Bd. 88. ⁴ *Nord. med. Archiv*, 1905, Afd. I, No. 20. ⁵ *Beitr. z. klin. Chir.*, 1902, Bd. 34, p. 993.

SOME HINTS ON TIME SAVING IN OPERATIONS.

By EDWARD HARRISON, M.A., M.D., F.R.C.S.,
HONORARY SURGEON, HULL ROYAL INFIRMARY.

THAT an operation performed rapidly, without, of course, in any way impairing its efficient performance, is desirable in the interest of the patient, is, I think, admitted by all. Indeed, in many cases—for instance, a case of ruptured ectopic pregnancy—rapidity in operating may easily make the difference of life or death to the patient; and as necessarily the surgeon has frequently to undertake such cases, it is imperative that he should be able to act promptly, quickly, and safely. This is, however, not the point I am about to discuss; I am taking it for granted that it is better for the patient that any operation should be expeditiously performed. The gain, too, is not confined to the patient, but is time saved to the busy surgeon, and in hospital work, where operation succeeds operation, a saving of time is a great gain to all concerned.

How is time to be saved? First and foremost, I most emphatically state that it lies in efficient co-operation between the surgeon, house-surgeon, and theatre sister. I am, of course, now speaking of hospital work; any work in private must necessarily fall short of this. By constantly working together the surgeon, house-surgeon, and sister play into each other's hands and assist one another as do partners in any game—bridge or football, for instance.

Of the trio, perhaps the sister plays the most important rôle; a sister, such as we have at present at the Hull Royal Infirmary, must save hours in the course of a month's operating. A good sister knows the peculiarities of each surgeon she has to work with, and is ever ready to hand him the instrument he needs, never keeps him waiting a moment while she threads a needle but is ever alert, so that I often wonder that after five or six hours' work it is possible to remain good tempered and willing for anything further.

Then, too, much time is saved in a hospital between operations by efficient drilling of the nurses. I often sit and admire the way in which preparations are made for the next operation. After the dressings are applied the porters are summoned, the house-surgeon wheels the table out of the theatre, and then changes his gloves. The sister changes hers, and prepares the instruments for the coming case; one nurse swabs down the floor with a squeegee, another takes the bowls away, and replaces them with freshly sterilized ones; no one is in a hurry, all works as smoothly as a silent running motor car, and the theatre is ready before the anaesthetist has the next patient under.

After this, then, given a capable house-surgeon and a reliable theatre sister, what can the surgeon himself do in the saving of time? This, of course, varies with the individual; a man who in his youth has been accustomed to use his fingers as individual digits, who has practised such arts as carpentry, mechanical drawing, or piano-playing, has all his fingers under control, and can use each one as required without any effort. The boy who is fond of using his fingers in any deft way, such as familiarity with the different knots in use among sailors, one who delights

in conjuring tricks with string, wire, etc., has developed his fingers to an invaluable extent if he is to become a surgeon.

Before the days of anaesthetics the surgeons felt the need for rapidity in operating, and when we read of the deeds of the great surgeons of those days one can only marvel at their dexterity, but to amputate at the hip-joint in half a minute demanded a very different dexterity from what is required to-day. Then the sutures were introduced with what would be regarded as a packing needle, and no effort was made for an artistic result; the main thing was to accomplish the operation as rapidly as possible.

In what ways, then, can the modern surgeon improve on his predecessor in time-saving devices?

Let us consider what is required in almost every modern operation, as if in manipulations that have constantly to be carried out a second can be saved in each motion a considerable amount of time is saved in the course of a year.

A very large amount of time is occupied in every operation in suturing; take gastro-enterostomy or intestinal anastomosis as examples; here really accurate and artistic work is demanded. When one observes the way that ladies work with the needle assisted by a thimble one is constrained to ask why surgeons do not adopt a similar device? Watch the accuracy and speed with which they do their work. Why are we so slow to adopt their ways? The fact is that we are hidebound by tradition, and to meet modern requirements have had to devise variously curved needles which can be pushed through with one hand, a hand composed of a bunch of fingers with an opposing thumb, and pulled out by another similar clumsy organ.

Some six or seven years ago I set myself the task of learning to sew with a thimble, and I am sure that it will well repay any surgeon to spend a quarter of an hour each day under the direction of his wife in learning to sew. I began by sewing odd pieces of rag together, and was soon promoted to hemming such coarse articles as dusters, but after a few weeks' practice I was able to hem a fine cambric handkerchief quite accurately and with some approach to speed. I found it best to have the thimble on the third finger, using the thumb and two first fingers to hold it, and I still use that method. To any beginner, however, I should advise the usual method adopted by the sempstress, and become accustomed to having the thimble on the second finger, as, although you will not have at first the security of grasp which is given by using the two first fingers and thumb, this will be compensated by the greater directive control of the thimble. Still, by using the two fingers with the thimble on the third, the point can readily be made to pursue a semicircular course. When some proficiency is obtained, the first feeling that something has been gained is that the needle is so easily directed that its pointed portion is at once taken hold of by the thumb and forefinger of the same hand and pulled through, leaving the left hand entirely free for other work, such as steadying the part to be sutured. For example, when a piece of omentum is tied and cut off, it is desirable to bury the cut surface in order to prevent it forming adhesions; the stump can readily be invaginated and the mass held in the left hand while the right hand does the suturing; no assistance is needed, and while this is being done the house-surgeon can be replacing bowel or otherwise advancing the operation.

It may be urged that there are many positions in which it would be impossible to use a straight needle in preference to a curved one; this is so, but to a less extent than would at first be expected. It might be thought that for suturing the vagina or cervix after hysterectomy, where the surgeon has to work deeply in the pelvis, that a curved needle would be essential, but it is not so. In such circumstances a short needle must be used, the parts can be steadied by forceps, and only one hand has to be introduced into the pelvis. It is not in such cases as this that the straight needle is contraindicated, but rather in those in which there is no space available for the depression of the eye of the needle, as in sewing up the abdominal wound after an operation on the stomach or gall bladder in a *fat* muscular man; here, with rigid structures, I have often to use a curved needle, but this hardly ever happens in wounds below the umbilicus.

Second to acquiring the facility with the thimble I would place the ability to tie a surgeon's knot with one hand. The method of doing this was described by Borchgrevink.¹ After reading this article I was convinced of the importance of being able to tie the knot with one hand, and for some months carried a piece of string in my pocket and practised at the knot in any spare interval, passing the string through a buttonhole of my coat. It is a difficult knot to learn from a written description, but the time given to acquiring facility in its use will be very well spent by anyone. The first part of the knot is quite easy, but the second is at first distinctly difficult, and to learners I would give the hint that success in rapidly tying the second part lies in having plenty of laxity in the hand holding the distal end of the thread. Facility once gained the pleasure in knot-tying is greatly enhanced, and one uses, in preference, the single-handed method in cases where the double handed method might equally well be employed, as one can do it more easily and quickly.

It will be asked, How can this method of tying a knot accelerate the operation? Take, for instance, a breast case where there are twenty or more artery forceps applied and waiting for ligatures. A reel of catgut is taken in the right hand, its end passed round the forceps held up by the house-surgeon, the knot tied with the left hand, and held by the left hand while the house-surgeon cuts it off; while he is doing this the right thumb and forefinger grasp the new end of the catgut; the left hand then casts off the useless portion, and the house-surgeon lifts up the next clamp, and the surgeon has the end of the suture in his fingers ready to pass round it.

The house-surgeon should keep his scissors in his right hand, and not put them down until all the ligatures are tied. With his left hand he should lift the clips and unfasten them. This requires a little practice, but after a time the whole of the combined manoeuvre goes on like a machine; there is no hurry, but time is saved, and one feels that the work is progressing favourably.

Then, in applying interrupted sutures, as in the closure of an abdominal wound, the combination of the use of the thimble with the ability to tie the one-handed knot helps immensely. The needle is driven through with the thimble and taken by the finger and thumb of the right hand; meanwhile the left hand takes hold of the end of the strand of gut and ties, the right hand keeping hold of the needle, which is then ready for the next suture. The left hand now takes the ends of the first knot and holds the skin taut for the introduction of the second stitch; the needle is passed for the second time and then cast off while the house-surgeon cuts the gut from the first suture. The gut is now not long enough to enable one again to tie the single-handed knot, so one proceeds as follows: The left hand is holding one end of the gut to be used for the second stitch and also the short piece cut from the first suture; this latter may be disregarded, and the first portion of the single-handed knot tied, the second part being tied by the right hand. In this way a little time is saved by not having to discard the cut portion of the first knot and pick up the end again for the second one; the waste portion from the first knot falls away automatically when the second is completed.

By proceeding in this way time is saved by not having to pick up the needle, which is not let go until it is finished with. Contrast this with the double-handed method: The needle is passed and then laid down while the knot is tied, and if all goes well it has now to be picked up again, which takes a little time. But it is not always so; while left to itself it not infrequently becomes unthreaded, or, what is still worse, it contrives to turn round and prick one's finger. By using the single-handed method the needle never leaves the fingers, and its point is therefore always under control until it is finished with. Further, the short end of the gut can be held between the third finger and the ball of the thumb, so that there is no likelihood of its becoming unthreaded. When facility has been obtained with the single-handed method quite 50 per cent. is gained in time by its use, and this amounts to something when one has a long wound—as after amputation of the breast—to close.

Further, when one is operating without an assistant, it is easy to place all the sutures in a long wound without having to use the scissors until the completion of the operation, when all the strands may be cut at once. Thus,

the first suture is applied as described and the strands held taut with the left hand while the second suture is applied. The needle is then unthreaded and the second knot tied with the right hand, leaving a loop connecting the two knots. This is repeated as often as required, and when the wound is closed the strands can all be rapidly cut off.

Here time is saved by not having to pick up and discard the scissors at every suture. Of course this is a very small point, but it is the small points which tell.

So much, then, for ligatures and sutures; now about the instruments for use during the operation.

The first point is to use as few instruments as possible; a large number in a tray only adds to the difficulty of finding any one required. For most operations a pair of dissecting forceps, one toothed ditto, a pair of straight scissors, a couple of scalpels, and six to ten artery clips and half a dozen needles will be all that need be used.

Needles.

As the needle has to be threaded, so it is important that it should have an eye sufficiently large compatible with strength. The next point is that it should not too readily become unthreaded. These two points are admirably met in the Pattison needle, which has a pear-shaped eye; the thread can be easily passed through the large part of the pear-shaped opening and then pulled down to the narrow portion, which grips the suture and prevents its slipping. This valuable device is a great time saver, and also a help to keeping one in a good temper. Nothing is so exasperating as for the needle to become unthreaded at a critical moment.

There are some needles on the market adapted for easy threading. One of these is the calyx-eyed, in which the thread is passed through a couple of slots. It is true that it is easily threaded, but it also often becomes unthreaded, the suture slipping out by the way it entered. This is an objection, but not the greatest. I do not use such a needle in a gastro-enterostomy, for instance, as the thread can so easily be partly sawn through at the calyx, and as the life of the patient is literally hanging on that thread for two or three days it behoves one to make sure that the thread is not weakened in any part.

There is another self-threading needle which was once on the market, but is now, for some reason, difficult to obtain. This has a slot in the eye, so that the thread can be passed through in the same way in which one attaches a watch to the hook at the end of the chain. This is a useful time-saving device, and is free from the objection of liability to saw through the suture.

I always use a straight needle if possible, as I can then be sure where the point is, and in driving a needle through any tissue which opposes a perceptible resistance the needle may rotate on its own axis. If it is straight the point is not deflected, but if curved the point describes an arc of a circle and often comes out in a different place from that intended. Moreover, with a straight needle the thimble can be employed and by it the point directed in any desired direction.

Scalpels.

Some years ago the advantages of a round-ended knife were pointed out by a surgeon in the South of England, but I am unable to give the reference. This scalpel is shaped like a dinner knife, and I have found it most useful. In dissecting out glands in the neck, for instance, there is no likelihood of pricking an unseen vein, as there is with the ordinary pattern. The round-ended knife can be used in cases in which scissors ordinarily would be used. Time spent in laying down the knife and taking up the scissors is saved. As an example, the opening of the abdomen in appendectomy may be taken. When the external oblique is exposed the blunt-ended scalpel can be used to cut a slot at the lower angle of the wound, and the knife then inserted edge upwards and the incision made through the fibres of the oblique, as with a scissors. There is no point to catch in the underlying muscle, and all goes smoothly.

Artery Clips and Scissors.

I much prefer the box joint, for it is more durable and the teeth of the clips are more accurately approximated. Those with take-off joints are so liable to fall in two when taken up, and nowadays, when boiling is universal for sterilizing instruments, the need for taking them to pieces

is not so obvious. Twenty years ago, when the dependence was on carbolic for disinfecting them, the take-off joint was a decided advantage.

It is well to have them made with large rings for the thumb and finger, so that they can be easily picked up and let go. When several artery clips, which have been used only as pressure forceps, are to be removed, there is no need to put each one down when it is released; three or four can be taken up one after the other, letting the rings slide up the fingers; then if the rings are large they can all be slipped off at once, thus saving a little time. There are some made with a little projection on each side near the handles, so that they do not lie flat on the table, but the rings are slightly lifted off it; the instrument is then more quickly picked up.

As an example, let us take the opening and closing of the abdomen for appendicitis by the gridiron method.

The incision is made through the skin with an ordinary scalpel, which is then laid aside and not used again, for aseptic reasons. A round-ended knife is then used to divide the subcutaneous fat. Any bleeding points are now secured and tied off in the manner already described. The skin wound is retracted by means of the thumb and second finger of the left hand, and the round-ended scalpel taken up again and not laid down until the peritoneum is reached; a slot is made through the fibres of the external oblique at the lower angle of the wound. Into this the knife is slipped and the aponeurosis slit up, then with the handle of the scalpel it is freed from its loose attachment to the underlying muscle. The wound in the external oblique is now retracted by means of the first two fingers of the left hand and the thin covering of the internal oblique divided; then, with the handle of the knife aided by the fingers of the left hand, the muscle fibres are separated down to the peritoneum. The knife is now laid aside, and a further separation effected by means of the two fingers of each hand. If the patient is a strong muscular man, or very fat, retractors may be needed to expose the peritoneum, but, as a rule, I find them unnecessary. The peritoneum is now picked up with a couple of pairs of clips and the opening made with scissors. The two clips are allowed to remain on, and with two others the upper and lower angles of the wound secured.

In closing the wound, the upper of these clips is taken in the left hand and a catgut suture passed with a straight needle and thimble and tied with the left hand, the right not letting go of the needle. The forceps is cast off with the left hand and peritoneum pulled up by means of the thread; the house-surgeon at the same time holds up the remainder with the three other clips and approximates the margins. It is now easy to pass an uninterrupted suture rapidly to the lower end of the wound, where it is tied off with the left hand, the right keeping hold of the needle. The same needle, which has not been laid down, now picks up the lower margin of the internal oblique at the anterior part of the wound, and is passed down the length of the opening in the muscle and the upper margin taken up; then a lace-like suture is applied and knotted off where the needle was first introduced. The aponeurosis of the external oblique is united by continuous suture, using a straight needle and thimble, and finally the skin sutures placed as already described.

The whole proceeding is done very rapidly, although there is no hurrying; each one of the trio knows exactly every little step that is to be made, so there is no confusion, and all goes perfectly smoothly.

The above was written some time ago and laid aside, but after reading the interesting paper on "Time in Surgery" by R. P. Rowlands in the BRITISH MEDICAL JOURNAL of April 15th, I am constrained to publish it in the hope that after such an able introduction to the subject as Rowlands has given, other surgeons may be induced to give some account of their own particular "fads" conducive to time saving at operations.

REFERENCE.

¹ *Surgery, Gynaecology, and Obstetrics*, vol. x, p. 530 (May, 1910).

THE Association for the Promotion of Medical Research for the Prevention and Cure of Tuberculosis has recently been incorporated in the State of New York. Its objects are the foundation of professorships and scholarships in the various medical schools of the United States and the maintenance of institutions for the treatment of sufferers from tuberculosis.

DRESSINGS USED IN A CASUALTY CLEARING STATION.

By A. DON, F.R.C.S., MAJOR R.A.M.C.(T.F.).

TEN months in a casualty clearing station gives one an opportunity of trying the various methods of dressing wounds as they have been from time to time suggested, and of comparing their efficacy in cleaning damaged tissues, in preventing the spread of infections, and in adding to the comfort of the patients. If, as happens in my case, the surgeon is not identified with any of the newer disinfectants, a fair trial may be assured for each of them. The surgery of wounds, as distinct from the method of dressing, is not meantime under consideration, but it must be stipulated that, for real comparison, the surgical technique should not change coincidentally with the method of dressing. To change both at the same time introduces two factors, either of which may alter the whole picture.

In published writings on the treatment of wounds in the present war one meets with assertions that antiseptics have failed us; that previous experience in, say, South Africa, does not help us; and even the suggestion that the dressing of wounds is more the province of the physician than of the surgeon; and, further, that all previous knowledge of the treatment of wounds must be a bar to success out here. Such statements must be taken *cum grano salis*, even though the writers are experienced and men of note.

It is true that a surgeon's methods in civil practice become more or less stereotyped. Older men unlearn old methods with difficulty and assimilate new ones with diffidence, but one is still left with the feeling that the surgeon of experience who possesses the virility to be at the front is a valuable asset to the army. His civilian dogmas get a rude shock at first, and his confidence in his well-tried methods may be shaken, but he soon recognizes the new elements he has to contend with, and will certainly have met them before, if rarely or at least will be familiar with most of them from his knowledge of the history of surgery. The fact is that it is merely his memory that needs refreshing, and his fixed habits that need reforming.

Few even of the older surgeons have seen hospital gangrene, and they do not always recognize that this serious scourge of surgery throve on a lack of scientific knowledge of bacteriology and antiseptics, which is now taught to and understood by every medical student. The present gas gangrene is identical with the old hospital gangrene, and the mixed infections we see so frequently were in olden times, as sometimes even now, introduced in the dressings themselves. The greater number of shell wounds, and the high-velocity rifle bullet at close range, produce effects that are of daily occurrence here, but were new at first to surgeons who had been through the South African campaign. But all these effects have been met with before, and are, in fact, matters of history.

The one new feature is the trench warfare, and its effects on wounds. The soldier's skin, clothing, hair, every part of him which a missile has to traverse, is covered with mud, which is carried to the depths of every wound. Highly fertilized soil may contain every conceivable pathogenic and putrefactive organism. Such germ-laden wounds are unusual in civil life, and were so also in the South African war. They are, however, met with in accidents from agricultural districts, which are admitted mostly to small provincial hospitals, though they are also seen by surgeons attached to medical schools. The badly damaged and dead tissues at once putrefy and smell badly, and their treatment becomes more a question of sanitary science than of modern surgery, and has been more successfully dealt with by the disinfectants used in sanitation than by the commoner surgical antiseptics. To get rid of the smell and putrefaction in the wound has been to get rid of the unusual in the disease. What is new, then, in the surgery of this campaign is old in sanitary science, and older still in the history of surgery, which, being the older science, had dealt with the grosser infections much earlier.

Among the many methods of dressing wounds one comes across, none are really new, but one recognizes many an old friend in new war paint, habilitated with elaborate word-painting more or less accurate and convincing. A dip

into a good textbook of surgery in use, say, about the early part of last century will convince any sceptic, though it is a thankless task to recommend such a perusal. The names of drugs are less mystifying, but a good description of the treatment of foul wounds with chlorine, iodine, and saline compounds, and even of gas gangrene itself, will be found and will well repay the ardent student. Attention has already been drawn to this by other writers. The cruder drugs produced then, as now, in a short time very candidly stated, a clean surface from which exuded laudable pus—that transition in the discharge from the nauseating putrefactive débris of decaying tissues to the odourless creamy pus, then, as now, considered laudable. This pus comes from living tissues in which are to be found the ordinary pyogenic germs alone. Putrefactive organisms can attack only dead tissues or those weakened by pyogenic processes or mechanical traumatism. To get rid of the putrefactive organisms and to prevent the ingress of the pyogenic has been the problem of wound treatment for surgeons in the present campaign, and it is yet to a great extent unsolved. Towards this objective I offer my experiences in a casualty clearing station.

I. Hypertonic Solutions.

Wright's saline treatment has received perhaps more praise than any other. In theory it seemed excellent, but in practice the results are various. When used properly and in suitable cases they are good, but the cases require careful selection, and its application requires more skilled watching than can usually be given with the means at one's disposal so near the front. The method and choice of cases cannot be left to the discretion of a dresser or even to the average medical man attached to a casualty clearing station, and if used as a routine dressing the results are more often positively bad than passably encouraging. In the majority of places where hypertonic salines are used as a routine dressing they are either too long continued for bad lacerations or are applied to many cases almost clean, where they are unsuitable.

To living tissues strong salt solution is extremely irritating, and causes pain for a very considerable period after each application. This does not depend on the patients. The action of salt on wounds was well known in history, when it used to be rubbed into the cuts made by the lash, not for its healing power but it noted. I have personally experienced its smart, for it was a favourite dressing in hypertonic solution in my boyhood. I owe the preservation of a perfect finger joint to its use, yet I well remember the happy change to a soap and sugar ointment which completed the treatment.

The hypertonic method does well for joints, when they have not been laid open too freely, and probably lacerated wounds where the explosive force of the missile has killed the tissues for a considerable distance beyond the bullet track. The salt preserves these dead tissues from putrefaction (a well-known use of salt), for it is an absolute bar to the growth of putrefactive organisms, while its irritating effect on the living tissues sets up a more or less severe discharge, which helps to prevent the ingress of pyogenic germs. But such a dressing should not be covered by non-permeable tissue, which will check entirely such outward flow of serum. The tabloid and gauze pack is perhaps the best for dirty wounds in casualty clearing stations, as it can be left for a considerable time without attention. There is at first practically no pain following its application, for even the tissues that will ultimately live are rendered analgesic by the blow. But once the dead tissue separates, and the hypertonic dressing becomes painful, it soon produces purplish, waterlogged, shining granulations, which at one and the same time form a barrier to the exit of discharges, and to any feeble antiseptic action it might exert on the cooped-up pyogenic germs below. Absorption begins, and abscesses in the depths are not unusual.

How often are these pyogenic organisms present from the start? I am inclined to believe that even nowadays they are sometimes introduced much as they were by the surgeons in pre-antiseptic days. I have seen in hospitals out here the pernicious habit, which had almost disappeared in the best civil hospitals, of wringing gauze from antiseptic solutions with the bare hand. The result is that all the germs present in the previously dressed cases, are inoculated into the wound. Rubber gloves

prevent this patient-to-patient infection, and when combined with the method I adopt of dressing all the serious cases myself and leaving the bandaging to an assistant, often an orderly, and washing the gloved hands well with a cotton-wool dab in a strong antiseptic after each case, time is saved and perfect safety from multiple infection is assured.

Before the wound shows the purplish granulations described, and before the patient complains of the smarting, and in all wounds where the exposed surfaces are living tissues, hypertonic solutions are contraindicated. The saline method of Wright requires careful watching by the surgical specialist, who must see every case so dressed daily. It is not, therefore, suitable for routine work in a casualty clearing station, nor even in a base hospital. I have said nothing of the normal saline, with which everyone is familiar.

II. Hypochlorous Acid.

Hypochlorous acid has been used in the forms *eusol* and *eupad*. The deodorizing effect is sometimes magical, especially when the dry *eupad* is applied to stinking, bruised, and dead tissues. But *eupad* so used is very caustic and very painful, and should only be applied by the surgeon himself. *Eusol* solution, on the other hand, is seldom painful, and is a good routine application, but some skins are very susceptible to it, and it must not be applied for long periods to wounds of the back of the hand, dorsum of foot, and of the neck, forearm, and wrist. It should always be freshly mixed, applied once or exceptionally twice daily, and should not be covered by protective. The drip method is specially useful in compound fractures, and in all lacerated wounds of the limbs where there is gas gangrene and foul smelling sores. *Eusol* is one of the best methods we have tried, and it need not be continued after the wound is fairly clean and free from smell. A sterile dressing is then quite sufficient.

III. Iodine.

Iodine in spirit or watery solution acts pretty much like hypochlorous solutions as a deodorant, while the spirit preparations act like the hypertonic salines, by inducing a serous flow. Iodine is very irritating to most skins, and the pain continues for some time after the dressing is applied.

IV. Spirit: Glycerine.

Methylated spirit or glycerine, alone or charged with antiseptics—for example, biniodide spirit, glycerine and ichthylol—both act like the hypertonic saline in producing free discharge, and require frequent changing. They do not cause so much pain, but are expensive to use in routine work.

V. Carbolic Acid.

Carbolic acid, when used pure, canterizes the surface, and is only feebly antiseptic, as its combination with albumin dams back all discharges. It is a useless application where there is deep destruction of tissue. It runs over and destroys the skin, and cannot be recommended as a first treatment for wounds of any kind. In solutions of 1 in 60 on double cyanide gauze it is quite good in a rush. Large quantities of the gauze can be kept moist in this solution in small enamelled *marmites*, as recommended to me by Colonel Wallace, and this method is specially useful in busy times. It is painless, can be applied to most wounds indiscriminately, and the dressing can be left entirely to nurses and even to orderlies in emergencies without risk. But carbolic is a weak destroyer of putrefactive organisms. The greatest danger in its application is the wringing of the gauze with the bare hand; this can be avoided by gloves or by applying the dressing moist with sterile forceps.

VI. Sterile or Double Cyanide Gauze.

Dry sterile gauze or the double cyanide gauze are both quite good dressings for visibly clean wounds, and if removed by hydrogen peroxide when too adherent are suitable for dressing such cases, and convenient for rushes. They are safer than moist dressings when applied with the bare hand carelessly.

VII. Hydrogen Peroxide.

Hydrogen peroxide cleans a cavity or surface quickly, and is a good deodorant, but is not satisfactory as a wet

dressing applied on gauze. The under layers become clogged and non-absorbent. It is a weak antiseptic, which at once produces its total effect if thus applied. Like protective, it checks drainage of discharges and promotes absorption. Its mechanical effect is practically its only recommendation as a lotion for dressing. It is quite good as a bath for foul-smelling wounds, either alone or with boracic.

VIII. Continuous Irrigation.

I have not said much regarding continuous irrigation of wounds, as only exceptional cases in quiet times can be so treated in casualty clearing stations. This is especially true in a tented unit.

IX. Vaccines and Serums.

Injectations of polyvalent serum has seemed to do good in many cases, especially when used before an operation on a granulating wound where bone has to be removed or a plastic operation done. There is less local reaction and less general disturbance if a full twenty-four hours is allowed to elapse between the injection and the operation.

CONCLUSION.

It is not so much the antiseptic dressing used as its intelligent application that matters. Almost any one of the methods we have tried will give average good results, but there are cases in which one application is more suitable and more easily applied than any of the others, and it is right here, to use an Americanism, that the specialist in surgery in a casualty clearing station comes in. He should never become an enthusiast in any one method of dressing, as he is then a danger to his patients and an embarrassment to his colleagues, to whom freedom of choice is as necessary to secure their intelligent interest as a change of method of dressing may be to the patient. No surgeon or dresser in a casualty clearing station should try to drive a one-horse shay and so become a menace to the recovery of not a few of his patients.

ACUTE URINARY INFECTION WITH PARATYPHOID B BACILLUS.

BY

C. WORSTER-DROUGHT, M.B.CANTAB.,

TEMPORARY LIEUTENANT R.A.M.C.,

AND

ALEX. MILLS KENNEDY, M.D.GLASG.,

TEMPORARY LIEUTENANT R.A.M.C.,

BACTERIOLOGIST TO THE ROYAL HERBERT HOSPITAL, WOOLWICH.

It is now generally recognized that the differentiation between typhoid and paratyphoid fevers is a problem that can only with certainty be solved by the bacteriologist. It has been said that some distinction may be made clinically, in so far as cases of paratyphoid fever usually run a much milder course. Recently, however, several deaths from paratyphoid fever have been reported, and it is probable that this clinical distinction will prove unreliable; further, with the more detailed study of all febrile cases, it seems likely that anomalous forms of the latter will be recognized.

The case herein reported illustrates acute urinary infection with the *B. paratyphosus* B, and, while exhibiting little in common with ordinary paratyphoid infection as hitherto recognized, presents several additional interesting features worthy of record.

The patient, a private in the A.S.C., aged 17, was admitted to hospital on December 31st, 1915, for "abdominal pain and incontinence of urine." He had had no previous illnesses, and had never been abroad. He was quite well up till the morning before admission, when he was seized with intense and frequent desire to micturate, but was unable to pass more than a small quantity of urine at frequent intervals. This condition persisted throughout the day, and he experienced a certain amount of pain across the lower part of the abdomen. During the night he was unable to sleep, and felt "shivery." The following day the abdominal pain was rather more severe, and the slightest desire to micturate was always associated with inability to control the flow. There was no vomiting, no diarrhoea, and he complained of only slight headache.

On admission, the skin was hot and dry, the tongue very furred, the temperature 103° F., and the pulse 112. There was some tenderness in the region of the bladder, but nowhere else in the abdomen, and a quantity of albumin was found on

examination of a catheter specimen of urine. Nothing could be made out in any of the other viscera, the heart and lungs were normal, and the spleen was not enlarged. The next day (January 1st) the patient was rather drowsy, incontinence of urine was present, and a specimen, on standing, showed quite an appreciable deposit of pus.

The patient's condition remained much about the same until January 6th, on which date bladder control was regained although frequency of micturition continued and pus was still present in the urine. There was some diarrhoea on January 5th only, but at no other time. On January 8th a small quantity of blood appeared in the urine and persisted until January 12th; but the pus persisted in considerable quantity until January 17th, when it was noticed to be very much diminished. On this latter date a few hyaline casts were observed.

On January 1st the patient was placed on treatment with the following mixture, which was continued three times daily throughout the illness:—Hexamine gr. x, sodii acid. phosph. gr. xv, syr. aurantii 3i, aq. ad 5i.

On January 3rd *B. paratyphosus B* was recovered from the urine in pure culture; it gave the usual sugar reactions and agglutinated strongly only with a specific paratyphoid B agglutinating serum. The same organism was again isolated from the urine in pure culture on January 10th. A blood culture on January 5th proved negative.

A vaccine was prepared from the *B. paratyphosus B* recovered from the urine, and on January 11th an initial dose of 50 million was administered. On January 13th the agglutination reaction of the patient's serum against his own *B. paratyphosus B* was tested, using the macroscopic method, and a completely positive result was obtained up to a dilution of 1 in 100. On January 12th *B. paratyphosus B* was again recovered from the urine in pure culture. By January 12th the patient was free from pain and stated he felt much better. On January 16th 100 million of the autogenous vaccine were given as a second dose, and on the following day it was noticeable that the amount of pus in the urine was enormously diminished.

There was continuous fever from the onset up to January 7th, the temperature varying from 104° F. to 101° F., and from January 7th to January 15th there was an habitual evening rise to 100°–101°, although the morning temperature was normal. From January 16th onwards the temperature remained normal. The pulse-rate varied with the temperature. During the first three days it ran between 100 and 120 per minute, then tended to be a little slower, and on January 7th it varied between 80 and 90. From January 7th to January 15th the pulse ran between 80 and 100, on three occasions only going beyond 100. From January 16th onwards the pulse varied between normal and 100, surpassing this limit on only nine occasions.

On January 18th no paratyphoid B or other organisms could be recovered from the urine, and no pus cells were observed on microscopical examination. On January 20th tenderness over the bladder had disappeared, frequency of micturition had gone, and the patient felt quite well; a very faint cloud of albumin only was present in the urine.

On January 22nd we again failed to recover any organisms from the urine, but a few pus cells were seen on microscopical examination of the centrifugized deposit. On January 23rd the third dose of vaccine was given—namely, 250 million. On the 27th a trace of pus could still be made out in the urine, and on the 29th a 500 million dose of vaccine was administered. On February 1st a slight local reaction to the vaccine was noticed for the first time, and the patient's serum was found to completely agglutinate his own *B. paratyphosus B* in dilutions up to 1 in 400. On February 5th no organisms could be recovered from the urine, and a fifth dose of vaccine, consisting of 750 million, was given. On February 13th 1,000 million of vaccine were given as a sixth dose, and on this date the urine was found to be free from albumin, although a few pus cells could still be detected. On the following day bacteriological examination of the urine failed to show any organisms.

On February 20th the urine was still free from albumin, and no pus cells could be detected whatsoever. On February 24th the seventh and last dose of vaccine was given, namely, 1,500 million. On March 10th a careful search was made of the urine and only a few degenerate bladder epithelial cells were found after centrifugalization. No pus cells or organisms were seen, and cultures proved sterile. The patient, perfectly well, left hospital on this date for a convalescent home.

The faeces were examined bacteriologically on February 22nd, March 1st, 5th, and 14th, but on no occasion was the *B. paratyphosus B* or other member of the typhoid group recovered.

The infection in this case appears to have chiefly affected the bladder, although one cannot exclude an associated pyelitis which possibly was also present, but in a considerably slighter degree. The onset of the illness in its suddenness resembled ordinary paratyphoid fever, and in which "a feeling of chilliness is also common."¹ Apart from the localization of the infection the present case was markedly atypical in other respects. The pulse was not relatively slow (80 per cent. of cases), but was increased in rate in proportion to the rise in temperature; the spleen was at no time enlarged (50 per cent. of cases); there were no "spots" during the course of the illness (75 per cent. of cases), and no vomiting or abdominal tenderness beyond the early tenderness over the hypogastrium. In typical

paratyphoid fever diarrhoea is common during the first second, and third days, and it is a striking feature of our case that diarrhoea should not have occurred until the sixth day and then ceased on the day following.

It has been observed that in certain cases the *B. paratyphosus B* shows a marked tendency to pus formation; thus, among the purulent infections described are splenic abscess, suppurative orchitis, empyema, liver abscess, lung abscess, and peritonitis without perforation.² All these conditions, however, occurred following, or as a complication of more or less typical attacks of paratyphoid fever. H. Robinson,³ in commenting on a long series of paratyphoid cases, mentions, among complications, the fact that cystitis occurred once, and in this case *Bacillus paratyphosus A* was isolated from the urine. Stolkind,⁴ who is convinced that paratyphoid as well as typhoid infections are symptom-complexes, also states that cases of infection of separate organs have been met with—for example, appendicitis paratyphosa, cystitis paratyphosa, etc. He also describes, *inter alia*, an influenzal or respiratory form, but even in these cases the patients seem to show a large spleen and "spots."

It would appear, further, from a perusal of the literature, that it is by no means common to find paratyphoid bacilli in the urine during the course of an ordinary attack of paratyphoid fever. Fortescue-Brickdale,⁵ Dawson and Whittington,⁶ and others mention cases, but references are not numerous. As far as we are aware, urinary carriers of *Bacillus paratyphosus B*—that is, the bacillus occurring in the urine of otherwise healthy subjects—have not yet been reported. Wiltshire,⁷ in an examination of 98 cases of paratyphoid fever, says: "Kidney and bladder complications were very rare. In many cases . . . the urine was examined carefully for possible renal complications, always with negative results." Incontinence, apart from pyuria, sometimes occurs in severe paratyphoid, and was present in a few of Willcox's cases.¹

In connexion with our case it is interesting to recollect that in urinary carriers of typhoid the *B. typhosus* has its habitat generally in the renal pelvis, which is usually chronically inflamed, and it has also a secondary habitat in the chronically inflamed bladder.⁸ In fatal cases of typhoid fever the renal pelvis is often found congested, but the ureters and bladder are usually normal, though signs of cystitis may be found at times. In contrast to paratyphoid, bacilluria occurs in about one-third the cases of typhoid, although pyuria is recognized as a rare complication. Pyelitis sometimes occurs (Osler), and Patrick⁹ has recorded one fatal case of typhoid in which multiple abscesses were found in the kidneys *post mortem*.

In conclusion, to summarize the chief features in the case recorded above, we note:

1. Pyuria due to a pure infection with *B. paratyphosus B*.
2. The absence of the usual signs of paratyphoid fever.
3. The successful treatment with autogenous vaccine and hexamine.
4. The patient had not been abroad.

REFERENCES.

- ¹ W. H. Willcox, *Lancet*, February 26th, 1916. ² J. H. Torrens and T. H. Whittington, *BRITISH MEDICAL JOURNAL*, November 13th, 1915. ³ Henry Robinson, *Lancet*, October 16th, 1915. ⁴ Stolkind, *Lancet*, January 15th, 1916. ⁵ Fortescue-Brickdale, *BRITISH MEDICAL JOURNAL*, December 25th, 1915. ⁶ Dawson and Whittington, *Quart. Journ. of Med.*, January, 1916. ⁷ Wiltshire, *Practitioner*, January, 1916. ⁸ Castellani and Chalmers, *Manual of Tropical Medicine*. ⁹ Patrick, *Journ. of Path. and Bact.*, January, 1914.

A CASE OF GANGLIO-NEUROMA OF THE SYMPATHETIC.

By DAVID RUTHERFORD ADAMS, M.D.,
ASSISTANT SURGEON, KILMARNOCK INFIRMARY.

ABOUT six cases of ganglio-neuroma have been recorded in Great Britain.¹ The history of this case is as follows:

A well-developed male child, aged 3 years, was admitted to Kilmarnock Infirmary on October 2nd as a case of acute intestinal obstruction from intussusception.

Twenty-four hours previous to admission he began to complain of severe pain in the abdomen, which was observed to be swollen and hard. Blood and mucus, with a small quantity of faeces, were passed several times by

the bowel. His condition was ascribed to a known indiscretion in diet. He had had no previous illness.

On admission the child looked ill and was very restless. The temperature was 104° F., pulse 160, and respirations 36. The abdomen was freely palpable. A swelling could be felt occupying the right iliac and right hypochondriac regions. It was immovable, very hard, and apparently circumscribed. Although the outline of the mass could not be entirely determined, the tumour appeared to be adherent along its deep surface, while the abdominal wall was freely movable over it. On palpation the whole mass seemed to be smooth, and of the size and shape of a large orange. A provisional diagnosis of sarcoma or of tuberculous glands was made.

The following morning laparotomy was performed. The abdomen was tense. The intestines were nowhere adherent, the ileum and part of the ascending, the transverse, and the descending colon were very red and inflamed, and about 6 in. of the ileum was collapsed, apparently from pressure. There was no farther sign which might have indicated a previous intussusception, and acute colitis was evident.

Behind the intestines, and pushing them over to the right and down into the pelvis, a large mass was found situated retroperitoneally along the right side of the bodies of the last four lumbar vertebrae, with the external iliac artery and vein crossing it superficially. The psoas muscle was behind the tumour and it appeared to be flattened. The tumour was immovable, and firmly adherent along its central and posterior surfaces; it was not adherent to the aorta. The condition was thought to be due to a sarcoma arising from the periosteum of the bodies of the vertebrae. A wedge-shaped piece was taken out of the substance of the growth for microscopical examination; a considerable amount of haemorrhage took place from the wound thus formed.

The child died the following day. The tumour was easily removed *post mortem*, it being apparently capsulated and only bound down by connective tissue to the sheath of the psoas muscle. No glandular involvement could be made out, and the kidneys and suprarenals were free from any implication in the tumour growth.

The tumour was kidney-shaped and rather flattened on its deep and central surfaces. Its length was 11 cm., breadth 9 cm., thickness 7 cm., and its weight 226.8 grams. The general appearance of the tumour was very like that of a fibromyoma. On section there was seen to be a very definite fibrous capsule. The substance of the tumour was firm, tough, and resilient. The cut surface was smooth and in some places glistening. White, grey, and yellow fibres could be distinguished in a general felted mass.

Microscopical sections were stained with the usual stains and also for axis cylinders, myelin, Nissl's bodies, fat and glia. It was easy to recognize that the great mass of the tumour was composed of nerve fibres supported in a fibrous tissue stroma. Both medullated and non-medullated nerve fibres were present. Large numbers of ganglion cells, similar to those of normal sympathetic ganglia, were seen in groups scattered throughout the growth. There were also many developmentally early ganglion cells, the so called sympathoblasts. The growth was non-malignant, and there was no metastasis.

I have to thank my chief, Dr. W. McAlister, for permission to publish this case.

REFERENCES.

¹ Paterson, *Lancet*, 1913, vol. ii, p. 937. ² Dunn, *Journal of Pathology*, 1915, vol. xix, p. 456. ³ Dunn and Monro, *Glasgow Medical Journal*, August, 1914. ⁴ Dunn, *ibid.*, August, 1915. ⁵ Cripps and Williamson, *British Medical Journal*, 1899.

SIR WILLIAM TURNER, Vice-Chancellor and Principal of the University of Edinburgh, left personal estate in the United Kingdom valued at £71,467, of which £33,730 is in Scotland.

In the summer term of 1914, the last academic peace term, there were 4,750 foreign students attending the German universities. In the summer term of 1915 this figure had fallen to 1,305, owing, as is alleged, mainly to the expulsion of about 2,600 students from hostile countries. It is, however, claimed that even in 1915 there were 62 Russians, 2 British, 5 Italians, and 1 Belgian students resident in Germany. Among the foreign students were 150 women.

THE THERAPEUTIC VALUE OF HYPOCHLOROUS ACID.

BY

RAÚL FLORES CORDOVA, M.D. LIMA.

(From the Lister Institute of Preventive Medicine, London.)

In October of last year I communicated to the *BRITISH MEDICAL JOURNAL*¹ some experiments on the neutralizing effects of hypochlorous acid on diphtheria toxin, and drew attention to the resistance the animal body offers to large quantities of the solution used.

During the last nine months various investigators have dealt with the hypochlorites as antiseptics—Lorrain Smith, Murray Drennan, Rettie and Campbell,² Dakin,³ Schütze⁴—and also given the results of treatment by intravenous injection—Lorrain Smith, Ritchie and Rettie,⁵ and Brand and Keith,⁶ in cases of puerperal infections; Fraser and Bates,⁷ in cases of toxæmia consequent to gas gangrene.

In this paper I publish further and more detailed experiments to determine the antitoxic and antiseptic power of hypochlorous acid *in vivo*.

It has been shown by Dakin³ that *in vitro* staphylococci suspended in saline are killed within two hours by sodium hypochlorite, 1 in 500,000, but that when serum is present a concentration of 1 in 1,500 is needed.

It has been thought, therefore, important to prove experimentally (1) which is the highest concentration of HClO tolerated by animals, and (2) what is the lowest concentration producing an antiseptic or antitoxic effect.

Rabbits of about 2 kilos in weight and therefore with approximately 90 c.cm. blood were used. The HClO solution employed was ensol with a hypochlorous acid concentration of 0.5 per cent, physiological saline being used in place of water and CaCl₂ added on account of its antitoxic properties; it is prepared as follows:

To 800 c.cm. physiological saline add 10 grams bleaching powder and 10 grams boric acid, shake vigorously, allow to stand for two or three hours, then filter and add to the filtrate 2 grams of chemically pure calcium chloride. The solution now contains HClO in a strength of between 0.5 and 0.6 per cent; saline is added until the required concentration of 0.5 per cent is reached. Owing to its instability the solution must not be used longer than three days after preparation.

While 20 c.cm. of this HClO solution, giving a concentration of about 1 in 1,100 in the blood of the animal, were generally well tolerated, 10 c.cm. proved to be entirely harmless, and the concentration of about 1 in 2,000 that resulted appeared, moreover, to be near the limit of efficiency; 5 c.cm. doses (about 1 in 3,800) seldom led to beneficial results.

Attention may be drawn to the fact that a great number of toxins of bacterial origin are considered to be of an albuminoid nature (Brieger and Fraenkel,⁸ Brieger and Boer,⁹ Etienne Burnet¹⁰); it is possible, therefore, that hypochlorous acid may neutralize toxins by coagulating and eventually precipitating them.

The following tables show the efficacy of 10 c.cm. doses of the HClO solution in certain artificially produced infections and toxæmias.

TABLE I.—Diphtheria Toxin.

Rabbit.	Dose of Toxin Injected Subcutaneously	Quantity of HClO Solution Injected Intravenously.				Results.
		Immediately	After 24 hrs.	After 48 hrs.	After 72 hrs.	
1	10 L.D.	10 c.cm.	10 c.cm.	—	—	Animals remain healthy.
2	10 L.D.	10 c.cm.	10 c.cm.	—	—	
3	10 L.D.	10 c.cm.	10 c.cm.	—	—	
4	10 L.D.	—	10 c.cm.	10 c.cm.	—	
5	10 L.D.	—	10 c.cm.	10 c.cm.	—	After 5 days paralysis of the legs.
6	10 L.D.	—	10 c.cm.	—	10 c.cm.	
Control	10 L.D.	—	—	—	—	Dead after less than 48 hours.

TABLE II.—*Tetanus Toxin.*

Rabbit.	Dose of Toxin Injected Subcutaneously.	Quantity of HCIO Solution Injected Intravenously.			Results.
		After 24 hrs.	After 48 hrs.	After 72 hrs.	
1	0.1 c.cm.	10 c.cm.	—	10 c.cm.	Tetanus.
2	0.1 c.cm.	10 c.cm.	10 c.cm.	—	Healthy.
3	0.1 c.cm.	10 c.cm.	10 c.cm.	—	
Control	0.1 c.cm.	—	—	—	Tetanus.
SERIES B.					
4	0.25 c.cm.	10 c.cm.	10 c.cm.	—	After 4 days tetanus; recovered after 10 days.
5	0.25 c.cm.	10 c.cm.	10 c.cm.	—	
6	0.25 c.cm.	10 c.cm.	10 c.cm.	—	
Control	0.25 c.cm.	—	—	—	Dead after 4 days
SERIES C.					
7	0.50 c.cm.	10 c.cm.	10 c.cm.	10 c.cm.	Dead after 7 days.
8	0.50 c.cm.	10 c.cm.	10 c.cm.	10 c.cm.	Dead after 11 days.
9	0.50 c.cm.	10 c.cm.	10 c.cm.	10 c.cm.	Dead after 7 days.
10	0.50 c.cm.	10 c.cm.	10 c.cm.	10 c.cm.	Healthy.
11	0.50 c.cm.	10 c.cm.	10 c.cm.	10 c.cm.	Dead after 8 days.
Control	0.50 c.cm.	—	—	—	Dead after 4 days.

TABLE III.—*Staphylococcus pyogenes aureus.*

Rabbit.	Number of Micro-organisms Injected Intravenously.	Quantity of HCIO Solution Injected Intravenously.			Results.
		Immedi-ately.	After 24 hrs.	After 48 hrs.	
1	50 million	10 c.cm.	10 c.cm.	—	Animals remain healthy.
2	50 "	10 c.cm.	—	10 c.cm.	
3	50 "	10 c.cm.	—	10 c.cm.	
Control	50 "	—	—	—	Dead after 48 hrs.
SERIES B.					
4	100 million	10 c.cm.	10 c.cm.	—	Animals remain healthy.
5	100 "	10 c.cm.	10 c.cm.	—	
6	100 "	10 c.cm.	10 c.cm.	—	
7	100 "	10 c.cm.	10 c.cm.	—	
8	100 "	10 c.cm.	10 c.cm.	—	Dead after 10 days.
Control	100 "	—	—	—	

TABLE IV.—*Bacillus perfringens.*

Rabbit.	Number of Micro-organisms Injected Subcutaneously.	Quantity of HCIO Solution Injected Intravenously.			Results.
		After 24 hrs.	After 48 hrs.	After 72 hrs.	
1	50 million	10 c.cm.	10 c.cm.	—	Animals remain healthy.
2	50 "	10 c.cm.	10 c.cm.	—	
3	50 "	10 c.cm.	10 c.cm.	—	
4	100 "	10 c.cm.	—	10 c.cm.	Dead after 3 days.
5	100 "	10 c.cm.	—	10 c.cm.	Healthy.
6	100 "	10 c.cm.	—	10 c.cm.	Healthy.
Control	100 "	—	—	—	Dead after 48 hrs.

CONCLUSIONS.

It has been found that in rabbits 10 c.cm. intravenous doses of a 0.5 per cent. HCIO solution, even when repeated on two or three days in succession, produce no ill effects, that they may delay or prevent the onset of symptoms due to the injection of the animals with diphtheria and tetanus toxins, and with cultures of *Bacillus perfringens* and *Staphylococcus pyogenes aureus*, the rabbits recovering from the infection or remaining healthy.

Hypochlorous acid intravenously administered is therefore to be regarded as of therapeutic value; the antiseptic apparently delays the development of bacteria and destroys their toxins, thus enabling the natural resistance of the animal to assert itself.

It is suggested that this destruction of toxins may be in the nature of a protein coagulation.

REFERENCES.

- ¹ Flores Córdova, BRITISH MEDICAL JOURNAL, October 2nd, 1915, p. 504. ² Lorrain Smith, Murray Drennan, Rettie, and Campbell, *Ibid.*, July 24th, 1915, p. 129. ³ Dakin, *Ibid.*, August 28th, 1915, p. 318. ⁴ Harry Schütze, *Ibid.*, December 25th, 1915, p. 921. ⁵ Lorrain Smith, Ritchie, and Rettie, *Ibid.*, November 13th, 1915, p. 716. ⁶ Brand and Keith, *Ibid.*, March 18th, 1916, p. 415. ⁷ John Fraser and H. T. Bates, *Ibid.*, January 15th, 1916, p. 83. ⁸ Brieger and Fraenkel, *Berl. klin. Woch.*, 1890, Nos. 11, 12. ⁹ Brieger and Boer, *Deut. med. Woch.*, No. 49, December 3rd, 1896. ¹⁰ Etienne Burnet, *Microbes et toxines*, 1912, p. 179.

A SIMPLE METHOD FOR THE INTRAVENOUS INJECTION OF EUSOL.

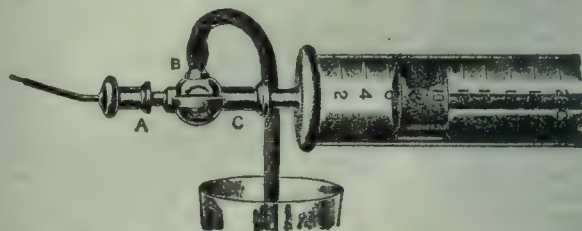
BY

JAMES M. GRAHAM, M.B., F.R.C.S.Ed.,

INTERIM ASSISTANT SURGEON, ROYAL INFIRMARY, EDINBURGH;
ASSISTANT SURGEON, DEACONESS HOSPITAL, EDINBURGH.

THE intravenous injection of eusol has been recommended by Lorrain Smith, Ritchie, and Rettie¹ to combat the toxæmia in cases of septic infection. Encouraging results have been recorded,² and the method of treatment has opened up a new field of investigation. The object of this note is to describe a simple method of injecting the solution by means of a syringe and needle. It is preferable to introduce the solution without exposing the vein by incision, as the patient is less disturbed by the simpler procedure, and it may be necessary to repeat the injection several times. It is further of advantage to employ a syringe rather than a funnel and tubing attachment to the needle, as the rate of injection can thereby be more readily controlled.

A 20 c.cm. Record syringe, is of suitable size, but the capacity of the syringe is not important. To avoid the necessity of detaching the syringe from the needle, for the purpose of refilling, a simple two-way cannula is employed fitted with a stopcock. The ends of the cannula are moulded to fit easily but firmly on to the syringe at (c) and to the needle at (A). A lateral



Syringe, cannula and needle for intravenous injection of eusol.

opening is placed at (B) and connected by rubber tubing to the flask containing the solution of eusol. By turning the stopcock the syringe can be connected either with the needle, as seen in the diagram, or with the eusol solution by means of the lateral opening. It is best to use a fine needle, as the rate of injection should be slow—usually about 10 c.cm. in one minute. In the case of small veins also a fine needle is more likely to penetrate the wall of the vein successfully. If the needle is slightly bent, as seen in the diagram, there is less chance of puncturing the vein a second time. A superficial vein in front of the elbow is usually available. If there be difficulty in finding a suitable vein, the patient should be kept in a warm atmosphere for some time before the injection. In cases where no vein can be demonstrated, even with a tourniquet, the arm should be placed for a few minutes in a hot-air or hot-water bath.

Before insertion the needle should be attached to the cannula and the cannula to the syringe, so that the entire apparatus is rigid and easily controlled. There should be a few cubic centimetres of saline in the syringe, and after puncturing the vein the plunger should be slightly withdrawn; if the vein has been successfully entered, a stream of blood will be drawn into the syringe. The saline within

the syringe should be injected next, in order to make certain that there is no leak. The stopcock is now turned and the syringe filled by withdrawing the plunger. After reversing the stopcock, the eusol is slowly injected into the vein. This process is repeated till the desired amount is injected. At the conclusion a syringe of saline should be introduced. The initial dose should be from 50 to 100 c.cm., but later as much as 150 c.cm. may be given. Care must be taken not to inject any eusol into the tissues, as even a few drops will cause severe pain.

The solution injected is eusol, to which common salt has been added in the proportion of 8.5 grams per litre. It is prepared by shaking up 25 grams of a mixture of equal parts of chloride of lime and boric acid in 1 litre of water and subsequently filtering; to the filtrate 8.5 grams of common salt are added. Before injection the solution of eusol should be warmed to about the blood temperature by placing the containing flask in a basin of hot water.

It is important to note that it is essential to adhere strictly to the directions given for the preparation of eusol, which is a balanced mixture containing about 0.5 per cent. hypochlorous acid and 1.2 per cent. calcium borate.³ The presence of the borate gives the solution a reaction faintly alkaline to litmus.

It has already been pointed out that it is impossible to inject either free hypochlorous acid alone or solutions of sodium hypochlorite.⁴

REFERENCES.

¹ BRITISH MEDICAL JOURNAL, November 13th, 1915. ² Fraser and Bates, *ibid.*, January 15th, 1916; Brand and Keith, *ibid.*, March 18th, 1916. ³ *Ibid.*, July 24th, 1915. ⁴ *Ibid.*, January 29th, 1916.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

AN UNUSUAL CASE OF MUMPS.

Miss McC., aged 22, a student at a physical training college, returned from Scotland on January 27th, 1912. On January 29th she gave a lesson in a school where mumps had been prevalent for several weeks. On February 1st she was skating for several hours. During that night she was seized with vomiting and acute abdominal pain. The vomiting ceased by the morning, but the pain remained, and was treated by hot fomentations. I saw her first on the morning of February 3rd. She then complained of considerable abdominal pain about two inches above the umbilicus. The abdomen was rigid and flat; the temperature was 102°, and the pulse 100. There was a history of constipation. She was given one ounce of castor oil and the hot fomentations were continued. By the evening her bowels had acted four times, and some scybalous masses had passed. The pain was now referred to the region of the descending colon, which appeared to have still some hardened faecal masses in it. She was given a simple enema, which acted well, more scybala passing. The pain then passed to the left ovarian region, where it remained till the evening of February 6th, when the temperature, which had kept between 100° and 102°, dropped to normal; on February 7th it again rose to 101°, and she had pain to the right of the middle line over the right ovarian region. This pain continued, and on February 9th there was fullness and dullness over its seat; this increased, and on the morning of February 11th Mr. Gifford Nash saw the patient with me. He found the lower part of the abdomen doughy and oedematous, with rigidity of the abdominal muscles. By digital examination the rectum was found to be ballooned and considerable exudation round it. She was removed to the nursing home for observation.

On the morning of February 12th both parotid glands showed the typical swelling of mumps, the fullness of the abdomen was less, and the tenderness considerably diminished. By February 21st the patient was convalescent, all parotid swelling had gone, and also the fullness and tenderness from the abdomen. From the sequence of events, it would appear that the pancreas was first affected, then the left ovary, after that the right ovary, and finally both parotids simultaneously.

There is no history of the patient being exposed to infection before her return here. Is it possible that she

received the infection on January 29th when teaching in the infected school? Fourteen to twenty days is the usual incubation period for mumps according to most writers, but Fagge in his book says from six to twenty-one days.

I wish to express my gratitude to Mr. Gifford Nash for his kind advice and valuable assistance in this rather puzzling case.

ANDREW CHILLINGWORTH, L.R.C.P.Ed.,
M.R.C.S.Eng.

Bedford.

AVULSION OF THE DISTAL PHALANX OF THE THUMB.

A DRIVER of the A.S.C. was exercising a mule when the animal bolted, and the man was thrown off his feet and dragged, owing to the fact that his right thumb in a woollen glove had been caught in a small ring in the harness. A ditch chancing to cross the path the man dropped into it and came to a dead stop, with the result that the distal phalanx of the thumb, still clothed in the glove, cleanly severed, was torn off, carrying with it the tendon and belly of the flexor longus to a length of 9½ in.

ROBERT SCOTT, M.B.,
Temporary Lieutenant R.A.M.C.

Reports

ON

MEDICAL AND SURGICAL PRACTICE IN
HOSPITALS AND ASYLUMS.

BOLINGBROKE HOSPITAL, WANDSWORTH.

THE TREATMENT OF SEPTICAEMIA BY "FIXATION ABSCESS."

(By J. D. SPEID SINCLAIR, M.B., Ch.B., Resident
Medical Officer.)

THE history of the following case is one of three months' duration, and so typical of septicaemia that I shall confine my remarks to the more salient features, without entering into the minute details of the course of the illness.

Mrs. L., aged 39, was admitted on October 19th, 1915, suffering from septicaemia following confinement a month previously. Physical examination was negative except for a slight presystolic murmur at the apex. There was no discharge from the vagina; the uterus was freely movable and normal in size. She complained of no pain, and no tenderness was elicited in the pelvis on vaginal examination.

Course.

The temperature ranged between 100° morning and 103° to 104° and sometimes 106° in the evening, accompanied by rigors, and so continued for two and a half months, in spite of treatment.

The usual methods of treatment, including antistreptococcic serum, and stock vaccine, were tried, but her condition remained unaltered.

As she was becoming progressively weaker I decided to try treatment by "fixation abscess." Turpentine (m 20) was injected under the skin below the angle of the right scapula. As this unfortunately caused considerable pain fomentations were applied every three hours. In forty-eight hours the injected area became red and swollen; on the third day after injection I detected slight fluctuation, and made an incision into the abscess, but very little pus exuded. Fomentations were continued and resulted in a copious discharge of thick pus, the patient meanwhile being more comfortable and comparatively free from pain. On the fourth day after incising the abscess a large slough was removed, and the temperature dropped to 99° and remained so for four days, when it went up to 102°, with a rigor. After the rigor the temperature became 99° and next day 98.4°. On the following day it rose to 104°, accompanied by a rigor, after which it became normal and remained so. She was discharged in due course perfectly well.

By this method of treatment the actual microbe responsible for the patient's infection is employed to stimulate the antibodies, a guarantee which cannot be given even with an autogenous vaccine.

Reports of Societies.

SHAKESPEARE AND MEDICINE.

At a meeting of the Medical Society of London held on May 1st, the President, Lieutenant-Colonel WILLIAM PASTEUR being in the chair, Sir STCLAIR THOMSON delivered the annual oration, choosing for his subject "Shakespeare and Medicine."

Sir STCLAIR THOMSON, in the course of his oration, said that in this tercentenary commemoration it was surely very right that our profession should pay its tribute of recognition to our greatest genius, for after the great poetical subjects of love, hate, ambition, and war, there were probably no matters so frequently dealt with by Shakespeare as those in which the medical profession was concerned. There was a special reason why the Medical Society of London should take a particular interest in the most many-sided man the world had ever known, for its library contained the only authentic record of his death. This was found in the Commonplace Book of the Rev. John Ward, vicar of Stratford-on-Avon, commenced thirty-two years after the poet's death. In one of the sixteen duodecimo volumes of this work appeared

Shakespeare, Drayton, and
Ben Jonson had a merry
meeting and it seems
drank too hard for
Shakespeare died of a
feavour there contracted.

There was no need to surmise that Shakespeare actually studied medicine, but there was abundant material to show that he had a knowledge and comprehension of it that was simply marvellous. We could appreciate and enjoy and benefit by all that poets had seen and written, without attributing to them prophetic or superhuman powers. So with the medical references in Shakespeare, the science of his medicine was decidedly of his own period, and, like all science, it had moved forward. His profound knowledge of human life and human nature remained and explained why he is, and must always be, one of our greatest masters of medicine. The mere references to various diseases, symptoms, drugs, and so forth need not be collected as remarkable evidence of the great poet's medical knowledge or insight. Sir StClair Thomson said he would refer to such matters and to Shakespeare's knowledge of contemporary medicine very briefly, and give more consideration to his astonishing acuteness of observation, his familiarity with the ways and thoughts of frail humanity, his discrimination of disease according to age, sex, and circumstances, his sensitive regard for our "brittle life," his sweet reasonableness and deep human sympathy, and his profound knowledge of that part of physiology and pathology which might be studied in the daily life of the street, the market, the tavern, the Court, the camp, or the home. These were subject to no errors of investigation; they were eternally true. The whole gamut of human life was epitomized by the humorously melancholy Jaques in twenty-eight pregnant lines.

The orator then spoke briefly of the state of medicine in the sixteenth century, and pointed out that Shakespeare, by the marriage of his eldest daughter, Susanna, with Dr. John Hall of Stratford, had plentiful opportunities for becoming acquainted with the life, habits, and ways of thought of a medical man and for picking up a fairly intimate knowledge of the practice of medicine 300 years ago.

Out of thirty-six plays medical characters were represented six times: (1) Dr. Caius in the *Merry Wives of Windsor*; (2) an English doctor, and (3) a Scottish doctor in *Macbeth*; (4) Dr. Butts in *Henry VIII*; (5) Cornelius in *Cymbeline*; and (6) the physician in *King Lear*. No character represented a surgeon. Dr. Caius was treated more as a figure of fun than as a regular physician, and it was probable that Shakespeare meant to represent a quack and not the learned Dr. Caius. Dr. Cornelius was possibly suggested by the famous physician of Charles V and simply adapted for dramatic purposes. The Dr. Butts represented in the fifth act of *Henry VIII* was no doubt Dr. William Butts, Fellow of Gonville Hall, Cambridge, and of the College of Physicians, who lies buried in

Fulham Church. Cornelius played with honour and astuteness a difficult part when the Queen asked him for poison, and the physician of King Lear played his part well and sympathetically. Cerimon in *Pericles* was both a physician and a nobleman, so that the good social status of the medical man was here accepted and illustrated. No nobler panegyric of our profession could be written than that put in the mouth of Cerimon.

Quacks, who flourished abundantly in the period, were portrayed in several plays. Among such characters were Pinch, Friar Lawrence, and Helena. Quacks and medical mountebanks were found in the earlier plays, and the first practitioner of medicine for whom Shakespeare did not entertain contempt was the physician in *King Lear*, which was written about 1606, the year before the poet's daughter married Dr. Hall.

Shakespeare showed an astonishing familiarity with many purely professional or technical matters, and manifested an intimate knowledge of the history of medicine. He employed medical terms which no ordinary playwright would know how to introduce. The diseases most frequently referred to were ague, rheumatism, plagues, pestilence, fever, measles, the sweat, and leprosy, but casual mention was made of many others. Their mere mention was of no moment; what should give us pause were the frequent flashes of genius which were revealed by the insight sometimes given of the appearances, character, and progress of the disease or of the patient. That the poet should so often ascribe mental characteristics to pathological states was surprising considering the age in which he lived. By quotations the orator illustrated Shakespeare's acquaintance with a deposit of lithates, the treatment of the *embonpoint* of success, digestion, chlorosis, goitre, epilepsy, crisis, and the well-known tests of life.

A large number of herbs and drugs and other preparations were mentioned by Shakespeare. What was of more striking and general interest was the evidence of the remarkably wise and reasonable views which Shakespeare manifested on the subjects of treatment, diet, and hygiene. He did not overestimate the help of medicine, and indicated the *vis medicatrix naturae*. He justified the custom of medical note taking. Music as a remedy, especially in mental states, was frequently mentioned.

Shakespeare's medicine reflected that of the period, for in his plays were found the doctrines held at that time. Such were the belief that our bodies consist of four elements—fire, air, earth, and water; the doctrine of "humours," and the view that plants possess peculiar powers if plucked at night, and during particular phases of the moon; the old beliefs in the influence of the planets on disease, and of the moon on the mind, and that toothache is caused by a humour or a worm. Even the quackery of his age was reflected in his pages—for example, that of water-casting. He was well acquainted with blood-letting—the practice of the period—and made frequent reference to the blood and circulation, though in the latter he naturally reflected the view which preceded Harvey's discovery.

The orator then, by many quotations, illustrated Shakespeare's knowledge of the voice, consumption, air and climate, syphilis, cancer, obstetrics, public health, mental diseases, surgery, and vivisection.

Shakespeare's deep sympathy with the tragedy of suffering shone out from every page of his plays. In his concluding section Sir StClair Thomson demonstrated the insight which the poet had into the influence of sympathy upon the patient, the relationship between hope and prognosis, the value of mirth and distraction, the virtues and evils of alcohol, the advantages and effects of abstinence, the horrors of insomnia and the benefits of sleep, the characteristics of our "sad humanity" as it falls into "the sere, the yellow leaf," and finally into the attributes of death.

Shakespeare's plays would be read by physicians when every medical treatise of the present year would have been completely eclipsed, and they would continue to be studied by future generations until "there shall be no more death, neither sorrow nor crying, neither shall there be any more pain."

Sir SIDNEY LEE, in proposing a vote of thanks to the orator, congratulated him on making a notable contribution to the celebration of the tercentenary. Mr. D'ARCY POWER, who seconded, said that the imperfect writing in

the poet's autograph suggested to him the effect of disease rather than of illiteracy, as some supposed.

The vote having been passed with acclamation, the meeting was adjourned.

There were displayed many exhibits which were related to Shakespeare and his time. These included some from the Wellcome Historical Medical Museum comprising *materia medica* mentioned in his plays, prints of medical men of the period, engraved portraits of Shakespeare, his house at Stratford-on-Avon, the Globe Theatre, and of a copy of the bust above his tomb, an enlarged photograph of a London apothecaries' shop of the period, oil paintings of a urine-caster and of blood-letting, portraits in oils of Sir William Butts and Dr. Caius, two London Delft pots used in Shakespeare's time, and a touch-piece and proclamation used in connexion with the royal cure of the King's evil. A selection of medical and surgical works from the library of the society, augmented by loans from the libraries of Dr. Lloyd Roberts, Dr. A. F. Voelcker, and Mr. D'Arcy Power, and from the Historical Medical Museum, was also on view. Other exhibits were a cross made from Shakespeare's crabtree, lent by Mr. D'Arcy Power; an unknown portrait of Shakespeare, lent by Dr. de Havilland Hall; medicine jars, lent by Dr. Mitchell Bruce; and bookplates of the Shakespeare Memorial Library from the collection of Mr. Bethell.

THE INFLUENCE OF ANAESTHETICS ON THE BODY TEMPERATURE.

At the annual general meeting of the Section of Anaesthetics of the Royal Society of Medicine on April 14th, the President, Dr. HAROLD LOW, in the chair, Dr. M. S. PEMBREY and Dr. F. E. SHIPWAY read a paper in which they pointed out that the influence of anaesthetics on the temperature might be exerted upon the loss of heat, the production of heat, or upon both of these processes. In man the practical methods of observation were the determination of the deep and surface temperatures, and, as a measure of the production of heat, the determination of the respiratory exchange. They had used the former method in man. Deep anaesthesia abolished the regulation of both the loss and production of heat, so that the response of the warm-blooded animal to external heat and cold resembled that seen in cold-blooded animals; a fall of external temperature diminished, a rise increased, the production of heat. It was this fact which complicated the problem. The internal temperature of a patient might show a fall, a rise, or no change, according to the conditions involved during the period of anaesthesia. A fall in the rectal temperature from 100° to 97° was within physiological range, when the whole extent of the daily variations in temperature was considered, but in the case of an anaesthetized patient subjected to an operation in a warm theatre (72° to 74° F.), such a fall might occur within one hour. During short operations of slight severity precautions against the loss of heat were not urgent, for in an adult there was, owing to the mass of the body, a reserve of heat not rapidly dissipated in a hot theatre. In such cases the advantages of warm ether as compared with cold might not be so apparent. On the other hand, in the case of a long operation or an operation upon a patient possessing low resistance the difference might be of great practical importance.

The authors had used an "open method," in which ether was dropped continuously on to two layers of domette or about twelve layers of gauze spread over a Schimmelbusch mask, which was so closely applied to the face that the whole of the respiratory current passed through the fabric on the mask. In the case of warm ether the end of the tube from the apparatus was placed under the mask and ether vapour pumped in just before each inspiration. The mask rested upon a shaped pad of flannel. With this method the temperature under the mask through which the patient breathed varied from 48.2° to 78.8° with cold ether, whereas with warm ether it was about 90°. A patient breathed about 5 litres of air per minute, and the expired air was raised to 96° or thereabouts. It was obvious, therefore, that more heat must be lost from the respiratory tract, although the expired air with cold ether might not be warmed to the same extent.

With such an "open method" they had never observed a lower temperature in the inspired air under the mask than 48.2°, the temperature of the air of the theatre being 77°, and they thought that some explanation was necessary for the exceedingly low temperature recorded by some observers. The air in the mask was being warmed constantly by the skin of the face and every few seconds by the expired air. For example, with a Schimmelbusch mask of two layers of domette and a pad placed over the face the temperature of the air was 91.4° to 93.2° five minutes after the mask had been placed over the face, the temperature of the room being 71.6° to 73.4°. The mask and pad were removed from the face and ether dropped upon the domette as during an administration; the temperature of the air fell to 32°; they were immediately placed over the face, and within one minute the temperature of the air rose to 61.7°. As regards the temperature of the body, observations of the rectal temperature were necessary. The surface temperature of the skin might rise under the influence of ether owing to dilatation of cutaneous vessels, and thus increase the loss of heat so much that the internal temperature fell. With warm ether the loss of heat from the skin could be more readily compensated. The excitability of the medulla was increased by a rise, diminished by a fall, in the internal temperature. This effect upon the respiratory centre was well known, and in a more pronounced form was seen in heat polypnoea or dyspnoea. The heart was stimulated by warmth, and the exchange of gases between the blood and the tissues was facilitated by a rise, delayed by a fall, in temperature.

A normal man reacted to external cold by diminishing his loss and increasing his production of heat. The anaesthetized man, paralysed for sensation and movement, had lost this control, and the level of the chemical changes which were a measure of vital activity could be maintained only by external warmth. This loss of control involved also the possibility of an abnormal rise in the temperature of the patient if he were exposed to excessive heat. A great practical advantage of warm ether was that it enabled the surgeon to operate in a cooler theatre; the ideal must be to keep the patient warm without exposing the staff to the depressing effect of high temperatures. Apart from diminished efficiency and endurance, a warm and moist atmosphere introduced the danger of the sweat of the surgeon undoing all the elaborate precautions taken to preserve aseptic conditions.

The "open method" was not strictly open. The mask and pad confined the air to a considerable extent. The dry and wet bulb thermometers recorded 88.7° and 85° under the mask, and varied in the air of the room 72.5° and 65.3°. The breath moistened the air; the amount of carbon dioxide might be 3 or 4 per cent. of the total 250 c.cm. of air under the mask; there was, according to the closeness with which the mask was applied and the thickness of the material, a certain amount of rebreathing, which might be an advantage when the stimulating effect of carbon dioxide was required.

Dr. SHIPWAY said he had used warm vapour anaesthesia for eighteen months. One part of the evidence in favour of the method had been given in the joint paper just read; the other part was due principally to some American anaesthetists, who had shown that warm vapours were safer, and diminished the loss of heat in the anaesthetized patient. He himself had found that anaesthesia could be pushed with warm vapours to a greater depth, and with less liability for respiration to become dangerously weak. The reason was physiological in that warmth increased the respiratory activity and stimulated the heart. Induction of anaesthesia was quicker and more quiet, respiration was calmer, since warm vapours were more readily absorbed and were less irritating. Shock was less; his results had been better with warm than with cold vapours.

A discussion followed.

THE late Sir Frederic William Hewitt left estate of the value of £35,378.

THE American Proctologic Society will hold its eighteenth annual meeting at Detroit, Mich., on June 12th and 13th under the presidency of Dr. T. Chittenden Hill of Boston. Among the communications to be presented are reports by Dr. Dwight H. Murray and by Dr. L. J. Hirschmann on the treatment of pruritus ani by autogenous vaccines.

Rebiewz.

ON MODERN METHODS OF TREATING FRACTURES.

THERE are movements—not to call them fashions—in surgery as in other spheres of human activity, and for a generation the thoughts and the ingenuity of surgeons have been turned mainly to the devising and perfecting of abdominal operations. The war has made the subject of fractures and injuries of joints very urgent on its practical side. Many new problems relating to complicated fractures are arising and the experience of civil practice has not afforded adequate opportunities for their solution. It has to be recognized that the immediate treatment of fractures in the war, not only of complicated fractures, whether compound or not, but also of simple fractures, calls for the adoption of procedures at the field ambulances which shall be then and there practicable, on a large scale, under the trying conditions which there exist, and with the means available, which are necessarily limited. It is true that when such cases reach the casualty clearing stations more complicated procedures may be feasible by way of operative interference not possible in the field ambulances, to say nothing of the first-aid posts. But, in deciding on any procedure to be undertaken at the casualty clearing station, the surgeon must have constantly in mind the practical questions which arise in regard to the safe transport of the wounded man to the base, and even beyond that point in hospital ships. With these practical considerations in mind, for they are essential elements of sound treatment in war, we sought guidance in Major Hey Groves's book *On Modern Methods of Treating Fractures*.¹ The position with regard to fractures is of urgent importance alike to the individual wounded soldier and to the nation, and on that account we cannot gloss over opinions which we believe to be erroneous, more especially when expressed by high authorities.

We regret to have to say that, in our opinion, formed after careful study of the book, Major Hey Groves does not express the British view of what is considered modern and best. The author shows evidence of having come under the influence of the German school; this in itself is no drawback, for it is well to try all things, but it is necessary to hold fast that which is good. The trouble is that the author does not seem to have mastered the teachings of the British school. This is doubly unfortunate, for one of the greatest geniuses of all countries in this particular branch of surgery was the late Mr. Hugh Owen Thomas, M.R.C.S., of Liverpool. A study—it must be close and very careful of details—of Thomas's methods would preserve for our country the reputation which Major Hey Groves seems disposed to give to Bardenheuer.

The non-operative treatment of Lucas-Championnière (massage) and the operative methods of Arbuthnot Lane are freely dealt with, but the prominence assigned to them is so great that the book fails to give a representation of British procedures applicable to conditions arising in the present war, or even to those which occur in civil practice in times of peace. From the operative point of view the methods of treatment described are not suitable for general adoption. From the non-operative point of view we doubt whether the views advocated are better than those referred to in the first chapter of the book, in which the practice of the surgeons of ancient Egypt is mentioned.

We will refer briefly to the views of the author upon one of the commonest of fractures—Colles's—as an illustration of failure to describe what we may call British practice of to-day. The treatment advocated (p. 28) for "a case of Colles's fracture of the usual variety with impaction and slight deformity. . . . For the moment it does not matter if the case is one of sprain, separated epiphysis, or fracture," is as follows: "The patient is to be seated opposite the surgeon and the hand gently taken in his and light massage applied. . . . The whole of the first séance lasts for about twenty minutes. . . . The arm is then lightly bandaged to a splint—of which Carr's is certainly the most comfortable. . . . Having arrived at

this stage, arrangements should be made to have an x-ray picture taken." When dealing with Colles's fracture "with much displacement of the fragment," the author writes: "In the first place, it is wise to be guided by one's estimate of displacement by the x rays rather than by examination of the hand." What is to happen to men who suffer in the wilds of Africa, the steppes of Russia, in the bogs of Ireland, the Highlands of Scotland, or in Wild Wales, from this very common fracture? "The replacement of the fragment . . . should be made only after the limb has been soothed and pain abolished, if possible, by the preliminary massage. If this has been highly successful, it may be possible in the hands of an expert to carry out the reduction with no other anaesthesia than that induced by the stroking. But for most practitioners, with whom the author would include himself, it is seldom possible to accomplish this sleight of hand, and recourse must be had to general anaesthesia" (p. 31). This quotation indicates a lack of acquaintance with the practice in Britain of those who have studied the epoch-making work of Hugh Owen Thomas. We would point out that the whole *séance* of reduction of the deformity and fixation of the damaged parts in suitable splints—the "setting of the bone"—takes as a rule less than one minute by the method advocated formerly by Thomas and now by Robert Jones.

As another illustration we may take what is said of the treatment of fractures of the femur by the splint which bears Thomas's name (pp. 57 and 58). Thomas's description is to be found in his book published about forty years ago, and attention has been prominently directed to it by correspondents and contributors in recent issues of the JOURNAL. Major Hey Groves suggests no fewer than five modifications of Thomas's splint, and does not think that even then it can be as efficient as his own wire cradle. The object of his modifications is to make Thomas's splint effective, but the views of those who have practical experience of that splint properly constructed and properly applied can best be stated by quoting the advice Thomas gave some forty years ago: "To the younger practitioners of surgery I would urge them to be adepts practically, before introducing alterations, which too frequently in the absence of experience must be either useless or injurious."

The illustrations of pathological conditions of bones given in the book are very good, and so are the models of surgical appliances for operative procedures. Most of the latter, we believe, will afford a curious study of the operative customs of modern peoples when the sedimentary deposit of this war is subjected to analysis by the future historian in search of the bed-rock. We feel rather confident that these relics will be either extremely localized or very sparsely diffused, and that the palaeontological place assigned to them will be on a shelf for fleeting fashions in modern methods of treating fractures.

JACOBSON'S OPERATIONS OF SURGERY.

It is probably to most people always more or less a matter of astonishment that in ordinary times so many books on medical science find their way into the market. It is something more than astonishment that fills the mind when we find the output little lessened in the midst of war. To issue a new edition of a world-famous book entails enormous labour on editors and publishers, if the work is to be maintained at its previous high standard of excellence both in matter and in form. This hard task has, we believe, been most successfully accomplished in the new edition of *The Operations of Surgery (Jacobson)*² by Messrs. ROWLANDS and TURNER. Let us say at once that the new "Jacobson" ranks easily first as the finest work in its subject in our own and probably in any other tongue. Books on operative surgery too frequently are hard, rigid—or shall we say cadaveric? Jacobson, above all things, is a living human book, whose sole interest is the welfare of the patient.

The work consists of two handsome volumes, creditable in every bibliographical sense to the well-known publishing house which issues them. In the first volume the operations on the head and neck, thorax, vertebral column, arm, and leg, are described; the second volume is devoted

¹ *On Modern Methods of Treating Fractures*. By E. W. Hey Groves, M.S., M.D., B.Sc.Lond., F.R.C.S.Eng. Bristol: J. Wright and Sons, Ltd.; London: Simpkin, Marshall, Hamilton, Kent, and Co., Ltd.; Toronto: The Macmillan Co. of Canada, Ltd. 1916. (Med. 8vo, pp. 298; 136 figures. 7s. 6d. net.)

² *The Operations of Surgery (Jacobson)*. By R. P. Rowlands, M.S.Lond., F.R.C.S.Eng., and P. Turner, B.Sc., M.S.Lond., F.R.C.S.Eng. In two volumes. Sixth edition. London: J. and A. Churchill. 1915. (Roy. 8vo, pp. 1040 and 940; figures 410 and 388. £2 10s. net.)

entirely to the operative work of the abdomen—this apparently unequal division of regions being demanded by the increased attention given in recent years to the latter branch of surgery. In the new edition the method of description of each operation followed in earlier editions has been preserved, and, indeed, extended. It is so characteristic that it is worth examining. Let us take, for example, the operation of removal of the breast. Before the actual description of the operative procedure is reached the authors have discussed important matters connected with it under these headings: (1) Indications; (2) results and dangers of the improved operation for removal of malignant disease of the breast; (3) local recurrence and the present-day extensive operations; (4) wide and thorough operation; (5) careful and judicious selection of cases; (6) continued frequent supervision of patients. Each of these points is fully entered into, the experience of all eminent operators narrated, and the permeation theory described and illustrated, not in a perfunctory, but in an educative and enlightening fashion. Then the operation itself is described step by step with diagrams and photographs, practical hints in technique, suggestions for the comfort of the patient, references, and footnotes, so that every conceivable difficulty is met. Whenever possible, especially in the interests of clear understanding, the actual words of an authority are quoted. Indeed, it is one of the eminently valuable features of the work that so many and such full literal quotations are made. It will readily be appreciated that when this method is adopted all through the two volumes Jacobson is much more than a textbook on operative surgery. Its title indicates the intentions of the original author to build a work in which the veritable manipulative part of surgery and its tools occupy a small place in comparison with the why and the wherefore and the when of a particular mode of treatment. In other words, it is primarily the interests of the patient that are in the heart of the authors, and they force that interest on the mind of the reader. The book is a philosophical and artistic yet eminently practical treatise on the operations of surgery.

Frankly we make no attempt to criticize in detail. We have carefully perused very many pages, and have been constantly impressed with the elaborate detail, the inclusiveness of every description, the adherence to reliable personal experience, the kindly acknowledgement of faults and mistakes, the friendly guidance to the young and less expert operator, the graceful, scholarly writing. Many features of the work project themselves before our minds, and one of the most prominent is the well-balanced sanity of view on disputed points. Two examples may be quoted: In discussing the operations of Harrison and Edebohlis for chronic nephritis, the authors say that consideration of the pathology of Bright's disease and the dangers incident to the operation do not lead them to expect from these operations more than may be looked for after judicious long-continued medical treatment. In considering the dire effects and heroic treatment of chronic intestinal stasis, lately so much discussed in England, no prejudice is raised, but several pages are given of verbatim quotation from the writings of Lane and others; yet withal the writer enunciates his own views with absolute clearness. "Personally I am unable to agree with his (Lane's) views concerning either the pathology or treatment of constipation. . . . Although Sir A. Lane's views do not seem to be supported by adequate proofs or to find much favour yet in this country they are certainly worthy of our serious consideration. Therefore I think it best to give his own words and illustrations." An unbiassed, unprejudiced outlook like this permeates the whole work.

Minor criticisms may be made on some small omissions. There is no mention of the frequent occurrence of the thick deposit of phosphatic debris on the edges of a suprapubic cystotomy wound and how to deal with it. We do not find the credit of first performing laparotomy for some forms of tuberculous peritonitis clearly allotted. It is our recollection, though we cannot find the original reference, that John Duncan of Edinburgh first advocated that form of treatment. Nor is there any mention of precise anatomical details in the method of injecting alcohol into the second and third divisions of the fifth nerve, though Harris's paper is referred to with the remark that the method is of value. We should have liked

a more exact statement as to the mode of applying the loop of jejunum to the posterior wall of stomach in posterior gastro-enterostomy—whether it shall be anti-peristaltic or iso-peristaltic—a point of real difficulty, in our judgement almost the only one in the operation. And last, we venture to think that more emphasis than mere mentioning might be laid on Macewen's method of controlling the abdominal aorta. The reviewer has done it himself on at least four occasions, and thinks that no other is worth mention.

A few instances have been observed in which the proof reading has slipped past blunders; these are, in volume i, middle of page 344, bottom of page 345, page 916, line 11; volume ii, page 476, references to figures wrongly made twice, page 699, eleventh line from top, and page 700, third line from bottom.

This, then, is a great work, a worthy exposition of a great art as it is practised by British surgeons (for, after all, the references to surgery outside the British empire are few in comparison with those inside). Not only are the authors to be highly complimented on producing it with such commanding success, but the surgical part of the profession is to be congratulated on the possession of such a treasure house of surgical learning and skill.

BOOKS ON CHEMISTRY.

For many years the student of physical chemistry has learnt to divide the properties of chemical substances into three groups in relation to their composition and structure. Some properties, such as weight, are termed "additive." Others depending only on the number of molecules concerned are termed "colligative"; gaseous volume, and the elevation of the boiling point or depression of the freezing point by substances in solution may be quoted as examples of colligative properties. Properties of the third group, depending on the arrangement of the atoms in the molecules of substances, and not merely upon their kind or number, are termed "constitutive"; and one of these, studied in the forties of last century by Kopp and elaborated by many chemists since his day, has recently been submitted to an elaborate reconsideration by Mr. G. LE BAS.^a He has written a highly technical account of the molecular volumes, that is, the volumes occupied by the molecular weights, of a great number of liquid chemical compounds. The value of such work lies in this—that careful study of the molecular volumes of organic and other compounds often enables deductions to be drawn as to the constitutions of their molecules, the ways in which the atoms are grouped therein, and often as to the valencies of the atoms concerned. In Kopp's hands molecular volume appeared to be an additive property; now that its partially constitutive character has been very thoroughly tested, its study becomes extremely helpful to the chemist. Mr. Le Bas's volume is filled with facts and figures, and comparatively little attention is given to the inferences to be drawn from them. The book is accordingly one for the advanced student of chemistry only, and to him it should prove both interesting and instructive.

The second edition of Mr. J. N. FRIEND's excellent book on valency^b has been brought up to date by the inclusion of many pages devoted to the theories of valency that have resulted from Sir J. J. Thomson's recent hypotheses as to atomic structure and electrons. The valency of an atom or element is defined as its power of fixing or combining with other atoms. From the chemical point of view it is quite the most important and characteristic property an element possesses. It has been the subject of unceasing study since the idea of an atomic attractive force (the modern "valency") was first clearly formulated by Frankland in 1852; before that time the conception of chemical affinity was inevitably vague, and could not be studied from the quantitative point of view for want of any clear conception of the differences between atoms and molecules. Yet for all this study our theories of valency are but

^a *The Molecular Volumes of Liquid Chemical Compounds from the Point of View of Kopp.* By G. Le Bas, B.Sc.Lond. Monographs of Inorganic and Physical Chemistry. Edited by A. Findlay, D.Sc. London: Longmans, Green and Co. 1915. (Med. 8vo, pp. 282. 7s. 6d. net.)

^b *The Theory of Valency.* By J. N. Friend, D.Sc.Birm., F.I.C. Second edition, revised. Textbooks of Physical Chemistry. Edited by Sir W. Ramsay, K.C.B., F.R.S. London: Longmans, Green and Co. 1915. (Cr. 8vo, pp. 206. 5s. net.)

slender growths of small heuristic value; they do not explain all the known facts, and they have led to singularly little in the way of research or discovery. There is good reason to believe that the problem of valency will ultimately be solved in terms of positive and negative electricity. Dr. Friend gives a thorough account of the history of the idea of chemical valency in his early chapters; the bulk of the book is occupied with the valency of the nine groups of elements in their periodic classification; the last fifty pages are given to the various physical, electronic, and electrochemical theories of valency. The text is clearly written, and demands from its readers no more than an elementary knowledge of physics and chemistry. Comparison with the only other book on the subject with which we are acquainted—namely, Hinrichsen's contribution to the chemical *Sammlung* of Ahrens, dated 1902—shows how greatly theoretical chemistry has profited during the last dozen years from the incursions of experimental physicists and electricians. Mr. Friend's volume may be warmly recommended to the attention of all who are interested in the progress of chemical science.

Mr. H. J. H. FENTON has recently written a little book⁵ intended to serve as a brief introductory outline of physical chemistry for fairly elementary students. The text covers the ground satisfactorily; it describes results rather than methods, detailing the views at present held, but rarely attempting to set out any of the experimental means or observations whereby such views have been reached. As a result there is a detached and academic air about the physical chemistry taught in this volume that makes the subject seem unreal or even dry; perhaps it is inevitable that this should be so. The book is designed for use in the study, not the laboratory.

A new *Textbook of Elementary Chemistry*,⁶ by Professor A. SMITH, makes a bold attempt, as the author says, to present the subject in a manner that is both rational and interesting. He thinks that while one sex will take especial interest in explosives, metallurgy, mortar, plaster, and cement, the other will be more attracted by plastics (from which hair-combs and artificial silk are made), starch, sugar, soap, and the digestion of foods. He attributes considerable importance to the work of the Russian author, statesman, and chemist, Lomonossov, in the middle third of the eighteenth century; but only makes incidental mention of so distinguished a chemist as Berzelius. The dry facts of inorganic chemistry are reduced to a minimum in the text; interest and colour are supplied by the inclusion of numerous economic or industrial details of the practical applications of chemistry to the arts and manufactures. How far a short elementary textbook constructed on these lines is capable of giving the student of chemistry a solid foundation on which to build is a matter that can only be settled by experience.

In the British edition of his small laboratory manual⁷ of elementary chemistry, designed as a companion to the textbook mentioned above, Professor A. SMITH sets out about a hundred practical exercises for the student. These vary in difficulty and complexity from the dissolving of caustic soda in water to the estimation of molecular weights by determination of depressions of freezing points. The text is brief and concise, and is abundantly interspersed with interrogation points to mark the moments at which the student should stop and make intelligent observations, or ask himself intelligent questions about the phenomena observed. Professor Smith undoubtedly covers a great deal of ground in his *Laboratory Outline*; the student who works through it will have every opportunity for acquiring a sound knowledge of practical chemistry.

Mr. W. M. HOOTON's brief manual of *Qualitative and Volumetric Analysis*,⁸ written for beginners in the science

of inorganic chemistry, gives a synoptic and tabular account of the reactions whereby metals and salts may be recognized and estimated by volumetric analysis. A certain number of the organic substances commonly met with are also taken into consideration; the rare metals are omitted from the general tables. The text has been cut down to a minimum, and is not self-explanatory; it is of a nature to appeal to the student's memory, and not to his intelligence. The use of such books is inevitable where but little time can be given to the study of chemistry; Mr. Hooton's volume is a good example of the class.

One of the platitudes of economics to which the study of industrial chemistry has given rise is that the prosperity of a country may be estimated by its consumption of sulphuric acid. A technological manual on *Sulphuric Acid and Sulphur Products*,⁹ recently published, estimates the world's annual production of the acid at seven or eight million tons; in Europe some four million tons are produced a year, the quantity having quadrupled since 1878. It is stated that the world's production of sulphur has been revolutionized by the discovery of vast subterranean beds of the pure element in Louisiana and Texas; the sulphur is extracted most ingeniously in the form of an emulsion by forcing down through iron pipes superheated steam which melts and mobilizes it, and compressed air which brings the emulsion to the surface. Dr. MARTIN and Major FOUCAR give numerous interesting details of the manufacture of sulphuric acid, sulphur dioxide, various sulphites, carbon disulphide, and hydrogen sulphide, which is employed for the purposes of chemical analysis and also in the manufacture of a few dyes. The book is unequal and sketchily written in places; it is well illustrated, and should be of interest to those who are concerned in any way in the subjects with which it deals. Numerous references to the literature are included.

NOTES ON BOOKS.

PROFESSOR PETER THOMPSON has recently printed eight papers¹⁰ representing part of the investigations carried out in the anatomical department of the University of Birmingham during the last few years. Several of these papers have appeared before, three in the *Journal of Anatomy and Physiology*. The book leads off with a full description, written and illustrated by the editor, of a human embryo 7 mm. in length, presumably twenty-six days of age, cut in serial sections 10 μ in thickness; this presents numerous points of interest to embryologists. Six of the papers deal with embryological subjects. The editor is to be congratulated on the general excellence of the book, which shows abundant evidence of the activity of research in the anatomical school over which he presides. The get-up of the volume and the illustrations are excellent.

The effort to set out the most recent theories of scientists and sciolists in forms readily intelligible to the layman is one that has always had an attraction of its own. We have before us three books¹¹ of popular psychology that are admirable examples of their type, well written, magisterial in style, but, so far as their contents go, of the nature of a Barmecide feast. In one of these volumes Dr. PUTNAM gives an account of *Human Motives*, from the point of view of medical psychology. Dr. CORIAT, in his book on *The Meaning of Dreams*, offers a popular description of psycho-analysis and interpretation on conservative and not unduly Freudian lines. Dr. BRUCE's book on *Sleep and Sleeplessness* presents a simple and rational account of the subject, and has the virtue of emphasizing the harmfulness of hypnotics as used by the layman.

⁵ *Physical Chemistry for Schools*. By H. J. H. Fenton, M.A., Sc.D., F.R.S. Cambridge: The University Press. 1916. (Cr. 8vo, pp. 223, 3s. 6d. net.)

⁶ *A Textbook of Elementary Chemistry*. By A. Smith, B.Sc., Edin., Ph.D. Munich. London: G. Bell and Sons, Ltd.; New York: The Century Co. 1915. (Post 8vo, pp. 467; 6 plates, 98 figures. 5s. net.)

⁷ *A Laboratory Outline of Elementary Chemistry*. By A. Smith, B.Sc., Edin. London: G. Bell and Sons, Ltd. 1915. (Cr. 8vo, pp. 152; 52 figures. 2s. net.)

⁸ *Qualitative and Volumetric Analysis*. By W. M. Hooton, M.A., Oxon., M.Sc., F.I.C. London: E. Arnold. 1915. (Demy 8vo, pp. 86. 3s. net.)

⁹ *Sulphuric Acid and Sulphur Products*. By G. Martin, D.Sc. Bristol, D.Sc. Lond., Ph.D., F.C.S., and Major J. L. Foucar, B.Sc. Lond. Manuals of Chemical Technology, V. London: C. Lockwood and Son. 1916. (Roy. 8vo, pp. 85; 37 figures. 7s. 6d. net.)

¹⁰ *Studies in Anatomy from the Anatomical Department of the University of Birmingham*. Published by the Council of the University, and edited by Professor P. Thompson. Birmingham: Cornish Bros., Ltd. 1915. (Roy. 8vo, pp. 208; illustrated. 10s. net.)

¹¹ (1) *Human Motives*. By J. J. Putnam, Professor Emeritus, Diseases of the Nervous System, Harvard University. (2) *The Meaning of Dreams*. By I. H. Coriat, M.D. (3) *Sleep and Sleeplessness*. By H. A. Bruce. The three volumes belong to the Mind and Health Series, edited by H. A. Bruce. London: W. Heinemann. 1916. (Cr. 8vo, pp. 196, 208, and 228 respectively. 5s. net per volume.)

INFANTILE MORTALITY AND THE RELATIVE VALUE OF MEASURES FOR ITS PREVENTION.

THE subject of the Milroy Lectures before the Royal College of Physicians of London was "Infantile mortality and the relative practical value of measures directed to its prevention."¹ The course was delivered by Dr. S. G. MOORE, who, as medical officer of health for Huddersfield, has had exceptional opportunities of appreciating the value of the various measures suggested, inasmuch as Huddersfield is a town which has been a pioneer in these matters.

The Infant's Right to Live.

In the early part of his first lecture Dr. Moore laid down the proposition that a child was born into the world possessed of certain elemental natural rights, quite apart and distinct from any legal right to property it might inherit. Every infant held these rights directly from those from whom it derived its being—that is to say, from its mother and father—and indirectly from the community or State into which it was born. The existence of its direct rights from its immediate parents did not nullify its indirect rights from the social organization as a whole. The infant had a right to a reasonable chance to survive to such an age-period that its own action might influence its destiny, and had a right, therefore, to a reasonable degree of protection from external influences which might imperil or destroy its life. Infant deaths from summer diarrhoea were practically absent from the returns in winter, but were numerous in summer. Infant deaths from bronchitis and pneumonia were practically absent from the returns in summer, but were numerous in winter. Therefore, Dr. Moore argued, in these forms death comes to infants from external conditions, and every infant had the inalienable right, held both from its parents and from the State, to be protected from these as well as from other external causes of death. He thought it necessary to lay down these propositions in order to oppose them to two doctrines which often found expression. One was, that as many infants were born to lives of misery, and would never do any good, they might be left to die. The other was that heredity counted much and environment little; that acquired characters were not transmitted, and that therefore most, if not all, of the labour in the field was vain.

Retrospect.

He then sketched the special work done in Huddersfield. First of all, in 1902-3, the reports of deaths from all causes were scrutinized with a view of selecting the disease, or group of diseases, likely to repay special preventive measures. Infant mortality was selected for five reasons: (1) The numbers of deaths of infants constituted so large a proportion of the total deaths, that any substantial reduction of the infant mortality figure would effect a material reduction of the general death-rate. (2) The causes of deaths of infants in quite a considerable proportion were manifestly preventable. (3) The lives to be saved were at the threshold of existence. (4) When an infant dies it is through no fault of its own; it appeals from its helplessness and its innocence. (5) The cost promised to be almost negligible. In 1904 a detailed report was presented to the sanitary authority, and in 1905 it approved a scheme of work against infant mortality, including the voluntary notification of births to the medical officer of health, and the visitation in their homes of all newly born infants immediately after birth by women doctors, followed by voluntary workers. The officials were informed that no inquiry would be made as to how many visits they paid. They were not to be in a hurry, but they were instructed to spare neither time nor effort in the endeavour to be sure before terminating the visit that the mother was instructed fully in the knowledge essential to the welfare of her offspring. Two forms of advice, "short" and "extended," were printed, and were to be left for the information of the mother.

In 1906 parliamentary powers were obtained requiring the notification of births to the M.O.H. In the following year Parliament passed an Act enabling every sanitary authority to require the notification of births, and in 1915

notification was made compulsory throughout England and Wales.

Dr. Moore then gave a summary of conclusions expressed in the reports of the medical officer to the Local Government Board on infant mortality. In commenting upon them, Dr. Moore said that the greatest service they rendered lay in pointing out that sickness and death in infancy meant sickness and death in later life *pari passu*, and continued as follows:

The demonstration of the existence of "blots" in good areas and of the existence side by side of areas of high and of low infant mortalities is of great significance. Not climate, nor topography, nor municipal sanitation, but the lives, the habits of the mothers in the homes, determine the difference.

I venture to express the opinion that throughout these conclusions too much importance is given to general measures. Because infant mortality is a part only of the general death-rate, and because it is a component thereof which presents special characteristics, particular action is needed for its elimination—procedure immediately directed against those influences and conditions which are peculiarly inimical to the young.

So much in passing; I must recur to this point. A paragraph in the first report does not lead to the same conclusion as another in the second. They are not irreconcilable. The former tends to show that there is no evidence that the non-domestic employment of mothers is injurious. The latter is to the effect that such employment "must necessarily" do harm. I agree with both of these apparently divergent conclusions. I have reason to know for my own district that the former is well founded (I went into the question in 1908), and I am convinced that the latter must be true. But to discuss the matter now would take too long. The influence of the industrial employment of women on family life generally, on child-bearing, and on the health and lives of the infants and children has not yet received adequate attention. It should be insisted upon that the family is the unit of the nation. The sum of the families is the nation. This social question of female industrial employment is so great and so complex that no individual can investigate it adequately, even in a lifetime, yet it needs investigation.

It may be worth while to express the opinion that the explanation of the apparent irreconcilability of these particular conclusions may be the following: Under satisfactory conditions of family life generally, if in a section of a community the mothers worked all day away from the homes we would be able to show statistically that such employment caused an excessive infant mortality. But the existing conditions are so bad, the infant mortality is so excessive, the margin between the inevitable minimum (of something less than 40 deaths per 1,000 births), and the mortality which actually prevails is so great that the effect of the mother's absence from her duties to her offspring is masked by the additional resources commanded by her wages.

I cannot readily accept the dictum that the experience of organizations which supply food to expectant mothers shows that the condition of the mother before parturition has a definite influence upon the capacity for suckling. On the face of it that conclusion appears to be unavoidable. How can an ill-nourished woman so develop during pregnancy that the mammary tissue shall become adequate? It is not to be expected. But we have yet to hear advanced the natural corollary that the uterine tissues of the under-nourished woman fail to increase and to function (except in such cases as come under the proper designation of asthenia). Moreover, we know that the trophic nerves are able to exercise a selective faculty. And also the oft-cited phenomena of the very low infant mortality observed during the Lancashire cotton famine and the siege of Paris increase the difficulty of acceptance of this opinion. True, other factors played a part in Lancashire and in Paris, but it is undoubtedly the case that infants were breast-fed by mothers who had undergone privation during pregnancy to an extreme degree, and who, moreover, were semi-starved during suckling. Nevertheless, all women generally, and all mothers in particular, hold the natural right at the hands of their fathers, husbands, and sons to be well nourished at all times. I merely deprecate this particular statement about nourishment and suckling lest it should form a reason, or an excuse, to withhold from the infant its natural and only proper food.

In concluding his first lecture, Dr. Moore dealt briefly with the painful and difficult phase of the infant mortality question which related to unwanted infants, and incidentally referred to what he, following many other writers,

¹ The lectures were published more at length in the *Lancet* for April 22nd and April 29th.

called the "mothering" of babies. "No doubt," he said, "robust infants can survive in its absence, but, on the other hand, it is well to recognize the fact that there is an inherent instinct and appetite in the young mammal to huddle and nestle against its mother's body, and to receive warmth and nourishment therefrom. This experience has led me to believe that in all cases these things are necessary for the well-being of infants, and that there may be certain cases where the lack of them determines the balance against the infant, even to the extent of causing its death."

Influence of Special Measures on Infant Mortality.

Dr. Moore began his second lecture by saying that while he substantially accepted the statements in the official publications of the Local Government Board, he was of opinion that in them too great importance was given to general sanitation as accounting for reduction in infant mortality observed during recent years, and too little to work specially directed to meet the particular circumstances of infant life. In Huddersfield the infant mortality-rate showed a distinct decline in and after 1907, when special work against infant mortality in that town came into full operation. After pointing out that it was well known that infant mortality was low in rural and generally in small urban districts, particularly in agricultural areas, he said that it was equally well known that the standard of sanitation in these very places was of the lowest, and continued as follows:

I by no means wish to suggest that general sanitation, and especially municipal cleanliness, do not favourably affect the health of infants as of inhabitants generally, but, speaking as one who has given close attention to the problem for a long while, I would lay stress upon the view that other factors are of a greater significance and importance. It is well known that a heavy toll on the lives of the very young is levied in industrial districts where the employment of women is at a minimum but where the standard of life is low as well as in other industrial districts where their employment is at a maximum. I believe that the explanation of the former phenomenon is that the infants are individually neglected in the homes of the people, and I have no doubt that a breast-fed baby living in insanitary surroundings but cared for by its mother would have a very much greater chance of surviving than one bottle-fed and neglected by its mother, however excellent might be the sanitation of the house and the district in which it lived. Instances have been adduced where in the same street in certain families there have been many surviving children, and in other families of a similar social grade the survivors have been few.

Relation of Infant Mortality to Rate in Next Four Years of Life.

In dealing with this subject Dr. Moore mentioned the statement that the result of preserving the lives of infants would have a generally bad effect on succeeding ages—a statement based on the argument that heredity rather than environment should be taken into account. The statistics of Huddersfield did not support such a contention:

The curve (he said) showing the death-rates per 1,000 per annum at ages from 1 to 5 years follows very closely the corresponding curve at age 0 to 1 year. But if the work against infant mortality were only temporary in its influence, the curve at succeeding ages ought to have shown a rise. Of course, this is not the case. I have referred to these arguments against the utility of endeavouring to reduce the infant mortality figure elsewhere and from another point of view. It really does not appear to be worth while to labour the point, but I will recall the fact that in the Local Government Board Reports on this subject the same demonstration is given, and over extended age-periods.

The result in Huddersfield was corroborated by a study of the death-rates at each of the first five years of life for England and Wales calculated per 1,000 survivors at each age-period. The curves, after making allowance for the greater vulnerability at the earliest age-period, substantially followed one another—that is to say, a reduction in the infant mortality-rate (deaths under 1 year of age) was followed by a reduction in the mortality in succeeding years.

The Principal Causes of Infant Mortality.

In Huddersfield during the period 1907–1914 there was a positive reduction of infant mortality. An analysis of the principal causes showed that during that period the proportion of deaths attributed to premature birth rose from 14.9 per cent. to 17.8 per cent.—a movement compatible with the belief that preventable deaths had been eliminated in part, thus increasing the proportion of deaths hitherto considered to be unavoidable. This belief was strengthened by the fact that of the other principal causes diarrhoea, bronchitis, convulsions, whooping-cough, and measles all showed a decline, and pneumonia only an increase. Under the head atrophy, debility and marasmus, there was also a very marked decrease—from 13 to 8 per cent. of the total deaths, a fact which militated against the common view that many deaths at early ages result from a lack of vitality consequent on premature birth.

The Relation between Birth-rate and Death-rate.

Both the birth-rate and the death-rate were declining in England and Wales. In the period 1871–1915 the reduction in the birth-rate amounted to 32.7 per cent., while that in the death-rate was 36.8 per cent.; but the birth-rate had fallen about 12 per 1,000 and the death-rate only 8 per 1,000. The fall was fairly uniform in both curves, but that of the birth-rate was the steeper, so that the two tended to run together, and it was necessary to keep in mind the fact that whereas there was nothing to prevent the continuance in the decline of the birth-rate, which might even be accelerated, human vitality fixed a point below which the death-rate could not fall.

Reduction of Infant Mortality in Large Towns.

From an examination of infant mortality figures in thirty of the large towns of England and Wales, and comparing the period from 1877 to 1906 with the period 1907 to 1914, he drew two conclusions—first, that the reduction of mortality and the saving of infant life had been very substantial; and, secondly, that it had not been gradual; improvement in sanitation, however, had been gradual. The same was true of municipal cleanliness, the spread of education, the habits of the people, and so on. The mean infant mortality figure prior to the special work against infant mortality in Huddersfield was 156; the mean since that work had been in operation was 105. The calculation of the complete expectation of life showed that this particular work had added three years of life to each generation.

Provision for Infant and Child Welfare.

Dr. Moore then passed in review the existing provisions for infant and child welfare, including the Children's Act and the Notification of Births Act. The notice to the sanitary authority of the existence of the infant was followed more or less completely and more or less systematically by a visit to the infant in its home. The quality of the services rendered was very unequal, and left much to be desired. From a scrutiny of the list of health societies issued by the National League for Physical Education and Improvement, it appeared that of the 489 different associations 9 were national, 70 were municipal—in the sense that they were associated with and assisted by different sanitary authorities, and the remainder purely voluntary. Dr. Moore estimated that the societies altogether assisted 155,000 infants annually. In six localities antenatal work of various kinds had been established; this side of the work was still very recent and undeveloped, and no doubt much more would be done in the near future. The movement for the establishment of milk dépôts seemed to have languished; 11 were opened between 1899 and 1906, 1 in 1910, and 1 in 1912. Four had been closed. The cost in relation to the number of infants helped appeared to be the stumbling block. There was no doubt that the cost per meal of pasteurized milk was considerable. On the other hand, it was imperative to provide food for infants which would not destroy them. The conditions of the industrial milk supply in this country were such that in hot weather the only milk commercially available for poor people did, in fact, destroy babies in large numbers.

British Medical Journal.

SATURDAY, MAY 6TH, 1916.

URGENT DEMAND FOR MEDICAL OFFICERS.

STATEMENT BY THE WAR OFFICE.

THE Central Medical War Committee has the authority of the Director-General Army Medical Service for stating that a considerable number of medical men is required at once for service in the Royal Army Medical Corps. The development of military operations has caused a large proportion of the medical officers who have hitherto been serving in this country to be detailed for service abroad, and it is essential that there should be others ready to meet future demands.

This request for officers has come before the enrolment scheme of the Central Medical War Committee has been completed. The Committee is therefore compelled to ask for volunteers from among both the enrolled and the unenrolled. Those willing to join within a month should send their names at once to the Central Medical War Committee, 429, Strand, W.C., or make direct application to the War Office.

ENROLMENT: AN EXPLANATION AND AN APPEAL.

SIR,—During the next few weeks the course of events seems certain to lead to renewed fighting, to very many casualties, and to a call for more and more doctors to tend the sick and wounded. The supply could be met—as, if other methods fail, doubtless it would be met—by conscripting medical men, but some time ago the War Office recognized that a certain scheme of voluntary enrolment could be made to give them what they wanted and in a better way. The working of the scheme, as is now well known, was entrusted in England and Wales to the Central Medical War Committee, a committee representing the profession at large and the several medical corporations and schools, and in close touch with the Insurance Commission, and the great Government departments which employ medical men.

This scheme of voluntary enrolment, as contrasted with conscription, appears to present certain very great advantages, in which both the community at large and the individual practitioner will have their share. In any circumstances some doctors must go and some be kept at home; but whereas with conscription the task of selection might fall into the hands of local lay tribunals, the voluntary scheme provides that in each district it falls to a local committee of medical men, whose professional knowledge and knowledge of local conditions enables them to form a better judgement both of the needs of the civil community and the difficulties of the individual practitioner; while in any case from their decision an appeal lies to the Central Committee.

This scheme of voluntary enrolment has been framed to secure also a due rotation of work and sacrifice; so that when the volunteer has completed the year of service for which he signs on he is free to return home, his place with the army being taken by

another—an arrangement fairer to himself and better for his civil patients than indiscriminate compulsion.

Now, the success of the scheme obviously depends on the number of enrolments. If the response is meagre, the Army Medical Department will be starved, or rather conscription must come. Moreover, the correlative provision for the civil population, and the fair distribution of sacrifice, will be imperilled. It is true that the response so far has been fair, but, with the spring campaign upon us, the need for more men, and yet more, is so pressing that there is considerable anxiety even in respect of the immediate future. The scheme can only work well if all, or practically all, our brethren of suitable age enrol themselves. However, we find that, not unnaturally, some are hesitating to enrol lest a lack of enrolments should expose them unfairly to be summoned. This cannot, in any case, happen, since the Committee has decided that no calls shall be made until 75 per cent. are enrolled. We are all proud of the record of our profession in the past, and of its splendid service in this war; we shall be still more proud if it rises to meet the crisis and will deal with it by voluntary effort. If by age and office we are sheltered from the claims of service, we know none the less clearly how hard is the call upon many of our younger brethren, with many of whom we have been in correspondence. Domestic duties or pecuniary claims may seem imperative; surely, however, when in the day of victory the old relations are restored, the public will know how to reward those of us who, setting all else aside, obeyed the call of King and country.

Let us conclude, as we began, by saying that the need is now so urgent, that the time for consideration cannot be prolonged. By the enrolment of all who are of military age the burden of each will be lightened.—We are, etc.,

Cambridge, May 1st.
Oxford, May 2nd.

CLIFFORD ALLBUTT,
WILLIAM OSLER.

All readers will recognize the grave importance of these two communications. The two documents should be read together. They are addressed particularly to medical men of military age, but they concern all members of the profession, for in order that a sufficient number of medical men of military age may be obtained it is necessary that others shall loyally help to do their work.

The statement of the Central Medical War Committee, made at the request of the Director-General A.M.S., has reference to the immediate situation. The military authorities require at once from England and Wales a considerable number of medical officers for the R.A.M.C. The need is urgent, as men who keep an open mind and think for themselves must have been quite prepared to learn, though probably we shall hear again about the medical men already in the service who are not being used as economically as possible. Allegations of this kind tend to unsettle men's minds and to give the weak-kneed excuse for hanging back, but the profession has by this time learnt how limited is the value to be put on this sort of criticism. In this particular instance the Central Medical War Committee satisfied itself by a personal interview with the Director-General at the end of last week that the demand now made for more medical officers is fully justified and cannot be postponed.

It is unfortunate that so large a demand should have come just at this moment, because enrolment is not completed. The Central Medical War Committee decided recently that no call on the enrolled should be

made unless and until 75 per cent. of the men of military age had signed the form of application for a commission. That percentage has not yet been enrolled. The demand of the War Office, however, is urgent. The only course the Committee can take in these circumstances is to make an appeal to the medical profession voluntarily to furnish the number required, in spite of the fact that enrolment is still incomplete. In taking this course the Committee is encouraged by the fact that many amongst the enrolled have already expressed their willingness to go so soon as they are told that they are wanted; in fact, but for the enrolment scheme some of them would ere this have sent in an application for a commission direct to the War Office. The Central Medical War Committee now invites these and others to send in their names at once, without waiting till the pledge given by the Committee as to the percentage of possible enrolments has been redeemed.

As things are with the country at this moment, medical men of military age, whether enrolled or unenrolled, are to understand that their services are now required by the army. The time is past when a man whose services can be spared is justified in refraining from taking a commission because in his own opinion he is better employed where he is. The extension of the fronts in various parts of the world and the military operations imminent will strain to the utmost the medical resources of the country, and a dearth of medical officers at this time cannot fail to have an effect in helping to prolong the war.

That the principle of the enrolment scheme cannot be applied fully at this moment is due to the unfortunate circumstance that a certain proportion of the men for whose advantage it was devised have hung back. This hesitation may, in part, have been due to a failure fully to understand the purpose of enrolment. It has been explained on many occasions, and it is stated once more with brevity and cogency in the letter from Sir Clifford Allbutt and Sir William Osler, who have always shown themselves as sympathetic towards private difficulties as jealous for the honour of the profession. They state very clearly the difference they perceive in the position of an enrolled man and of a man taken for service under any system of compulsion that may be introduced. The hints which the Central Medical War Committee has given in this direction on previous occasions have been in some quarters, we are informed, described as threats. They are not threats; they are statements of fact, as anybody who reads the daily newspapers and the reports of Parliament will conclude for himself. There are many differences between the man who voluntarily enrolls and the man who waits to be fetched. There are differences which affect the moral of the matter, but there is also this practical difference, that the medical man who takes service under the conditions which have been arranged in relation to enrolment has the advantage over other members of the community that he is only called upon to serve for one year. The stockbroker or lawyer who takes a commission in the army takes it for the duration of the war. So, too, the Territorial medical officer and the officers of the Special Reserve who were called up at the beginning of the war; they must serve for its duration. It is an absurd piece of petulance to read anything of the nature of a threat into the statement that the increasing difficulty in providing medical officers may lead to the abolition of the system of commissions for one year. It is a common-sense statement of a probability which every unprejudiced person can realize for himself.

Is it more consonant with the honour and interests of the profession to take service voluntarily or to wait to be dragged out by Act of Parliament? Is it more pleasant and decorous for a professional man to wait to be summoned before a local tribunal, there to have his duty and private affairs discussed by a body of laymen, or to accept the privilege of having his position fully considered by his peers? Can any medical man assert that the introduction of conscription will diminish, or indeed to any tangible extent affect, the difficulties which will have to be faced by a medical man called upon to enter the army?

We go back to the point that the army must have doctors. It wants a continuous flow into the Royal Army Medical Corps, and it wants an unusually large number at this moment. The relation of the medical profession to the civil population is a national question. It should be decided by a national body. A local tribunal is not competent to decide on the value of an individual medical man in relation to the values in other parts of the country.

It is true that compulsion now looms in the near future; but it is still essential that the medical profession should make the enrolment scheme a success. Let every medical man under 45 remember that the paramount interest of the country is that the war should finish as quickly as possible, and finish victoriously; that the medical service of the army is essential to its efficiency; that the service must have doctors in sufficient numbers; and that no man is really in a position to select himself, that is, to decide whether he should enter the medical service or stay at home. The Central Medical War Committee is the only body in England and Wales, and the Scottish Medical Service Emergency Committee the only body in Scotland, which has knowledge of all the difficulties and the methods of dealing with them. Fairness to all members of the profession as well as to the public requires that a proper selection should be made. We assert that these statements have never been seriously disputed; they are demonstrably true—in fact, axiomatic. The appeal is therefore to every medical man of suitable age who has not yet enrolled to do so. By enrolling he accepts the Central Medical War Committee or the Scottish Medical Service Emergency Committee as arbiter. He can enrol by filling in the form to be obtained from the secretaries of the Committee at 429, Strand, or the convenor of the Scottish Committee at the Royal College of Physicians in Edinburgh. He will thus be doing his share to ensure the success of a scheme which, while it will supply the needs of the army and preserve all that is essential for the treatment of the civil community, at the same time provides for the sympathetic consideration of the difficulties of individual medical men, and the maintenance of the dignity, honour, and interests of the profession as a whole.

LONDON SCHOOL OF TROPICAL MEDICINE.

SIR RICHARD HAVELOCK CHARLES, G.C.V.O., Serjeant-Surgeon to the King and President of the Medical Board of the India Office, has, at the request of the Secretary of State for India, accepted an invitation to become dean of the London School of Tropical Medicine in succession to the late Sir Francis Lovell. The institution is to be congratulated on having secured as its head a man whose professional and personal distinction will shed lustre on the office, while his administrative capacity and knowledge of the tropics will be of the greatest service to the school. Sir Havelock Charles has for a considerable time taken a deep interest in its fortunes. His long experience

in India, where he took a large part in the reform of the medical schools at Lahore and Calcutta and gained the confidence of native students in a very unusual degree, makes him peculiarly fitted for the post which he has now been called upon to fill. He may be trusted to co-operate in a spirit of friendly rivalry with Sir Leonard Rogers and his fellow-workers of the Calcutta School, the foundation stone of which was laid by Lord Carmichael on February 14th, 1914. An illustrated account of the institution as it will be when the buildings are completed was published in the *BRITISH MEDICAL JOURNAL* of March 7th, 1914 (p. 562). That school has a special function of its own to fulfil, and there is ample room for an Indian foundation as well as for Mr. Joseph Chamberlain's creation at the Victoria and Albert Docks. On the outbreak of the war the number of students at the London School dropped from sixty almost to vanishing point, and practically no post-graduate work is being done there. We are glad to learn, however, that the school opened its session on May 1st with ten students. Sir Havelock Charles comes to his new task at an anxious time, but we have the fullest confidence that his tact, energy, and wide experience in educational work will enable him to deal successfully with a difficult situation.

NEW MEDICAL BATHS AT TORQUAY.

A NEW chapter in the history of Torquay as a bathing station was begun on May 1st, when a large medical bathing establishment was opened on Beacon Hill, between the bay and the harbour. The baths are one result of an ambitious scheme of municipal development which has been going forward during recent years at this famous Devonshire resort. The idea of having an up-to-date system of medical baths was first started in 1910, and after a careful study of the bathing establishments at the inland spas, the work of converting the old bathing saloons to this new purpose was begun in July, 1914. Difficulties arising out of the war account for the fact that the work has only just been completed. The new baths consist of thirteen treatment rooms, with twice that number of dressing-rooms, and are divided into ladies' and gentlemen's suites. There has also been installed a large subterranean swimming bath. The decorative style of the whole work, in vitreous mosaic, is in harmony with the hygienic idea, and the outlook is open to the waters of the bay. The treatment given includes local vapour and electric baths, and baths of sea water and of medicated water, such as in the Nauheim, pine, and sulphur treatments. Provision is also made for Aix and Scotch douches, with water softened more than ordinarily; and a bath which it is hoped may become famous as a Torquay speciality is a salt and seaweed bath—or, as it is called on the east coast, an ozone bath—the seaweed at Torquay being prepared for application in a newer and rather better way than has hitherto been the case. On the occasion of the opening of the baths by the mayor (Mr. C. T. Towell), testimony was given by the Chairman of the Baths Committee to the assistance rendered by local medical men, some of whom had formed themselves into an advisory board in connexion with the work. With the completion of the task this advisory board ceases, but two or three medical men, including the President of the Torquay Medical Society and the Secretary of the South-Western Branch of the British Medical Association, have been appointed as a medium of communication between the Baths Committee and the local profession, so that this enlightened municipal enterprise will continue to be stimulated by an enlightened medical opinion. After the official opening, Dr. Fortescue Fox gave an address, congratulating Torquay on a climate favourable to the action of the baths, especially during the colder months of the year. The eastern part of our island, he said, was desirable for those who needed to be stimulated,

the western part for those who needed to be rested. The east quickened the pace, the west tranquillized and slowed down. He likened the Tor Bay portion of the Devonshire coast to the Italian Riviera, and expressed the opinion that Torquay as a marine climatic station promised many advantages for the after-treatment of disability arising from wounds. In this, as in general respects, more might be done in the way of associating British health resorts with one another, not in sterile rivalries, but in mutual co-operation. He had been struck by the strong individuality of our health stations. Each had its own characteristics, and in our little island there was room for all of them, especially now and in the immediate future. The co-operation of the local medical profession in this new Torquay venture was promised in the course of brief speeches by Dr. Winter (the deputy mayor) and Dr. Gervis. The company, which numbered a thousand or more, then made a detailed inspection of the bathing suites.

THE ROYAL ACADEMY.

THE one hundred and forty-eighth exhibition of the Royal Academy of Arts in London, now open at Burlington House, may be recognized at once as one of unusual merit. Seen in the turmoil of the Private View, when the floor is even more crowded than the walls, and the eye is continually distracted by meeting the originals of many of the portraits hovering in the immediate neighbourhood of their counterfeit presentments, this year's Academy gives an uncommon impression of strength and varied interests. The number of pictures of academic type and interest—we use the word "academic" in the Pickwickian sense—is not so large as usual. It would seem that the war has broadened the sympathies of both the contributors to the exhibition and the hanging committee alike. As is natural, there is a khaki tone about many of the most arresting pictures on the walls; here there is less of the flamboyancy noticeable in so many of last year's war pictures, and there is evidence of a better realization of the true horror of war. An excellent example of this will be found in Gallery No. VI, where "The Return to the Front," from Victoria Station, is depicted with a vigour and freedom from sentimentality that are rarely exhibited in compositions of this class. Zeppelin raids and aeroplanes in battle receive their due illustration, and the doings of our fleet are recorded in a number of fine canvases. Hospital pictures, too, are naturally to the fore, but surgeons will be horrified to see the pictures, which one must suppose to be accurate in detail, of the overfurnished and crowded rooms full of dust-collecting bric-a-brac that are now being employed as wards for the wounded. A khaki setting is the prominent feature of many of the portraits in the exhibition; portraits, usually the chief feature of the Academy, form this year a less important part of it, for one reason or another. There are, however, portraits of Royalty; there are many portraits of military men, young and old, and not a few of beauties, débutantes, and children. Why is it, one may ask, that children so often have to be painted with large, watery, and gleaming eyes that to the medical man are undoubted exemplars of "Bright's bright eye" and indicate nephritis? Probably the explanation lies in the words Corney Grain used to sing, "Which is very in-artistic, but the public like it best." Another feature of Academy exhibitions to which the public is inexorably attached is very fully represented this year; we refer to the problem pictures and morality pictures that hang on the walls in large numbers, awaiting solution or interpretation, and always attracting much interest and many spectators. There is even a medical problem picture in Gallery No. VII; standing in front of this canvas, many a medical man will be inclined to think that the doctor's prohibition here depicted has come a quarter or half a century too late.

WITTENBERG: A GERMAN DENIAL.

REFERENCE was made in the BRITISH MEDICAL JOURNAL of April 22nd to a semi-official denial by the German Government of the charges made against the administration of the Wittenberg prison camp in a report by the Government Committee "on the treatment by the enemy of British prisoners of war." Further denials, evidently inspired, have appeared in the German press. As usual, these are inconsistent. While in one quarter it is said that if in the early days some prisoners lacked clothes, this was due to their love of gambling, in another it is alleged that the "Wittenberg fables" are spread with the object of persuading the English soldiers, "whose courage needs various kinds of stimulants, that death is preferable to capture by the Germans"! Again, while it is asserted that energetic measures were taken as soon as the epidemic broke out, and medicines, wine, and milk were provided in large quantities for the prisoners, the excuse is put forward that at the beginning of the war the doctors did not possess the experience they have since gained. This is doubtless true, but it amounts to an admission that the outbreak was not, at any rate at first, dealt with effectually. The plea contrasts strangely, too, with Dr. Léonetti's story of a German doctor, who during the outbreak of typhus at Langensalza congratulated a French medical officer on having been brought to Germany, "where he would learn how to treat patients." It must also be pointed out that what the German papers call "the lying and slanderous report of the state of things at the Wittenberg camp" does not rest entirely on British testimony. In the *Times* of April 27th a French sergeant released in February was quoted as recording his "hellish experience" of Wittenberg. He speaks of it as a camp of misery where he had suffered tortures from hunger which brought on two heart attacks; where the prisoners' parcels were pilfered and their tins of preserved food prized open by German bayonets. He describes it as "the home of brutality, where police dogs were let loose unmuzzled among us in the barracks, where scourge and lash and knout were current change, and where the posts to which we were tied caused many an illness." He calls Wittenberg "a camp of death," where 800 of his comrades perished either from lack of care or from cowardly rifle fire. This exactly confirms the British report. Wittenberg is not the only German camp where sick prisoners were badly treated. Speaking of Cassel, private Archibald Allan, 2nd Battalion, K.O.S.B., says¹ that when he was transferred to an internment camp on the outskirts of the town there were fully 10,000 prisoners there, and typhus was raging. "It became so bad that the German orderlies were not allowed to enter the camp, and all the food for the prisoners was passed through wooden shoots" from the outside. "When the fever abated, the orderlies returned to their usual duties, but the sufferings of the prisoners did not diminish." We have more than once quoted the testimony of Dr. François Léonetti, and we may add that it is fully confirmed by Drs. Deléarde and Halluin, who worked at Langensalza and Niederzwehren during the outbreaks of typhus. Their report is published in the *Revue d'Hygiène* of April 20th. The story of these camps is a record not only of cruelty and cowardice, but of gross professional incompetence. The incapacity to put into practice the prophylactic measures which sanitary science, as it has been developed in more enlightened countries, has shown to be effective is one more striking piece of evidence showing the backwardness of Germany in this respect.

DENTAL RESEARCH AND DENTAL NURSING.

THE National Dental Association of the U.S.A. and others interested in philanthropic work have organized an institute the purpose of which, as more fully set out in the articles of incorporation, is to find and establish means for

the complete relief of mankind from the direct and indirect ravages of dental and oral diseases, to encourage research, and to acquire and administer property to carry out these objects. It is incorporated and has its offices in Cleveland, Ohio, and possesses two well-built houses containing twenty-five research rooms and a lecture room. Part of the work is to be carried on locally and part by means of grants in aid to workers in other parts of the U.S.A. A memorandum has been issued setting out a long list of subjects fit for investigation, ranging from systemic diseases resulting from oral infections to the finding of a substitute for platinum in dentistry ("one-third of the platinum used in the world is in the art of dentistry, amounting to about 2,500,000.00 dollars per year, and is lost"). Many of these subjects are already being investigated under the aegis of the institute. It has a limited membership of sixty. Of these, thirty-three are permanent non-dental members, elected from leading research scientists, philanthropists, and business men. Among them are such names as Victor C. Vaughan, Charles H. Mayo, George W. Crile, Frank Billings, and Mr. Thomas Forsyth. Such names are a guarantee of the earnest spirit in which the work is being entered on, and we congratulate the prime movers and organizers of the undertaking on the successful launching of their scheme. It will be no small benefit if by its means dental research in the U.S.A. becomes systematic and co-ordinate. While realization of its objects lies with the future, the known ability of those whose names are published as already at work under the guidance of the institute affords good ground for hope of ultimate triumph. Almost simultaneously with the announcement of the opening of this research institute we have news of the passage of a bill by the New York Legislature providing for the training, registration, and licensing of women to act as dental nurses. They may "graduate" as dental hygienists in one year. Their function is to scale and clean teeth, but they must always work under the supervision of a licensed dentist. Mr. Edward F. Brown, Secretary of the Dental Group of the Advisory Council of the Committee on Child Hygiene, New York City Health Department, explains that the object in view is the prevention of dental caries and oral sepsis, and credits Dr. Alfred C. Fones of Bridgeport with having already successfully experimented in the use of the "dental hygienist." It is intended that the dental nurse shall deal primarily with the teeth of the school population of New York City. The result of her work will be watched with interest. Her introduction may well be epoch-making in the history of public health.

TRAINING IN OPHTHALMOLOGY AND
OTO-LARYNGOLOGY.

Dr. Todd of Minneapolis has discussed recently, in *Ophthalmology*, the higher education of students desiring to become specialists in eye and ear surgery. He points out the necessity for a thorough course of instruction and training in both the theoretical and practical sides of these subjects. Post-graduate courses are useful to enable the general practitioner to rub up his knowledge of medicine and surgery, but attendance at a course of such lectures in a special subject does not make a man an expert, although in America it has led to the development of what Dr. Edward Jackson has called the "six-weeks specialist." Dr. Todd points out that a beginning has been made in England by the creation of the diploma in ophthalmology by the Universities of Oxford and Liverpool; this can only be regarded as a beginning, because neither is the reward of a thorough methodical training in the subject. Some of the American universities have gone further, and in 1914 the University of Minnesota Medical School established courses for the preparation of specialists, not only in ophthalmology, but in other branches of medicine. An

¹ *Glasgow Herald*, January 27th, 1916.

applicant must have graduated from a high-grade medical school, and must have acted for a year as house-surgeon at a general hospital. The courses cover a period of two or three years, and when completed the student, after he has carried out a piece of research, is granted the degree of D.Sc. in ophthalmology or other subject. Such a course of preparation might be organized in London in connexion with the special hospitals, and the degree of F.R.C.S. might be open to the specialist who has been so trained. It is an anachronism that the most coveted diploma in Britain should be the monopoly of the anatomist and general surgeon.

TRAUMATIC GLAUCOMA.

PROFESSOR GOLDZIEHER, of Budapest, has reported¹ two cases of glaucoma following injuries received in battle. He expresses the opinion that the question of primary glaucoma, consequent upon a concussion injury to the eye, has not received the attention it deserves, and recalls the views of von Graefe and Schmidt-Rimpler, who both denied the possibility of such an occurrence, and of Wagenmann, who allowed its possibility. In one of Goldzieher's cases the man, aged 29, was buried by explosion and was unconscious when dug out; on recovering consciousness both eyes were red and watery, but the left was more affected than the right. For a week after the injury he was also deaf; the right eye soon recovered, but at the end of a week he saw badly with the left. He quickly returned to duty and was transferred to the south-western front, where, in July, he was injured in the hand, and was sent to hospital. The right eye was then quite normal, the left almost blind from glaucoma; it was free from injection; the anterior chamber was deep and the iris normal; the pupil was moderately dilated and practically inactive to light. With the ophthalmoscope subcapsular opacity could be seen in the lens below the horizontal meridian; the capsule was uninjured; there was no subluxation or tremulousness of the lens; the vitreous was clear, and the disc deeply cupped. In the extreme upper periphery of the fundus was seen a bleached area with numerous fine dots of pigment regularly arranged, and some yellowish splashes of irregular contour with unpigmented edges. Goldzieher attributes the fundus change to retinal haemorrhage, and thinks that the lens opacity can be accounted for by the coup and the area of fundus change by the contrecoup. In the other case a Roumanian was injured by shrapnel in the left eye, which was free from injection but stone blind. From a small punctiform corneal opacity there extended backwards through the anterior chamber, which was of normal depth, a fine thread of anterior synechia connecting the corneal opacity with the anterior surface of the iris; the iris was otherwise normal, the lens and vitreous were transparent, and the disc deeply cupped. There can be little hesitation in pronouncing the second case to have been one of glaucoma secondary to the perforating injury with anterior synechia formation. It is well known in this country, and we should have expected also in Hungary, that glaucoma is by no means an infrequent complication of perforating wounds with anterior synechia formation. The fact is one of the strongest arguments in favour of dealing with all such anterior synechiae if possible by operation. This very complication not infrequently ensues in cases in which a broad synechia is present, though it is true glaucoma must be rare in connexion with so fine a tag of synechia as the author relates; in spite of this, we, however, see no reason to alter the view of the case expressed above. It is not so easy to account for the first case, though we are inclined to look upon this also as an example of glaucoma, possibly secondary to some low form of cyclitis following the injury.

¹ *Wien, klin. Woch.*, January 20th, 1916.

REPORTS ON THE CONDITION OF PATIENTS.

THE Central Ethical Committee of the British Medical Association had before it at its meeting on April 7th correspondence which raised the point whether a medical practitioner was justified in making a report upon the condition of a patient to a third party without the patient's knowledge and consent. The Ethical Committee adopted a resolution to the effect that medical practitioners should not furnish any such reports without the knowledge and consent of the patient. We are told that applications for reports are not infrequently made by lawyers to practitioners in attendance upon injured persons in connexion with proceedings under the Workmen's Compensation Act and otherwise, and that when met with a rebuff the lawyers are apt to reply that such reports are furnished in many hundreds of cases during a year. We are not prepared to accept a general statement of this kind as correctly expressing the practice of the profession. The ethical principle involved is simplicity itself. It is this, that the duty of a doctor called to attend upon a patient is to that patient and to nobody else. The only exceptions we know of to this rule are, first, if the patient be of tender age or *non compos mentis*, in which case the report must be made to the parents or guardians; and, secondly, certain specific instances in which the Legislature has thought fit to lay the obligation of giving a certificate upon a member of the profession, as in the case of notification of infectious disease.

THE next session of the General Medical Council will begin on Tuesday, May 23rd, at the Council's new premises, 44, Hallam Street, Portland Place, London, W. The President, Sir Donald MacAlister, K.C.B., will take the chair at 2 p.m.

Nature has received from Professor B. Menshutkin, of the Polytechnic Institute, Petrograd, the gratifying information that Professor I. P. Pavlov, the eminent physiologist, is alive and well. The report of his death, which reached this country last February, was due to a confusion of names. The professor who died was the distinguished surgeon, E. V. Pavlov.

THANKS to the courtesy of Sir G. H. Makins, treasurer, and Sir Wilmot Herringham, secretary, through whom thirty-one volumes have recently been received, the series of the volumes of the *Transactions* of the International Medical Congress in London in 1913 in the Library of the British Medical Association is now almost complete. The only volume now missing is Part I of Section XXII (Radiology), which is out of print. The Librarian will gratefully acknowledge the receipt of a copy of this part sent to him at 429, Strand.

Medical Notes in Parliament.

War.

Compulsory Military Service.—The Prime Minister began his statement to the House of Commons on May 2nd by dwelling on the actual growth which has taken place in the army since the beginning of the war. In August, 1914, the army at home consisted of 6 Regular and 14 Territorial divisions, in addition to the garrisons overseas, which might be roughly estimated at 6 divisions, making 26 in all. The country now had 42 Regular and 28 Territorial divisions, that is to say, 70, or, adding the Naval division, 71. In order to estimate the contribution of the empire as a whole, excluding India for the moment, there must be added 12 divisions from the Dominions, making 83 in all. The total naval and military effort of the empire from the beginning of the war to this time exceeded 5,000,000 men.

The obtaining of this enormous addition had involved a prodigious effort both here and throughout the empire. There were two limiting conditions in the matter of recruiting which applied to us, and hardly, if at all, to any of the other belligerent countries. The first was the maintenance of sea power and sea supremacy both by means of the navy and the mercantile marine, and, next, the financing of the Allies. Investigations made in July showed that to maintain a 70 division army a weekly influx of 25,000 to 30,000 men must be obtained. The provision of additional men, both those included in the bill introduced last week and the 200,000 still unattested married men, in the later part of the year, was of vital importance to the maintenance in due strength of the army in the field in view of the contingencies of the summer and autumn campaign. The Government's conclusion was that while the number of men required could not be obtained in due time under the existing machinery, the number needed was actually available, that was to say, could be spared from industry without incapacitating us from the discharge of our other responsibilities, which were quite as essential to the successful prosecution of the war as the maintenance of a fixed number of men at the front. Compulsion was a pure question of practical expediency, but if it was to be applied successfully it must be with something in the nature of general consent. In the bill to be introduced on May 3rd it was proposed to apply general and immediate compulsion, but it was not believed that a larger number of men would be got or in a shorter time; but general and immediate compulsion would have the immense advantage of getting rid of the piecemeal treatment to which so much objection had been taken in all quarters of the House, and of the sense of, at any rate temporary, injustice and inequality which that mode of treatment was apt to engender. Speeches made on April 27th from the Labour benches encouraged the belief that there was a general desire to settle the whole matter, with all the controversy and heated feeling which had been introduced, once and for all, and to get it finally out of the way at the earliest moment. Sir Edward Carson, who followed, took up Mr. Asquith's special reference to the Labour party. No distinction, he said, ought to be drawn between classes. Every class had given of its best to the war, and while feeling full sympathy with anybody who had to give up his house and home to fight for his country, he believed that the classes which would suffer most were the professional classes, many of whom had sent him bitter tales of what had happened to their business and to their families, and of the bringing up of their children in the sphere of life in which they were born. But there was no difference in classes: it was equally hard upon everybody. The ensuing discussion lasted about three hours, but did not elicit any points of novelty. The Prime Minister, in introducing the bill on May 3rd, said that the first clause subjected all males between the ages of 18 and 41, married or single, to compulsory enlistment in the army, every male coming within the operation of the bill as he reached the age of 18. It would come into effect thirty days after it was passed, or thirty days after a lad attained the age of 18 subsequently to the passing of the bill, but he could voluntarily enlist during this period of grace. These provisions were subject to the exceptions contained in the first schedule of the Military Service Act. The second and third clauses provided for the extension during the period of the war of the services of men now serving, and for the recall to the colours of time-expired men, whether married or single, if at the time of the passing of the bill they were under 41 years of age. The bill also empowered the Army Council to review the medical certificates of those rejected on medical grounds since August 14th, 1915. The reason for this, Mr. Asquith said, was that the standard of medical fitness had now been extended, and men not fitted for service abroad were being taken for less arduous duties. It was desirable that there should be an opportunity to review them, and he believed a great many of the men would be glad to be reviewed. The fifth clause dealt with the exemption for two months given under the Military Service Act to a man leaving industries of national importance with the intention of joining others of like character. The bill would also provide for the formation of a special reserve to which men in the army or Territorial

Forces might be transferred, the intention being that men in this reserve might be or would be employed to a large extent in civil life, but would be immediately available for military service in case of military necessity. The bill also authorized the transfer of Territorials into other corps of Territorials or regular battalions. After a short discussion, Mr. Long replied, and the motion to introduce the bill was carried.

Prisoners' Camps, Germany.—In reply to Mr. Malcolm, on May 2nd, Sir Edward Grey said that it appeared from notes received from the United States Ambassador at Berlin in April and May, 1915, that typhus was present at Zossen, Altdamm, Schneidemühl, Gardelegen, Wittenberg, Zerbst, Sagan, Cassel, Erfurt, Langensalza, Ohrdruf, Chemnitz, Altengrabow, and Salzwedel. Unofficial reports had reached His Majesty's Government that, in addition to Wittenberg, Altengrabow and Schneidemühl were abandoned by the Germans. As regarded Gardelegen, it appeared that, except for one German doctor who died at his post and another who acted in a most praiseworthy manner, the camp was deserted by the Germans. The fact that typhus was present at a camp prevented officials of the United States Embassy at Berlin from furnishing officials' reports based on personal inspection. All the reports received from the United States Embassy down to March 31st would be included in a forthcoming White Paper.

Invalid Prisoners and Swiss Resorts.—Further questions were asked on this subject in the House of Commons on May 2nd, but as the Press Bureau issued a communication on the evening of the same day, it will be more convenient to reproduce it.

The Secretary of State for Foreign Affairs learns from the United States Ambassador that the German Government have accepted the proposal of His Majesty's Government for the transfer to Switzerland of British and German wounded and invalid combatant prisoners of war. The precedent formed by the arrangement between France and Germany will be followed as closely as possible.

The Swiss Government have been requested by telegraph to send the necessary number of doctors to examine the German prisoners in this country. A party of Swiss doctors is already in Germany for the purpose of examining the French prisoners, and advantage will no doubt be taken of their presence to examine the British prisoners.

Officers' Ration Allowance.—In reply to Colonel Yate, on April 27th, the Financial Secretary to the War Office said that the ration allowance to officers of the Territorial Force, applicable in cases in which officers were able to draw rations in kind, but preferred for their own convenience to draw the cost in cash, was 1s. 3d., which was the actual cost of the present ration.

Reduction of Notification Fees.—The Lords' amendments to the Local Government (Emergency Provisions) Bill were considered by the House of Commons on May 2nd, and a drafting amendment in the clause reducing the fee for notification from 2s. 6d. to 1s. was agreed to.

Motor Car Duties.—The Chancellor of the Exchequer said, on April 27th, that it was not proposed to interfere with the existing exemptions in respect of motor car duties. Trade cars, fire-engines, motor cars used by a local authority for fire brigade purposes, ambulances, and cars brought into the United Kingdom by a person making only a temporary stay were totally exempt. Motor vehicles kept by a duly qualified medical practitioner for the purposes of his profession were chargeable with one half of the duty. The question whether it would be possible to extend exemption to cars used exclusively for public purposes was under consideration. In a written reply to Mr. Byrne, who asked a question as to the injustice of the proposed new taxes to Irish motor users whose cars were, with few exceptions, either of old pattern or of American makes, Mr. McKenna said that the whole question of the proposed increase in the motor car licence duty was receiving careful attention, but he was not prepared to adopt the suggestion that the value of cars should be the basis of the tax.

The report of the Committee of Visitors for the year 1915, presented to the annual meeting of the Royal Institution on May 1st, testified to continued prosperity and efficient management. Sixty-two lectures and nineteen evening discourses were delivered during the year, and 803 volumes, including bound volumes of periodicals, were added to the library.

THE WAR.

BRITISH RED CROSS CONVOYS AT VERDUN.

(From a Correspondent in Northern France.)

THE nature of the assistance that the British Red Cross Society has been affording in the Verdun fight can be described in half a dozen words—it is fighting line evacuation work. But the relations between the society and the French authorities require rather more explanation. They commenced, not at Verdun, but quite early in the war, varied in their character for a good many months, and crystallized to some extent about the time of the extensive operations in Champagne, and recently assumed a definite and probably final form, and this is practically as follows:

(1) The society undertakes to supply, and the French authorities agree to accept, the assistance of a certain number of convoy sections. (2) As soon as any such section reports itself for duty it becomes for the time being an intrinsic part of the French army, the cars being regarded as part of the French mechanical transport equipment and the personnel as French soldiers. (3) As such the drivers and section leaders are billeted and rationed, receive the ordinary pay of French troops engaged in the same work, and belong to the Service de Santé command.

This does not mean that when the society has delivered at a given spot a certain number of ambulances and a certain number of trained men it ceases to have any connexion with the matter. Its ownership of the cars is not altered by the fact that they are under the absolute control of the French authorities, and its responsibilities towards the workers continue, even though these rank for disciplinary and all other purposes as French soldiers.

In other words, the cars, or what is left of them, return into its possession when no longer required by the French, and meantime it is responsible for the maintenance of a personnel to work them, and for the salaries that it has previously agreed to pay the men who constitute it.

The arrangement sounds curious, perhaps, but really there are plenty analogies for it in civil life. Something of the kind was necessary, because in such a vast business as the conduct of a war it is inconvenient to depend upon labour which is not under absolute control.

In the early stages of the war the French authorities accepted the assistance of many private individuals who were in a position to assist in the removal of the wounded from the battle line to the hospital areas. The disadvantage of this kind of assistance soon became obvious, and little by little the French began to exclude volunteer ambulance workers from the war zone, unless they agreed to cease to operate as independent workers, and to become units in a definite organization.

They also applied the same principle in dealing with members of the British Red Cross Society. Many individuals more or less closely connected with the society began to do ambulance work for the French in the autumn of 1914, a considerable number of them being citizens of the United States of America, who brought over their own cars. Eventually they were organized by the British Red Cross Society into two small ambulance units, and both of them did a great deal of useful work during the first half of 1915. But in the summer of that year the British Red Cross Society allowed one of them to break up; many of its cars were no longer roadworthy, and the officer who had been in charge of it had been offered other employment. The other convoy, however, the society decided should still be maintained, but that after it had been refurbished it should be handed over entirely to the French.

In the early autumn of last year, when the Artois-Champagne operations were in progress, this unit found itself overworked and the officer in charge of it asked the British Red Cross Society for the unofficial loan of another dozen ambulances. These were supplied forthwith by the British Commissioner in France, and the augmented unit did such valuable work that the question was raised whether the loan should not become permanent, and other units be allotted to the French on the same lines.

At first the answer seemed likely to be in the negative for the central authorities of the society in London were not disposed to approve the scheme on account of the expense involved. Fortunately, however, just at this moment a cheque for a very large sum was placed at the disposal of the Commissioner in France by a former ambulance worker in France, who on his return home had devoted himself to collecting subscriptions for ambulances. It was then at once arranged to put the idea into operation forthwith, and eventually to supply the French with three sections or ambulance units in all.

The first of these sections was ready just before the battle of Verdun began, and two other sections have since been sent down. There are therefore now some sixty-six British Red Cross cars at disposal in the Verdun area. They work in three main divisions, each of which is in effect a complete unit, since each has its own repair lorry, a travelling kitchen, and a touring car for the use of the section leader, who is responsible for the work and discipline of his section and any subsections, that it may form. In addition there is an officer who exercises general supervision over the whole convoy, and ranks as the local representative of the British Red Cross Society.

Judging from the reports that have filtered through, the conditions of life in which this Verdun convoy is doing its work are rougher than those to which motor ambulance convoys are subjected on the Flanders front, and the work itself in some respects more trying. Apart from going on night after night, the distances that some sections and subsections have to travel before they can unload seem to be very great, and there is a paucity of roads fit for heavy motor traffic. Some subsections seem also to be doing work which on the British side is not allotted to convoys but to field ambulances—that is to say, they are collecting from first posts within easy reach of machine gun and rifle fire.

All, too, seem to have to pass frequently along roads lying between the heavy artillery positions on both sides. Shells can consequently be heard whistling overhead, and though they may constitute no particular danger, the possibility of some of them falling short always exists. The noise, too, is great, for the line is more or less curved, and consequently guns seem to be banging from every direction.

It is clear, therefore, that the men attached to the convoy are justifying their existence to the full, and that the British Red Cross Society is well earning any credit which it may receive in respect of this matter.

BRIGHTON HOSPITAL FOR PATIENTS WHO HAVE LOST LIMBS.

THE Pavilion Military Hospital, Brighton, until lately used for the treatment of sick and wounded Indian troops, has been thoroughly renovated, and is now open for the reception of English wounded. A special feature of this hospital is that two divisions, comprising over 500 beds, have been entirely renewed for the treatment of patients who have lost one or more limbs. It has been found that many patients who have undergone amputation have had a long and tedious convalescence, which might in many cases have been considerably shortened if the best means of treatment of their stumps had been available; they would include those cases which, owing to necrosis of bone with discharging sinuses, have been sent from hospitals to convalescent homes to make room for other wounded.

The conditions for which it is especially intended that patients shall be admitted to the Brighton hospital are (1) persistent sinuses after amputation; (2) bulbous nerve ends in stumps; (3) adhesions limiting the free movements of a joint; (4) flexion of joints by contraction of scar tissue; (5) cases requiring re-amputation, as, for example, for conical stumps, and after flush amputations which have not properly healed. Shortly, any condition of stump which does not allow the proper fitting of an artificial limb will be considered suitable for admission. When a patient has been successfully treated for any of these disorders, and his stump is quite ready for fitting an artificial limb, he will be transferred to Queen Mary's Auxiliary Hospital, Roehampton, to have this artificial limb supplied.

It is hoped that workshops may be opened at the hospital

at which men will be taught trades during their stay. These trades will, of course, vary with the condition of the men, and care will be taken that the particular trade selected shall be suitable to the particular deformity.

The hospital is under the command of Colonel Neil Campbell, C.B., C.I.E., who was in command of the hospital for wounded Indian soldiers in the same building. The officers in charge of the two divisions are Lieutenant-Colonel Davis, I.M.S., and Major Brailey, R.A.M.C. The wards are of good size, airy, and well arranged, the largest containing about 130 beds. There are two operating theatres, an x-ray room, a disinfectant, cook houses, a canteen, and all that is necessary to make a military hospital complete in all details.

TRAINING SCHOOLS FOR MAIMED SOLDIERS.

ONE of the most urgent problems created by the war is the provision of new means of livelihood for soldiers incapacitated by wounds from carrying on their previous occupations. For this purpose arrangements have been made in most of the belligerent countries for the establishment of schools in which men crippled, blinded, or otherwise disabled can be trained for such work as their condition allows them to do. In this country the Incorporated Soldiers' and Sailors' Help Society, besides supplying financial help until the formalities required for the granting of pensions are complete, instructs men in useful trades, and when they have acquired sufficient skill employs them in its own workshops. Men with one arm are taught painting and other trades in which two hands are not needed, or they are engaged in feeding wood or paper to hand machinery. A year ago the society had workshops in London, Edinburgh, Dublin, and Brookwood (Surrey), and was taking steps for a large extension of its operations. Mr. C. Arthur Pearson's work at St. Dunstan's, Regent's Park, in the treatment and training of blinded soldiers and sailors is known to every one. In the *BRITISH MEDICAL JOURNAL* of November 20th, 1915, it was announced that at the suggestion of the Scottish Veterans' Garden City Association, the president of which is Lord Wemyss, a scheme had been worked out for the establishment in the various areas of Scotland of villages where the maimed soldier might find a home for his family and be trained in some useful work by which he might supplement his pension. Ground has been secured at Longniddry, not far from Edinburgh, and an interesting account of the work with plans and other illustrations has been issued by the association. In Ireland a hospital, designed for 4,000 wounded Irish soldiers, has been established in Tipperary; those unable to resume their occupations are given instruction in wood and metal working, typewriting, and telegraphy. In France the Ministries of War and of the Interior have been studying the whole question. But official action is slow, and in the meantime a movement started by Maurice Barrès, the distinguished writer; M. Edouard Herriot, Senator for the Rhône department and Mayor of Lyons, and Dr. M. Carle, has led to the establishment of schools for maimed soldiers at Lyons, Saint-Maurice (near Paris), Marseilles, Bourges, Montpellier, Saint-Etienne, Bordeaux, Toulouse, Pau, Orleans, Nancy, Rouen, Havre, Clermont-Ferrand, Tourvielle, and several other towns. Dr. Carle, who is physician in chief to the schools, in his book *Les Ecoles professionnelles des blessés*, which was reviewed in the *JOURNAL* of December 11th, 1915 (p. 862), gives the fullest account we have seen of the objects aimed at, and the methods adopted for their attainment. The training is either commercial or industrial. In the former class maimed men who have completely recovered, and who are free from tuberculosis, are taught what might be called clerking in all its branches; the course comprises French, writing, shorthand, book-keeping, commercial geography, with English and Russian as optional subjects. The industrial classes comprise bookbinding, shoe-making, tailoring, carpentering and toy making, iron and wood work, basket and broom making, modelling in clay, harness making and general saddlery. Workshops for the manufacture of orthopaedic apparatus are being organized. The school at Tourvielle has a section of horticulture, where all the sheds and conservatories have been built by the pupils. The men receive, in addition to their pension

of Fr.1.70 a day from the State, an allowance of Fr.1.25 a day from the school, together with the proceeds of their labour, whether done for the institution or in fulfilment of orders from outside. In Germany an institution for the supply of artificial limbs has been established at Charlottenburg; there the sort of work which the wounded men are fit to do is decided upon, and they are trained as workers in metal and wood, transport labourers, textile workers and agriculturists, and taught to work with the hoe or broom, and to drive carts. The German National Education Society has raised a fund of £25,000 to assist the blind until the State gives them suitable employment. They are trained as telephone operators, typists, and masseurs; those who are musically inclined are given instruction in music. The Hamburg Society for the Blind assists blinded soldiers till they can return home and take up the work of learning some trade. The Austrian Red Cross has established schools for crippled men; in the early part of last year four institutions for the teaching of trades were at work in Vienna and one in Prague. In Italy committees have been formed at Milan, Bologna, Florence, Turin, Lucca, Leghorn and elsewhere for the training of mutilated soldiers in new occupations. In an address on the re-education of the wounded, delivered in Rome not long ago, Professor Foà said that after four months of war Italy had 1,160 maimed men; statistics extending to November 20th, 1915, brought the number up to 4,000. To these must be added many cases of men disabled by frostbite. In New York a Permanent Blinded Relief Fund for Soldiers and Sailors—British, French, and Belgian—has recently been organized. It is estimated that six months' training will enable blinded men to earn their living. The idea of training schools for wounded soldiers is not new, though it has never before been acted upon on so large a scale as the exigencies of the present war have made necessary. It is not only a matter of livelihood for the men, but of peace of mind and freedom from anxiety and depression. The whole question is ably dealt with by Dr. Borne in a book, entitled, *La rééducation des blessés et des mutilés de la guerre* (Paris: Renouard, 1915), which may be studied with profit by all who wish to take an active part in soothing the lot of our maimed heroes.

THE ST. JOHN HOSPITAL, SOUTHPORT.

In the *BRITISH MEDICAL JOURNAL* of April 22nd (p. 603) reference was made to the work of the St. John Hospital, Southport, which is the largest V.A.D. establishment in England. The medical officer in charge, Mr. W. C. Bental, F.R.C.S., has sent us an interesting account of the hospital; we regret that, owing to want of space, we can only publish a brief summary of his article. In the early days of the war one of the ordinary V.A.D. hospitals was started with thirty beds. The institution received such enthusiastic support from the citizens of Southport under the active leadership of the mayor, Alderman J. E. Willett, that it was decided to provide for a large expansion of the original scheme. The loan of two mansions, each with extensive grounds attached, was obtained, and on these grounds a hospital was erected on the pattern of the 1st Eastern General Hospital at Cambridge. Southport was then able to offer to the War Office a hospital of 500 beds with staff complete. It is within the area of the Western Command, which has its head quarters at Chester. Though graded as a "Primary" hospital, in order to save extra official work, it is linked to the 1st Western General Hospital, Fazakerley, Liverpool. It consists of eight blocks, connected by covered ways. Each block consists of a ward with sixty beds opening on the common corridor at one end, where are a nurses' room and the ward kitchen. Across the corridor are three rooms connected with a sanitary block containing a lavatory and a bathroom for the men, and a nurses' sanitary room for the storage of bed-pans, with cleansing appliances. The wards are open to within two feet of the floor on the south-west side, and, as a protection against wind and rain, there are alternate windows and shutters on lift-off hinges; to ensure a sufficient supply of fresh air when these have to be closed, a 9-in. opening under the eaves runs along both sides of the ward, while in the gable at each end there is another opening for ventilation. Besides the kitchen and food storage department, which is quite separate from the other buildings, the hospital contains a

dispensary, nurses' dining-room, cloakroom accommodation, linen stores and sewing-rooms, together with matron's and kitchen superintendent's offices. In the reception block there is a large, well-heated waiting-room which opens into an undressing-room, off which is a small store for dirty and infected clothes. The men on arrival are stripped and bathed; then they go into the dressing-room where hospital clothes are supplied, and from this they go to the wards. After thorough stoving kits are placed in a pack store. In each branch of the hospital there is a spacious and fully equipped operating theatre. Trains bring wounded direct from Southampton. In addition to the men from abroad there is a steady stream of cases—hernia, appendicitis, varicocele, etc.—from the troops billeted in the town. One of the hospitals has been practically rearranged as a hospital for dysentery and enteric fever, with an extensive department for bacteriological examinations under the supervision of the honorary pathologist, Dr. E. Cronin Lowe. In the x-ray department, under the supervision of Mr. Thurstan Holland and Dr. Oram of Liverpool, there is a full plant for electrical treatment, massage, diathermy, etc. One-third of the practitioners in Southport have joined the forces, and the medical staff of the hospital consists of twenty-two temporary divisional surgeons (who are not-commissioned or paid) appointed by the Order of St. John from the practitioners remaining. These surgeons constitute a medical board which meets monthly. The management of the hospital is in the hands of a council representative of all interests concerned, with a chairman under whose cognizance all matters of expenditure and administration are brought. In the administration three Voluntary Aid Brigade Divisions of the St. John Ambulance Association, one of men and two of women, work together.

There is a matron at each hospital, with a staff of thirty-four trained nurses, who take charge of the wards, and are assisted by a staff of V.A.D.'s. The total cost of the buildings with full equipment amounted to £12,000, which was raised by public subscription. For maintenance the War Office makes a grant per day for every wounded man, and the people of the town are liberal in their support of the hospital, of which they are very proud. A permanent record of the work of the St. John Hospital, Southport, has been issued by the medical officer in charge, in the shape of a book, containing, in addition to a short history of its development, descriptions of its various departments and other appropriate literary matter. The work is illustrated by a number of admirable photographs. The whole forms a pretty souvenir of an effort for the relief of our sick and wounded warriors which is in the highest degree creditable to the people of Southport and to the medical profession of the town.

CASUALTIES IN THE MEDICAL SERVICES.

ROYAL NAVY.

Died on Service.

The battleship H.M.S. *Russell* struck a mine in the Mediterranean on April 27th, and sank, with considerable loss of life. Of the officers, twenty-seven were killed or died of their injuries. Among the latter were two medical officers—Fleet Surgeon W. R. Center and Surgeon P. D. Pickles, R.N.V.R., who died in hospital at Malta on April 28th.

Fleet Surgeon William Rudolf Center was the son of the late Brigade Surgeon W. Center, I.M.S. He was educated at University College, London, and at the Universities of Aberdeen, Edinburgh, Strassburg, and Berlin. He took the M.B. and C.M. with honours at Edinburgh in 1893, and the M.R.C.S. and L.R.C.P.Lond. in 1896. Entering the navy in 1896, he became Fleet Surgeon on May 13th, 1912. He qualified as an interpreter in German in 1911.

Surgeon Philip Dobson Pickles, Royal Naval Volunteer Reserve, who died in the Malta Naval Hospital from the effects of the fumes following the mining of H.M.S. *Russell*, was the son of Mr. J. J. Pickles, surgeon, of Leeds, and was 33 years of age. He was educated at Leeds Grammar School and Leeds University, and took the diploma of L.M.S.S.A. in 1908, subsequently holding the posts of resident medical officer, Leeds Public Dispensary, house-physician of Leeds General Infirmary, and clinical assistant at Armley Hospital, Leeds Tuberculosis Association, after which he went into practice at Earby, near Skipton

in Craven. He joined the R.N.V.R. on March 16th, 1914, and on the outbreak of the war was appointed to H.M.S. *Russell*.

ARMY.

Died of Wounds.

Lance-Corporal Robert Gordon Caldwell Stewart, M.D., of the 15th Royal Highlanders, C.E.F., died on March 29th, at the Toronto General Hospital, from the effects of a wound received at the battle of St. Julien in April, 1915. Dr. Stewart, who was a graduate from the medical college of Dalhousie University, was in practice at Kingston, Ontario, when the war broke out, and held the military rank of sergeant-major in the 48th Regiment of Toronto. He at once gave up both professional and military rank and enlisted as a private in the 15th Royal Highlanders, and was soon promoted to be lance-corporal. At the battle of St. Julien, as he was attending to a wounded comrade, a rifle bullet penetrated the back of his head, emerging at the corner of his left eye. For some weeks he was deaf, dumb, and blind, but gradually the effects of shock disappeared, and he recovered speech and hearing, and finally the sight of his left eye. He returned to Canada, and was operated upon in the hope that the sight of the other eye might be restored, his only desire being to return to the front. Unfortunately his death occurred two days later.

Died on Service.

Major Paul A. Gillespie, M.D., of the South African Expeditionary Force, German West Africa, died of bubonic plague on March 24th at Winburg, South Africa. Major Gillespie, who was in his forty-ninth year, was born at Cannington, Ontario, and was educated at the Jarvis Collegiate Institute, Toronto. He entered the University of Toronto and received his medical degree in 1890. He practised for six years at Penetang, Ontario, and then went to South Africa and commenced to practise at Winburg. When war broke out he became a medical officer in the force commanded by General Botha, and again offered his services for the German East African campaign under General Smuts with the rank of major. On one occasion Major Gillespie was taken prisoner and condemned to be shot as a British spy; fortunately, however, the British forces captured the town in which he was prisoner before the sentence was carried out.

Captain Edward Wilkinson Deane, whose death was announced in the casualty list published on May 1st, was born in 1872, joined the Australian Army Medical Corps last year, attaining the rank of captain in May, 1915, and came over to Europe with the first reinforcements from Australia.

Captain Edward Bush Hartnell, R.A.M.C.(T.F.), was announced as having died on service, in the casualty list of May 2nd. He was educated at Bristol, Dublin, and Guy's Hospital, and took the diplomas of M.R.C.S. and L.R.C.P.Lond. in 1892. After filling the posts of junior house-surgeon of Chesterfield Hospital and resident medical officer of Dover Hospital, he went into practice at Bridgewater, in Somerset. He joined the 14th London Mounted Brigade Field Ambulance as lieutenant on September 22nd, 1914.

The casualty list published on April 28th includes the name of Captain R. R. J. Holmes, R.A.M.C.(T.F.), as having died recently on service. He died of fever, contracted on service, in the military hospital, Malta. He was the only child of the late Captain Robert Holmes of Cloncaugh, Woodlawn, co. Galway. He joined the 1st (Maidstone) Home Counties Field Ambulance as lieutenant on August 22nd, 1914, and became captain on April 1st, 1915.

The death of Lieutenant Guy Verney Fletcher, R.A.M.C., was also announced in the casualty list of May 1st. He was educated at Melbourne University, and took the Scottish triple qualification in 1899, also the M.R.C.P. Edin. in 1901. He subsequently served as second resident physician of Monsall Hospital, junior resident surgeon at the Royal Eye Hospital, Manchester, and assistant medical officer of Brownlow Hill Infirmary, Liverpool. He took a temporary commission in the army in May, 1915.

Lieutenant A. L. Thornley, R.A.M.C., who died after a protracted illness, was the son of Dr. and Mrs. Thornley of Bolton. He received his early education at the Bolton High School for Boys, and Epworth College, Rhyll. He

studied medicine in Edinburgh University, where he graduated M.B., Ch.B. Edin. in 1907. After this he went to Berlin to study ear, nose, and throat work, and from there was appointed house-surgeon to the Birmingham Ear, Nose, and Throat Hospital. He afterwards went to the King Edward VII Hospital, Cardiff, and acted as house-surgeon to the ear, nose, and throat department for two years, and for six months as house-surgeon in the surgical wards. He commenced practice in Cardiff as an ear, nose, and throat specialist, and was appointed by the corporation to attend ear, nose, and throat cases notified for treatment by the school medical officer. He was secretary of the Cardiff Division of the British Medical Association, which post he had to relinquish on accepting a commission in the R.A.M.C. He had been instrumental in getting a large number of medical men to accept commissions in the army.

Accidentally Killed.

Captain Reginald Kinloch MacGregor, R.A.M.C., was notified as accidentally killed, in the casualty list published on May 2nd. He was educated at St. Bart's, and took the diplomas of M.R.C.S. and L.R.C.P. Lond. in 1911. Entering the R.A.M.C. on August 7th, 1914, as a temporary lieutenant, he was promoted to captain on completion of one year's service.

Wounded.

Major C. A. J. A. Balck, R.A.M.C. (Dublin).

Major Walter Bapty, M.D., 2nd Canadian Mounted Rifles.

Captain W. McK. H. McCullagh, R.A.M.C., Special Reserve (Dublin).

Lieutenant C. Heald, R.A.M.C., temporary (aeroplane accident).

Lieutenant T. D. Miller, R.A.M.C., temporary.

Missing.

Lieutenant and Quartermaster E. H. Atkins, R.A.M.C. (Dublin).

Captain J. H. Beilby, R.A.M.C. (T.F.), Worcester Yeomanry.

DEATHS AMONG SONS OF MEDICAL MEN.

Johnston, Alec Leith, Lieutenant King's Shropshire Light Infantry, son of Dr. George Johnston, of 23, Seymour Street, London, W., killed in action on April 22nd. He was educated at St. Paul's School and at Exeter College, Oxford, holding scholarships at both; and was the writer of the series of articles "At the Front" and "At the back of the Front" in *Punch*. He got a commission as second lieutenant in February, 1915, and became lieutenant in August.

Marsh, T. E. L., Acting Lieutenant Royal Marines, second son of Fleet Surgeon Marsh, R.N. (retired), of Liss, Hants, lost in H.M.S. *Russell* on April 27th, aged 19. He was educated at Malvern College, passed into the Royal Marines just before the war, and joined the *Russell* in April, 1915.

Webb, George Tudor, Second Lieutenant Royal Fusiliers, youngest son of the late Dr. W. H. Webb, of Kingsbridge, killed in action on April 21st, aged 26. He got his commission last July.

MEDICAL STUDENTS.

Binning, William B., Machine Gun Corps, died of wounds, aged 19. He was educated at Failford School, Cowdenbeath, and at Beith Higher Grade School, and was studying medicine at Edinburgh before the war. He got a commission as second lieutenant in the 11th (Service) Battalion of the Cameronians (Scottish Rifles) on December 14th, 1914, and went to the front in October, 1915.

Edwards, A. J. A., Second Lieutenant Royal Scots, attached Loyal North Lancashire Regiment, died of wounds, was a native of Durban, South Africa, and a medical student at Edinburgh. He joined the 11th Service Battalion, Royal Scots, as second lieutenant on February 4th, 1915.

Tresidder, Charles Tolmie, Captain Gloucester Regiment, who was mortally wounded on the night of April 17th-18th, was the youngest son of Captain T. J. Tresidder, C.M.G., late R.E. After being educated at Uppingham and Dulwich College he studied for the medical profession at St. Bartholomew's Hospital, and would have taken his final examination before the war but for the accident of breaking his leg when playing football. He served for three months as a dresser with the Duchess of Westminster's War Hospital. He received a commission in the Lancashire Fusiliers on January 9th, 1915. He was promoted lieutenant on May 4th, and, having taken a first class instructor's certificate with distinction in machine gun work, was shortly afterwards gazetted captain. He subsequently transferred to the Gloucester Regiment, and was given the post of brigade machine-gun officer.

HONOURS.

A SUPPLEMENT to the *London Gazette* of May 2nd, issued on May 2nd, announced the following promotions and appointments to members of the medical profession for distinguished service in the field:

C.B.

Temporary Colonels:

C. A. Ballance, M.V.O.
F. D. Bird, M.D., F.R.C.S.
Sir Victor A. H. Horsley, F.R.S.
William Hunter, M.D., F.R.C.P.
V. Warren Low, M.D., F.R.C.S.
A. W. Mayo Robson, C.V.O.
C. Snodgrass Ryan, M.B. (Colonel Australian A.M.C.).
J. Purves Stewart, M.D., F.R.C.P.
Charters J. Symonds, M.D., F.R.C.S.
William Thorburn, M.D., F.R.C.S.

K.C.M.G.

Surgeon-General William Babbie, V.C., C.B., C.M.G.

C.M.G.

Temporary Colonels:

Archibald E. Garrod, M.D., F.R.S.
F. M. Sandwith, M.D., F.R.C.P.
A. H. Tubby, M.B., F.R.C.S.
W. H. Willcox, M.D., F.R.C.P.

Lieutenant-Colonels:

F. Etherington, C.A.M.C.
S. H. McKee, C.A.M.C.

Temporary Lieutenant-Colonel C. H. Lindsay, M.D., R.A.M.C. (T.F.)

Major E. G. Davis, C.A.M.C.

D.S.O.

Lieutenant-Colonel E. V. Gostling, R.A.M.C. (T.F.)
Major J. G. Bell, M.B., R.A.M.C.

Military Cross.

Temporary Captain W. N. Rishworth, M.B., R.A.M.C.

NOTES.

CANADIAN HOSPITALS.

It is announced that the Canadian General Hospital, No. 7 (Queen's University Military Hospital), which is under the command of Lieutenant-Colonel Etherington, C.A.M.C., has left Cairo for England, where it will be reorganized. It is probable that it will then go to France. No. 6 General Hospital, the gift of Laval University, Montreal, recently arrived in England. This unit is under the command of Lieutenant-Colonel George Beauchamp, C.A.M.C. No. 5 Canadian General Hospital, under the command of Lieutenant-Colonel E. C. Hart, C.A.M.C., of Victoria, was recruited in the province of British Columbia, and is now stationed at Salonica.

CASUALTIES AMONG GERMAN DOCTORS.

The *Muenchener medizinische Wochenschrift* (February 29th, 1916) states that a survey of the losses among German army doctors, gleaned from the casualty lists Nos. 1 to 450, shows the total loss in the army and navy amounted to 1,164. Among these there were 264 killed, 130 died of illness, and 1 died of gas poisoning. Thus the total number of deaths was 395. Further, there were 148 severely wounded, 411 slightly wounded, 133 prisoners, 76 missing, and 1 ill.

THE GERMAN ARMY MEDICAL SERVICE.

At a session of the Prussian Lower House it was stated¹ that more than 14,500 medical men were serving in the army, and that the majority of them belonged to the reserve, the "Landwehr," or to the civilian medical profession subject to military duties. The total number of cases of cholera in the army had not exceeded 300, and in Prussia only 41 cases occurred among the civilian population. In the autumn of 1914 typhoid fever had been fairly prevalent on the western front, but early in 1916 it was practically stamped out. This change was attributed to prophylactic inoculation; so extensively had this measure been adopted, that a total quantity of 26 c.b.m. of vaccine had been used. The amount of cholera vaccine used amounted to 29 c.b.m.

¹ *Muench. med. Woch.*, March 7th, 1916.

THE *Muenchener medizinische Wochenschrift* of November 23rd, 1915, gives a list of forty-one inaugural dissertations presented at the University of Kiel during six months of the past year. No fewer than 28, or 70 per cent., dealt with neurological and psychiatric subjects.

Ireland.

WE have received no news from our Irish correspondents this week. It is to be gathered from the graphic letters of Mr. John E. Healy, editor of the *Irish Times*, that the house of the College of Surgeons of Ireland in St. Stephen's Green was made to serve as the chief ambulance dépôt or hospital of the insurgents. A number of wounded were also taken to the Royal City of Dublin Hospital in Baggot Street, which runs into St. Stephen's Green. Mr. Healy states that the first serious street fighting took place on Tuesday, April 25th, at the corner of Pembroke and Lansdowne Roads, where the rebels had seized a doctor's house, from which the troops coming from Kingstown were fired on. When the house was captured in the evening the bodies of nineteen Sinn Féiners were found within. On the same day the insurgents seized an ammunition shop, from which they had Trinity College under close and direct fire. The College was occupied by soldiers, and on Wednesday, April 26th, a field gun was brought to the roof of the College and the ammunition shop blown to pieces. In spite of all this, a term examination was carried on with the usual exactness within the walls of the College. The house of the College of Surgeons seems to have been one of the last buildings held by the insurgents, and Mr. Healy states that on April 30th there were some 200 wounded men in the building.

Scotland.

THE annual report of the Scottish National Society for the Prevention of Cruelty to Children stated that while in many cases homes were better owing to the absence of the father on service, in others women whose husbands were away had given way to excessive drinking, but in practically every instance the woman was drinking before. From a statement made at the annual meeting it appears that the preventive work of the society has been remarkably successful. During 1915 in Edinburgh alone 545 soldiers' wives had been under supervision, and it had been possible to save 500 from prosecution. The number of complaints during the year was 7,200; this was 1,653 less than in the previous year, but the welfare of 22,263 children was involved. The report expressed alarm at the great ignorance and carelessness with regard to child life in many quarters, and dwelt on the evil effect upon physical health caused by ignorance, drunkenness, dirt, and neglect. The motion for the election of the honorary secretaries made by Major C. D. Murray was seconded by Dr. James Carmichael, and adopted.

India.

MALARIA IN BENGAL.

SOME novel ideas in regard to the prevalence and spread of malaria were enunciated in a lecture given by Dr. C. A. Bentley at the Senate House, Calcutta, on swamps and floods in relation to Bengal malaria. Malaria, he said, was usually associated with the presence of swamps, and in the Punjab and in many other countries the occurrence of floods was followed by an outbreak of epidemic malaria. The physical conditions in Bengal, however, were vastly different from those of the Punjab, and what held good in one part of the country was not necessarily true of another. Bengal was very largely deltaic and swampy, but many swampy countries were practically immune from malaria, as, for example, the marshy country round Alexandria, and—until drainage was begun—the swampy delta round Ravenna in Italy. The explanation of these apparent anomalies was that the larvae of the anopheles mosquito were always found round the edges of pools, streams, etc., but never far from the edge; it was in fact the amount of water edge that governed the output of mosquitos. In Dacca, for instance, the mosquito season occurred during the dry weather, that being the season when there was most water edge; in the monsoon the

country was largely inundated, and the water edge was consequently much reduced. Reclamation of land often caused violent outbreaks of malaria, not because there was any poison in the soil, but because until drainage was thoroughly effective ideal breeding places for mosquitos were provided by the land in process of reclamation. In an average Bengal village there were numerous small depressions and hollows, and it was said that these were largely responsible for the prevalence of malaria. Yet in East Bengal, where the conditions as regards physical configuration of the soil were almost exactly similar, there was comparatively little malaria. The true explanation of this paradoxical state of affairs was that it was only in the monsoon season that malaria was conveyed by the anopheles mosquito; a large portion of East Bengal being inundated at that period of the year the number of malarial mosquitos was kept in check. In Central Bengal, owing to the fact that extensive flooding no longer occurred, every little pool during the dangerous months was a breeding place for mosquitos.

PLAGUE IN INDIA.

There were as many as 6,628 deaths from plague in the whole of India during the week ending February 5th. Bombay Presidency and Sind and the United Provinces account for 1,721 and 1,628 respectively. Other provincial figures are: Madras Presidency, 431; Bengal, 3; Behar and Orissa, 603; Punjab, 65; Burma, 350; Central Provinces, 703; Mysore State, 162; Hyderabad State, 874; Central India, 80; and Kashmir, 6.

Correspondence.

TIME IN SURGERY.

SIR,—The act of saving "time in surgery" is one that even slow operators can accomplish by avoiding unnecessary pauses, and I agree with Maylard that this is specially desirable in many cases of abdominal section. In fact, apart from the interests of the patient, which are vital, one finds that the practice comes naturally to surgeons who do many operations in a day, if only to save the time of themselves and their assistants. Even small and simple operations, requiring ten seconds, are apt to be extended to as many minutes by the evil habit of dawdling and rambling on the part of some. Quick operating, when it does not come naturally to the surgeon, can be acquired by example, and need not be accompanied by hurried movements. Though I have often erred in operating too slowly, I have also often found occasion to perform rapidly with equal ease.

The first time I attempted pylorotomy I was astonished at the simplicity of the process in that particular case, and the short time occupied in finishing it without hurry. Cases differ greatly, and some are easily and quickly done, while others are difficult and exasperating in the time necessarily spent. I have seen abdominal hysterectomy quickly and thoroughly done by surgeons at home and abroad, but never so quickly as, or more brilliantly than, by Doyen, without the slightest hurry, during the Paris International Medical Congress of 1900.

I then made the acquaintance of Professor Alex. R. Simpson, whose untimely death by accident we have had so recently to deplore. It was he who told me of a demonstration to be given by Doyen on August 8th. There was a crowd of surgeons of all nationalities, among them Collins Warren of Boston and Ernest Laplace of Philadelphia. When the audience had collected in the theatre, I found myself at the back, in the blazing heat of the window. Seeing Simpson somewhere in a bad place, Doyen said, "Gentlemen, please make room for our seniors," and placed him with Sir William MacGormac and Reginald Harrison in the middle of the front row, and I slipped in next to Harrison.

Among many operations came the abdominal hysterectomy which we four saw from a distance of under two yards. The operation was done without an instant's pause or the slightest hurry, and finished in about ten minutes, with admirable skill. In one of the intervals, while the folding doors into the corridor were wide open, I noticed a person with a camera photographing the

company. I thought no more of this till some months later, when a friend pointed to what he described as an interesting article in, I think, *Black and White* entitled "In the cause of humanity." On the opposite page was a photographic engraving illustrating the article, in which I saw objects reminding me at once of Doyen's theatre. Then I saw the patient's knees over the edge of his tilted table, and Doyen's back by her side; then Simpson seated in the middle, MacCormac, Harrison, and myself standing beside him, with the rest of the international crowd.—I am, etc.,

RUSHTON PARKER,

Professor of Surgery in the University of Liverpool;
Lieutenant-Colonel 1st Western General
Hospital, R.A.M.C.(T.F.).

Liverpool, April 30th.

THE CONTROL OF VENEREAL DISEASES.

SIR,—The main recommendations of the Report of the Royal Commission on Venereal Diseases have been received with remarkable unanimity. The proposal that facilities for diagnosis and treatment should be made freely available for every sufferer has been approved from every side, and I have not heard of any opposition or criticism. The President of the Local Government Board has indicated that at least three-fourths of the cost will be borne by the Imperial Exchequer. The path is therefore clear for general hospitals, universities, and local authorities to make their plans for carrying out the work. Whatever controversies may arise on side-issues, they must not be allowed to obscure this humane, reasonable, and much-needed reform.

With this in mind, may I briefly refer to two points which are, or may be, controversial, and which were raised by the important article in the *Edinburgh Review*, quoted in your issue of April 22nd, p. 597?

The first of these is the suggested compulsory detention of patients in workhouse infirmaries. About this proposal opinions are much divided. It would appear to be advocated chiefly on *a priori* grounds. I have searched the published evidence, and have failed to find any adequate case made out for this departure from the general lines of the report. Would it not be well to postpone any such change until a beginning has been made with the national system of free and voluntary treatment, and until we see what is to be the relation of Poor Law infirmaries to that system?

The second point is prophylaxis. On this thorny question the Royal Commission kept silence, but it is being widely discussed, and thanks are due to you for being prepared to handle it. If the application of simple germicidal remedies within a few hours after exposure to infection proves as efficacious as is alleged, their use amounts to a logical extension of that early treatment on which the Royal Commissioners rightly lay stress. In the case of an individual who had yielded to temptation, few would hesitate to give or advise such treatment. Therefore, where large numbers of men are assembled, it may be right to provide facilities for it. If, however, such provision should convey (as it might if unwisely announced) a false impression that the authorities look with tolerance upon sexual vice, this would be a disgrace to our army now, and a national disaster in the future when the men return to civil life. Such provision therefore makes it even more necessary that men should be told not only the risks of self-indulgence but also the duty and healthfulness of self-control. They should learn that the best soldier and the finest man is he who does not need to use prophylactic measures because he practises continence, which is the only absolute prophylaxis.

There is surely a clear distinction between this disinfection after known exposure, and another method referred to by the *Edinburgh reviewer*—namely, the so-called "prophylactic packet," handed to men before they leave the camp or ship. The latter plan amounts to an admission to each individual who receives a packet that he is not expected to exercise self-control. It is utterly incompatible with any sound moral or physiological teaching, and I cannot see how it can possibly fail to be an encouragement to vice.

Most thoughtful people will agree with the reviewer when he says that any widespread improvement in morals

"will be due to moral causes, not to materialistic fear of specific diseases." But improvement in morals is the only radical means of preventing venereal disease, and we stultify ourselves if in efforts to minimize the results of an evil we lose sight of its fundamental cause.—I am, etc.,
London, S.W., April 28th.

HELEN WILSON, M.D.

THE "SOLDIER'S HEART" AND ITS RELATION TO THYROIDISM.

SIR,—Besides those with a physiologically normal thyroid there are great numbers of people in whom the secretion of the gland is either more or less deficient, or more or less superabundant. The extremes are, of course, examples of myxoedema and of Graves's disease. But a deficiency or an excess may be present in such minor degree that the subjects thereof, although presenting definite symptoms upon examination, may be more justly looked upon—as, indeed, they pass in ordinary affairs—as members of a type rather than as sufferers from disease.

There is still another variation from normal in which symptoms of hyperthyroidism—especially those connected with the nervous system—are superimposed on a basal and general minor hypothyroid state (*petite insuffisance thyroïdienne*). The explanation may be that certain functions of the gland are directly diminished and others exaggerated by variations in the secretion itself, or—if the thyroid is to be regarded as the master of the whole endocrinous system—that these variations in its secretion lead to an instability of control.

The practical point is that all these people are so little removed from normal that they are readily accepted for the army if fit in other respects, and in my experience the great majority of cases of "soldier's heart" occur in patients belonging either to the "thyroid instability" type described above, or to the type of minor hyperthyroidism. One could with fair certainty undertake to reproduce the condition experimentally in members of these types by subjecting them to circumstances similar to those of the soldier's life, which result in frequent and wide variations of blood pressure—namely, prolonged and sudden physical strain, excessive tobacco smoking, mental anxiety, and shock.

I believe, therefore, that the soldier's heart is usually the outcome of submitting these particular thyroid types to such conditions, and that both the normal type and the pure hypothyroidian are far less likely to suffer.

Some principles in the general treatment of soldiers invalided with this complaint suggest themselves at once: Tranquil life in fresh air, preferably at sea level, with enough amusement to keep them from brooding over past horrors; plenty of bed and sleep—the latter procured, if necessary, by a simple hypnotic; purin-free diet; strict regulation of stimulants, including tea and coffee; restriction of tobacco, especially in the form of cigarettes, which not only, in common with all tobacco, stimulate the suprarenals, but when inhaled have a further and more direct effect upon the heart by irritating vagus terminals.

As regards special treatment, the indications are to improve katabolism and to restore cardiac tone. I know no better method of attaining both objects than by using the interrupted and reversed faradic current in the way perfected by Professor J. Bergonié, by which the skeletal muscles in their entirety may be thrown into rhythmic contraction; varied at the desire of the operator in rate and intensity, without discomfort or fatigue to the patient, without strain upon the heart, and with a beneficial effect upon the muscles themselves. The patients thus obtain the beneficial results of exercise without any effort of will or any draft whatever upon their already enfeebled capital energy, whilst at the same time the heart is helped, by the enormous stimulus to venous return, to deliver a large output against a negligible rise in pressure.

It is extraordinary how during this treatment the most excited heart will settle down in a few moments to quiet regular work, the patient concurrently losing all sense of its irritability. A period of quiescence follows and becomes longer after each sitting, and it is difficult to imagine better final results than are given by this very complete method of physiotherapy.—I am, etc.,

J. S. KELLETT SMITH.

Eastbourne, April 25th.

SIR,—Sir James Barr, in his article on "The Soldier's Heart," emphasizes the need for more calcium in the food of soldiers.

About five years ago I pointed out in the *Hospital* of February 4th, 1911, that there was this great deficiency, and I laid the matter before the Director-General, A.M.S., who replied "that a board was about to sit on the question of food supply, and that my suggestions would be put before them."

Evidently the board did not agree either with the opinions of Sir James Barr or yours truly,

Swansea, April 19th.

G. ARBOUR STEPHENS.

THE INGUINAL INCISION FOR INTRASCROTAL AFFECTIONS.

SIR,—The article by Mr. Maylard in your issue of April 22nd (p. 589) is of great interest as a reasoned explanation of the choice of site for the incision in intrascrotal affections. That the choice of the inguinal region in most such cases may not be novel he is careful to point out, and would be the first, as is well known to surgeons here, to welcome information tending to place points of surgical treatment in historical sequence. I therefore take the liberty of giving one or two references on the question.

In an article entitled "Six cases of hydrocele in infants treated by operation," published in the *BRITISH MEDICAL JOURNAL* of February 22nd, 1913, Mr. James H. Nicoll, surgeon to the Western Infirmary, Glasgow, dealt with the incision discussed by Mr. Maylard. The article was illustrated by a plate with two figures showing the hydrocele sac being pushed up into the inguinal incision. The object of Mr. Nicoll's article was not so much to draw attention to the situation of the incision (since that was made according to his practice of many years) as to give specific instances of the wide scope of operations which might advantageously be performed at an out-patient department. Mr. Nicoll has used the inguinal incision for intrascrotal affections (where the scrotal skin is sound) for about twenty years. I myself have witnessed his use of it in hundreds of cases during the past seven years.

In their *Manual of Surgery* (vol. iii, Operative Surgery, 1913, p. 578), Thomson and Miles quote Winkelmann as recommending the inguinal incision for hydrocele. These authors also recommend it for castration if the skin of the scrotum is not involved in the disease (p. 572).

Beesly and Johnston, in their new *Manual of Surgical Anatomy* (Hodder and Stoughton, 1916, pp. 262, 268) describe the inguinal incision for radical cure of hydrocele, and on p. 266 give it as an alternative to the scrotal incision for excision of the testis.—I am, etc.,

Glasgow, April 25th.

CHARLES BENNETT, M.B.

THE FEES OF GENERAL PRACTITIONERS.

SIR,—I think every one will admit that the medical profession has come forward very freely in many directions during the present crisis, but I also think that we should be justified in looking after our own interests a little, both for our own sakes and the sakes of those who are serving, and the present gives an opportunity which will never arise again to do two things—(1) to raise our fees; (2) to teach the public to allow medical men more freedom.

Expenses all around are increasing, while the fees of general practitioners in England remain grossly inadequate, and it is our own fault that they are so. My own fees are as high as the custom of the district will allow, but the other day a small local tradesman came into my surgery, remained fifteen minutes, obtained important advice as regards his health, and a bottle of medicine which cost me at least 1s., and paid me 3s. 6d., which I am sure he thought was quite enough. The next day the same man visited the dentist, remained ten minutes, had two teeth extracted, and willingly paid 7s. 6d. Could I quote a better example to support my plea that general practitioners should raise their fees, so that we might have some prospect of earning enough to retire, instead of dying in harness, as most of us do at present?—I am, etc.,

May 1st.

GENERAL PRACTITIONER.

JEJUNOSTOMY AND JEJUNO-COLOSTOMY.

SIR,—Mr. Handley thinks that the procedure I advocate for post-operative faecal or intestinal vomiting—namely, jejunostomy with subsequent restoration of the jejunum—is a more severe one than his proposal of jejunocolostomy plus caecostomy, and quotes a paragraph from my paper in support of his opinion. Quotations divorced from their context are fallacious; he should have added at least the following further quotation:

It is true that after jejunostomy a second operation to close the opening has to be faced, but this is not such a serious undertaking as might at first sight be thought.

That a risk is incurred is of course obvious; but on the other hand, Mr. Handley's proposal involves a risk in my opinion still greater—the performance of an intestinal anastomosis during a period of acute obstruction.

Mr. Handley says that caecostomy openings often close spontaneously; they do, but not by any means always. But what of the opening between the jejunum and transverse colon? Does that close spontaneously? And if it does not, to what extent is it injurious to the patient? These are questions which cannot be answered on one recently operated on case.

Mr. Handley claims that his proceeding improvises a physiologically complete intestinal canal. An intestinal canal consisting of the oesophagus, stomach, and a few inches of jejunum and colon is not physiological; neither is a communication between the jejunum and colon. He misuses the term.

He assumes that the successful result he achieved in the case published in his recent paper was due to the possession by the patient of this "physiologically complete intestinal canal." I hold that it was due to the fact that in the making of it he drained the jejunum, and that there is really no difference therefore in the *rationale* of the two procedures.

Our difference of opinion seems to me to be chiefly due to a different conception of the primary agencies underlying the symptoms of acute intestinal obstruction. As I understand him, he believes them to be situated outside the bowel (peritonitis), whereas I believe that it is to changes occurring inside the bowel that the symptomatology must be primarily ascribed, and that peritonitis is merely a common accompaniment. Thus all the symptoms may be present without any peritonitis, and, conversely, the most profound peritonitis is often seen without any of the symptoms of intestinal obstruction.—I am, etc.,

London, W., May 2nd.

VICTOR BONNEY.

WOUNDS OF JAW AND FACE.

SIR,—The papers and discussions at the annual general meeting of the British Dental Association on June 15th, 16th, and 17th (to be held at the house of the Royal Society of Medicine) will be entirely devoted to the important subject of war injuries and gunshot fractures of the jaws and the best methods of treatment. There will also be an exhibition of appliances and splints, improved and adapted for the most efficient use under the new war conditions.

May I, by your courtesy, appeal to those of your readers who have been treating cases of jaw injuries to contribute models, appliances, splints, skiagrams, etc., to the exhibition? It is particularly requested that in sending exhibits the following points should be observed:

1. The case containing the exhibit should include a note of the exhibitor's name and address, and a list of all the exhibits contained in the case.
2. That each part of the exhibit should have the exhibitor's initials attached to it by means of a small piece of gummed paper.
3. That all exhibits should reach the house of the Royal Society of Medicine, 1, Wimpole Street, W., not later than Friday, June 9th.

—I am, etc.,

F. N. DOUBLEDAY,

Honorary Secretary, Museum Committee.

19, Hanover Square, W., May 1st.

THE New York Academy of Sciences will celebrate the centenary of its foundation in May, 1917.

Obituary.

WHARTON PETER HOOD, M.D.St.And.,
M.R.C.S., L.S.A.

DR. WHARTON HOOD died on April 27th, aged 82, after a short illness, at his residence in Montagu Mansions, Portman Square, where he had lived in retirement for some years. He was the son of Dr. Peter Hood, who died in 1890, aged 81. Wharton Hood received his professional education at King's College, and held the office of house-surgeon to the hospital. He took the diplomas of M.R.C.S. in 1855 and of L.S.A. in 1856. The degree of M.D.St.And. was conferred upon him in 1862.

Dr. Wharton P. Hood will mainly be remembered for an announcement which he made in his *Bone-setting (so-called) and its Relation to the Treatment of Joints Crippled by Injury, Rheumatism, etc.*, published in 1871, four years after the appearance in print of Sir James Paget's lecture on "Cases that bonesetters cure." Dr. Wharton Hood explained in the introduction to his essay that six years previously his father, Dr. Peter Hood, in conjunction with Dr. Iles of Watford, attended Mr. Hutton, a well-known bonesetter of the day. Dr. P. Hood declined to take a fee, as Hutton had been of service to so many poor people, upon which Hutton offered to instruct him in the details of his method of bonesetting. Though this offer was declined by Dr. Peter Hood owing to stress of work, it was accepted by his son. As long as Hutton lived, Dr. Wharton Hood declined to publish, or even discuss with friends, the procedures by which Hutton treated stiff joints, but he gained additional experience while attending his poor patients during a second illness from which Hutton suffered, and after the bonesetter's death published what he had learnt. In 1875 Sir James Paget, in a new edition of his *Clinical Lectures*, said that "Dr. Hood had thoroughly learned the art, and practises it skilfully," and advised in his discourse on bonesetters' cases, that "Dr. Hood's essay should be read on all these cases, not only for the manual treatment which he teaches, but for the signs which he indicates as decisive in the choice of cases."

In 1902 Dr. Wharton Hood issued a more complete work, *The Treatment of Injuries by Friction and Movement*, in which he explained yet more fully the empirical methods which he had learnt from Hutton, and said that to the last Hutton honestly believed that the snapping noise, heard when a stiff joint was forcibly made movable, meant the reduction of a dislocation.

Dr. Wharton Hood was honorary surgeon to the Royal Academy of Music, and to two Masonic charities, and was at one time surgeon to the Royal Bucks Militia.

THE LATE DR. T. COLCOTT FOX.

DR. J. J. PRINGLE (London) writes: There is, I can confidently say, no doubt that Colcott Fox influenced British dermatology more powerfully than any of his contemporaries, and almost all of our most prominent dermatologists of the present day must be included among his pupils. Their devotion to him was justifiably unbounded, and by them shall most of his teaching be handed down to posterity. Colcott Fox's name is not associated with any startling discovery or linked on to any special disease; he wrote no popular textbook; he was too supreme and conscientious an artist to condescend to the perpetration of any professional "pot-boiler." But he traversed and illuminated the whole length and breadth of the field of dermatology and touched no subject which he did not adorn. His consummate mastery of technical detail did not militate against his breadth of conception; he saw both the trees and the wood. I was associated for fifteen years with Colcott Fox as co-secretary of the Dermatological Society of London, and during that time I learnt to appreciate his many qualities of heart and mind, his wonderful toleration of everything except humbug, pretension, or "unstraightness," and the extraordinary depth and many-sidedness of his knowledge. Had he cared to do so, Colcott Fox might have claimed priority of observation of many conditions which have been accredited to others, but his almost overwhelming generosity constrained him from doing so. No more lovable man ever existed; his friends were many and

true, and their hearts go out in deepest sympathy to his mourning widow, who guarded and guided him with such exquisite tenderness throughout the dark days of his failing years.

Dr. ARTHUR WHITFIELD (London) writes: I knew the late Dr. Colcott Fox since 1892, and for many years afterwards somewhat intimately. His personality was such that it seemed always to inspire a deep affection for him among all those whose privilege it was to work with him. There is no doubt that his teaching has had a most important influence on the English school of dermatology owing to his acute clinical observation, and his wonderful capacity for imparting his knowledge and method to his pupils. To watch him trace out the development of a difficult eruption was a wonderful object lesson in reasoning and observation. Nothing seemed ever to escape his eye, and his touch would tell him almost unfailingly the nature of the tissue beneath his finger. He had also a vast knowledge of medical literature, and this was always at the service of his younger colleagues. In many cases the best clinical descriptions of the less common diseases of the skin are still those written by Colcott Fox. Never a showy man he was almost worshipped by his patients, and at both the Westminster and Paddington Green Hospitals, where I had long opportunities of working with him, it was a recurring pleasure to watch his cheery and sympathetic treatment of them. Outside his profession he was widely read in most good English literature, and it was a wonder to me how his memory could retain so accurately all the various oddments with which he filled it. At heart he was always a lover of the country, and I well remember his saying to me that a Hampshire lane with the wild rose (which he liked to call by the old name of eglantine) in blossom appealed to him as the most beautiful sight he knew. He was a thorough sportsman, a first-class cricketer and oar in his younger days, an excellent skater, a good shot, and in later years a golfer above the average. Always kindly and considerate, the only thing I knew that could rouse his temper was a mean or contemptible action. By the death of Colcott Fox England has lost one of her finest types of gentleman, and dermatology one of its best exponents.

DR. FREDERICK LEVER of Montpellier Lodge, Harrogate, died on April 15th in his 69th year. He was the son of Mr. Benjamin Lever of Blakesley, Northamptonshire, and was educated at Epsom College and Guy's Hospital, where he took the Sands-Cox Scholarship in 1882 and the B.Sc.Lond. with honours in the same year. In 1885 he took the diploma of M.R.C.S. and the degrees of M.B., B.S.Lond. For thirty years Dr. Lever practised in Harrogate, and from first to last was most zealous in urging its advantages—social and medical—as a spa. As late as in 1908 he wrote an article on the properties and therapeutic uses of the Harrogate waters in the *Balneological Journal*. From the commencement he was a prominent member of the Harrogate Medical Society, of which he was twice president. He leaves a widow, one son, and one daughter.

DR. THÉODORE GUILLOZ, professor of electro-therapy in the Medical Faculty of Nancy, recently died at the age of 48. He took his degree at that university in 1893, and became *agrégé* in 1895. He took up radiology as a speciality and settled in Paris, where he was very successful. But he fell a victim to his zeal in working at the improvement of α -ray apparatus and the practical applications of the method. He had to submit to amputation of several fingers, and was awarded the Carnegie gold medal as a martyr of science. In 1906 he was appointed professor at Nancy, and in recognition of the value of his inventions shown at the exposition held in that city in 1909, he received the Cross of the Legion of Honour. On the outbreak of the war he established seven stations of radio-stereoscopy at Nancy; early in 1915 he was appointed chief of the service of radiology of the 20th and 21st legions, and quite recently he was named *médecin-major de 1^{re} classe*. Although very ill he went on with his work, and devised an apparatus for the localization

of embedded projectiles and a needle for finding the foreign body. He died at Lyons, where his duty had called him.

LIEUTENANT-COLONEL HENRY JOSEPH O'BRIEN, R.A.M.C. (ret.), died at Queenstown on April 16th. He was educated at Trinity College, Dublin, where he graduated A.B. and M.B. in 1864, and B.Ch. in 1865. He entered the army as assistant surgeon on October 2nd, 1865, became surgeon on March 1st, 1873, surgeon-major on October 2nd, 1877, and retired as brigade surgeon lieutenant-colonel on June 30th, 1896. He served in the Afghan war in 1878-80, receiving the medal.

The Services.

INDIAN MEDICAL SERVICE.

OFFICERS RETAINED.

THE Government of India has decided that lieutenant-colonels of the Indian Medical Service specially selected for increased pay, who are retained in the service on account of the war after attaining the age of 55, should be treated as supernumerary on the list, and that promotions should be made in their place with effect from the dates on which they attain that age. In the case of officers who have been granted extensions to complete thirty years' service for pension, and who are similarly retained in the service, promotion will be made from the date following that of the expiration of the period of extension.

EXCHANGES.

M.O. Wessex Division, at present under canvas at Hursley Camp, would like to exchange with Territorial M.O. serving in Portsmouth district. Address No. 1750, BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C.

M.O. in Field Ambulance (T.F.), near London, gazetted Captain January, 1916, wishes exchange with medical officer on active service in any capacity. Address No. 1700, BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C.

Universities and Colleges.

UNIVERSITY OF EDINBURGH.

At a meeting of the University Court on April 24th it was resolved to accept the bequest by Sir William Turner of his bust by Mr. Herbert Hampton, and to place it, as the testator requested, in the Anatomical Museum of the university near that of Professor John Goodsir.

The Court finally approved the regulations already approved by the Senatus for the prize for women medical students to be paid out of the balance of the funds received from the Scottish Association for the Medical Education of Women. It will be awarded to the M.B., B.S. considered the most distinguished woman student of the year.

ROYAL COLLEGE OF PHYSICIANS OF LONDON.

A COMITIA was held on April 27th, Dr. Frederick Taylor, the President, being in the chair.

Admission of Members. The following candidates, having passed the required examination, were admitted Members of the College:

Alexander Greig Anderson, M.D. Aberd., Rowland Hill, M.D., Queen's Univ., Belfast, William MacAdam, M.D. Glasg., Henry Harold Scott, M.D. Lond., L.R.C.P.

Licences.—Licences to practise physic were granted to ninety-nine gentlemen who had passed the requisite examinations.

Election of Fellows. The following Members were elected Fellows of the College:

Michael George Foster, M.D. Camb. (Harrogate), John MacLeod Hendrie MacLeod, M.D. Aberd., Henry Lawrence McKisack, M.D. Roy. Univ. (Irel. (Belfast), Joseph Arthur Arkwright, M.D. Camb., Charles Hewitt Miller, M.D. Camb., Harold Waterlow Wiltshire, M.D. Camb., Charles Ernest Lakin, M.D. Lond., Edward Alfred Cockayne, M.D. Oxfr.

Resignation of Representative.—A letter was received from Sir Wilnot Herringham resigning the office of representative of the College on the Governing Body of the University of Sheffield.

CONJOINT BOARD IN SCOTLAND.

THE following candidates have been approved at the examinations indicated:

FIRST EXAMINATION.—J. Campbell, J. I. Coventry, Agnes M. Hill, E. R. Lloyd, J. C. Meek, W. M. Reid, F. J. Stevenson, Marguerite M. I. Swanson.

SECOND EXAMINATION.—R. G. Bell, S. H. Waddy, M. J. Woodberg.

THIRD EXAMINATION.—R. Austin, A. Balfour Black, D. M. K. Black, J. Calder, Jean M. M. Crawford, R. P. Crawford, J. T. Dior, G. A. Grandseult, R. D. Howat, L. W. Hughes (with distinction), E. G. Jones, J. Michaelson.

FINAL EXAMINATION.—W. P. H. Lightbody, J. P. Mathie, J. R. B. Robb, A. Morison, T. Jackson, A. Smith, jun., J. McCartney, R. H. Rattray, T. M. Metcalfe.

Medical News.

DR. JOHN WYLLIE, Emeritus professor of medicine in the University of Edinburgh, left estate valued at £15,589.

IT is proposed to reorganize the hospital department of Sing-Sing prison, New York, so as to include a clinic and a bureau for medical research.

AT the meeting of the Medico-Psychological Association to be held at 11, Chandos Street, W., on May 16th at 2.45 p.m., a paper, illustrated by lantern slides, will be read by Dr. Orr and Major Rows, R.A.M.C., on experimental toxic lesions in the rabbit's brain and their bearing on the genesis of acquired idiocy and imbecility in man.

As a tribute to the memory of Miss Edith Cavell, the name "Mount Cavell" has been given by the Canadian Government to one of the peaks in the Canadian Rockies. Mount Cavell rises to a height of over 11,000 feet, and is situated in the province of Alberta, near the famous Jasper Park.

THE Director-General of the Army Medical Service will preside at a meeting to be held at the Royal Army Medical College, Grosvenor Road, S.W., on Wednesday next at 3 p.m. in connexion with the proposed formation of benevolent societies for the benefit of families of officers and other ranks of the medical services auxiliary to the regular Royal Army Medical Corps—namely, the Special Reserve, the Territorial Force, and New Army. It is intended that funds shall be raised by voluntary subscriptions, and it has been proposed that each branch of the service should appoint a committee of five to seven members to administer its own funds. It is hoped that as many officers as possible will attend the meeting.

MEDICAL men share with other users of motor cars in the difficulty of obtaining chauffeurs, but it is a more serious matter for them, since the medical car is not merely a convenience or a luxury, but a necessity for the proper conduct of practice. Numerous inquiries have been received by the British Medical Association, and it has been ascertained that the Automobile Association and Motor Union have a list of men eligible as chauffeurs. Some of them are men who have been discharged from the army, others are Belgians, and nearly all are ineligible for service. Inquiries should be addressed to the Engineers Department, Automobile Association and Motor Union, 8, New Coventry Street, London, W. It is particularly requested that if any engagement is made as a result of such inquiry the Engineers Department should be informed.

AN exhibition of Japanese charms, amulets, votive offerings, and objects of medical interest was opened at the Wellcome Historical Medical Museum on May 4th. The collection, which is lent by Dr. W. L. Hildburgh, a well-known American antiquarian, consists of objects in popular use in Japan for securing protection against evil spirits and against accidents of all kinds. The collection of charms used in the cure and prevention of illness and in connexion with pregnancy and childbirth is particularly numerous. The votive offerings presented to shrines in gratitude for relief obtained are mostly symbolical paintings of various diseases. There is a small section of phallic emblems, and many specimens of printed paper charms, issued by Buddhist or Shinto temples throughout Japan, intended to protect against specific troubles. The collection, though not large, offers not a few features of interest to doctors as well as to archaeologists and anthropologists. It also makes an appeal to those to whom nothing human is foreign as representing in quaint and pathetic form the efforts of man to safeguard himself against the dangers in which he lives and moves and has his being.

OWING to the great demand for munitions in Austria, workshops have been overcrowded and overtime has been worked. The women and girls swept into this industry have not proved as immune to the wear of industrial life as the old factory hand. Professor Oppenheim (*Wien. klin. Woch.*, November 25th, 1915) states that the cases of industrial poisoning in munition factories were most numerous between the outbreak of the war and April, 1915. Their number was then greatly reduced by hygienic reforms and a more careful adaptation of employment to capacity. Professor Oppenheim gives details of twenty-six cases of dermatitis, most of them from the same factory in Vienna. In eighteen of these the disease was caused by fulminate of mercury. In a few cases the symptoms were traceable to the cleaning and polishing of metals with petroleum, ammonium chloride, acids, turpentine, and benzol. In a certain number of cases, alcohol, antimony, potassium chlorate, glue, and nitric

acid were suspected of aggravating the dermatitis. In the workers suffering from mercurial poisoning, the principal symptoms were oedema of the face and of the backs of the hands; a nodular, vesicular, or pustular eruption, which was less common, was apparently the result of a relatively slow process of poisoning. Oedema of the face was often preceded by inflammation of the eyelids and lips, and mercurial stomatitis was not rare. It was, however, ulcerative only in one case. The majority of the patients were young women, and in many of the cases mercury was found in the urine. All the symptoms disappeared quickly when the patients were relieved of their work, and they were fit for work again in a week or two. When systematic dental hygiene was adopted, and other precautions taken to prevent the absorption of mercury by the skin and mucous membrane, the number of cases began to wane, but in the winter began to increase again owing presumably to less efficient ventilation during the colder weather.

Letters, Notes, and Answers.

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the BRITISH MEDICAL JOURNAL alone unless the contrary be stated.

CORRESPONDENTS who wish notice to be taken of their communications should authenticate them with their names—of course not necessarily for publication.

AUTHORS desiring reprints of their articles published in the BRITISH MEDICAL JOURNAL are requested to communicate with the Office, 429, Strand, W.C., on receipt of proof.

THE telegraphic addresses of the BRITISH MEDICAL ASSOCIATION and JOURNAL are: (1) EDITOR of the BRITISH MEDICAL JOURNAL, *Atiology, Westrand, London*; telephone, 2631, Gerrard. (2) FINANCIAL SECRETARY AND BUSINESS MANAGER (advertisements, etc.), *Articulate, Westrand, London*; telephone, 2630, Gerrard. (3) MEDICAL SECRETARY, *Medisecra, Westrand, London*; telephone, 2634, Gerrard. The address of the Irish office of the British Medical Association is 16, South Frederick Street, Dublin.

Queries, answers, and communications relating to subjects to which special departments of the BRITISH MEDICAL JOURNAL are devoted will be found under their respective headings.

QUERIES.

L.R.C.P. asks for advice in the treatment of a case of leucoderma.

INCOME TAX.

A. B. explains that his partner died in February, 1915, that the executors refused to sell the book debts, and that he has paid income tax on all the receipts for 1915. He asks whether he can deduct income tax when handing over to the executors those receipts to which they are entitled.

* * The answer is in the negative, as from the date of dissolution of the partnership—presumably in February, 1915—"A. B." appears to have become the sole proprietor of the practice, and thenceforward was liable to income tax on the full annual profits of the practice, measured either by average cash receipts or by a year's bookings less bad debts. He has accordingly paid for the financial year 1915-16 no more tax than is properly due from him as proprietor of the practice. As regards the debts now being realized and handed over to the executors, the view of the Revenue authorities appears to be that, on the assumption that a full normal income has been assessed in the past, such receipts have already been subjected to income tax, and are not taxable in the hands of the executors.

G. D. K. B. is engaged on work somewhat in the nature of "military duty," inasmuch as he has undertaken additional civil work to release another surgeon for service, and, in addition, is assisting in the work of the local Voluntary Aid Detachment Hospital under military authority. He inquires whether he can on these grounds claim any special rebate or allowance in respect of income tax.

* * The question is dealt with in Section 13 of the Finance Act, 1914 (Session 2), by which the relief in question is confined to members of the military or naval forces of the Crown, or persons serving in any work abroad of the British Red Cross Society or of the St. John Ambulance. From the particulars furnished by our correspondent it would appear that he could not maintain a claim under the section referred to.

PETROL LICENCE DUTY.

T. H. E. occasionally takes his wife and two children with him on his rounds. He has been told by the local police authorities that if this continues the full licence duty must be paid, their view apparently being that only the chauffeur

and, as occasion may arise, a nurse can properly be carried in a car paying half licence duty.

* * Section 86 (4) of the Finance (1909-10) Act, 1910, provides that the allowance shall be granted "if a duly qualified medical practitioner proves to the satisfaction of the Commissioners or council by whom the licence is granted that any motor car kept by him is kept for the purpose of his profession." We cannot see that the occasional use of the car as mentioned by our correspondent could possibly disprove—what, indeed, seems fairly obvious—that the car is "kept for the purpose of his profession." Perhaps "T. H. E." may feel inclined to submit a full statement of the facts to the Commissioners of Customs and Excise, Custom House, E.C., a course which would, no doubt, free him from the present irritating position.

JUNKER ON JAPANESE OBSTETRICS.

A CORRESPONDENT wishes to know if any reader of the JOURNAL possesses a copy of a work by Dr. F. Junker on Japanese obstetrical instruments used before the introduction of European appliances, or knows where that book can be seen. It was prepared by Dr. Junker when he was principal of a medical school in Japan, and some instruments were presented to the museum of the College of Surgeons in 1878 by the author, with a copy of his treatise, but it has been lost.

ANSWERS.

PRURITUS OF THE FACE.

DR. G. W. SEQUEIRA (London) writes: In answer to "Country Doctor's" request (p. 640) I would suggest that, as there are visible changes in the skin—"subcuticular roughness"—the pruritus is not a pure neurosis. It is probably allied to Hutchinson's summer prurigo, which generally begins in childhood and lasts into the twenties, and affects the face, ears, neck, or arms. The itching sensations are due to the irritation of papillary nerves by the suddenly developing, although extremely minute, inflammatory product (serum). In this circumscribed prurigo the patients are often nervous, anxious, and worried, and it is sometimes associated with asthma, hay fever, and other bronchial affections, as well as with uterine disorders. Thus any derangement of the general health which may be present must of course be corrected on general principles. An ointment of beta naphthol, 5 per cent. strength, rubbed on the affected parts is likely to prove useful.

LETTERS, NOTES, ETC.

A VOLUME entitled *Collected Papers on Analytical Psychology*, by C. G. Jung, M.D., LL.D., authorized translation edited by Dr. Constance E. Long, has recently been published by Messrs. Baillière, Tindall, and Cox. The text occupies 377 pages. In a list of books issued by Messrs. Lewis the volume is, we are informed, described as translated by Dr. Constance E. Long. On this Dr. M. D. Eder writes to state that "of nine papers (263 pages) especially translated from the German for this work six (227 pages) were done entirely by my wife and myself; a further two (26 pages) were completely revised and partly retranslated by myself." We have received from Dr. Constance Long a note in which she writes: "My share in the book is merely that of editor; only one paper, and that from the French, being translated by me. Five different persons have contributed translations from the German, but, as Dr. Eder says, he and his wife have done the lion's share, for which they have been paid the usual translator's fees."

MEDICAL REFEREES TO INSURANCE COMPANIES.

A MEMBER writes: May I call attention to a system which seems to me ridiculous—namely, that however many medical practitioners there are, say, in a small town or country district, some insurance companies will only appoint one solely as their medical examiner? If A. holds such an appointment, and B. and C. are practising in the same town, it is clear to all that if, wishing to join a certain society, the candidates must be examined by A., though they may be patients of B. or C., which I hold to be most unfair to the latter. Now that the yearly meetings of branches are coming on, it would be a good thing to have the matter placed on the agenda and discussed. Perhaps local secretaries will take the hint, and my letter may bring forth the views of others on this subject.

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

	£	s.	d.
Seven lines and under
Each additional line
A whole column
A page

An average line contains six words.

All remittances by Post Office Orders must be made payable to the British Medical Association at the General Post Office, London. No responsibility will be accepted for any such remittance not so safeguarded.

Advertisements should be delivered, addressed to the Manager, 429, Strand, London, not later than the first post on Wednesday morning preceding publication, and, if not paid for at the time, should be accompanied by a reference.

NOTE.—It is against the rules of the Post Office to receive *poste restante* letters addressed either in initials or numbers.

GERONTAL CONSTIPATION AND ITS TREATMENT.*

BY

W. AINSLIE HOLLIS, M.D.,

PAST PRESIDENT OF THE BRITISH MEDICAL ASSOCIATION.

ETIOLOGY.

A. Prostatic Enlargement.

It has been estimated that 30 per cent. of men over 60 years of age suffer from hyperplasia of the prostate. If to these sufferers we add others in whom a very large prostate "may give rise to no appreciable symptoms,"¹ and may consequently remain undiscovered, the total percentage of elderly men in whom this organ is abnormally large is probably still higher. Situated as the prostate is between the bony unyielding symphysis and the rectum, any general enlargement of the organ exerts a flattening pressure upon the gut where it is in relation with the sacrum and coccyx. The gerontal tumour will be in the upper rectum just below the sigmoid flexure, and close to one of the usual sites of intestinal stasis. During the act of defaecation the plastic contents of the lower colon require a free passage into the rectum. A comparatively slight obstruction at this point may lead to a serious block.

B. Ineffective Peristalsis.

Recent investigations suggest that, so far as the propulsion of its contents is concerned, the alimentary canal can be divided into a series of sections, each of which, through its neuro-muscular apparatus, forms a more or less independent zone of rhythmic contractions. Seemingly these movements start vigorously as a rule at the upper junction of a zonal area and fade away gradually towards the lower one. As regards the automatism of the rhythmic contractions, the parts of the digestive tract situated near the orifices are least automatic in character, and most under the influence of the cerebro-spinal co-ordinated reflexes. On the other hand, the rhythmic movements of the central, that is, the jejuno-iliac, segment of the bowel probably furnishes "the only example known so far (1900) of a true co-ordinated reflex dependent entirely on peripheral nervous structures."² It is well known that in the neuroses associated with senility "disassociation follows the usual law of degeneration, and passes progressively from the unstable to the stable, from the less organized to the more organized, and from the less to the more automatic."³ In accordance with this law (?) the intestinal mid-segment will be the last to yield its automatism to senile decay, and so perhaps it is. On the other hand, stasis, with or without distension of the lower colon, and spasmodic contraction of the gut immediately above the obstruction, is a common result of this disorder. By the position of the cord-like tumour—representing the contracted bowel—whether it is above or below the splenic flexure, the severity of the obstruction can be to some extent gauged by the medical attendant.

C. Dryness of the Intestinal Mucosa.

A comparatively small prostatic tumour, situated near the junction of two rhythmic zones, might presumably cause stasis. Recent researches suggest that one of the functions of the colon is the absorption of water.⁴ Undue dryness of the faecal accumulation within the lower bowel will follow prolonged retention. "Peristalsis," and its analogue "vermiculation," can only be carried on so long as the two glissading surfaces—namely, that of the living tube and the side of the inert material adjacent to it—are freely moistened. The earthworm, for instance—to take a well-known *Oligochaeta*—forms its tunnels in moist and plastic soil.⁵ Although well provided with segmental nephridia with which it excretes a fluid to lave its epidermal coat, it rapidly withers and dies when placed on dry soil. Our intestines, although they, too, are provided with excretory crypts (Lieberkühn's), that produce the succus entericus, lavage the mucosa, yet cannot satisfactorily propel hardened scybala through the bowels. In neither of these two cases of rhythmic contractile movement can progressive or propulsive results be fully brought about, unless and until the inert material is in a condition

to react to the constrictions of the living tube; in other words, that material must be plastic, and, as a consequence, moist. Unfortunately, as above mentioned, old men are handicapped in two directions as regards this necessary accompaniment to a satisfactory peristalsis. Owing to the delay that so often occurs at the recto-sigmoidal juncture not only are the faeces dry, but the mucosa of the lower rectum at all events is usually abnormally dry also. Perhaps a dryness of the inner membrane of the gut may be in some cases general throughout the colon. However this may be, the dryness leads to excessive straining at stool, and may also account for the comparative frequency with which "volvulus" of sigmoid affects old men,⁶ the twisting of the gut being an immediate consequence of an overstrain.

Historic Precedents.

There are certain incidents which recur in the history of patients who suffer from this disorder, and recur with sufficient frequency to justify an inquiry as to whether or no there may be some causal relationship between them. After the age of 45 dietary indiscretions, undue sexual excitement, and inattention to the regular action of the bowels are, in my experience, the most usual coincidents. As regards the first, old men have long had a reputation for enjoying the pleasures of the table. Indeed, the ancient Greeks, who revered the antique, set aside special vintages for their consumption. They even coined a word—"gerousios"—to label this *alcohol olus*, this sparkling wine, as Homer calls it.⁷ Moreover, they took care that the "gerousios oinos" was only drunk at these aldermanic carousals. The similarity of the spelling of the Greek word "gerousios" and its English equivalent (in that case) suggests to my mind a derivational relationship—an opinion not presumably held by the expert compilers of the Oxford *New English Dictionary*. Still, the reputation of the "aged, aged man a-sittin' on a gate" concerns us only so far as it indicates that the above mode of life favours the development of the disorder in question. I think that it does so in two directions. One of the commonest signs of good living when the first bloom of youth has "faded and gone" consists in an increasing girth of the lower *torso*. A tendency to corporeal expansiveness may in some cases be heritable; but, even so, careful dieting with a goodly proportion of fruit and total abstinence of alcohol will frequently check the tendency. It will also assist in checking the excessive straining at stool, and so prevent the early onset of "irritable heart," in my opinion the second most annoying symptom of gerontal constipation, and one which we shall subsequently find is by no means an uncommon accompaniment of the disorder.

Apart from the other historic incidents, the learned Hebenstreit informs us in his book, *De homine sano et aegroto* (1753), p. 158, that men lose their youthful vigour later in life than do women:

Senior est maribus languor, viridisque senectas
Sufficit ad validos motus, et sepius illis
Grata juventutis facies intermitet annis,
Et Veneres illis ridet Charitumque cohortes, etc.

But even they eventually die of *marasmus*, a drying up. Meanwhile they suffer (according to the equally learned Rieger), oft "from an accumulation of humours in the big vessels . . . whence their stases and stagnations, etc." Indeed, the latter commentator draws a very complete picture of an old man affected by gerontal constipation. Rieger even mentions "palpitation" as a common accompaniment of this condition. He also says that "coctio debilitatur," digestion is enfeebled, and furthermore, we may get among other troubles, "dysuria, stranguria, calculus, ischuria," and so on.⁸

SIGNS AND SYMPTOMS.

I shall not attempt to describe in detail the many disorders that are supposed to circle around a diseased prostate. Suffice it to say that the most serious are distinctly surgical in character. Nevertheless there are symptoms which may be considered as specially diagnostic of gerontal constipation, and these we must explain in some detail.

It would seem that some, perhaps a majority, of the cases of simple enlargement of the prostate begin with venous congestion. A serious change in the blood supply

* Gerontal, from Greek *geron*, old man. Gerontal constipation means a disorder of senility affecting men only.

of the gland, which such a circulatory failure implies, would alone suggest the probability of some central (cardiac) causation, either organic or functional, and this conjecture is strongly confirmed if, as is often the case, we find the venules of the face, the nose in particular, also affected. When this is so, the elderly patient also suffers, as a rule, from those interesting, though to the ordinary general practitioner somewhat intricate, symptoms suggesting an "irritable heart," only to be fully diagnosed by an expert in such matters, aided, it may be, by some wonderful electric devices with numerous dial faces and leather straps. The most relevant discovery in this regard is, I take it, the close histological relationship that has been noted between the structural elements constituting the so-called mesenteric plexus (Auerbach's tissue) and "the nodal tissue in which the heart beat arose and the bundle by which the impulse was distributed in the heart."⁶ Experience shows that Rieger was right in giving prominence (about two centuries ago) to the fact that old men often suffered from palpitation. Tachycardia, dropped beats, irregular action of the heart, are frequently secondary to the intestinal stasis of gerontal constipation. Another anomalous symptom, by no means unusual, is probably due to the direct influence of the rectal tumour. It consists in a feeling of distension in the upper rectum, just as though a scybalon had lodged there and might at any moment descend into the trousers.

TREATMENT.

After all, the true worth of a medical treatise is best gauged by the efficiency of the prescribed treatment in bringing about, if not the cure, at all events the relief of the disorder. It is here, then, that an author has an opportunity to display his mother wit to the best advantage. "But, as Yak the Metaphysician hath written:

The wits are a dog that 'tis easy to call
but to cudgel him proveth another affair;
for shouts and abuse
are no manner of use
and unless he agrees, it is safe to declair
that the cudgelling process won't happen at all."¹⁰

The present writer feels the difficulty in this regard, and therefore offers the following suggestions with due diffidence.

The treatment of gerontal constipation can be best considered under three heads: Medicinal, dietetic, and manipulatory. So far as drugs in general are concerned, it is evident that their action can at best be only palliative. Within these limitations and as a preventive of a colic block doses of the aromatic syrup of cascara are very useful. The drug, as is well known, "acts principally on the large intestine and empties the rectum. It is suitable for delicate and elderly persons."¹¹ It would seem probable, from the action of this drug, that some constituent of cascara sagrada acts specially on the mesenteric neuro-muscular plexus in the colon and so stimulates the rhythmic movements. The medicine ought to be given in a full dose directly any falling off in quantity or quality of the daily evacuation is observable. The treatment of the senile heart is, in my experience, best effected by small doses of the tincture of strophanthus in a little water, to which a few grains of sodium bicarbonate have been added. This mixture may be taken three times daily, about half an hour after a meal. It was recommended some years ago by a correspondent of this JOURNAL as a useful palliative of this condition.

As regards diet, I have already drawn attention to the value of fruit; here I need merely add that the ordinary rules regarding the modified requirements of the aged man for meats and the satisfactory mastication of food should be in all cases carefully observed. Dental hygiene is also very important, knowing as we now do, thanks largely to the American dentists, how the flora and fauna of pyorrhoea flourish in the uncleanly mouth. The less stimulant the old man absorbs the better his ultimate chance of longevity.

We now come to what is in many respects the most important part of this paper—that is to say, the part where the "cudgelling process" of the writer's brains is mostly required. When by daily increasing strain the old man begins to perceive that a visit to his doctor is imperative, much mischief may already have been inflicted upon the mucosa and blood vessels about the anus. In the treat-

ment of gerontal constipation cleanliness is undoubtedly the most important manipulative procedure. Congested piles, rents in anal mucosa, commencing prolapse, all rapidly yield as a rule to a régime of cleanliness. But in order that the hygienic procedure may produce the maximum effect, it must be started early. When there is much straining at stool, the gerontal right index-finger, well guarded, it may be, with two or three thicknesses of tissue paper, should be pressed upon the perineum just behind the symphysis, and so relieve the abnormal pressure of an enlarged prostate upon the rectum.

REFERENCES.

- ¹ Cheyne and Burghard, *Manual of Surgical Treatment*, vol. v.
- ² E. H. Starling, *Elements of Human Physiology*, fourth edition, p. 365.
- ³ J. R. Gilmour, *Senile Insanity*, p. 121 (*Green's Encycl. and Dict. of Med. and Surg.*).
- ⁴ Vaughan Harley, quoted by W. L. Ruxton, *Diseases of Intestines*, p. 522 (*Ibid.*).
- ⁵ Thomson and Miles, *Manual of Surgery*, p. 626.
- ⁶ A. Keith, Cavendish Lecture, see *BRITISH MEDICAL JOURNAL*, 1915, ii, p. 14.
- ⁷ See Agamemnon's honeyed speech to Idomeneus, II, 4, 259.
- ⁸ R. J. Porock, *Vermes, The Concise Knowledge Natural History*, p. 674.
- ⁹ *Hippocratis' COI Aphorismi digesti et indices necessarios addidit Jo. Chr. Rieger, Risenburgo-Prussus*, 1778, vol. i, p. 438.
- ¹⁰ Wm. Caine, *Bildad, the Quill-driver*, 1916, p. 147.
- ¹¹ *British Pharmaceutical Codex*, 1907, p. 221.

SARCOMA OF FRONTAL LOBE GIVING RISE TO OCULAR SIGNS ONLY.

By R. BEATSON HIRD, M.D., F.R.C.S.E.,

CAPTAIN R.A.M.C.(T.F.),

OPHTHALMIC SURGEON TO THE GENERAL HOSPITAL, BIRMINGHAM;
ASSISTANT SURGEON TO THE BIRMINGHAM AND MIDLAND
EYE HOSPITAL, ETC.

THE case here reported must belong to a rare group of cases, and the record is therefore of interest.

The patient was a bricklayer, aged 34, who was admitted under my care at the General Hospital, Birmingham, on October 27th, 1915, having been under observation as an out-patient for two weeks previously. He had suffered from rheumatic fever at the age of 19, and had had an attack of gonorrhoea at the age of 25. Otherwise his health had been good down to within a few months. There was nothing in his family history of any note.

History.

About four months ago he noticed that almost every night he was kept awake by a pain in his right eye, giving rise to the sensation "that his eye was being pulled out." During the day very little was noticed, but towards evening he experienced shooting pains. About a month later he noticed the right eye becoming prominent. He then sought advice at a local hospital. Since then his condition had grown worse, until he was unable to open the right eye properly. He described his head as being "muddled at times." He stated that he had never seen double.

Physical Signs.

There was a moderate degree of right exophthalmos, and the eye was also displaced downwards and a little outwards. There was considerable though not complete ptosis, the frontalis muscle being used when an attempt was made to open the eye. The roof of the orbit appeared to be filled in, and lower than normal. It was firm to touch and not painful.

Corneal sensation was good, and the pupil reactions normal in all respects. Sensation was not quite normal over the area supplied by the supraorbital nerve.

The right fundus showed marked optic neuritis with a fair degree of swelling; there were some retinal haemorrhages in the region of the disc, and the retinal veins were engorged. The left fundus showed early optic neuritis; the upper and lower edges of the disc were blurred and a little swollen, and there was a retinal haemorrhage near the upper part of the disc. The optic neuritis was of the increased pressure type.

* Hippocrates flourished in Greece in the fifth century before Christ. Among other discoveries, he announced to the world that the bald were not usually afflicted with varicose veins (*Aph. vi, 34*). He also presented the Royal College of Physicians of London with a motto, which many read and few understand. Indeed, the most plausible translation was one made by a disappointed Fellow. It was as follows: "The patient's life was short; but then the surgical technique was great!"

My colleague, Mr. Woodman, made a thorough examination of the nose and accessory sinuses. Transillumination showed nothing pathological, and there was no evidence of any intranasal disease. The pharyngeal ends of the Eustachian tubes were enlarged and oedematous. A radiograph showed nothing definite, but the orbital roof on the right side was not as well defined as on the left.

There was a faint haze of albumin in the urine. The Wassermann test was negative. The pulse-rate was normal, but fell once after admission to 64. The temperature on admission was 99.4°, and afterwards fluctuated between 97° and normal. He was admitted with the diagnosis of orbital growth, probably sarcoma growing from the region of the sphenoid.

There was never any sickness nor complaint of any headache. He died on November 5th with typical respiratory failure. For about forty-eight hours before death he was rather peculiar mentally, and got up during the night and wandered about the ward. He never displayed any general symptoms to suggest intracranial trouble.

Post-mortem Examination.

I was present at the post-mortem examination, which was made by the pathologist, Dr. L. Walker. No abnormality was found apart from the central nervous system and orbit. The meningeal coverings over the orbital surface of the right frontal lobe of the brain were almost a quarter of an inch thick. The membranes were vascular and adherent both to the brain and roof of the orbit. The bone here, as well as in the neighbourhood of the nasal sinuses, was eroded, soft, and friable, being largely replaced by fibrous-looking tissue. The orbital roof was considerably displaced downwards. Tissue of fibrous character was present in the orbital cavity, involving the contents. There was nothing present definitely resembling sarcoma. The nasal cavities were quite healthy. Tissues from the orbit were removed for microscopical examination, and the brain removed and hardened in formalin. The orbital surface of the frontal lobe was very firm, and a piece was removed for microscopical examination. When the hardened brain was examined, the right frontal lobe was found to contain a tumour about the size of a Tangerine orange; the swelling projected mesially and caused a considerable depression in the left frontal lobe. The edge of the growth was ill-defined, and there was no capsule. Microscopically, it was a typical round-celled sarcoma, and the tissues removed from the right orbit showed a sarcomatous infiltration of the same nature. In my opinion the growth started in the brain and extended to the orbit.

In the *American Journal of Obstetrics* for October, Foskett reports the case of a single woman, aged 22, employed in an hotel, who was advised to take a bichloride douche. She dissolved three tablets of 7.3 grains each in a cup of water, and used a whirling spray syringe for the douche. At once a severe local burning sensation was experienced, and the patient went to a physician, who promptly ordered albumin water to be taken by the mouth; douches and ointments were prescribed for the external parts. Three days later Foskett was called in, and found the vagina and vulva covered with a white slough; the mucous membrane of the mouth, uvula, and pharynx was likewise white and sloughy, and there was salivation. For the first few days there was almost complete suppression of urine; what was passed contained albumin, and granular and hyaline casts, but no mercury could be detected, nor could any trace of that metal be found in blood taken from a vein. Hot packs were applied every six hours, and high colon irrigations were employed four times daily; saline aperients given by the mouth caused free catharsis. The patient, in spite of all care, became worse; bleeding from the mouth and epistaxis occurred on the fifth and sixth days, and separation of sloughs and haemorrhage from the vagina on the seventh, with dysphagia and hiccough. Blood clots were vomited on the ninth day and the throat was sore, and the fauces oedematous from separation of sloughs. The mental condition was bad, the patient being irrational and restless. The urine was excreted in normal quantities but could not be retained. There was more haemorrhage from the mouth and vagina, and on the eleventh day melaena was observed, and recent clots were also passed from the bowel. Haematemesis followed, and the patient died early on the twelfth day. In many other recorded instances of poisoning when bichloride had been used for douches in the puerperium and in operations on the pelvic organs, salivation was absent but profuse diarrhoea occurred.

Notes on Military Orthopaedics.

II. ON SUTURE OF NERVES, AND ALTERNATIVE METHODS OF TREATMENT BY TRANSPLANTATION OF TENDON.

BY

LIEUTENANT-COLONEL ROBERT JONES, CH.M.,

F.R.C.S.I. (HON.),

INSPECTOR OF MILITARY ORTHOPAEDICS, ARMY MEDICAL SERVICE.

(Continued from p. 643.)

In the first part of this paper I considered some general principles which should guide the surgeon in the treatment of limbs disabled by injuries involving nerves. I pointed out the importance of giving the muscles ample time and opportunity to recover by keeping them in a relaxed position for a sufficiently long period, and I began the discussion of tendon transplantation as an alternative method of treatment where nerve suture was not possible. I now propose to consider the transplantation operations my experience leads me to recommend in various injuries.

UPPER LIMB.

Irreparable Injury of Musculo-spiral Nerve.

1. In cases of musculo-spiral injury the deformity is a dropped wrist, with loss of the power of extending the fingers. The uncontrolled action of the flexor group causes the fingers to curl into the palm, and the hand to become useless.

In such a case:

- (a) The flexor carpi radialis and the flexor carpi ulnaris can be transplanted into the paralysed extensor of thumb and fingers; and
- (b) in addition the pronator radii teres may be affixed to the two radial extensors.

Transplantation of Pronator Radii Teres and the Radial and Ulnar Flexors in Musculo-spiral Paralysis.

I would recommend for this condition of musculo-spiral paralysis the double operation (a) and (b), and I will briefly indicate the method of its performance.

With the forearm midway between pronation and supination an incision is made along the radial border of the forearm in its middle third. Under cover of the tendon of the supinator longus the pronator radii teres will be found where it becomes inserted into the outer border of the radius. From this it is detached, and is then inserted into the tendons of the extensor carpi radialis longus and brevis, which lie closely applied to it on the dorsal surface.

A horseshoe incision, with the convexity resting on the back of the carpus, with the two straight sides extending along the radial and ulnar borders, is now made. Through the lateral aspects of this incision the tendons of the carpi ulnaris and radialis are identified, and are detached from their insertion as near the carpus as possible.

The tendons are brought round the ulna and radius respectively in very slanting fashion, and are then attached to the extensors of the fingers and thumb, the carpi ulnaris being attached to the tendons of the three inner fingers and the flexor carpi radialis to those of the thumb and index finger. The method of fixation should be neat and workmanlike.

Injury to Median and Ulnar Nerves.

In the case of great damage to the median and ulnar nerves, operations on tendons alternative to those on the nerves will be very rarely required as compared with those on the external popliteal and the musculo-spiral, for the reason that by means of flexion of the elbow a gap of two or three inches in the median may be closed up; by flexing the elbow and displacing the ulnar to the front a similar space in this nerve can be obliterated. End-to-end suture, therefore, is much more easily secured in these two nerves than in the case of the musculo-spiral and external popliteal.

In cases of complete and irreparable paralysis of the muscles supplied by the median nerve the only active muscles on the flexor aspect of the forearm are the flexor carpi ulnaris and the inner half of the flexor profundus digitorum.

Operation of Transplantation of Tendons in Median Paralysis.

(a) The outer tendons of the flexor sublimis are inserted into the inner tendons of the flexor profundus digitorum.

(b) The inner tendons of the flexor sublimis are inserted into the tendon of the flexor carpi ulnaris. The extensor carpi radialis longior is attached to the flexor longus pollicis.

Method.—A curved incision is made convex downwards with the apex just above the anterior annular ligament of

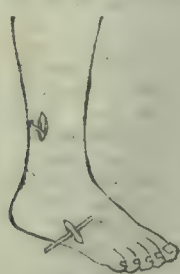


FIG. 8.—Tendon of peroneus longus divided in its course, and identified at the outer border of the foot.



FIG. 9.—Tendon of peroneus longus drawn out through the lower incision.

the wrist. After retracting the flexor sublimis tendons, the outer two tendons of the flexor profundus are inserted into the two active inner tendons of the same muscle. The flexor ulnaris is then divided close to its insertion, and between the two portions of its split end the tendons of the flexor sublimis to the four fingers are inserted. The tendon of the extensor carpi radialis longior is now found at the outer border of the incision, and after division is inserted into the tendon of the flexor longus pollicis round the outer border of the radius.

Operation of Transplantation in Complete Paralysis of the Ulnar.

The two inner tendons of the flexor profundus are attached to the two outer.

The palmaris longus is inserted into the tendon of the flexor carpi ulnaris.

After-Treatment.

After operations for musculo-spiral paralysis the hand should be kept dorsiflexed until recovery of the muscle is complete. When the grafted muscles are acting sufficiently



FIG. 10.—Tendon of peroneus longus about to be drawn through the incision opposite the annular ligament under which it has to pass.



FIG. 11.—Tendon of peroneus longus about to be drawn under the annular ligament to be inserted in the tibia.

well and strongly to lift the hand and fingers, the time will have come for gradual training in co-ordination and balanced movement. Even after the patient has learnt to use his hand it is still necessary that he should continue to wear a dorsiflexion splint at night to prevent contractures of the flexors during sleep.

LOWER LIMB.

Paralysis of the Anterior Crural Nerve.

Transplant the sartorius and biceps into the patella.

An alternative measure would be the application of a knee cage with an extension spring to take the place of the paralysed quadriceps. This should be worn permanently.

PARALYSIS OF MUSCLES SUPPLIED BY EXTERNAL POPLITEAL NERVE.

The anterior group of muscles and the peronei are paralysed. The deformity is a dropped foot with varus due to gravity and the uncontrolled action of the muscles attached to the tendo Achillis and of the tibialis posticus.

Tendon Transplantation.

There is not much scope for effective tendon transplantation in this injury, except in cases in which only particular branches of the nerve have been picked out. For instance, an injury paralysing the two peronei muscles, but leaving the anterior tibial nerve intact, would result in a deformity consisting chiefly of inversion of the foot at the mid-tarsal joint—that is, pes varus. In such cases, transplantation of the insertion of the tibialis anticus into the dorsum of the cuboid or into the base of the fifth metatarsal, replaces the loss of the evertors, and restores the balance of the foot.

Tendon Fixation.

In cases of more extensive paralysis there is not sufficient muscle power remaining for it to be effectually distributed; there is, so to say, not enough power to go round. Tendon fixation is then the best operative procedure, for it establishes a firm barrier against drop-foot, and yet allows useful mobility. Tilanus, of Holland, suggested tendon fixation for certain types of flail-foot many years ago, and I am hoping that it will prove increasingly useful in military surgery.

The object of tendon fixation is to utilize the tendons of completely paralysed muscles as accessory ligaments to hold a paralysed foot in a correct position. This can be brought about in an endless variety of ways, and will supply the ingenious surgeon with many interesting and useful problems for reflection. Personally, after many successful operations, I would recommend this method of treatment to meet the disabilities of paralysis due to injury of the external popliteal.

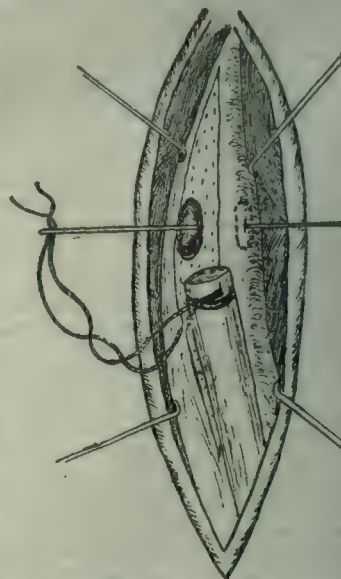


FIG. 13.—Tendon of peroneus longus about to be drawn through the hole drilled in the tibia.

An Operation for Tendon Fixation in Drop-foot due to Injury of the External Popliteal Nerve.

Two small incisions are made along the course of the peroneus longus tendon. The first is placed over the tendon, just before it turns round the outer border of the foot (Fig. 8) on to the sole, and the other about three to



FIG. 12.—Tendon of tibialis anticus being drawn through the foot being kept at right angles; tendon is then cut and passed through a tunnel in the tibia. The tendon of the peroneus longus is shown drawn up through the same opening.

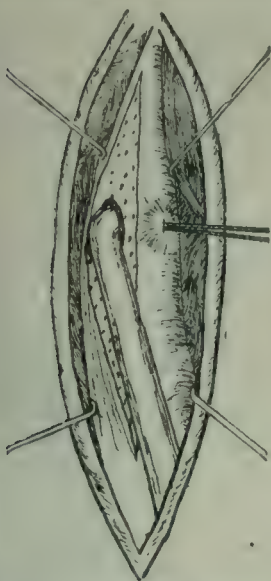


FIG. 14.—Tendon of peroneus longus drawn through the tibia.

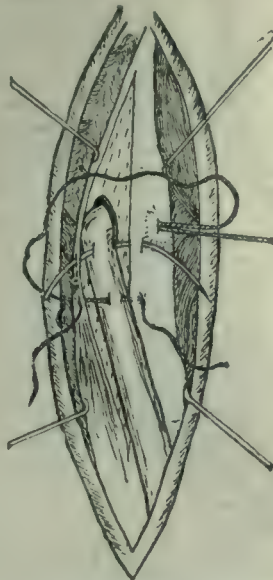


FIG. 15.—Tendon of peroneus longus about to be stitched to the periosteum of the tibia.

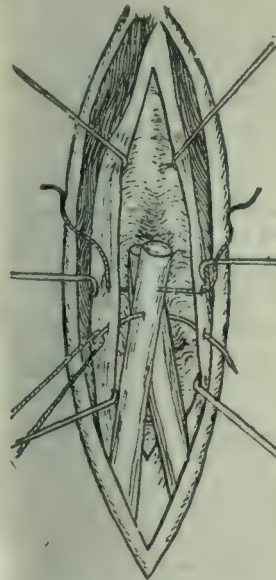


FIG. 16.—Tendons of peroneus longus and tibialis anticus inserted into a groove made on the surface of the tibia, showing the periosteum raised and drawn aside before being sewn in place.

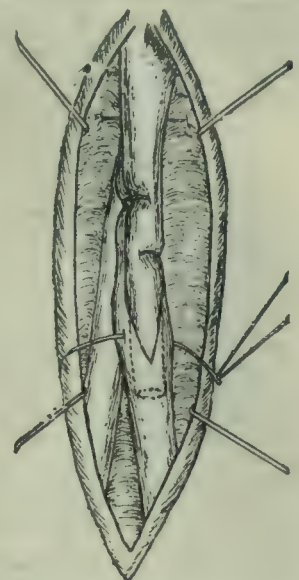


FIG. 17.—Lower divided portions of the tendons of the peroneus longus and tibialis anticus inserted into the tibia. The upper end of the tendon of the tibialis anticus sutured to the lower end below its insertion in the bone.

four inches above the tip of the external malleolus (Fig. 8).

The tendon is now divided through this upper incision, and the lower freed portion is then pulled out of its sheath through the lower opening while its normal attachment to the sole remains undisturbed (Figs. 8 and 9).

An incision 2 to 3 in. above the tip of the external malleolus is made just external to the anterior border of the tibia, and the divided lower portion of the peroneus longus tendon is passed up from the lower incision to this new one. In its new course the tendon should pass under the anterior annular ligament (Figs. 10 and 11), but if this cannot be done it may be passed in the deep fascial layer (Fig. 19).

The periosteum is now raised from the anterior aspect of the tibia and a deep groove is made in the bone; the tightly pulled tendon, whose outer surface has previously been roughened, is then laid in the groove and is retained in it by a small nail or it is fixed by strong catgut into fascia. The periosteum is then replaced over it (Figs. 16 and 17).

Another effective method of fixing the tendon is to bore a hole through the anterior border of the tibia and pull the tendon through (Figs. 13, 14, and 15). The free end can then be stitched to periosteum, on the inner side of the tibia, or in some cases it may be more convenient to turn the tendon over the crest of the tibia and stitch it to the tendon before it enters the tunnel. Through this same incision the tendon of the tibialis anticus (Fig. 12) is divided and the upper end of the lower portion inserted



FIG. 18.—Diagram to show the anatomy of the area concerned; the three parts of the annular ligament are shown, the tendon of the tibialis anticus is hooked inwards, the tendon of the peroneus longus has been passed under the annular ligament and brought into contact with the tibia.

beneath the periosteum in front of the tibia, in a manner similar to that first described, by nailing, or through a hole bored in the substance of the bone after the second method.

When this has been done the cut end of the upper part

of the tibialis anticus tendon is inserted into the lower part of the tendon distal to its insertion into the tibia (Fig. 17).

The peroneus brevis tendon may then be shortened and inserted into a gutter along the anterior surface of the external malleolus, by another short nail.

If the patient refuses operation he may wear a leather band above the ankle and one round the instep. These leather bands are connected by indiarubber bands sufficiently strong to keep the foot at right angles. The boot can be worn over this.



FIG. 19.—Alternative operation in which the tendon of the peroneus longus is pulled through the subcutaneous tissue without regard to the annular ligament. A. First stage. B. Tendon of peroneus longus drawn upwards and inwards.

Injury to Sciatic Trunk.

If the whole sciatic nerve has been divided high up in the thigh there is total loss of power below the knee and in certain muscles governing the knee-joint. In such cases the patient can walk quite well in a jointed caliper splint with a filling inside the boot to keep the foot at right angles. Another useful plan is to fit a jointed knee cage with a spring and a right-angled support for the ankle. This really means that we make the paralysed distal part of the leg into a species of artificial limb, and this, in actual practice, has proved much better than any artificial limb that I have ever met with.

The idea of rushing to amputation of a limb merely because the sciatic nerve is destroyed and therefore

theoretically the nutrition of the foot must go wrong, is too horrible to be contemplated. Actual experience has proved that, in many cases, the errors of nutrition which ought in theory to occur do not occur, or, at worst, are not nearly so serious as might be expected.

CONCLUSION.

Surgeons will glean from what has been written that there are many ways in which the disabilities following nerve destruction can be met, and that hardly any case is bad enough to justify a counsel of despair. Our knowledge of what can be done in poliomyelitis will invite us to take a cheerful outlook in traumatic paralyses.

This article is intended not merely to indicate ways in which the ground can be prepared for the operations of nerve suturing, or to point out the value of keeping a paralysed muscle relaxed by opposing the force of gravitation, but to indicate the great and ever-increasing field of usefulness that is opened up by utilizing tendon, whether that of an active or a hopelessly paralysed muscle, for the restoration of movement or the correction of deformity, thereby restoring to a greater or less extent the economic efficiency of an individual who will otherwise sink into the position of a non-productive and dependent member of the community.

THE IMPORTANCE OF METHOD IN THE ISOLATION OF PATHOGENIC ORGANISMS OF THE TYPHOID GROUP FROM FAECES.

A FURTHER NOTE ON THE VALUE OF TELLURIC ACID COMBINED WITH BRILLIANT GREEN.

BY

C. H. BROWNING AND L. H. D. THORNTON.

(From the Bland-Sutton Institute of Pathology, Middlesex Hospital.)

THE employment of brilliant green in fluid medium as a means of isolating typhoid and paratyphoid bacilli from faeces, which was originally suggested by Browning, Gilmour and Mackie, and independently by Torrey, for paratyphoid organisms, has now found wide acceptance (Clarke and Stokes, Dreyer, Tidy, as well as other workers whose results are not yet published). The general experience has been that, when used in conjunction with the ordinary direct plating of the faeces on a differential medium like MacConkey's or Endo's, a substantial increase in the number of positive results has been obtained as compared with the latter method alone. As Clarke and Stokes note, however, this statistical result

leaves out of the picture the relative ease of the two methods so far as finding the colonies is concerned. The balance from this point of view is strongly in favour of the brilliant green method, in which it was common to get a practically pure plate of the typhoid group organism.

Accordingly our statement is confirmed that when these specific organisms are found they usually occur in abundance in the subcultures from the brilliant green medium, thus saving much of the time which is taken up in testing a variety of "likely" colonies from the direct plates.

As regards the procedure which has been followed by other workers who have employed brilliant green, it is to be noted that for the most part they have cut down the series of tubes of peptone water containing varying amounts of the dye, which we originally recommended. Thus a single tube containing 0.4 to 0.5 c.cm. of brilliant green 1 in 10,000 in 10 c.cm. of peptone water has been generally employed as representing the optimum concentration. The adjuvant procedure in the form of a further series of tubes containing telluric acid along with brilliant green, in addition to green alone, which was suggested by Browning, Mackie, and Smith, does not appear to have been extensively tested by other investigators. It is, of course, recognized that exigencies of work set a limit to the time which can be devoted to such examinations; but as the paramount importance of leaving no carriers undetected is now generally recognized, it seems desirable that methods should be adopted which will expose the maximum number of cases. The results of others have shown that the use of a single tube of

brilliant green medium will contribute a large proportion of the extra positives detectable by means of this reagent; but in view of the epidemiological significance of carriers it would be an unwise economy of time to rest content with the detection of those carriers which could be found by abbreviated methods and to neglect the further number of cases which could be discovered by suitable means, and which, if overlooked, are probably quite as likely as the rest to constitute foci of infection later on. Thus, provided that there is a definite prospect of adding to the number of positive results, a moderate increase in the amount of attention devoted to the examination of the faeces beyond the inoculation of one direct plate and one tube of brilliant green medium is highly advisable.

The question is, What extension of procedure is likely to yield the best return of further positives? On the basis of our own routine investigations of suspected typhoid-group infections in a large general hospital we would submit that of the means at present available, in addition to direct plating, the employment of a series of tubes of fluid medium containing varying amounts of brilliant green along with a series containing green and telluric acid will probably afford the largest yield of positive results.

As has already been emphasized in these pages (Browning and Thornton), we believe that the employment of a series of doses of the differential reagent in the medium is of the greatest importance. It is obviously a difficult task to arrange such conditions that scanty specific bacteria in a mixture with a large number of biologically similar organisms may undergo selective proliferation so as to enable the former to be isolated in pure culture. The method of making very large surface inoculations on a solid differential medium direct from the faeces, as was done some years ago by Harvey in his important work on the detection of carriers in the army in India,* involves the use of much agar and the search among large numbers of likely colonies, a serious matter where coliform bacilli, which do not produce typical appearances on the differential medium (for example, pale growth on MacConkey's agar), are present. Therefore the use of a simple fluid medium containing differential antiseptics probably yields the best return for the time spent.

In the case of *B. paratyphosus* B the disparity in behaviour between the specific organism and most of the accompanying coliform bacilli is such that brilliant green by itself, in the proportion of 0.5 c.cm. 1 in 10,000 per 10 c.cm. of peptone water, seems to constitute usually a highly suitable medium for isolation. But where one has to deal with smaller differences between the specific organism and the concomitants, as is especially the case with *B. typhosus*, a single concentration of green does not yield the best results (as Clarke and Stokes's figures indicate), and a finer adjustment of the medium becomes necessary. Hence appears the value of using a series of amounts of the differentiating reagent (brilliant green) in the culture of a single specimen of faeces, as the optimum concentration of the dye depends on factors which vary from case to case. Torrey, in employing brilliant green for the isolation of paratyphoid bacilli from faeces, also recognized the importance of the quantitative factor; thus he adopted a fixed concentration of green in glucose bouillon, but added varying amounts of faeces to a series of tubes; subcultures were then made after twenty-four hours' incubation at 37° C. He found that

if the paratyphoid or enteritidis bacilli are fairly numerous in the faeces, pure or nearly pure cultures will develop in all of these tubes. If, however, they are present in very small numbers, the specific growth occurs rather more often in the lightly than in the heavily seeded tubes.

We also employed a relatively light inoculation and found that positive results might be obtained in subcultures from the fluid medium after forty-eight hours' incubation, although the subcultures at twenty-four hours had been negative. Clarke and Stokes, on the other hand, made much heavier inoculations, and found it advisable to subculture earlier (after nine hours).

Here, again, the optimum conditions cannot be determined beforehand, hence the advisability of employing a series of concentrations of the reagent so as to afford a range within which the optimum is likely to lie.

* Harvey used three 9-in. plates of Conradi's medium for each sample of faeces. Each plate required approximately 30 c.cm. of medium, and every likely colony was picked off and investigated.

Further, it has already been pointed out that typhoid bacilli may be isolated from faeces by means of a series of doses of brilliant green and telluric acid, where direct plating, as well as the use of varying amounts of brilliant green alone, both fail to detect their presence (Browning, Mackie, and Smith). The following instance, which recently came under our observation, furnishes a fresh illustration of this latter highly important point. We are indebted to Dr. Pasteur for permission to use the clinical notes of the case.

Woman, aged 34. History of sixteen days' illness; pains in the head and abdomen, with slight abdominal tenderness, vertigo, and profound weakness. The faeces throughout have been firm and well formed. "Rose spots" present; also slight splenic enlargement (maximum recorded temperature 103.4° F.). Previous to the onset of illness the patient had for five weeks nursed a case said to be suffering from typhoid fever. Widal reaction (by the macroscopic method, using Dreyer's emulsion) shows marked agglutination of *B. typhosus* up to 1 in 200 serum dilution after two hours at 55° C. Specimen of faeces (solid, obtained by enema)—one loopful emulsified in 5 c.cm. normal saline; then one large loopful of emulsion added to each tube of medium (1 per cent. peptone water, neutral to litmus; two series (a) containing brilliant green, and (b) brilliant green plus telluric acid).

10 c.cm. Peptone Water containing		Resulting Growth, after Incubation for 24 hours at 37° C., plated on MacConkey's Medium.
Telluric Acid 1 per cent.	Brilliant Green 1:10,000.	
0 ...	0.1 c.cm.	Coliform bacilli.
	0.2 "	" "
	0.35 "	" "
	0.5 "	" "
0.04 c.cm. in each tube	0.7 "	Coliform bacilli which did not ferment inositol.
	0.1 c.cm.	Coliform bacilli.
	0.2 "	" "
	0.35 "	" "
	0.5 "	" "
	0.7 "	<i>B. typhosus</i> in pure culture.

Plate of MacConkey's medium inoculated directly with the faeces showed nothing resembling *B. typhosus* present in more than 100 colonies.

The amount of faeces used was less than that commonly employed by us. As a rule, in the case of very fluid faeces a large loop (up to 1 in. diameter) is employed for inoculation; solid faeces are emulsified by rubbing up with several volumes of sterile water, and then one loopful is used to inoculate each tube.

The results obtained here show (1) that along with a negative result by direct culture on MacConkey's medium—the number of typhoid bacilli present in the faeces constituting probably much less than 1 per cent. of the total viable organisms—(2) no amount of brilliant green up to high doses enabled *B. typhosus* to flourish so as to permit it to be recovered in subcultures, but (3) the mixture of telluric acid and brilliant green yielded in this case a pure growth of *B. typhosus* in the tube containing the highest amount of green, whereas no typhoid bacilli were found in subcultures from any other tubes of the series. We shall not attempt to analyse the multiplicity of factors which may operate in such cases; but the practical issues are clear—namely, that (a) for the successful isolation of *B. typhosus* from faeces varying amounts of the differential reagents may be necessary, and (b) the use of telluric acid along with brilliant green may be essential in order to secure a positive result.

Summary.

1. In the examination of faeces for typhoid and paratyphoid bacilli, the value of a simple fluid medium containing brilliant green, in addition to direct plating, as a means of increasing the number of positive results, has been confirmed by a number of workers.

2. A single fixed concentration of brilliant green (0.5 c.cm. of green 1 to 10,000 per 10 c.cm. of peptone water) seems to leave little to be desired as a medium for the isolation of *B. paratyphosus* B; but this fixed medium does not yield so good results with *B. typhosus*, for which a series of doses of green are required in order to secure the optimum concentration, which depends on a number of variables.

3. In the examination of faeces for *B. typhosus* a series of varying amounts of brilliant green along with telluric acid may be essential in order to isolate this organism in cases where both direct plating and brilliant green alone fail.

MacConkey's agar has been employed, since we have not found that, as prepared here, it compared disadvantageously with Endo's as a medium for the growth of *B. typhosus*.

4. The importance of detecting carriers for the prophylaxis of epidemics should justify the time spent in this extension of the "one-tube" method. Even in its unabbreviated form the procedure compares favourably, as regards consumption both of time and materials, with the old method of spreading a number of large plates directly with the faeces. The fact that the successful subcultures from the fluid medium frequently yield practically pure growths of the pathogenic organism is an important advantage of the method.

REFERENCES.

- Browning, Gilmour, and Mackie, *Journ. of Path. and Bact.*, vol. xviii, 1913, p. 146, and *Journ. of Hygiene*, vol. xiii, 1913, p. 335. Browning, Mackie, and Smith, *Journ. of Path. and Bact.*, vol. xix, 1914, p. 127. Browning and Thornton, *BRITISH MEDICAL JOURNAL*, August 14th, 1915. Clarke and Stokes, *Lancet*, March 11th, 1916. Dreyer, *Proc. Roy. Soc. Med.*, Medical Section, November 9th, 1915. Harvey, *R.A.M.C. Journ.*, 1915. Tidy, *Proc. Roy. Soc. Med.*, Medical Section, November 9th, 1915. Torrey, *Journ. of Infect. Dis.*, vol. xiii, p. 263, 1913.

EXAMINATION OF FIFTY DYSENTERY CONVALESCENTS FOR CARRIERS.

BY

J. A. ARKWRIGHT, W. YORKE,
TEMPORARY CAPTAINS R.A.M.C.,

O. H. PRIESTLEY, AND W. GILMORE,
TEMPORARY LIEUTENANTS R.A.M.C.

The fifty men examined had all suffered from dysentery contracted on service, and with one exception gave a history of passing blood and slime for periods varying from three days to nine weeks. In four cases a history was also obtained of an illness resembling enteric fever. The convalescents were not selected, but were the first fifty examinations completed in the course of search for carriers in a convalescent camp.

The date of onset of the original illness ranged from May, 1915, to January, 1916, but all except two cases first showed symptoms of dysentery before the end of November, 1915. The examination began on February 16th, and ended on March 24th, 1916.

In every case, therefore, except two the illness began more than two months before the investigation here recorded. The examination of faeces was made in each case on three occasions, an interval of two or three, or occasionally more, days elapsing between the separate observations. The specimens of faeces reached the laboratory within half an hour of being passed. The examination consisted of: (1) Microscopic search for protozoa; (2) plating on MacConkey's neutral red bile-salt lactose agar, and subsequent examination of colourless colonies by means of carbohydrate media and agglutinating serums; (3) a specimen of blood was taken from each man on one occasion and its agglutinating power tested against stock emulsions.

Table showing the Results Obtained by Microscopic Examination and Culture.

<i>Entamoeba histolytica</i> was found in	9 men
<i>E. coli</i> was found in	25 "
<i>Lamblia intestinalis</i> was found in	15 "
<i>B. dysenteriae</i> (Shiga) was found in	2 "
<i>B. dysenteriae</i> (Y) was found in	0 "
<i>B. typhosus</i> , <i>B. paratyphosus</i> A or B was found in	0 "
Negative results (neither protozoa nor bacteria)	14 "

Trichomonas intestinalis was noted in two cases, but was not looked for, especially on account of the need for rapid work. In all the cases in which *Entamoeba histolytica* was recognized *tetragena* cysts were observed, and large or small vegetative forms were also observed in some of these.

Further Analysis of the Results of Microscopic Examination.

<i>Entamoeba</i> was found alone in	6 men
<i>Entamoeba coli</i> was found alone in	12 "
<i>Lamblia intestinalis</i> was found alone in	4 "
<i>E. histolytica</i> and <i>Lamblia</i> were found in	1 man
<i>E. histolytica</i> and <i>E. coli</i> were found in	2 men
<i>E. histolytica</i> and <i>Trichomonas</i> were found in	1 man
Negative	14 men.

Total ... 50

THE TREATMENT OF WOUND INFECTIONS.*

BY

W. PARRY MORGAN, M.A., M.B., B.Sc.,

LATE TEMPORARY CAPTAIN R.A.M.C.; FORMERLY ASSISTANT IN THE
DEPARTMENT OF THERAPEUTIC INOCULATION, ST. MARY'S
HOSPITAL, AND IN THE BACTERIOLOGICAL DEPART-
MENT OF THE MEDICAL RESEARCH COMMITTEE.

ATTENTION is being drawn at the present time to the study of the physiological aspect of the treatment of wound infections, and, as a result, new methods, to replace old, have been suggested. In particular, Sir Almroth Wright advocates very strongly giving up treatment by antiseptics for treatment by salt solutions. He does this chiefly on the ground of laboratory experiments, laying it down in respect to treatment that "where the results are neither brilliantly successful nor the reverse . . . we shall be well advised if we guide ourselves, when this is unambiguous, by the verdict of laboratory experiments." Although I have been working with him, I am unable to agree that his experiments conform to this standard, and would for that reason put forward points which appear worthy of further consideration. These relate to: (1) Measures which affect the flow of lymph; (2) measures which affect the flow of pus; (3) antiseptics.

1. Measures which Affect the Flow of Lymph.

In his first lecture on the treatment of wounds Sir Almroth Wright maintained "that we have at disposition an agency for powerfully increasing the outflow of lymph," and asserted that a 5 per cent. solution of common salt "brings into play osmotic forces, and 'draws' the lymph out of the walls of a wound by a *vis a fronte*." In his second lecture, as a result of the criticism that osmotic forces would determine the flow of water and not of lymph, he appeared to give up the notion of osmosis, but otherwise maintained his position. At this lecture he showed four experiments to "bring clearly before the eye the drawing power of salt." For the first, he took a capillary tube open at both ends with an additional opening at its middle. This tube he filled with strong salt solution, and, holding it horizontally, dipped it for a few seconds into a watery solution of methylene blue. On taking the tube out he found that more methylene blue had passed in through the three openings than had happened in the case of a control tube which contained water instead of salt solution. This result we should expect, since salt solution is heavier than water. The salt solution would, for this reason, tend to fall out of the tube, and consequently the methylene blue solution would run in to take its place. The same explanation holds in the case of the second experiment, which was as follows: A piece of glass tubing, plugged with moist cotton-wool, was placed vertically in a vessel containing a watery solution of methylene blue. It was found that the methylene blue travelled up the tube, but travelled higher when salt was placed on the top of the plug. In the third experiment Sir Almroth Wright took a "stab" of watery agar, and on the top placed a cube of salt. In some twelve hours an interchange had taken place, salt passing into the agar and water to the salt. This he gave as a demonstration of what he expected—namely, "a process of barter in which salt and water should be exchanged, not in volumetric equivalents, but in the ratio of very many volumes of fluid for one of the solid." As a matter of fact, the volume of fluid in such a case is not greater than the volume of solid, and the experiment is merely a demonstration of the diffusibility of salt in agar. The fourth experiment was similar, but in this case the stab consisted of blood agar. Here the presence of the albuminous substances in the fluid which collected above the agar showed only that such substances diffuse in agar in the same way as salt, and not that salt draws lymph. It is therefore clear that these experiments do not support the view that hypertonic solution will draw lymph out of a wound.

Again, Sir Almroth Wright, in his discourse, asserted that it was "confusion of thought" which led to the belief "that it is the interposition of the sieve which confers upon salt the power of drawing water to itself." Such an assertion is really a denial of Newton's third law, which lays it down that action and reaction are equal and opposite. For it follows from this law that salt would be

drawn to water by forces equal to any which would draw water to salt. Consequently, unless a sieve supported and held back salt, while not at the same time preventing the passage of water, there could not be such a process of barter as Sir Almroth Wright suggests. It is plain, then, that the only sense in which salt can be said to draw "water" to itself is that recognized when such a process as osmosis takes place. But salt cannot be said to draw lymph to itself even by osmosis, because albuminous substances cannot pass through membranes impermeable to salt. On the contrary, it might be said that since animal membranes are usually permeable to crystalloids and not to colloids an albuminous substance may by osmosis "draw" salt to itself.

Having seen that salt does not draw lymph by a *vis a fronte*, we may examine how the outflow can be influenced. We shall only deal with those ways which are clearly physical. For these to be operative, we must presume that the lymph spaces and channels, potential and otherwise, are open to the surface, and that a fluid pressure greater than atmospheric tends to drive lymph out through them. The flow will then be at a rate depending on the pressure in the tissues and on the number and size of the channels. As regards the pressure, it is plain that this will vary with the hyperaemia, and so we may expect that any measure which favours hyperaemia will also act as a lymphagogue. Again, as regards the channels, we see that they may be obstructed (1) by dried lymph on the surface blocking the outlets; (2) by the cellular walls coming together and obliterating such channels. The application of any moist dressing will usually remedy the first, and is as a rule sufficient. In this connexion it must not be thought that moist coagulated lymph will necessarily prevent drainage. After all, it is merely a meshwork of fibrin in which the leucocytes can move and function. It is hardly comparable with a membrane, and is pervious unless it becomes blocked by pus cells. The obstruction due to this and to the obliteration of the channels can be relieved if we can abstract fluid from the cells. This can be done by the application of hypertonic solutions, which would cause an osmotic diffusion of water out of the cells. The cells would then shrink and the obliterated channels open up, just as the ground is fissured in dry weather. The result would be that the lymph would have free passage to the surface and the lymph-bound condition be relieved. This action of hypertonic solutions can readily be demonstrated by trying to filter fluids through agar containing blood corpuscles. Owing to the osmotic crenation and shrinkage of the corpuscles which they cause, hypertonic solutions go through comparatively readily, while the isotonic are held back.

But it is hardly to be expected that the direct osmotic effect of salt in a wound will be more than a very superficial one, for, once a flow is established, the current of lymph outwards will tend to counteract the diffusion of salt inwards. Thus, as soon as the surface becomes pervious, the presence of hypertonic solutions cannot be expected still further to increase the flow. Again, it does not necessarily happen that the osmotic effect of hypertonic solutions will always produce conditions favourable to a flow. From a clinical point of view, this is made clear by Colonel H. M. W. Gray,¹ who, at Rouen, in a lecture strongly advocating the use of hypertonic salt solution as a lymphagogue, gave away much of his case by pointing out that salt tabloid packs, so far from producing a flow, frequently became dry after twenty-four hours.

It may be observed here that the effect of hypotonic fluids, such as tap water, hydrogen peroxide, and iodine solutions, have the opposite effect to hypertonic fluids, and would cause the surface cells to swell. This swelling may be expected to bring about a diminished flow of lymph. It is therefore desirable that the excipient used for antiseptics should be isotonic with the blood fluids. For this reason we ought to dilute antiseptics with physiological saline, unless they are incompatible, and not, as is usually done, with water.

2. Measures which Affect the Flow of Pus.

Here, again, Sir Almroth Wright claims that he has a specific, this time in physiological saline, asserting that "the white corpuscles are carried forward by a chemio-tactic movement in the direction of the free surface upon

* Read at the Royal Society of Medicine, Pathological Section, on May 2nd, 1916 (see p. 689).

which the physiological solution has been imposed." I would venture, however, to examine in fuller detail the experiments on which he bases this claim, and whether it is warranted by them.

Taking flat capillary tubes containing unclotted blood, he centrifugalized this before it had time to clot. When clotting had taken place there was then in the tube a clot consisting of a red corpuscular portion (a), a white plasma portion (c), and between these, joining them, a narrow portion containing white corpuscles (b). He then superimposed upon these clots a "chemiotactic agent," such as saline, and incubated them. The clots were afterwards removed from the tubes, mounted on slides, and stained. It was observed in many cases that, if the temperature was in the neighbourhood of body temperature, the leucocytes had wandered or emigrated into the white clot. It was on experiments of this nature that Sir Almroth Wright based his statements regarding chemiotaxis.

We may get help in understanding the behaviour of the leucocytes in these experiments if we consider the ways in which the clot tends to contract, and, for this purpose, it is what happens in the neighbourhood of the leucocytic layer of the clot which is of importance as once the leucocytes have moved well out into the white clot they appear to remain there. Sometimes, as Sir Watson Cheyne points out,² there is no contraction (Fig. 1, A). At other times contraction takes place at the junction of the red and white clots (Fig. 1, B, C), and a neck containing most of the leucocytes is formed. This neck may lie wholly free in serum (Fig. 1, B), or partially in contact with the walls of the tube (Fig. 1, C). When it lies wholly free in serum, it becomes highly probable that the wandering movements of the leucocytes will result in their finding a way laterally out of the clot into the serum more readily than along the axis, and thus we would expect to find, in such a case, no emigration. On the other hand, when the neck of the clot lies partly in contact with the tube, the leucocytes in that situation would not be able to pass out of the clot, and so they would be more likely to travel along the axis and show emigration. These expectations accord with what is actually seen to take place. In my own experiments I found

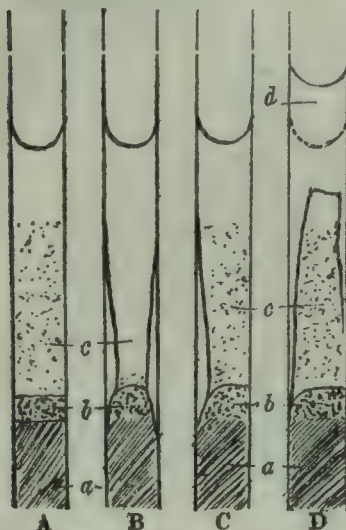


FIG. 1.—Emigration tubes showing different types of contraction. (a) red clot, (b) leucocytic layer, (c) white clot, (d) superimposed fluid. A. No contraction; free emigration shown. B. Contraction with the formation of a neck at the leucocytic portion of the clot, which lies free in serum; emigration is not shown in this. C. Contraction similar to B, but the neck is partly in contact with the tube; emigration shown. D. Chemiotactic agent superimposed; retraction of clot along its axis; leucocytic layer in contact with the tube; emigration shown; this clot is not so likely to contract in mounting, so that the distance which leucocytes traverse would appear greater than in those from A and C.

In some cases practically no polynuclear cells in the white clot, and only a few mononuclear near the neck. This occurred both with and without the addition of the chemiotactic agent. In other cases the leucocytes travelled along the clot, especially the more active polynuclear. This also occurred both with and without the addition of the chemiotactic agent. Some of the specimens, showing ultimately no emigration, where no chemiotactic agent had been applied, I examined from time to time on a warm stage, where the movements of the leucocytes could be watched. At first near the neck, they could be seen moving actively in all directions, but later they disappeared out of the clot. When mounting these specimens, I collected the serum which had exuded from the clot, and found a very large number of leucocytes in the exudate. Subsequent examination of the tubes, which, after the clot had been removed, were immediately filled with fresh serum, also revealed large numbers of leucocytes adhering

to the walls and showing active movements. Hence the polynuclear leucocytes do, without the application of a chemiotactic agent, wander into the clot and then out into the serum. It is clear, therefore, that Sir Almroth Wright can hardly be justified in supposing that emigration due to wandering or "eleutherotropic" movement is predominantly mononuclear and that polynuclear emigration is chemiotactic. This variable loss of leucocytes from the clot to the serum, clearly independent of any possible chemiotactic influence, shows that it is as futile to aim at measuring quantitatively the emigration movements and chemiotactic effects by estimating the number of leucocytes which remain in the white clot at different distances from the red as it would be to estimate the total number of a company after an unknown proportion had retired. But even when free emigration takes place in the presence of physiological saline it cannot be said to be due to chemiotaxis, for the distance traversed by the leucocytes is little or no greater than when no fluid but serum is present, whereas if such emigration were due to chemiotaxis—that is, "a directed movement along a particular axis undertaken under the direction of a chemical stimulus"—one would expect great differences. The small differences that are occasionally seen may be explained by a slight effect which physiological saline may possibly have in increasing the non-directed wandering movements of the leucocytes. This effect is apparently shown in some specimens obtained by mixing saline with blood before it clots, circumstances in which there could be no chemiotaxis. But even admitting this stimulation, it is doubtful whether it is of any value. For the leucocytes would not start their wanderings in larger numbers, but only travel faster through the infected tissues, and act there for a shorter time. Again, physiological saline would not increase the all-important function of phagocytosis. I submit, therefore, that laboratory results, as yet, give no grounds for asserting that we have in physiological saline an agent which will advantageously affect the activities of the leucocytes and the flow of pus into a wound.

On the other hand, there is no difficulty in agreeing that strong antiseptics, bacterial suspensions, and, above all, hypertonic solutions do act in suppressing leucocytic movements. This is clearly shown by experiments made by mixing the blood and the test fluid in the emigration tubes before clotting takes place. Such experiments show that some antiseptics—such as carbolic acid—powerfully suppress emigration, whilst others—such as mercuric salts and the neutral hypochlorous solutions—have comparatively little action. But of more practical significance in determining the possible injurious effects produced by the various applications on the physiological processes is the observation made on the wound itself as to whether there is a good flow of laudable pus. If there is, we may be sure that the application is not doing much harm to the tissues, and that the physiological processes remain active. In this connexion it may be noted that Sir Almroth Wright points out "that the practitioner of to-day has been educated up to expect to find, within a few hours after washing out an infected wound with antiseptics, as much pus as when he last came to dress it"; and that hypertonic salt solution will, as long as its concentration is maintained, arrest all suppurative processes and "give us a wound as clean and as free from pus as meat." The inevitable conclusion from this is that in practice, treatment by hypertonic saline, by interfering with the activities of the leucocytes, renders ineffective the only defence there is against the streptococcus and staphylococcus, whilst, with the application of an antiseptic or of physiological saline, this defence comes again into action.

But some do not view with satisfaction a good flow of pus from a badly infected wound, and it is not uncommon to hear the contemptuous expression "pus poulitice." Certainly if the pus is stale, and has become "corrupted," it is noxious, but if fresh, it is efficiently doing its work of combating the organisms. Our aim must therefore be to remove the pus before it becomes corrupted, and if possible to destroy the organisms which corrupt it. The methods of removing pus are, of course, by constant irrigation and occasional flushing, and in deciding between these, it must be remembered that the use of irrigating fluids, even of physiological saline, if delivered below body temperature, will do harm by retarding the activities of the leucocytes. The possibility of destroying the organisms brings us to the consideration of antiseptics.

3. Antiseptics.

The attempt to destroy organisms in wounds is made in two ways—(1) by washing out with lotions, (2) by the application of dressings. In connexion with the washing out of a wound, it will be recognized that, although, as has been observed, the greater part of the wash will be thrown down the sink, a residue will remain in the recesses and pockets; and also that even on the most exposed surfaces some lotion will remain, wetting the films of pus adhering to those surfaces. These will continue to be a source of infection unless they can be sterilized. We have thus to consider the effect of antiseptics on them. In the case of the residue, there is a comparatively large quantity of antiseptic mixed with a small amount of pus, and for the purpose of estimating the effect of the antiseptics, I took it that the conditions of the following experiment were analogous.

Mixtures of one part of pus and nine of antiseptic were made, and, after ten minutes, 10 c.mm. planted in tubes of liquid agar at 42° C. After they were thoroughly shaken, the tubes were sloped and the agar allowed to set. They were then incubated at 37° C., and after a period were examined for colonies. It was found that when the antiseptic was strong the number of colonies could be counted readily. When it was weak, and in the case of the controls, the agar became opaque with innumerable minute colonies. The results were comparative, and did not lend themselves to strict quantitative expression. This was to be expected, for the specimens differed considerably. All were heavily but not equally infected. Some were thick and mucoid, and would not mix well with the antiseptics. However, in the case of every sample of pus, several antiseptics and a control were tested.

I give a few tables to illustrate the kind of result ob-

TABLE I.—Showing the Effects of Antiseptics upon the Growth of Bacteria in Pus.

Experiment I.

	1:400	1:800	1:1600	1:3200	1:6400
Iodine:					
16 hours ...	+	++	+++	+++	++++
Binioidide of mercury:					
16 hours ...	+	++	++	+++	
40 hours ...	++	+++	+++	+++	
Carbolic acid:					
16 hours ...	+	++	+++		
40 hours ...	++	+++	+++		
Antiseptic diluted with hydrogen peroxide (5 vol.).					
Binioidide of mercury:					
20 hours ...	—	—	+	+++	+++
40 hours ...	—	—	++	+++	+++
Carbolic acid:					
20 hours ...	—	+	++	+++	
40 hours ...	—	++	+++	++++	

Experiment II.

	1:1	1:2	1:4	1:8
Hypochlorous solutions				
Available chlorine ...	1:200	1:400	1:800	1:1600
Dakin's solution:				
18 hours ...	—	—	—	+
3 days ...	—	—	—	+
Eusol:				
18 hours ...	—	—	—	+
3 days ...	—	—	—	++
Carbolic acid:				
	1:80	1:160	Control	
	++	+++	++++	

tained. Using this method, I came to the following conclusions: For the purpose of washing out a wound, neutral hypochlorous solutions are by far the most potent of the antiseptics usually employed, and are effective if diluted to 1 in 800 available chlorine, or 1 in 4 of the strengths usually dispensed. Mercury antiseptics 1 in 1,000, and carbolic acid 1 in 80, never sterilize completely, but kill a very large number of microbes, and delay the appearance of the growth of those which remain. Hydrogen peroxide by itself has very little bactericidal power, but when added to other antiseptics with which it is not incompatible, it increases their bactericidal power on pus organisms, presumably by its mechanical effect. Most of the other organisms in pus are killed more surely than streptococci and staphylococci, an action which is distinctly more marked in the case of mercury and carbolic

acid than in the case of iodine and hypochlorous solutions.

In the case of the film of pus which the mechanical disturbance of washing does not remove, we again have a large quantity of antiseptic acting for a comparatively short time. I considered here that the effect of the antiseptic could be judged by the following experiment: 20 c.mm. of pus were smeared on the surface of agar slopes and allowed to dry. The tubes were then filled with antiseptic lotion so that the films were completely covered. After an interval the antiseptic was poured away and the tubes incubated upside down, so that any excess drained away. The following table (II) illustrates the results:

TABLE II.—Showing the Effects of Antiseptics upon the Growth of Bacteria in dried Pus.

Experiment I.

Antiseptic.	Strength.	Time.	
Carbolic acid ...	1:80	9 min.	Growth as in control.
Eusol (1:200 available chlorine) ...	1:4	1½ min.	All but a few small areas sterilized.
" " ...	1:4	3 min.	All but a few small areas sterilized.
" " ...	1:4	5 min.	All but a few small areas sterilized.
" " ...	1:4	10 min.	All but one small area sterilized.
" " ...	1:8	2 min.	Two small sterile areas.
" " ...	1:8	5 min.	A few sterile areas.

Experiment II.

Carbolic acid ...	1:80	11 min.	Many discrete colonies all over film.
" " ...	1:80	40 min.	Sterile.
Iodine ...	1:1000	4 min.	Sterile.
Binioidide of mercury	1:1000	4 min.	Sterile.
Hydrogen peroxide	2.5 vol.	10 min.	Sterile.
Dakin's solution (1:200 available chlorine)	Undil.	1½ min.	All but a small area sterilized.
" " ...	"	10 min.	Sterile.
" " ...	1:2	5 min.	Two colonies.
" " ...	1:2	10 min.	Two colonies.
" " ...	1:4	5 min.	All but a few small areas sterile.
" " ...	1:4	10 min.	All but one small area sterile.
" " ...	1:8	10 min.	Good growth; part of film sterile.
Control ...			Massive growth.

The results are very similar to those of the first experiment. One point was clearly shown, that the thickness of film makes much difference to the efficacy of the antiseptic. It was clear also that some antiseptics were much more rapid in their action than others, notably the hypochlorous solutions. This suggests that these are the most suitable for the purpose of washing out a wound, especially as they have practically no effect on the activity of the leucocytes.

In the case of the dressings, the antiseptic is gradually diluted with pus, becoming at the same time less efficient. Here, therefore, the pus tends to be in excess. To test the effect of antiseptics in these circumstances, I took either a specimen of pus containing very few organisms, one or two per field of a film, or a very thick suspension of blood corpuscles in serum containing a few organisms, and added a proportion of antiseptic. A film was prepared from the mixture, which was then incubated. After a time another film was prepared and compared with the first. If no difference in the number of organisms before and after could be detected, I concluded that the growth was prevented by the antiseptic. If there was a difference, it is clear that the organisms grew in spite of the presence of the antiseptic. A mixture of pus and saline served as control. In the table (III) which I have set out, the strength of the antiseptics given is the ultimate strength in the mixtures. Thus a strength of binioidide of mercury 1 in 1,000 would be present in a mixture of four parts of pus and one part of 1 in 200 of the antiseptic. In these experiments I found it made very much difference whether phagocytosis had taken place or not, there being an advantage in favour of the antiseptic when

TABLE III.—Showing the Effects of Antiseptics upon the Growth of Bacteria when the Antiseptic is diluted with Pus.

Experiment I (4 parts of pus, 1 part of antiseptic).				
Carbolic acid	...	...	1:240—	1:480+
Hydrogen peroxide (10 vol.)	...	...	...	1:5+
Iodine	...	...	1:1000—	1:2000+
Bisulphide of mercury	...	...	...	1:1000+

Experiment II.

Iodine:				
3 parts antiseptic, 1 part pus	...	...	1:1600—	1:3200+
1 part " 1 " "	...	...	1:1600—	...
1 " " 3 parts pus	...	...	...	1:1600+
1 " " 4 " "	...	...	...	1:1000+
Bisulphide of mercury:				
3 parts antiseptic, 1 part pus	...	...	1:800—	1:1600+
1 part " 1 " "	...	...	1:900—	1:1400+
1 " " 3 parts pus	...	...	1:800—	1:1600+
1 " " 4 " "	...	...	...	1:1000+

Experiment III (4 parts blood corpuscles with staphylococcus-infected leucocytes, 1 part antiseptic).

Carbolic acid	...	...	1:200*—	1:300+
Chloramine	...	...	1:75*—	1:100+

Experiment IV (1 part blood corpuscles, 1 part antiseptic).

Hypochlorous solutions (1:200 available chlorine):				
Dakin's solution	...	1:21(?)	1:4+	1:8+
Eusol	...	1:2—	1:4—	1:8+
Carbolic acid	...	1:160*—	1:320+	...

* Subcultures on agar gave no growth.

† Subcultures on agar gave a little growth.

It had not—that is, organisms grew better (1) in pus from an infected wound than in sterile pus to which a suspension of microbes was added; (2) in the infected blood when it had been incubated so as to allow phagocytosis to take place. This would lead us to expect that antiseptic dressings would be especially useful (1) in the earlier stages of an infection, before there is much pus; (2) to prevent the growth of organisms which might obtain access to a wound during the dressing. The following are the conclusions which I consider these experiments justify: (1) The ultimate strength of the antiseptic being the same, the greater the proportion of pus the less the inhibition of growth. (2) Where pus is present in the proportion of 4 parts to 1 of antiseptic, organisms may grow freely when the following are the antiseptics used: Mercuric salts 1 in 200, carbolic acid 1 in 60, iodine 1 in 200, boracic acid 1 in 20, chloramine 1 in 20, hypochlorous solution 1 in 200 available chlorine. Organisms also grew when salt solution 20 per cent. was used. (3) Since organisms grow in pus in which antiseptics are present in the strengths indicated above, it is utterly unreasonable to expect any of them to diffuse into the tissues to such an extent as will give a strength sufficient to inhibit the growth of microbes, still less to kill them. (4) The pyogenic organisms are, as regard their growth in pus, among the least affected by the ordinary antiseptics.

The results obtained with hypochlorous solutions are of particular interest at present, inasmuch as eusol is being advocated for intravenous injection in cases of septicaemia. If they have any beneficial effect in the blood, it is clear the explanation cannot be found in direct bactericidal action.

When these experiments are reviewed as a whole, it becomes plain that in appraising the value of an antiseptic the purpose for which it is used must be taken into account. For instance, for washing out a wound, when the antiseptic would be in great excess, hypochlorous solutions are very potent, and carbolic acid comparatively weak. On the other hand, for an application in a dressing, when the pus would tend to be in excess, hypochlorous solutions are practically useless, whilst carbolic acid, although it has the disadvantage of interfering with the activity of the leucocytes, is fairly efficient.

Again, it becomes clear that, upon the evidence the experiments supply, antiseptics cannot do as much as is claimed for them. They certainly cannot sterilize the tissues subjacent to the surface of a wound, and, indeed, cannot be depended upon to sterilize an accessible surface, although they kill many of the organisms on it. Their use, therefore, depends on whether there is any advantage in this. It would seem that there is, for it can hardly be possible that the depth and intensity of the tissue infection are independent of the proportion and virulence of the organisms in the surface pus. If, therefore, these can be reduced, even temporarily, without at the same time unduly interfering with physiological processes, it is an important gain. This, which is in fact the most important object in dressing wounds, can be done by means of antiseptics, and herein lies their rôle in antiseptic

treatment. If we expect more from the antiseptics at present available, we shall be disappointed.

In conclusion, I would express my grateful acknowledgements to those with whom I have been associated under the auspices of the Army Medical Service, and of the Medical Research Committee; but in particular to my former chief, Colonel Sir Almroth Wright, although I have come to conclusions divergent from many of those at which he has arrived.

REFERENCES.

¹ BRITISH MEDICAL JOURNAL, January 1st, 1916. ² *British Journal of Surgery*, January, 1916.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

SEVERE CEREBRAL INJURY, ASSOCIATED WITH LAUGHTER.

On two occasions last summer I saw what I considered an unusual feature connected with the condition of two patients who were brought into an advanced dressing station suffering from severe head injuries. The injuries were in the lower occipital region of the skull, and were caused in one instance by shrapnel, in the other by high explosive. The shrapnel had caused a small fracture of the occipital bone, through which blood oozed, and the high explosive some bruising of the back of the head and neck. The men suffered from very severe shock and were quite unconscious of their surroundings, but exhibited the rather striking combination of a rambling and muttering delirium, associated with mild and frequent laughter.

There was here the suggestion of a continuous stimulation of the emotional centre for laughter, and as laughter is a modified form of respiration, an injury to some area near the respiratory centre in the floor of the fourth ventricle might account for the condition. The difficulty is that high explosive tends to spread its energies, and other centres of the brain may have suffered from concussion.

According to Sherrington (Schäfer's *Textbook of Physiology*) the respiratory apparatus is in the higher groups subservient to the emotional and mental expression, and he states that the bulb possesses inhibition to a great extent.

Nitrous oxide over-stimulates the respiratory centre and causes laughter, but, as in the case of chloroform and alcohol, the accepted opinion is that the preliminary excitement is due, not to stimulation of the brain areas, but to lessened activity of the functions of control and restraint. But a direct stimulation of the emotional centres is possible, and injury may reveal the truth where experimental work is impossible.

Edinburgh.

J. M. MACPHAIL, M.D. Edin.

EARLY DIAGNOSIS OF WHOOPING-COUGH.

WITH reference to the memorandum from Dr. H. W. Jacob (April 22nd, p. 589), I would recommend him to have a blood count made in all suspected cases of whooping-cough. In all true cases of whooping-cough there will be found a marked lymphocytosis, and this is present some considerable time before the development of the characteristic cough. It is also helpful in the diagnosis of those cases in which the characteristic cough is absent or not heard. I am unfortunately not able to give any references to the literature on the subject.

J. F. CROMBIE, M.D., Major R.A.M.C.

British Expeditionary Force.

THE *Boston Medical and Surgical Journal* states that when the United States undertook the treatment of leprosy in the Philippines there were about 600 cases in the islands. The island of Cullion, which afforded excellent opportunities for agricultural work, was chosen as a place of segregation. Four hundred dwelling-houses, a theatre, a town hall, a school, and a harbour were built, and provided with a water supply and with sewerage and lighting systems. The colony now numbers about 3,500 lepers. They are given all possible liberty, organize their own police force, elect their own mayor and council, and take some care of the island. Attempts to interest them in cultivation of the land were indifferently successful, and a plan to induce them to take up cattle breeding—cattle being insusceptible of leprosy—is now under consideration. Treatment by chaulmoogra oil has given encouraging results; and already twenty-three lepers have been discharged as cured.

Reports of Societies.

THE BACTERIOLOGY OF CEREBRO-SPINAL FEVER.

At a meeting of the Pathological Section of the Royal Society of Medicine on May 2nd the President, Dr. F. W. ANDREWES, F.R.S., gave a short account of the bacteriological results in 11 consecutive cases of cerebro-spinal fever admitted to St. Bartholomew's Hospital during the first four months of 1916. Only one was a military case; of the civil cases, four were under the age of 4 years, and six were older children or adults. The type of coccus was determined in each case by agglutination with serums supplied from Millbank by Lieutenant-Colonel Gordon. The two earliest cases proved to be Gordon's Type 1, the remainder Type 2, except one case in an infant, which could not be referred to any known epidemic type. The pharynx was always examined, and the meningococcus was found in every case, twice in great abundance, sometimes only in small numbers. In each case the pharyngeal and spinal strains were compared by agglutination, and were invariably referable to identical types, indicating that the pharyngeal infection was an integral part of the disease. Most of the cases remained carriers for several weeks, one for more than seventy days. Treatment was by repeated lumbar puncture, with the new Lister Institute serum, prepared with numerous diverse strains isolated during last year's epidemic. The serum had been successful, for, though 4 cases out of 11 died (mortality 36.36 per cent.), 2 of these were infants under a year old and one a child of 3. Only one adult died, of streptococcal septicaemia following mastoid suppuration, after the meningococcal infection had been overcome. In cases over 4 years old the mortality was only 14.3 per cent. The improvement following the serum was in most cases immediate; in three severe cases, in which it was given on the second and third day, the patients were convalescent in forty-eight hours. One baby of 5 months recovered. Blood culture was carried out in three early cases. Twice it was negative, and once positive, the meningococcus being recovered from every tube. This case recovered promptly after serum was given (intravenously as well as intrathecally). In a fatal case the coccus was also recovered from the heart's blood after death.

A Transplantable Lipo-sarcoma in the Guinea-pig.

Dr. J. A. MURRAY exhibited microscopic preparations of the above. The original tumour appeared to be a lipoma; but its transplantability, and the more cellular structure it acquired, indicated a sarcomatous character, although it did not invade or produce metastasis. The author had not been able to raise a subgrowth from a simple lipoma. Some of the fat droplets in the cells were derived from the Altmann granules, which were abundantly present. The granules were present in the cells of malignant growths as well as in those of benign, although by particular methods of staining their presence in the former was not disclosed.

Specimens illustrating Toxic Hepatitis.

Dr. B. H. SPILSBURY exhibited specimens of livers obtained from patients engaged in doping and munition work, and who had died from the toxic effects of volatile poisons present in the materials used. In some recovery was in progress, considerable areas of the hepatic tissue having been regenerated, whilst the rest of it had become fibrotic after its destruction from fatty degeneration.

The Treatment of Wound Infections.

A communication upon this subject by Captain W. PARRY MORGAN is printed at p. 685.

Dr. D'ESTE EMERY said that he very much regretted that the lateness of the hour prevented his dealing adequately with Dr. Parry Morgan's paper, which teemed with controversial points, on many of which he was in strong disagreement with the author. As regards the first question, the power of hypertonic salt solution to cause the flow of a large quantity of lymph from a wound, Dr. Morgan appeared to object both to the idea that it was a process of osmosis and also to the simpler and non-committal

expression that the fluid was drawn out by the salt. The point was one that might properly be discussed before a physical society, but the important practical thing was that the application of a hypertonic solution to a sloughy wound the walls of which were teeming with organisms might determine a copious flow of what was, if not lymph, at least a fluid containing protein substances similar to those of lymph, and, what was of supreme value, containing defensive substances; so that after twenty-four or forty-eight hours no organism at all could be found in the secretion from the walls of the wound, though they might still be present in small numbers in cultures. Dr. Emery had a difficulty in following Dr. Parry Morgan's account of how this flow of fluid was brought about, and was not familiar with the cellular walls which he spoke about as existing in the walls of wounds. Further, if such occurred, he would have thought that if the tissues composing them were caused to shrink by the application of a strong hypertonic solution they would be narrowed and the outflow of fluid obstructed. Secondly, with regard to the formation of pus, Dr. Emery thought that the author somewhat misrepresented the views of the physiological school of treatment. The work of the leucocytes was done in passing through the infected tissues forming the walls of the wound. In their passage they ingested all the bacteria they could, and then passed on outward into the lumen, where they appeared as pus. This was in itself a bad thing, and must be got rid of by irrigation or drainage just as soon as possible, but it was an indication that the leucocytes were actively at work clearing out the bacteria from the tissues, and as such was a good sign. Whatever might be the technical difficulties in the way of investigation on this subject *in vitro* (and he thought they might be overcome), he pointed out that there was no doubt that in actual clinical practice the application of normal salt solution to the walls of a wound which had been treated with hypertonic salt solution did, as a matter of fact, determine such a flow of leucocytes to the surface. Dr. Parry Morgan appeared to agree with Sir Almroth Wright that salt in certain dilutions did stimulate the activity of the leucocytes, but did not think this was any advantage. Dr. Emery disagreed with this view, pointing out that the more rapidly the leucocytes travelled in the infected tissues the more quickly and thoroughly would they remove any bacteria which they encountered. On the third question, that of antiseptics, Dr. Emery agreed with the author that it was hopeless to expect them to diffuse any reasonable depth into the tissues in such amounts as to kill the organisms. He also pointed out that the author's views mainly applied to the parts at a fairly late stage when granulation tissue was present. At this stage, perhaps, not much harm was done by antiseptics, but the case was different in the early stages. At that time the walls of the wound were formed of bruised and damaged tissues, sometimes inches thick, which were so injured as to be on the borderland between life and death. A very small added injury might be sufficient to cause much greater loss of tissue than would be the case had all the conditions been made favourable, and any antiseptic, whatever its nature, which would kill bacteria would kill healthy tissues and, still more, damaged ones, even though it were more highly diluted. He thought, therefore, that the use of strong antiseptic lotions in the early stages of wound treatment might be a source of grave danger.

Professor S. G. SHATTOCK remarked that the weak part of the author's general conclusions in regard to the use of hypertonic salt solution was, it seemed to him, that he (the author) confined his attention too closely to what was taking place at the immediate surface. The condition of the parts in life differed from anything which could be reproduced *in vitro* in that in the former there was a continuous movement of lymph through the tissues as well as a partial escape at the wound surface. The construction of the wall of a granulating wound was more aptly represented in Sir Almroth Wright's second diffusion experiment, carried out with cotton-wool in a test tube of fluid, than by viewing the surface as sealed with a membrane strictly comparable to that of a dialyzer. An abstraction produced by hypertonic salt solution from the immediate surface, even though it were not of chemically normal lymph, would in life be followed by a physiological replacement of the bulk lost from the zone beyond, and the passage of this lymph through the infected district

would bring about an increased phagocytosis, and in this way help to clear up the deeper infection; a thing which antiseptics could not directly effect. One could not fail to see, nevertheless, that the use of antiseptics (all of which were chemical irritants) involved the production of a defensive angio-neurotic oedema—vascular dilatation followed by a plasmatic or serous exudation, which would aid in clearing the infection below the actual surface; and this factor presumably was one which also accompanied the use of hypertonic salt solution.

The Mechanical Causation of Appendicitis.

Professor S. G. SHATTOCK made a communication dealing with the above subject, based upon the critical examination of a series of appendicular concretions, and of the contents of 125 appendices in persons dying from various causes, 100 being over 40, and 25 between the ages of 15 and 25 years. Any such mechanical cause, if it was to account adequately for the alleged increase in appendicitis, would have to be (1) of recent introduction, and (2) of a kind which would extend to all classes of the community. One such that had been suggested was the ingestion of particles of the silica glaze detached from the enamelled hardware now in such general use. These particles were, of course, absolutely insoluble in the alimentary canal. The author had not found a single flake of enamel in any of the many concretions he had examined, nor in the contents of any of the 125 appendices studied.

In regard to the possible injury producible by the ingestion of silica in miners, Dr. Watkins-Pitchford, the present Director of the South African Institute for Medical Research, Johannesburg, had kindly obtained for him the following information:

"Dr. F. Aitken, the superintendent of the Miners' Phthisis Sanatorium, near Johannesburg, states that 537 cases of miners' phthisis have passed through this institution without his having seen a single case of appendicitis amongst them, nor has he noted any history of attacks before their admission. Dr. H. A. Loesser, the senior medical officer of the Crown Mines, has neither noticed nor heard it suggested that appendicitis is more common amongst miners than amongst others. The director of the Native Affairs Department states that in July, 1915, there were 210,247 natives employed on the works and mines of the Rand; appendicitis is so rare that deaths from this cause are not classed separately. He holds that mine natives are not at all liable to the disease."

The use of "French chalk" in dentifrices was another possibility; this material—magnesium silicate—being quite insoluble in the alimentary canal. The material was easily recognizable microscopically, but the author had never found any in the appendicular contents, or as forming the centre of any concretion.

The use of cerebos salt, which contains a notable amount of magnesium phosphate, could be ignored, since the latter was readily dissolved at 37° C. in a solution of HCl of the percentage in which the acid is present in the human gastric secretion.

The hypothesis of most promise was that put forward by Mr. W. H. Battle—namely, that a new factor in the causation of appendicitis had been furnished by the particles detached from the steel rollers now almost universally used in grinding wheat for flour. After a lengthy investigation the author had, somewhat reluctantly, come to the conclusion that no proof of the theory was forthcoming. He had traced the fate of steel filings in flour to which they had been purposely added, in bread made from such flour, and *in vitro* under the action of hydrochloric acid. Steel filings kept in flour did not undergo oxidation. When flour containing such was made into bread (by means of yeast), the particles become slightly tarnished from an extremely superficial formation of ferric oxide (rust). When these particles were extracted from the loaf and incubated at 37° C. in a solution of HCl of the gastric percentage, an abundant evolution of H took place; the fluid on being tested gave a ferrous (chloride) reaction only, without any ferric. This was explained by the fact that any ferric chloride produced from the trace of ferric oxide present was reduced to ferrous in the presence of the free hydrogen. The point of this was, that as ferrous chloride produced no constipating effects, no intestinal and appendicular stasis, favouring the forma-

tion of a concretion, could be attributed to the ingestion of steel particles, assuming this to take place. The amount of solution which steel underwent in the acid within two hours, at 37° C., was small; the metallic particles would, therefore, pass with little change, into the intestine; and here all further decomposition would be prevented by the action of the sodium carbonate of the pancreatic secretion, which rendered the intestinal contents alkaline. Steel filings might be kept for an indefinite period in a solution of sodium carbonate (of the percentage in which this is present in the pancreatic secretion) without undergoing any oxidation whatever.

Mr. Battle had cited the pigmentation of the appendix which he had come across in certain cases furnished by operation, as suggestive of the prolonged ingestion of steel derived from flour.

The author had critically examined nearly all of these specimens, microscopically and microchemically, with the following result: The coloration was due to the presence of somewhat translucent spherules of dull brown colour, contained in connective tissue cells lying in the lymphatic tissue which surrounds the crypts; there was none in the muscular wall. When the sections were heated, *secundum artem*, in HCl and potassium ferrocyanide or potassium ferricyanide, no ferric or ferrous reaction was obtained in the spherules; when sections were freely treated with pure HCl, no solution of the pigment took place. The pigment was clearly, therefore, iron-free, and it followed from this that it could not possibly be iron or iron oxide that had reached the lumen of the appendix and been translated into its walls.

The exact nature of the pigment was a more difficult question; in general characters it resembled iron-free blood pigment, and its presence was possibly due to the absorption of blood from the interior of the appendix; in cases of melæna the author had on several occasions found blood in its lumen.

Passing on to the study of a series of appendicular concretions: These were examined, after being incubated in dilute alcohol, by careful scraping whilst they were rotated beneath water, the whole procedure being conducted under a lens. The actual centre was examined microscopically *in toto* by removing it to a slide and crushing it in Farrant's medium. In certain cases appendicular concretions formed upon a foreign body, such as a pin or fruit seed. The presence of a nucleus, however, was not only unnecessary, but in the great majority of cases there was none. The most careful examination *ad hoc* demonstrated that there was no differentiated centre whatever. The common appendicular concretion, as told microscopically, consisted solely of undigested plant debris. Cellulose was digested only in the large intestine and by bacterial action alone; the debris referred to comprised free spirals; sclerenchymatous cells, the thick-walled stiff and sharply-pointed hairs from the pericarp of the oat and wheat (abundant in oatmeal and flour); disintegrating cells, wood, and bast fibre, etc. These consisted of lignine or cutine, and were incapable of digestion. The author had found no cellulose in the concretions; this excluded the possibility that the formation of such concretions resulted from a defective digestion of that substance.

The amount of calcareous deposition (calcium carbonate and calcium phosphate) occurring about the debris which formed the concretion was variable; in many examples it was of very limited extent, the concretions in the wet state being hardly firmer than clay. Such deposition was to be ascribed to bacterial action: the deposit, in fact, might not inappropriately be named "appendicular tartar." He had not yet met with a proper appendicular calculus. The concretions consisted chiefly or very largely of vegetable debris, and the most accurate name for them was that of "stercolith."

One factor that might conceivably lead to an increase in the formation of appendicular concretions, and so to an increase in appendicitis, was the recent rise of vegetarianism. A diet consisting almost solely of fruit and vegetable would furnish a greater abundance of indigestible residue. In some appendicular concretions there were conspicuous numbers of oat and wheat hairs, but the author had not come across a concretion composed solely of such, and corresponding with the oat hair concretions at times met with in the human colon. In the museum of the

College of Surgeons there were several specimens of these curious formations, the first identified having occurred in a Lancashire carpenter who was accustomed to take oatmeal daily in some or other form at every one of his meals.

The augmentation of intestinal debris, it was true, did not, *per se*, make for the formation of a concretion; it was necessary to assume an appendicular stasis, or a functional or physical irregularity of the appendix, as a second factor; for under normal circumstances free ingress and egress took place from and to the colon. The different causes that led to stasis in the colon would bring about the same condition in the appendix; and given a superabundance of indigestible residue, the latter would contribute a factor towards the production of a concretion. In fact there was no very abrupt line between concretions and scybala, and the actual centre of a laminar concretion was at times a small collection of minute scybala.

In regard to the results of the author's examination of the contents of 125 appendices from persons dying of other causes than appendicitis: the observations were made by pinning out the organ, slitting it up under water, and sweeping out the contents, which were then broken down with the brush, and carefully irrigated, any sedimentary residue being examined in Farrant's medium. For the present purpose it was enough to state that he had in no case discovered any particles of steel. He had selected for examination 100 appendices from individuals over 40 years of age, in order that ample time might have elapsed for the accumulation of metallic ingesta, and twenty-five from persons between 15 and 25 years, since this was the period of the highest incidence of appendicitis.

Incidentally, the author had encountered during these examinations two forms of neoplasm for the presence of which the patients had not been admitted. In one case many small pedunculated adenomata projected from the mucosa—of the kind which at times grew in large numbers from the colon. In the other case the appendix was the seat of a typical columnar-celled carcinoma, which was in process of ulceration, and had deeply invaded the muscular coat—an exact miniature of a carcinoma of the colon.

The general conclusion at which the author arrived, therefore, was that no evidence was forthcoming to show that appendicitis was due to damage inflicted on the mucosa by the prolonged ingestion of physical irritants; and that the appendicular concretions often associated with acute inflammation were not attributable to an accumulation of inorganic material which served as a nucleus for the subsequent deposition of faecal debris.

ANNUAL CONGRESS OF THE OPHTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM.

The annual congress of the Ophthalmological Society of the United Kingdom was held on Thursday, Friday, and Saturday, May 4th, 5th, and 6th, under the presidency of Mr. WALTER H. JESSOP, in the rooms of the Royal Society of Medicine, the clinical meeting being held at the Central London Ophthalmic Hospital. There was a very good attendance of members, and more especially of those from the provinces. The great success of the congress was in large measure due to the indefatigable energy of the President, who in his opening remarks referred to the loss the society had sustained by the death of Professor Straub of Amsterdam, and Mr. George Coats, and read parts of letters from the following, regretting their unavoidable absence: Professor de Lapersonne of Paris, Professor Haab of Zurich, Dr. Landolt of Paris, Professor Gullstrand of Upsala, Drs. Storey and Maxwell of Dublin, Dr. Maitland Ramsay of Glasgow, and Dr. Edgar Browne of Liverpool.

Some Ophthalmic Lessons of the War.

The PRESIDENT, in his inaugural address, first referred to the results of injuries of the eyeball. He stated that during the American Civil War 41 cases of sympathetic ophthalmitis occurred amongst 254 cases of destruction of the eye; that the German official returns for the war of 1870 showed that 55.6 per cent. of all cases of injury to the eyeball were followed by sympathetic ophthalmitis, and that in more than half of these cases the second eye was involved within a year of the injury. During the

present war, owing to the excellent work of the ophthalmic surgeons in France and elsewhere, he had neither seen nor heard of a single case of sympathetic disease.

In dealing with the occurrence of papilloedema in relation with head injuries, the President said that, as he had already shown, it was often transient and disappeared without leaving any permanent residue; this, he believed, was in entire accordance with the views as to the pathology of papilloedema expressed by Leslie Paton and Gordon Holmes as a result of their excellent work.

In dealing with the retinitis which had occurred in a number of cases of trench nephritis, he expressed the opinion that it was purely toxæmic in origin, and that vascular changes were of no importance in its production. He looked upon the process as due to a severe retinal oedema, and referred to several cases under his care in which almost complete subsidence of the retinitis occurred with complete restoration of vision. The retinal changes might come on at a comparatively early date after the onset of nephritis.

Suitable reference was made to the excellent work of the French ophthalmic surgeons, Rochon-Duvigneaud and others, and the hope expressed that similar work would be done in this country. Mr. Jessop concluded by a short reference to the gravidic, diabetic, and tuberculous lesions of the eye, which he believed to be due to toxæmia.

Hereditary Optic Atrophy.

In an important paper on hereditary optic atrophy (Leber's disease), Mr. HERBERT FISHER brought forward evidence that it was dependent upon changes in the pituitary body. Having referred at length to the literature, he pointed out that in some cases the defects in the visual fields were remarkably symmetrical. He believed that this could not be explained as due to atrophy following the transient papilloedema which had been described in Leber's disease, and argued that the symmetry of the defects pointed strongly to direct implication of the visual pathways by a single lesion. He suggested that temporary disturbance of moderate degree of the pituitary body might be adequate to explain the phenomena of this disease. He drew a parallel between the signs and symptoms of Leber's disease and disease of the pituitary. Frontal headaches, vertigo, epileptiform attacks, and subjective visual phenomena were seen in both, as also a somewhat characteristically mild degree of papilloedema. The relation of the pituitary gland to the sexual organs was very close, as was seen in precocious or arrested development of these organs and impotence in pituitary disease, and the enlargement of the gland which occurred during pregnancy. So in Leber's disease there were two periods of onset—one at about the age of puberty, and a second period in women at the time of the menopause. The very close anatomical relation of the chiasma to the pituitary was insisted upon. Two children, the subjects of Leber's disease, were examined as to the existence of any abnormality in the sella turcica by means of *x* rays; in one no abnormality was found, but in the other unusual conditions were certainly present. This positive fact, taken with the considerations set out in the paper, led him to suspect that when an opportunity offered to some observer, it would be found that Leber's hereditary optic atrophy was primarily due to an inherited temporary disorder of the pituitary body.

The Retinal Circulation in Arterio-sclerosis.

Mr. FOSTER MOORE's paper dealt with the condition of circulation in the retinal arteries in cases of severe arterio-sclerosis. He argued that high pressure in the large arteries was the result of obstruction to the flow in the small vessels, and that therefore the pressure in the retinal arteries might be subnormal, whilst that in the brachial artery was 250 mm. Hg, or higher. The chief evidence in favour of this view was based on two series of observations: (1) That in some cases of arterio-sclerosis a very light pressure on the eyeball was sufficient to produce arterial pulsation, showing that the diastolic pressure in the retinal artery was but slightly above the intraocular pressure, which might be taken as 20 mm. Hg; (2) that whilst the intraocular pressure in arterio-sclerosis, as in health, varied directly with the local pressure in the vessels of the eye, yet it was not raised in arterio-sclerosis. Mr. Foster Moore believed that his observations on the eye were true of the brain and other tissues of the body, and

argued that vigorous measures carried out for lowering the blood pressure in such cases, were likely further to deplete the already curtailed blood supply to the tissues, and thus be harmful rather than beneficial.

(To be continued.)

Rebiefus.

THE HOUSING LEGISLATION MUDDLE.

ALLAN'S *Housing of the Working Classes*,¹ the fourth edition of which is just published, goes some way towards the elucidation of the law on a subject which has recently suffered five Acts of Parliament. The principal Act—the Housing of the Working Classes Act, 1890—was itself passed in order to consolidate some seventeen statutes, all enacted with the object of providing and improving the dwellings of the working and artizan classes. That Act was in its turn most imperfect, and was amended by several other Acts passed in 1894, 1900 and 1903, and by Part I of the Housing, Town Planning, etc., Act, 1909. The result is that the law has again become involved in much the same tangle as brought about the passing of the Consolidating Act of 1890. In this state of muddle the authors have conceived the happy idea of setting out the law as they conceive it to exist at the present time in the form of a Consolidating Bill annotated with reference to the Acts now in force. This, which forms Part III of the work, together with an admirable general summary of what the authors believe to be the law, should prove of considerable assistance to those who desire to acquire a general view of the confused jumble of enactments affecting this subject. Broadly speaking, the intention if not the effect of the Acts seems to be to empower local authorities to deal with large unhealthy areas by making them the subject of an improvement scheme; with small unhealthy areas, by making them the subject of an improvement scheme; to demolish houses unfit for habitation or obstructive buildings causing other houses to be unhealthy, and to erect dwelling and lodging houses for the working classes in districts where such dwelling houses or lodging houses are required. In the exercise of these powers the Acts provide that the local authorities shall act in accordance with the written representations of the M.O.H. or inspector of nuisances as the case may be, and to such officials the book should prove of service. To the ordinary medical practitioner, however, it will be of little utility.

As to whether legislation is any more wisely inspired in the United States of America than in this country we are not thoroughly informed, but we suspect not. Yet there can hardly be such an accumulation of badly constructed, narrow-visioned opportunist laws in the States, because, to judge by Dr. MacNutt's *Manual for Health Officers*,² the profession of the health officer has arisen in America during the last decade. His book contains the fundamental data required by such an official. The first hundred pages deal with the organization and powers of health authorities in the United States of America. The bulk of the volume is devoted to public health administration. Communicable diseases receive nearly two hundred pages, then follow chapters on child hygiene, milk, water, housing, nuisances, vital statistics, publicity, and other important matters. There are sixty pages of appendices. The book is comprehensive in its scope, and most of its contents are as applicable to the circumstances of this country as to those across the Atlantic. It is clearly written and covers a great deal of ground, and is packed with detailed information that should be of great service to medical officers of health as well as to all students who are making a serious study of the subject.

¹ *The Housing of the Working Classes Acts, 1890-1909, and the Housing Acts, 1914; Annotated and Explained, together with the Rules, Regulations, Forms, and Instructions of the Local Government Board.* By C. E. Allan, M.A., LL.B., of the Inner Temple, Barrister-at-Law; assisted as to the Practice by F. J. Allan, M.D., D.P.H. Fourth edition. London: Butterworth and Co. 1916. (Demy 8vo, pp. 480. 12s. 6d. net.)

² *A Manual for Health Officers.* By J. S. MacNutt, A.B., S.B. With a Foreword by W. T. Sedgwick. New York: J. Wiley and Sons, Inc.; London: Chapman and Hall, Ltd. 1915. (Post 8vo, pp. 660. 12s. 6d. net.)

THE MEDICAL ANNUAL.

*The Medical Annual*³ for 1916 is the thirty-fourth annual issue. Naturally its contents are tinged a khaki tone in many sections; a special chapter is given to naval and military surgery, the great changes that have taken place recently in the treatment of wounds are adequately discussed, and there are many pages of interest dealing with the treatment and prevention of the many infections and other disorders to which soldiers are peculiarly liable. The first twenty pages of the volume give a review of progress in therapeutics during the year 1915. The bulk of the book—nearly 600 pages—is occupied by a dictionary of treatment, in which the medical and surgical progress for the year is recorded under the heading of the diseases for which each line of treatment is designed. Five-and-twenty pages follow in which a general review of naval and military surgery is given. Wound infections and their numberless new treatments are described in an excellent special article of twenty-six pages. At the end of the volume a quantity of important miscellaneous medico-legal and other information is given in a special section. The whole volume is excellently illustrated, and, like so many of the books issued by its publishers, it has a first-rate index. We conclude this brief notice by cordially recommending the new volume of *The Medical Annual* to the attention of all practitioners of medicine; they will find it good reading and an excellent investment.

NOTES ON BOOKS.

A GENERAL and popular discussion of the physiology of nutrition is supplied in pre-digested form by Mr. P. G. STILES'S little book on *Nutritional Physiology*.⁴ Prolonged study of the literature of the subject has convinced him of the difficulty of making any dogmatic and uncompromising statement about foods and feeding. Judgement must therefore be held in suspense. But as the reader is presumably acquainted with no more than the elements of physiological science, he has no special knowledge enabling him to balance the *pros* and *cons* bearing on the many debatable questions to which Mr. Stiles refers. Hence perusal of his book is not unlikely to arouse a feeling of insecurity and uncertainty on the one hand, and on the other a feeling of irritation at the inability of the writer to come down on either one side of the fence or the other. To say this, however, is not to criticize the patience and skill with which Mr. Stiles has selected his facts and arguments, nor to deprecate the nice poise of his judicial faculties.

One of the many causes that commonly lead to the writing of a book is the drifting of a square peg into a round hole. In the case of *A Dominic's Log*,⁵ the peg would seem to have been irregular and highly angular rather than square, the hole a berth as teacher in an elementary school under the Scottish Education Department. The book consists of eighteen chapters, in which the fictitious author discusses first and foremost himself, and secondly the rottenness of the society in which we live. Among the few prophets or authorities he can quote with approval are Ibsen, Shaw, and Wells. Apparently he would have us believe that he is a bold and bad young man, bosom friend of an actress in a musical comedy touring company, eager to swindle a railway company by travelling without a ticket on any possible occasion. A terrible fellow indeed! It is to be hoped that he will presently find a more congenial occupation than teaching, and some objects more agreeable to contemplate than his own personality and the sins of modern society.

For those who wish to teach themselves modern Greek the little book by Mr. ANASTASSION⁶ may be recommended. Starting with the alphabet, it takes the learner up to the point where he can travel and shop for himself. A phonetic pronunciation on Thimm's system is used throughout.

³ *The Medical Annual: A Year Book of Treatment and Practitioner's Index.* 1916. Thirty-fourth year. Bristol: J. Wright and Sons, Limited; London: Simpkin, Marshall, Hamilton, Kent, and Co., Limited. 1916. (Demy 8vo, pp. 912; 52 plates, 94 figures. 10s. net.)

⁴ *Nutritional Physiology.* By P. G. Stiles, Instructor in Physiology in Harvard University, etc. Philadelphia and London: W. B. Saunders Co. 1916. (Post 8vo, pp. 288; 23 figures. 6s. net.)

⁵ *A Dominic's Log.* By A. S. Neill, M.A. London: H. Jenkins, Ltd. 1915. (Post 8vo, pp. 219. 2s. 6d. net.)

⁶ *Greek Self-Taught (Modern), with Phonetic Pronunciation (Thimm's System).* By N. Anastassion. Second edition. Marlborough Self-Taught Series. London: E. Marlborough and Co. 1915. (Cr. 8vo, pp. 120. 2s.; cloth, 2s. 6d.)

THE LONDON AND COUNTIES MEDICAL PROTECTION SOCIETY.

THE annual general meeting of the London and Counties Medical Protection Society, Ltd., was held at its offices, 32, Craven Street, Strand, W.C., on May 3rd. Dr. G. OWEN FOWLER, who was in the chair, referred to the loss the society had sustained through the death of Dr. Heron, one of its founders, treasurer and chairman of council down to 1913, and afterwards president. Few except members of the council knew how much work he did for the medical profession both in the society and otherwise. When reviewing the work of the society during the last year, the chairman said that the war had affected the society in two ways. In the first place, young men qualifying during the last eighteen months had immediately joined the army and had not realized the necessity of insuring; and, secondly, a number of members who had joined the army had retired from the society believing that it would no longer be able to help them. While appealing to members who joined the army not to leave the society, the chairman said it had been decided that those who had so resigned to take temporary military duty would be readmitted without the usual entrance fee, or as an alternative would be permitted to continue membership on paying up arrears. While the war had diminished somewhat the amount of litigation the administration of the Insurance Act was a source of frequent discussion between the contracting parties. The tendency of the Commissioners and Insurance Committees to usurp power over medical practitioners needed to be combated by such a society as the London and Counties, which would not be afraid of taking the matter, if necessary, to the House of Lords. The system of fining doctors in substantial sums for alleged faults was never contemplated by the Act, and required close watching. Clause 13 of the agreement should either be struck out or so amended that it could not be used as it was being used at present. The chairman continued as follows:

The idea of that clause is that we, as doctors, agree to reimburse the different local Insurance Committees in sums they may be out of pocket, or any expense they may have to incur, because the medical men were absent and had not left any locum tenens to do the work of the Insurance Committee. I say that is the idea of that clause, whereas the Commissioners are using that clause to inflict fines up to any amount—in one case even to the amount of £50—for something which they considered the doctor had not done which he should have done. I may say that the Insurance Committee that reported this case to the Commissioners themselves disagreed with the amount of the fine, and said it was out of all proportion. It is not generally understood, I think, that the clause does not say doctors may be fined for not doing anything they should have done, directly, but the Commissioners can abstain from paying the Insurance Committee any sum they like in respect of any doctor who they think should be fined, and the Insurance Committee has to get that amount back from the doctor. If something is not done with this Clause 13, I very strongly suggest that no doctor signs that agreement, when the next time comes on, without serious protest as far as that clause is concerned. One of the matters for which fines have been inflicted was for inaccurate certificates, yet in a large number of cases the Commissioners themselves insist on doctors signing untrue certificates. In the certificate of National Insurance, you have to certify that the patient you have examined is incapable of work. But the large majority of the cases you see are not incapable of work. They are unfit for work, or it is not advisable for them to go to work; still, they are perfectly capable of doing so if they will. There are cases in which a doctor has signed certificates, the patient coming every fourth night or so and getting his medicine, but still keeping at work. The doctor had said he was unfit, and when calling upon him for an explanation they said: "You have signed a certificate that the patient was incapable, and yet he did his work; so it is an untrue certificate." This was pointed out to the Commissioners at a meeting in November, 1914, and they promised it should be altered, but it still goes on. They fine a doctor for giving a wrong certificate, and yet they make them do this in 80 out of every 100 certificates. Look how widespread the working of the Insurance Act is becoming; look at the number of patients, young girls who are wishing to "do their bit," but whose parents are perfectly able to keep them, and who have comfortable homes. They are doing all kinds of Government work, and the Government insist that they shall be insured patients, so getting stamp money from them week by week, and taking away the doctor's private patients, giving them back again to him at so much per year. I saw in the paper the other day that a thousand Belgians living at Letchworth have been accepted as members of an approved society, and are now entitled to the ordinary benefits of the Insurance Act. The Act did not suggest that we should

attend all the people who come into the country, but doctors have to treat them at the rate the Government fix, and can any one say that that rate will not be the next hit of the Retrenchment Committee? With regard to fines on panel doctors, the Insurance Commissioners have inflicted a fine on a doctor of £10 for making a wrong diagnosis in a case of consumption. In this connexion the Insurance Committee reports that such fines in the case of panel doctors are generally excessive and disproportionate, and beyond what the justice of the case requires. What limit is there to this system of fines? The safety of the doctor becomes seriously imperilled if it is allowed to continue.

The Chairman went on to protest against the reduction of the notification fees, and criticized the action of the British Medical Association in suggesting that 1s. was an adequate fee in the case of measles. He suggested that the most dignified way for a medical man to deal with cases diagnosed as measles was to say to the parent or guardian, "This is probably a case of measles. Will you take the necessary steps?" and for the doctor himself to have nothing to do with the shilling fee. Dealing with the work of the society, he said that the financial position was stronger. The favourable balance in 1913 was £11,600, in 1914 £13,600, and in 1915 nearly £16,000. Investments had been written down by £974.

Resolutions adopting the report of the council and financial statement, electing Sir John Rose Bradford to be president of the society, and Mr. J. Herbert Parsons to be a member of council, and for the re-election of vice-presidents and members of council, and of the general secretary and financial secretary, were adopted.

INFANTILE MORTALITY AND THE RELATIVE VALUE OF MEASURES FOR ITS PREVENTION.

(Continued from p. 660.)

PRACTICAL VALUE OF MEASURES AGAINST INFANTILE MORTALITY.

IN his third Milroy Lecture before the Royal College of Physicians of London,¹ Dr. S. G. MOORE, M.O.H. Huddersfield, gave an account of the remarkable results in the preservation of infant life achieved at Villiers-le-Duc, a commune of the French Midi, by M. Morel de Villiers, who became mayor in 1884 and followed in the footsteps of his father, who had been mayor for some years before 1866. Dr. Moore gave a translation of a report made to the French Academy of Medicine, which confirmed the astonishing fact that the infant mortality in Villiers had been zero for ten years (1893-1903). The report embodied the text of the communal regulations. The preamble set out that it was the duty of the municipal authorities to endeavour to stop depopulation of the country by taking the measures necessary to prevent birth mortality and stillbirths and to do away with infantile mortality. Consequently the municipal council issued an order containing ten articles. The first provided that—

Every woman with child, whether married or not, having her home in the village, and not in possession of sufficient means to allow her to take upon herself the expense of the measures necessary to secure, as far as possible, not only her own life, but also that of the child about to be born, shall have the right to require the help of the village authority.

The second invites the woman to declare her condition, before the seventh month, at the office of the mayor, and state the midwife by whom she wishes to be attended. The midwife would then be instructed by the mayor to visit the woman and to ascertain that there was neither albuminuria nor dystocia, nor dangerous presentation. The third article provided that if the midwife then considered it necessary to call in a medical man she must at once notify the authority without giving the reason for the notice, and the authority then requests a medical man, chosen by the woman, to take the necessary measures. The fees of the medical man and of the midwife are paid out of a village fund for free medical aid, and do not involve any liability on the State or on the department; a grant of 10d. a day, paid to the woman if she stays in bed for six days, is drawn from the same fund. The fifth article required a woman who

¹ Published at length in the *Lancet* for May 6th.

takes in a child to nurse, if she does not feed it only at the breast, to provide herself with an apparatus to sterilize the milk. She can obtain the apparatus from the municipal authority at a low price, and poor mothers who nurse their own children can obtain the apparatus on loan. All infants placed out to nurse are weighed on the communal baby weighing machine every fortnight, and any illness in any nurse-child, especially diarrhoea, vomiting, or respiratory trouble, must be notified to the municipality within twenty-four hours. If a nurse fails to carry out these requirements her certificate may be withdrawn. The last regulation provided that every nurse bringing up her own child, or a child entrusted to her, whether at the breast or by bottle, who produces the child in good health at the age of one year shall be entitled to a grant of two francs a month, dating from the time when she began to nurse the child. An additional rule made later is that a midwife must call in a doctor if a confinement is not brought to an end within twenty-four hours. From statistics furnished by M. Morel de Villiers, it appeared that from 1804 to 1878 there were forty-three stillbirths, and only two from 1878 to 1903. The report to the Academy concludes as follows: "All the facts clearly impress upon us how necessary and essential it is to have the union, the combined strength of both the officials of the administration and the representatives of the medical profession. Isolated, their efforts, however good their intentions and wishes, will be fruitless and ineffective, but combined their efforts will be all-powerful. However, it is not always so, unfortunately."

In commenting upon the regulations, Dr. Moore enumerated what he considered to be their essential features. The first was that they are orders to the people concerned to do certain things, and not merely recommendations or advice.² The second point on which Dr. Moore laid stress was that every mother with child had the right to adequate assistance in child-bearing and was required to notify her pregnancy. Another point was that the midwives were required to ascertain that the pregnancy was normal; if it was not, they were required to notify the authority, which then paid a doctor chosen by the mother to take measures to bring about a satisfactory delivery. The regulations also provided for continuous supervision and provision for the infant by the authority. Dr. Moore observes that Villiers-le-Duc is a small place, that the life there is that of a simple rural village, that the numbers are small, and that the conditions in large urban communities are different. "When we remember," he continued, "that the infant mortality figure for the children of medical men is 40 in this country, it at once becomes manifest that there are factors in the problem which make it clear that the results at Villiers-le-Duc are not within our reach." Special attention ought, he considered, to be directed to the conclusion that success could only be obtained through the application of the combined strength of the officials of the administration and the representatives of the medical profession. Dr. Moore gave statistics of the progress of the notification of births in Huddersfield, and said that it had been the means of causing many more people to consult the doctor than was the case prior to its inception.

Incompleteness of Present Measures.

Dr. Moore observed that in this country the right of the mother to adequate assistance in childbirth had not been established. The resources of the Poor Law were not truly and willingly accorded as a right, but were yielded grudgingly and under degrading conditions. Neither midwives nor doctors had the duty explicitly laid upon them to ascertain that the pregnancy was normal, or, in the presence of abnormality, to notify the facts. He continued as follows:

² The regulations do not appear to us to bear this construction. As we read them, they lay it down that if a woman desires the help of the village authority she must fulfil the conditions of the several articles. The report was made by M. A. Pinard, Clinical Professor of Obstetrics in Paris, and is to be found in the *Bulletin de l'Académie de Médecine* (Paris, 15th, 1904). The words are "Le Conseil municipal . . . arrête . . . Toute femme . . . pourra demander l'assistance de la Commune." The initiative is with the woman, who is offered certain advantages if she complies with certain conditions. M. Morel de Villiers states that the countrywomen readily accept the conditions, for they understand their usefulness. Villiers-le-Duc is a village in the department of the Côte d'Or, with a population in 1804 of 447, and in 1903 of 230.

When the Huddersfield sanitary authority commenced to work in this field, it was suggested that provision need only be made for visits to the babies born in the poorer districts, but, after consideration, provision was made for visiting every baby born in the borough. The wisdom of this decision soon was justified. The assistant medical officers entrusted with the visitation of the mothers and babies immediately after birth were given a discretion. They were allowed to omit visits if they thought fit. (I may mention incidentally that they were instructed to behave exactly as they would in social life, not to enter a house—any house, however humble—without an invitation, not to seat themselves unless bidden to do so, and so forth.) Embarking on this work, they acted diffidently, as was natural. The result was that I received complaints, not that they had visited unduly or improperly, but asking: "Why was not my baby visited?" "How is it, since a visit was paid by the lady doctor to Mrs. —'s baby, that she did not visit mine?" I think it is plain that assistance in these matters should be tendered to all, without distinction, and where it is declined it should not be pressed. Provided, of course, that there is reason to believe that the mother is really furnished with adequate assistance in her need.

Notification of Pregnancy.

He had recently been able to establish a system for the voluntary notification of pregnancy in Huddersfield, and when a pathological condition was found in the mother she was urged to call in a doctor. With regard to objections to the notification of pregnancy, he said:

I have heard the statement—in fact, it was made by a personage holding "high office"—that the notification of pregnancy is not to be thought of; that it would violate the privacy of family life and interfere with one of the holiest functions of humanity. With all respect, I affirm that only absence of information, nothing but lack of insight, can permit any one to entertain such views. I have heard of objections from the professional point of view. But objection from this source can only be based on misconception. In every case, so far as Huddersfield is concerned at least, every condition calling for medical treatment will be referred to the family doctor.

It may be and probably will be claimed, and it certainly ought to be the case that the claim might be made with strict propriety, that where a woman has engaged the services of a duly qualified medical practitioner, she does not need any further help. I cannot speak to-day with any definite opinion, but some years ago I know that it was not the practice of the family doctor, when engaged for a confinement, to make any systematic precise effort to satisfy himself that his patient was normal, and that none of the conditions which from time to time arise and which are so disastrous in their results are present. If it be the case that things are altered nowadays, and that the family doctor does exercise these precautionary functions, then manifestly his patients are not in need of any further assistance; but if the old-fashioned state of affairs persists—and the death returns appear to indicate that this is in fact the case—then, in my judgement, the medical practitioner may very well welcome such aid as can be rendered by a colleague whose function and duty it is to do so, it always being well understood that every case should be referred for treatment to the medical man of the woman's choice.

In concluding his lecture, Dr. Moore urged that the following things should be done at once:

"Require the universal notification of pregnancy. Secure for every mother adequate provision of the means necessary for a satisfactory termination of her pregnancy. Make provision for and require the supervision of every infant born. Prohibit fraudulent advertisements which destroy infants. Provide proper education."

THE Columbia University has received an anonymous gift of £2,000 to be used for purposes of surgical research.

THROUGH the generosity of Mrs. Almeric Paget, the Miller General Hospital for South-East London in Greenwich Road has been able to extend its massage and electrical departments. Mrs. Paget has provided six masseuses to attend at the hospital daily, and two or more to attend in their own homes patients who, in the opinion of the medical officer, are not fit to go to the hospital. Mrs. Paget is also equipping the hospital with radiant heat baths, high frequency and other electrical appliances, and with gymnastic apparatus.

British Medical Journal.

SATURDAY, MAY 13TH, 1916.

EDUCATION AND THE NEGLECT OF SCIENCE.

THE developments of the war must be bringing home to everybody the importance of theoretical and applied science for the welfare of nations nowadays. What else is it but science that will bring victory to the Allies in the present state of Europe? What else is it but science that has enabled the Central Powers to hold on so long to the initial advantage they gained by going to war prepared? It is theoretical science, using the term in the widest sense, that dictates the means of war, discovers the explosives, devises the special steels used for all small arms, guns, and howitzers, invents and calibrates the range-finders, outlines provisions for the health of the armies engaged, and makes the thousand and one preliminary observations upon which the practical success of armies in the field from day to day depends. It is applied science in all its branches—the work of the chemist, the electrician, the expert mechanic, the metallurgist, the mechanical engineer, the exponent of applied mathematics, the surgeon and the physician, the sanitary officer—to mention but a few out of many scientifically trained experts—that places the possibility of victory on land and sea and sky in our hands. One may say so much without in the least belittling the work of our gallant soldiers in the trenches. It is they who do the fighting and give their lives for King and country. It is they who fill the foreground in the great battle-piece of the present war of German aggression. But behind them in the middle distance stand all the munition workers and operatives of the engineering shops, trained in applied science, working by micrometer and gauge and not by rule of thumb, and owing no small share of their efficiency to the calculated scientific design of the machinery they handle. And in the background of this great picture, above the battle yet in some sort ordering its progress, may be discerned the men of science whose wonderful inventions—the high explosive, the machine gun, the internal-combustion engine, the aeroplane, the airship—have rendered possible the hell-on-earth in which our armies are weltering. Granted that the position is ethically deplorable—that increase of knowledge should be applied to the increase of destruction of human life and the products of human labour—yet it is only a part of the abomination of war for which there is in ethics no defence, save to the followers of Bernhardt. But even so there are in this same background of the picture those other men of science, above the battle but in some sort ordering its progress, who by the knowledge they win through the applied science called research enable the soldier to protect himself against disease, to preserve himself to fight for his cause, and to make sure that if he must give up life and health it shall be owing to the acts of the enemy and after doing his part to win the final victory.

Quite apart from their importance in the conduct of war, theoretical and applied science are indispensable for the progress of the arts of peace, commerce.

and industry. Medical men who have found their supplies of drugs made in Germany cut off will be the first to realize the practical bearing of this fact. To workers in every department of science which has any bearing on practical affairs—and which science has not?—this has long been a platitude; there is now reason to hope that the truth is gaining general recognition and acceptance. Once it is recognized, the importance of giving an elementary training in science to all persons who are receiving any formal education at all will be accepted as a necessary corollary. We shall not then find members of the Government stating in good faith, and unchallenged, that it has recently been discovered that glycerin can be prepared from fatty substances, a fact proved by the great chemist Scheele as long ago as the year 1779, and familiar to every soapmaker since.

Most valuable work in bringing forward the claim of science to occupy a prominent place in all schemes of general education is now being done by "The Committee on Neglect of Science," a voluntary committee of scientific men who have the best interests of our empire at heart. Reference was made to its activities in the *BRITISH MEDICAL JOURNAL* of February 5th last (page 209). On May 3rd this committee held a meeting in Burlington House at which four resolutions aiming at the advancement of the teaching of elementary science were put forward. These resolutions were temperately worded, and may be taken to stand for the minimum demands to be made on our Government and educational authorities. They may be summarized as follows: The first resolution laid down the generalization that it is a matter of national urgency that the natural sciences should be made an integral part of the educational course in all the great schools of this country, and should form part of the entrance examination of the universities of Oxford and Cambridge, as well as of the newer universities.

The second and third resolutions really contain the gist of the whole matter and touch the vital spot. They affirmed that it is in the highest degree desirable that the Government should exercise the large power it possesses of encouraging the study of the natural sciences and thereby increasing the efficiency of our public servants, first by assigning capital importance to the natural sciences in the competitive examinations for the Home and Indian Civil Service, and secondly by requiring some knowledge of the natural sciences from all candidates for admission to Sandhurst. Remembering the large part played by scientific appliances and scientific methods in modern warfare, it is astonishing that this last request should still have to be made. As the matter is urgent and time is required to develop action, it should be at once taken in hand by the Government. The important point here is this, that the lead must come from above. The public schools cannot fairly be asked to strike out a line of their own and set the ball in motion by pushing the teaching of science; they have to teach the subjects asked for by the universities, the army, and the public services, where natural science is at a discount. In the same way the universities cannot be urged to strike the first blow for science; they have to consider the schedules of the chief examinations that university men have to face outside their universities, and here natural science goes for so little as to be worth almost nothing. The cure for this vicious state of affairs lies in the hands of His Majesty's Government and nowhere else; and so the fourth resolution very rightly instructed the committee to take such steps as it might consider appropriate to bring these views to the notice of the Government.

We wish the movement a full measure of success. The time is ripe, and more than ripe, for the reconsideration of the schedules of the civil service and other important public examinations. The object of such examinations is to detect and encourage ability in the candidates. Ability has been defined as the power to deal successfully with an unknown problem; an able man has been described as a person who does more than is expected of him. As Dr. Alexander Scott pointed out in his recent presidential address to the members of the Chemical Society, in the civil service examinations at the present time everything of a nature to test a man's ability to tackle an unknown problem, however simple its nature, is carefully excluded by cautiously worded syllabuses, which detail the range of the facts and the nature of the tests which may be applied. We are far from underestimating the difficulties that lie before those who have to make the public realize the importance of natural science and research as instruments of education, as well as of progress among the comity of nations in the world of to-day. But Dr. Scott's criticism of elaborate examination schedules is undeniably sound, and as well worthy of consideration as it must be familiar to our educational authorities. We bring it forward here because it bears upon the main endeavour of the Committee on Neglect of Science, which is to get the Government to help on the teaching of natural science by beginning to work, like charity, at home. The universities must follow the Government; they cannot, we fear, lead the way. The public schools must follow the universities.

THE HOUSING OF A VIRILE RACE.

DR. WALDO, who is coroner for Southwark as well as for the City of London, was, before he held his present offices, medical officer of health for the former borough. One of his last acts in that capacity was to present to the then (1900) newly-constituted borough council a report in which he urged the demolition by the London County Council, under the provisions of the Housing of the Working Classes Act, of certain houses and streets in the Tabard Street area of Southwark, on the ground that they were unfit for human habitation. As long ago as 1889 he had reported on a serious outbreak of typhus fever which originated in Tabard Street and spread to other parts of Bermondsey and Newington. It does not appear that any effective action has been taken either by the borough council, the London County Council, or the Local Government Board. As coroner he has held two inquests recently in each of which the jury appended a rider to its verdict expressing the opinion that the houses in which the deceased persons had lived were in an insanitary condition and totally unfit for human habitation. The coroner, in addressing the jury, said that the rooms condemned were small and unwholesome, and he thought it incomprehensible that the London County Council permitted such hovels—not fit for a dog or a donkey—to be relet. In one of the cases (that of a woman aged 53) the Poor Law medical officer who attended her had stated in evidence that it was necessary to hold up an umbrella in all parts of the room except the corner in which he found the woman lying dead. The rain had flooded the floor, and what remained of the wall-paper was lying in strips owing to the damp. In another case—a boy named Albert Martin, aged 9—death took place in a garret 8 ft. square and 6 ft. 6 in. high. In it the boy, the boy's mother, and three other children had lived. As these statements were

made in open court by an officer of the Crown, they must, we presume, be accepted as correct, and they do not seem to have been denied by the authorities, although each shows itself concerned to shift the responsibility. The excuse of the London County Council is that the premises are not in its possession, and that the control of insanitary property is primarily vested in the local health authority—the borough council; but the borough council denies this, and the President of the Local Government Board stated in the House of Commons the other day that he had recently made an Order empowering the London County Council to proceed forthwith with the demolition of the worst houses in the area.

As so often happens, there seems to be difficulty in fixing responsibility for the delay in removing this plague spot, but the fact that such conditions should have been allowed to persist for a quarter of a century within sight of the palace of Westminster, where laws are made, and of Whitehall, where the administration of these laws is controlled, more than justifies the grave reproaches addressed to us by the Prime Minister of Australia within the last few months. In the speech he delivered after receiving, just across the river from Southwark, the freedom of the city of London on April 18th, he said that if we are to keep this empire as a heritage for the British race "we must create conditions under which the population of both these islands and the Dominions will rapidly increase and multiply. And as mere numbers avail nothing, we must create an environment which will breed a virile and resourceful people. Wealth will not save us, if our crop of such men fail. Lacking men, Rome and the mighty empires of the ancients fell, and the dust of ages covers their proud monuments. The defence of our empire rests ultimately upon the basis of a national policy in Britain herself, as well as in the Dominions overseas, that will organize and develop our tremendous resources, that will promote the welfare of the agricultural and manufacturing industries, and ensure to the great masses of the people those opportunities of employment, those conditions and remuneration of labour, and that standard of comfort which are the just heritage of a civilized people, and lacking which the British race will dwindle and degenerate, and our mighty empire crumble to decay. We must see to it, therefore, that from one end of this great empire to the other the gates of opportunity shall be slammed in no man's face. There must be a chance for every one."

What sort of chance would the boy Albert Martin have had living in a room 8 ft. square with his mother and his three brothers and sisters? What sort of ventilation was there in the room at night? What sort of place had he to play in by day, so that he might have the exercise every child instinctively desires? How much money was left to buy food for the five people after paying the rent of the 8 ft. square room? What sort of chance are the three other children having to-day? What sort of chance are the other family parties in the Tabard Street area having to make their contribution to "a virile and resourceful people"?

It is this kind of thing which is making a great many people ask themselves whether much of the public health legislation of the last decade has not been mere tinkering. How much is really to be expected from infant and mothers' welfare centres, tuberculosis clinics, and other legislative and administrative schemes, however well meant, when parents and children have to return to 8 ft. square rooms with no ventilation to speak of, but with leaking roofs?

There is clear evidence that such schemes when well administered are capable of doing good, and Dr. Moore in his recent Milroy lectures—an abstract of which has been published in our issues of last week and this week—shows that attention wisely directed to the care of the mother during pregnancy and at childbirth, and of the infant during the first year of life, is capable of achieving quite remarkable results in favourable circumstances. But is it reasonable to expect that such measures will produce much effect where the home conditions are so bad as in the condemned area in Southwark?

The whole history of housing legislation in this country is a monument of legislative ineptitude and administrative failure. In 1890 an attempt was made to consolidate in the Housing of the Working Classes Act some seventeen statutes enacted at various times to provide or improve dwellings for the working classes. At once the weary task of amending it had to be begun, and other Acts were passed in 1894, in 1900, in 1903, and in 1909, but in spite of all we have the Tabard Street area and a good many other areas not much better in London and other towns.

THE STANDARD OF VISION IN THE ARMY.

THERE has been considerable uncertainty as to the exact standard of vision demanded by the War Office for soldiers. This uncertainty has led to many men being rejected who are suitable for some form of service, and to many being passed into the army with visual defects which render them useless on active service. Men who have seen service in the trenches have, after their return home, been found to have such poor vision that they were not only valueless as fighting men, but actually a source of danger to their comrades. As examples we may cite cases of advanced congenital familial night blindness, congenital nystagmus, myopia of over 10 dioptries, and hypermetropia of 8 dioptries. On the other hand, we know of the case of a man who had $\frac{3}{8}$ vision in his right eye but a blind left eye who was rejected repeatedly for the R.A.M.C., although in civil life he was an efficient high railway official; and of a medical man who was recently rejected because he had slight myopia perfectly corrected by glasses. Every ophthalmic surgeon is aware of these facts. The visual standards seem apt to vary with the examiner. Probably little attention has been given to the very important question of the illumination of the types. Poor lighting may reduce the acuity very considerably, and a candidate with, say, $\frac{1}{8}$ vision might easily be rejected by an examiner who had no adequate arrangements for illuminating his types. In the presence of such confusion it may be useful to summarize the regulations in force at the present time. They are as follows: (a) If a recruit has an acuity of $\frac{1}{2}$, or better, with each eye without glasses, he is to be considered "fit"; (b) if his acuity is $\frac{3}{8}$ with the right eye and not less than $\frac{1}{8}$ with the left eye without glasses, he is "fit"; (c) if he can see $\frac{1}{2}$ with the left eye and not less than $\frac{3}{8}$ with the right eye, he is "fit" for the A.S.C., the R.A.M.C., the A.O.C., and drivers of the R.A. and R.E. These regulations apply to general service in the field. A later regulation says that: A man is fit for garrison service at home or abroad if he can see well enough to shoot with the aid of glasses. This regulation is ambiguous, for it does not state the acuity necessary for shooting. We presume, however, that if $\frac{1}{2}$ is enough for active service without glasses, $\frac{1}{2}$ with glasses will be sufficient for garrison duty. We would, however, again impress upon those who examine recruits that it is absolutely essential that the test types be well illuminated and placed at six metres (20 ft.) from the candidate. If the room be too small, a set of types graduated for five metres should be employed.

THE NOTIFICATION OF INFECTIOUS DISEASES AND TUBERCULOSIS.

THE annual report on public health and medical subjects, furnished by its medical officer to the Local Government Board, presents, for the fifth year in succession, full statistics of the incidence of notifiable infectious diseases in each sanitary district in England and Wales. These tables, prepared under the supervision of Dr. Arthur Newsholme, not only supply information with regard to numbers, but enable the reader to trace the actual local incidence of any of the scheduled diseases, and to ascertain the rate of such incidence per 1,000 of the population. The occurrence of local outbreaks or the relative immunity of any one town or district during the year can thus be discovered and examined with equal ease. Thus, in the case of cerebro-spinal fever, which would appear to have been very much more frequent during the last twelve months, it may be noted that whereas the larger proportion of the cases could be located in only nine districts, still the general incidence of the disease was very widespread. Acute poliomyelitis, on the other hand, showed no increase, although the cases were, in like manner, very widely distributed. Of these two diseases, it is interesting to note that cerebro-spinal fever appeared much more frequently during the months of March and April than at any other time, while poliomyelitis occurred far more often during the autumnal months. The incidence of pulmonary and other forms of tuberculosis would appear from the published figures to have diminished progressively during the last few years, but it is pointed out that there may have been a good deal of duplication, so that the true value of the figures given is uncertain. It is obvious that the freedom from tuberculous disease of any town or district cannot be accurately gauged from the number of cases notified in any one year. It is by no means unlikely to happen that in one year there may be hardly any new cases to record, while a considerable number of previously notified cases are still resident in the locality, their disease steadily increasing and with it the danger of infection, slight as it is, to those who may be associated with them. The presence or absence of acute infectious diseases may be fairly estimated from notification statistics, but such statistics may be wholly misleading in the case of tuberculosis.

THE VOLUNTARY RESTRICTION OF BIRTHS.

IN the Lower House of Convocation at York last week an interim report of the Committee on Moral Corruption and Social Life was discussed. It dealt with the decline of the birth-rate, and suggested the appointment of a Government Commission. Canon Lambert of Hull alleged that the clergy did not sufficiently recognize that this was not simply a social question for the State, but had a moral and spiritual side with which the clergy were at much more liberty to deal. This home thrust was countered by Canon Rountree of Manchester, who made an attack upon medical men. "I cannot help feeling," he said, "that not only do they not use their influence in correction of the evil, but that very often they are offenders in the matter of encouraging artificial restriction." The Dean of Carlisle characterized this as a very serious charge, and asked Canon Rountree for facts. The medical profession, the Dean said, had always exercised enormous influence, and if it were believed in the country they were encouraging these practices it would be a terrible thing. Canon Rountree does not appear to have attempted to produce any facts, and, so far as we know, he will have difficulty in finding them. We are quite aware that there are a certain number of members of the medical profession who have been bitten with the notion that over-population is the root of most of our social evils, and that they have formed a society which has been in existence for a good many years without commanding any appreciable measure of professional support. It is, of course, possible that Canon

Rountree has come across some member of this medical sect, but if this be the only ground for his charge then he is committing the very common, but none the less very pernicious, fallacy of arguing from the particular to the general.

SUPPRESSION OF QUACKERY BY THE GERMAN ARMY.

It appears that in Germany the quack has attracted the unsympathetic attention of the military authorities. Indeed, if the measures directed against him are as effective in practice as they appear on paper, there is every prospect of his being dragooned out of existence by the provident Prussian. In some military districts unqualified practitioners are totally prohibited from advertising, and they are forbidden to print "puffs" of methods of treatment, apparatus, and tonic and prophylactic remedies. In other military districts the unqualified practitioner is no longer allowed to treat venereal disease, nor to advertise as a specialist in diseases of the skin and abdomen, under which heading he has in the past caught many a patient suffering from venereal disease. The advertisements of abortifacients and conceptional preventives, thinly veiled under such headings as "Discreet advice," "Advice for women," etc., have also been suppressed. Even the anti-vaccinationist has not eluded the "verboten" list, for the publication and distribution of treatises, handbills, and other vehicles of agitation against prophylactic inoculations in the army are forbidden. We have already referred to Hindenburg's drastic regulations against venereal disease. So far no uniform system has been adopted throughout Germany, and each military area seems to have independent regulations. Indeed, in some commands no active measures have been adopted. But on the whole the suppression of quackery by the military authorities during the war seems to have proved very effective, and the hope is expressed¹ that the prohibition of quackery, which has proved so successful in war time, will be continued in a modified form after the war.

ELECTRICAL METHODS IN SURGERY.

In a lecture at the Royal Institution on May 5th Sir James Mackenzie Davidson contrived to bring within an hour's survey the various respects in which electrical science is proving to be the handmaid of war surgery. Chief among the electrical methods, of course, was that of *x* rays, and the lecturer showed very skillfully, by means of experiment, at once the value of the skiagraph and its possible fallacies. He exhibited two *x*-ray pictures of exactly the same subject, but taken with the tube in slightly different positions, with the result that in one case a bullet appeared to be lodged in the right lung, and in the other in the left. The single *x*-ray photograph, he said, however realistic it might appear, was not like an ordinary photograph, from which the relative positions of objects could be inferred with some accuracy; it was a shadow-picture, and therefore might be very misleading. To obviate the fallacies, he recommended the stereoscopic method, which, however, was still inadequate for exact localization, which required some system based on precise measurements, such as the cross-thread method. The lecturer also showed that electrical means were available, not only to ascertain the position of the bullet in the body, but to guide its extraction. Of these methods he instanced the telephone attachment, by means of which a click or rattle was communicated to the receiver whenever the surgical instrument touched the foreign body—the telephone forceps, with *x*-ray screen in combination, and also the Bergonié electro-magnet. He concluded with a tribute to that shadow army—from ambulance worker to surgeon-general—who followed the movements of the combatants with the same precision and

assiduity as the shadow, in some experiments he had been showing his audience, had followed every change in the position of the lamp.

APPARENT DEATH AND PREMATURE BURIAL IN INFANTS.

From time to time ghoulish novelists and writers of short stories make the flesh of their readers creep by describing premature burials. Even musicians have attempted to do the same thing in another medium, as a well-known prelude by Rachmaninoff gives witness. Professor Baculo of Naples, after describing¹ one of the not uncommon cases in which an infant, after apparent death, comes to life again for a longer or shorter period, gives details of an apparatus he has devised to prevent the possibility of burial during life. His patient, a child 2 months old, with diffuse bronchiolitis, to all appearances died suddenly after the administration of several litres of oxygen to counteract the asphyxial attacks from which it suffered. Respiration and the action of the heart both stopped; but half an hour later rhythmical movements of the jaw, lips, and alae nasi were observed. The heart began to beat again, slowly at first, and respiration began once more, jerky at first, presently of the Cheyne-Stokes type. Consciousness was recovered and the infant took the bottle again, but four hours later died in an attack of asphyxia. This time death was real and not merely apparent. Professor Baculo goes on to a general discussion of the phenomenon of apparent death in infants. Death, he says, is a process, not a sudden event, and is indistinguishable at first from a merely temporary suspension of life. This is particularly true of the sudden deaths of infants, attributed in various cases to such causes as hypertrophy of the thymus, enlarged mediastinal glands, disease of the parathyroids, acute diseases of the lungs or stomach or nervous system, foreign bodies in the air passages, congenital defects of the heart or brain, fits, and diseases of the kidneys, suprarenal glands, or skin. He describes a number of the physical signs or tests that have been proposed to distinguish between true and apparent death. Bouchut, for example, remarked that after death the retinal arteries empty, the fundus oculi turns leaden grey, and, most certain sign of all, the optic disc becomes invisible. Icard advised the subcutaneous injection of fluorescein solution twenty minutes, and again twenty hours, after apparent death; when, if the patient still lives, the conjunctiva turns yellow and the skin turns green. To wait for such certain signs of death as decomposition of the tissues and the formation of bullae on the skin is not always convenient; nor is the employment of mortuary chapels in which the body rests for at least twenty hours before burial. Professor Baculo observes that after death the lungs are in a state of forced expiration. His apparatus for the detection of apparent death and the prevention of the premature burial of infants is quite simple. It consists of a cradle in which the body is laid for twenty-four hours after apparent death; a lever is pivoted on one side of this, with a vertical arm descending to rest on the ensiform cartilage at one end, while the other end of the lever is arranged to make an electrical contact and ring a bell should it move downwards. If the infant is alive it will presently breathe, and if it breathes, the sternum will rise with inspiration and cause the bell to be rung. Professor Baculo argues that some such apparatus should always be available in public institutions for children.

ILLUMINATION PROBLEMS.

THE present time, when so much attention is being devoted to the promotion of scientific and industrial research, has seemed to the Illuminating Engineering Society opportune for resuming the work of its Special Committee on Research which, under the chairmanship of

¹ *Therap. Monatshefte*, January, 1916. (Reported in *Norsk Magazin for Lægevidenskaben*, April, 1916.)

¹ *Giorn. Internaz. d. Sci. med.*, Naples, 1915, xxxvii, 525.

Professor Silvanus Thompson, was appointed just before the outbreak of war, and at the meeting of the society on May 9th it presented an interim report which was mainly concerned with a survey of the many problems which await attention. Priority is to be given to investigations relating to the development of lamps and lighting appliances. The subject of glare is also to be studied together with the limits of permissible intrinsic brilliancy, on which a suggestive report has been issued by a similar committee in the United States. The British committee is also setting itself to deal with the comparative effect on vision of natural and artificial illumination and of various systems of artificial lighting from the point of view of fatigue. An important matter, often discussed but never authoritatively settled, is the standardization of the so-called artificial daylight—that is, the various forms of artificial light used in conjunction with special devices to imitate the colour of natural light. An attempt is now to be made to arrange the chief artificial illuminants in the order of their resemblance to daylight. At present there is no universally accepted standard of white light, nor any generally accepted standard white surface. It is thought that street lighting after the war will be a good field for effort, particularly as regards more scientific treatment in the shading of lamps and the distribution of light. The conception of a minimum illumination desirable in the interests of safety is to be encouraged. Among some general suggestions for work which is to occupy the committee is the lighting of hospital wards, which at present is often unsatisfactory. There is also room for investigation in the lighting of operating tables. The subject has also to be studied in connexion with field hospitals using portable lamps. The committee, which includes one medical member, Dr. James Kerr, is certainly to be congratulated upon the comprehensiveness of its programme.

A MEETING was held at the Royal Army Medical College, Grosvenor Road, S.W., on May 10th, to consider the advisability of establishing benevolent societies for the benefit of the widows and orphans of officers, non-commissioned officers, and men of the Royal Army Medical Corps of the Special Reserve the Territorial Force and the new armies. After some preliminary discussion, it was resolved to adjourn until some date next month, which will be duly announced, when it is hoped that a considerable number of officers of each branch may attend and give expression to their views.

Medical Notes in Parliament.

Compulsory Service.

THE bill "to make further provision with respect to military service during the present war," the Committee stage of which was begun in the House of Commons on May 9th, contains fourteen clauses. The first extends and continues the operations of the Military Service Act, 1916. It provides that every male British subject who has at any time since August 14th, 1915, or for the time being is, ordinarily resident in Great Britain, and who has attained the age of 18 and has not attained the age of 41 years, shall be deemed as from the appointed date to be duly enlisted in His Majesty's Regular Forces for general service with the colours, or in the reserve for the period of the war, and to have been forthwith transferred to the reserve. The clause does not apply to a man who has attained the age of 41 before the appointed date. Nor does it apply to men who come within the exceptions set out in the first schedule to the Military Service Act, 1916, as maintained by the bill. The exceptions include men ordinarily resident in the Dominions or resident in Great Britain for the purpose of education or some other special purpose; men in holy orders or regular ministers of any religious denomination; men who have been discharged from the naval and military services in consequence of disablement

or ill health. The second clause extends the period of service in the Territorial and Reserve Forces for the duration of the war. Clause 3 provides that a man who has offered himself for enlistment and been rejected since August 14th, 1915, may be called upon unless the Army Council is satisfied that he need not again present himself for medical examination and sends him notice to that effect. Clause 4 deals with certificates of exemption, and provides *inter alia* that a certificate of exemption may be granted subject to the condition that it shall not be renewable except on application made with the leave of the tribunal. Clause 5 amends Section 3(3) of the principal Act, by providing that a man who has not obtained a renewal of his certificate shall be deemed to have been enlisted and transferred to the reserve within two weeks instead of two months after the expiration of the certificate. Clause 6 deals with proof of offences in connexion with deserters and absentees. Clause 7 with the production of certificates of exemption, and Clause 8 with the issue of notices. Clauses 9, 10, 11, 12, 13 and 14, are as follows:

9. *Transfer to Reserve under Special Circumstances.*—The Army Council may make arrangements, to take effect during the continuance of the present war, for the transfer to the Reserve of any member of the regular forces, or for the temporary demobilization of any member of the Territorial Force, notwithstanding anything in any Act or in the terms of his enlistment, in cases where the transfer or demobilization appears expedient in the general interests of the country and the Army Council are satisfied that it can be effected under conditions which will render the man transferred or demobilized immediately available for service in the case of military necessity.

10. *Amendment of the Army (Transfers) Act, 1915.*—The first proviso to Section 1 of the Army (Transfers) Act, 1915 (which provides for the maintenance of the rate of pay of a soldier transferred to a corps not of the same arm or branch of the service as the corps in which he was serving), shall not have effect except in cases in which the Army Council direct that that proviso shall apply.

11. *Transfer of Officers and Men of the Territorial Force.*—(1) During the present war, notwithstanding anything in Section 7 of the Territorial and Reserve Forces Act, 1907, the orders and regulations for the government and discipline of the Territorial Force made under that section—

(a) May authorize a man of the Territorial Force when belonging to one corps to be transferred without his consent to another corps, and may authorize a man of the Territorial Force to be posted without his consent to a battalion or other body of the regular forces included in the corps to which he belongs or is transferred; and

(b) In the case of an officer or man in the Territorial Force who is liable to service outside the United Kingdom may, for the purposes of such service and notwithstanding anything in any instrument defining the conditions of such service, authorize the drafting of any such officer or man to any unit of the Territorial Force within the corps to which he belongs or to which he may be transferred;

and those orders and regulations may also provide for the maintenance of the rate of pay of a man who is transferred without his consent to a different arm or branch of the service in cases in which it appears desirable to the Army Council that the rate of pay should be so maintained.

(2) This section shall affect officers or men of the Territorial Force notwithstanding that they were commissioned, enlisted, or re-engaged before the date of any order or regulation under this section.

12. *Power to Form Corps for More than One County.*—During the continuance of the present war Section 9 of the Territorial and Reserve Forces Act, 1907, shall be construed as authorizing corps to be formed for more than one county.

13. *Provision as to Liability of Territorials to Serve Outside the United Kingdom.*—Where an officer or man of the Territorial Force has, before or after the passing of this Act, accepted liability to serve in any place out of the United Kingdom, that liability shall continue, notwithstanding anything in the conditions of service, during the continuance of the present war, unless the competent military authority as defined for the purposes of Part II of the Army Act otherwise direct.

14. *Short Title.*—This Act may be cited as the Military Service Act, 1916 (Session 2), and the principal Act and this Act may be cited together as the Military Service Acts, 1916, and the Territorial and Reserve Forces Act, 1907, and this Act (so far as they relate to the Territorial Force) may be cited together as the Territorial Force Acts, 1907 and 1916.

The House has not made much progress with the bill; a discussion on the exclusion of Ireland occupied much time. Subsequently a number of amendments to the words in the first clause as to age were proposed. The first proposed to substitute for the specified ages (18 to 41) the expression "military age" and to leave the term military age to be defined from time to time by the King in Council. This was negatived without a division, and an amendment to lower the age to 17 in place of 18 was defeated by 213 to 52. An amendment to exempt a youth

who, being under the age of 19, has been certified by the War Office to be undergoing sufficient training for the purpose of becoming an officer in His Majesty's army, was withdrawn after Mr. Long had agreed that if necessary words should be added to the bill to meet the point. An amendment to provide that no man should be sent to serve abroad until he reached the age of 19 was rejected on a division by 134 to 46, after Mr. Long had recalled the assurance given on behalf of the Government that it was not the policy of the War Office to send men of this age abroad.

In a written reply, on May 9th, to a question by Mr. Perkins, Mr. Tennant said that Territorial officers and men of military age now serving at home who had not undertaken the imperial service obligation would come under the provisions of the bill.

War.

Soldier's Heart.—On May 4th Mr. J. M. Henderson asked whether a very large number of men of the Expeditionary Force were in hospitals suffering from what was called trench heart, but which was the result of excessive cigarette and tobacco smoking; and, whether, seeing that the number of cases was increasing, the matter would be inquired into with a view of remedying the evil. Mr. Tennant replied that a certain number of cases of disordered action of the heart, or so-called soldier's heart, were being investigated in a hospital specially set aside for the purpose. There was no evidence that the number of cases was increasing at present. By some observers this condition was attributed to excessive cigarette and tobacco smoking, and this was being looked into by skilled experts.

British Prisoners in Germany.—On May 8th Lord Robert Cecil said that the question of the separate publication of reports made by officers in the Royal Army Medical Corps who had returned from Germany would be considered. He agreed that the reports of men who had actually lived in the camps must be more reliable and important than those of a casual visitor. The Government Committee had been set up on purpose to consider all such reports and get a true account of the condition of the prisoners.

Medical Examination of Soldiers and Recruits.—In reply to Mr. Ashley, who asked whether all men were medically examined at the time they joined the second-line Territorial units to ascertain if they were fit for military service, Mr. Tennant said that all men were medically examined on enlistment, and also as soon as possible after joining their units. Supplementary questions showed that there was a belief that a large number of men quite unfit for military service were retained in the second-line units, and Mr. Tennant undertook to have another medical examination made if he was furnished with particulars of cases. In reply to Mr. Hogge, on May 8th, Mr. Tennant said that under the new bill it was not proposed to re-examine men who rightfully held a recognized certificate which showed that they were not fit for any form of military service. He could not say that Army Form B 2505 A would in all cases be accepted, because it was conceivable that a man might be fit for some form of military service, but not fit for general service.

Continued Treatment after Discharge from Hospital.—Major Hamilton has asked whether men found medically unfit after return from the front could be posted to the Army Reserve, or, in the case of Territorial units, demobilized, so that they could return to their home comforts for a few months while receiving massage or other medical attention by attending daily the nearest military hospital. Mr. Tennant, in a written answer, stated that from a medical point of view the proposal was not advisable. The men were much more likely to get fit to return to duty if, on discharge from hospital, they were treated in command dépôts, where they had the advantage of medical treatment and graduated exercises under proper control.

Army Dispensers.—In reply to Mr. Tyson Wilson, who asked a question as to the number of qualified chemists in the army whose services were not being used to the best advantage, Mr. Tennant said on May 3rd that all medical units at home and abroad were fully supplied with dispensers. He added that if any qualified chemists serving in combatant units made application to be transferred to the R.A.M.C., the case of each applicant would be considered as vacancies for employment arose.

Vaccination.—In reply to a question by Mr. Snowden as to men who had been refused leave because they objected to vaccination, and as to whether this "violation of the rights of the men" would be stopped, Mr. Tennant said that no officer or man had any right to leave. Leave was given to those whom the commanding officer considered deserved it. If a man refused to be vaccinated, which he was within his right in

doing, it was within the discretion of the commanding officer to grant or withhold the privilege of leave.

Insanitary Dwellings.—On May 3rd Mr. W. Thorne asked the President of the Local Government Board (1) whether he was aware of the verdict of the jury at the Southwark Coroner's Court, at an inquest held on April 4th on Margaret Young, aged 53, who was living in the Tabard Street condemned insanitary area; if he was aware that the jury stated that in their opinion the house in which the deceased woman lived and died was in an insanitary condition and totally unfit for human habitation; if he would urge upon the responsible sanitary authority or authorities, without further delay, to take steps to close the premises in question; and (2) if his attention had been called to the inquest on Albert Martin, aged 9 years, at the Southwark Coroner's Court on April 11th, 1916, in which Dr. Spilsbury and the local medical practitioners stated that the infectious fever and lung disease which caused the boy's death was more than likely to spread if it got a footing in an overcrowded district such as the condemned Tabard Street area; if he was aware that the rooms condemned—small ones—were barely furnished and farmed out singly at a rental of 6s. per week; that the coroner stated that it entirely failed his comprehension how such hovels, not fit for a dog or a donkey, came to be re-let; and if he intended taking any action in the matter. Mr. Hayes Fisher, who answered, said that the coroner had supplied particulars to the President of the Local Government Board, who was in communication with the London County Council on the subject. It was the duty of every local authority, under Section 17 of the Housing, Town Planning, etc., Act, 1909, to make a closing order in respect of any dwelling house which was in a state so dangerous or injurious to health as to be unfit for human habitation, and the President had no doubt that steps which might be necessary in this direction would be put in hand by one or other of the local authorities concerned. A copy of the question and of the reply was being sent to the local authorities—namely, the Southwark Borough Council and the London County Council; but as, in the event of closing orders being made, there was an appeal to the Local Government Board, its President could not do more than this.

Royal Commission on Venereal Diseases.—On May 3rd the Prime Minister repeated the information given to the deputation from the National Council for Combating Venereal Diseases by the President of the Local Government Board to the effect that 75 per cent. of the cost of carrying out the recommendations of the Royal Commission as to diagnosis and treatment should be defrayed by a grant from the Exchequer. Mr. Asquith added that he could not at the moment promise legislation on the other recommendations of the Commissioners, some of which raised very controversial questions, but the whole matter was receiving the earnest attention of the President of the Local Government Board.

"Summer Time."—The resolution in favour of an alteration of clock time during the summer months was adopted on May 8th by an almost unanimous vote—Ayes 170, Noes 2. The resolution is: "That, in view especially of the economy in fuel and its transport that would be effected by shortening the hours of artificial lighting, this House would welcome a measure for the advancement of clock time by one hour during the summer months of this year." The Home Secretary said that, though the change could have been brought about by an Order in Council, since it was a war measure, it was thought desirable to ask the House to adopt a bill to make the change for the period of the war. The bill, entitled a bill "to provide for the local time in Great Britain and Ireland being in advance of Greenwich and Dublin mean time respectively during the summer months," was introduced on May 9th.

THE New York Medical Record states that operations for sterilization were performed recently on ten male inmates of the Wisconsin State Home for the Feeble-minded, Chippewa Falls. Their ages ranged from 15 to 30 years. These are the first operations of the kind done under the new Wisconsin law.

THE WAR.

MEDICAL ARRANGEMENTS OF THE BRITISH EXPEDITIONARY FORCE.

(From a Special Correspondent in Northern France.)

TROPICAL DISEASES.

THE great bulk of natives of India disappeared from France shortly before the publication of the King's farewell message to the Indian troops. They were never really as numerous as people thought. It was their dress that made them seemingly ubiquitous. It attracted attention to them wherever they went. No doubt was ever felt as to their fighting qualities, but there was a good deal of surmise in medical quarters as to how their new environment would affect them; also, when the first cold wet weather after their arrival began, there was among the general public a disposition to commiserate as well as admire them. It was assumed that they must be suffering much more than other troops.

As a matter of fact, a great many of the men who aroused these feelings were born and bred in hill districts of Upper India, where the winters are quite as cold and wet as even was the weather of 1914-15 over here. But of such saving clauses the sentimental soul takes no count. He thinks of a man of colour as of one to whom anything but warmth and sunshine must be both strange and unbearable. It must be admitted, too, that for ideas of this order a casual visitor to the Indian hospitals was likely to find some support on a cursory glance at the bed boards, but, according to I.M.S. officers of long experience, they were quite mistaken.

The troops from certain parts of India suffered very considerably from illnesses of a domestic order, such as mumps, but the total amount of sickness was held to be not at all greater than it would have been among the same troops had they been campaigning in India, and the mortality from disorders commonly associated with cold and wet was quite moderate. It was also pointed out that the chief wastage from disease was among men of the camp follower class and in certain regiments that had been brought up to full strength somewhat hurriedly. The more representative fighting troops of India had resisted the climatic conditions of Europe with great success.

Some I.M.S. officers, in fact, went so far as to prophesy that when percentage returns for all troops alike became available, it would be found that the figures for native regiments were better than those for the British troops which had formed part of the Indian contingent. The native troops, it was said, had, relatively speaking, been better clothed and better fed.

Be all this as it may, there was one account on which the departure of the native troops diminished anxieties. It lessened the probability of the outbreak of any disease of tropical origin among the troops as a whole. It did not end it, for there is always the chance of tropical disease being imported by white troops moved back from the East; as also the possibility of certain epizootic diseases communicable to man being introduced in packing cases and returned stores.

Meanwhile it is highly satisfactory to be able to say that so far the British forces as a whole have been practically free from any of the diseases commonly regarded as tropical in their origin. Considering that the anopheles mosquito is to be found in Flanders, and that there were sources from which it might become infected, it would not have been remarkable if there had been a good deal of malarial fever. But this was not the case. A definite diagnosis of malarial fever in men who had not lived in the tropics or subtropics was established in quite a small number of cases, and they were all of a benign type.

There were also reported from time to time a certain number of cases which were written down as dysentery, but clinically they appear to have been of a very mild type, and according to a pathologist who investigated a good many of them, they were almost all of bacillary origin. Of anything in the nature of an outbreak of amoebic or true tropical dysentery, the writer heard of only one example, and this was amongst French troops.

This happy condition of affairs last summer and autumn is not to be ascribed to good luck, but to the care that the

medical authorities took to reduce the chances of disease importation to a minimum.

As soon as it was decided, in the autumn of 1914, to bring over Indian troops, the D.G.M.S. directed the medical officer in charge of the southern lines of communication to make arrangements for the careful examination of all Indian troops on their arrival, and to detain in isolation at various camps all men suspected to be suffering from disease of a communicable kind. The writer saw these arrangements in operation last spring (1915), and was much impressed by their completeness. The cases detained and isolated included a good many examples of recurrent fever and one or two of very early anaesthetic leprosy.

SCIENTIFIC MEETINGS.

Meetings of medical men for the purpose of discussing subjects of professional interest have long since ceased to be uncommon occurrences in the war zone in France, but are not always of identical type. Most of them are the outcome of the formation of regular medical societies, but a good many are invitation meetings organized by the officers of some particular hospital.

There is also considerable difference in the method of procedure. At some the proceedings are on all-fours with those of ordinary medical societies at home, a discussion being initiated by the reading of a formal paper. At others the aim is usually of quite a different character; it is not to promote a contrasting of views and theories, but to elicit an interchange of observations in regard to some problem considered to be more or less new to all present. Consequently the reading of formal papers is not encouraged, and the experiences recorded are impersonal; they are supposed to be those of the institutions to which the speakers belong rather than of the speakers themselves.

This latter system was introduced by the officers of the Australian Hospital; who at the meetings that they periodically organize take great pains to secure the presence of representatives of all classes of medical units likely to have acquired any knowledge of the matter under consideration. The object, of course, is to get light thrown upon it from as many points of view as possible. Both plans have their advantages.

Of the three or four formally organized societies, pride of place in respect of seniority belongs to the medical society which was formed about the end of 1914, while the youngest is that known as "The Third Corps Medical Society." The latter started work about a year ago, and it so happens that both owe their existence to the energies of the same officer.

Nearly all those who take part in the work of the Third Corps Medical Society are either battalion medical officers or members of the staffs of field ambulances, and it holds its meetings in a building situated at a spot within three miles or so of the fire trenches. This place was chosen because the connecting roads happen to render it easily accessible to formations serving a comparatively wide section of the front.

The subjects so far discussed have been the treatment of abdominal wounds; gas attacks and smoke helmets; trench feet; the sanitary arrangements of front line units; pediculosis and baths; cerebro-spinal meningitis; and the treatment of wounds suitable for work in the trenches, at regimental aid posts, and at field ambulance dressing stations.

It is to be hoped that this society will not long remain the youngest of the group, for a front line medical society which holds its meetings at an accessible spot and leads an active existence is bound to be of much utility, as from a professional point of view front line officers lead a somewhat isolated existence, and have few opportunities of hearing what their fellows are doing in regard to the problems by which they all alike are faced.

CASUALTIES IN THE MEDICAL SERVICES.

ARMY.

Died on Service.

MAJOR FRANK CHARLES PEREIRA, Madras Medical Service, died in the General Hospital, Madras, on April 9th, aged 53. He was born on April 28th, 1862, took the Scottish triple qualification in 1886, and entered the Indian Medical Service as surgeon on March 31st, 1888, becoming

major on March 31st, 1900, and lieutenant-colonel on March 31st, 1908. He had been for many years in civil employment in the Madras Presidency, but at the beginning of the war reverted to military duty, and was recently stationed at Quetta, whence he returned sick to Madras two months before his death. He served on the north-east frontier of India in the Lushai campaign of 1889, receiving the medal with a clasp.

Captain Robert Donald, R.A.M.C.(T.F.), died at his residence in Chelsea, on May 3rd, aged 55. He was educated at the University of Glasgow and at Anderson's College, Glasgow, and took the Scottish triple qualification in 1884. After filling the post of medical officer of health of Unst, he settled in practice in Chelsea, where he was medical officer to the Royal Engineers and War Office employees. He joined the 1st City of London Brigade, Royal Field Artillery, as lieutenant and medical officer on July 28th, 1911, becoming captain on January 27th, 1915.

Assistant Surgeon Edmund Carey Hallums, Indian Subordinate Medical Department, reported to have died on active service abroad, was born on September 22nd, 1892, and became fourth class assistant surgeon on November 21st, 1913. Prior to the war he was stationed at Ranikhet.

Killed in Action.

Lieutenant A. Booth, R.A.M.C., was reported as killed in action in the casualty list published on May 8th. He took the degrees of M.B., B.Ch.Oxon. in 1912, obtained a temporary commission on November 15th, 1915, and was attached to the King's Own Scottish Borderers.

Wounded.

Major P. Sampson, D.S.O., R.A.M.C.

Captain G. F. Denning, R.A.M.C.(T.F.), (Dublin).

Captain J. T. McCullagh, R.A.M.C., temporary. (Dublin). (This name was at first erroneously given as Captain W. McK. H. McCullagh.)

Captain R. W. Murphy, R.A.M.C., temporary.

Captain H. G. Wilson, R.A.M.C., temporary.

Lieutenant N. C. Kapur, I.M.S.

Lieutenant A. Massey, R.A.M.C., temporary.

Lieutenant H. L. Mooney, R.A.M.C., Special Reserve (Dublin).

Assistant Surgeon E. H. L. Shaw, I.S.M.D.

Missing.

Lieutenant J. Brown, R.A.M.C., temporary.

DEATH OF SON OF MEDICAL MAN.

Cyril Niccoll Searancke, Lieutenant R.N., second son of Dr. N. F. Niccoll Searancke, of Mitcheldean, Gloucestershire, killed in the loss of H.M.S. *Russell*, on April 27th, aged 28.

NOTES.

FROM recent reports about the Liverpool Merchants' Mobile Hospital it would appear that it is doing most excellent work. The Liverpool Exchange Newsroom subscriptions now exceed £700, and letters appear from time to time in the local press from soldiers testifying to the benefits they have derived through the munificence of the Liverpool merchants.

HONOURS.

A supplement to the *London Gazette*, dated May 5th, 1916, gives the names of a number of officers as mentioned for good service in the Gallipoli peninsula, supplementary to Sir Ian Hamilton's dispatch of December 11th. Among them are a large number of medical officers, whose names were given in the *BRITISH MEDICAL JOURNAL* of May 6th, as the recipients of various decorations.

BRIGHTON HOSPITAL FOR PATIENTS WHO HAVE LOST LIMBS.

Lieutenant-Colonel J. N. MacLeod, C.I.E., I.M.S., writes: In your note in the issue of May 6th on "The Brighton Hospital for patients who have lost their limbs," your statement as to the command of the late hospital for Indians in the same building is incorrect. I was in command of the general hospital for wounded Indian soldiers in the Dome and Pavilion, Brighton. The officer you mentioned was S.M.O. for the combined hospitals at the York Place School and the Pavilion.

THE GERMAN ARMY MEDICAL SERVICES.

The Deutsche Gesellschaft für Chirurgie held its annual meeting in 1915 in Brussels. We gather from a recent note in the *Times* that it has met this year in Warsaw, and that, as was the case last year, the opening address was given by Professor v. Schjerning, the head of the German Army Medical Service.

According to our contemporary, he stated that 24,000 doctors were in the service of the army—three-quarters of them in the field and one-quarter at home. There were 3,000 doctors working with the Red Cross, 400 dentists, 1,800 chemists, and 92,000 men in the medical services. The voluntary nursing service employed 72,000 persons in Germany and 22,000 on the lines of communication. There were 238 hospital trains taking wounded and sick back to Germany from the hospitals near the front. There were 26 large steam laundries on the lines of communication, and on the frontier there were 18 large disinfection establishments, dealing with 100,000 men a day.

Ireland.

MEDICAL WORK IN DUBLIN DURING THE REBELLION.

THE Sinn Fein rebellion has come to an end after a week of horror in Dublin, leaving all the city hospitals filled with seriously wounded cases, both military and civilian. Altogether about 180 were brought to the hospitals either dead or dying, and this number would have been greater only that after the first few days many of the hospitals had to refuse to allow any further number of dead to be brought, as they had no room for them.

In answer to a question on May 9th the Prime Minister gave the following statistics of the casualties sustained by the troops, the Royal Irish Constabulary, and other forces during the outbreak:

	Killed.	Wounded.	Missing.	Total.
Army officers	17	46	—	63
Other ranks	86	311	9	406
Royal Irish Constabulary ...	12	23	—	35
Dublin Metropolitan Police ...	3	3	—	6
Royal Navy	1	2	—	3
Loyal Volunteers	5	3	—	8
Total	124	388	9	521

There is no means of estimating how many of the Sinn Feiners were wounded or killed as very few of them were brought to the hospitals, and many must have met their death in the parts of the city that were burnt. The number of civilians reported as dead in the hospitals is 160, and it is probable that a certain proportion of these were Sinn Feiners, but there is no doubt that a large number of harmless civilians were both wounded and killed during the firing that took place in the streets. Many were hit through their own fault because they ventured into dangerous areas, but a certain number were undoubtedly injured while following their ordinary business.

Some of the first casualties which occurred on Easter Monday were brought to the Royal City of Dublin Hospital; and on Wednesday afternoon, when the serious fighting took place close to the hospital between the military who were arriving from Kingstown and the rebels, 68 cases were admitted to the hospital between 4 and 10 p.m. These were nearly all soldiers who were wounded or killed within one or two hundred yards of the hospital; later on during the same evening the scene of fighting shifted nearer the city, and the cases were brought into Sir Patrick Dun's Hospital, chiefly by the nurses, who several times went out under fire to bring in the wounded. The Richmond Hospital was seized by the rebels on Easter Monday, and three of the visiting staff who were in the hospital at the time had to remain for the whole week; the rebels brought their wounded to this hospital to be dressed and then removed them to the Four Courts, which they had partly converted into a hospital for themselves. The Red Cross and St. John Ambulance did splendid work, and organized in a few hours temporary hospitals in Merrion Square and the neighbourhood, where many cases were treated; in this way overcrowding of the general hospitals was prevented. Jervis Street Hospital, which was in the worst area, close to the Post Office, treated about 400 cases during the week, but many of these were of a minor character, over 80 being cases of looters who had received cuts from broken glass.

Owing to the fact that the wounded were in most cases brought to the hospitals within a very short time of being

wounded—often within half an hour or less—the results obtained were remarkably good, and undoubtedly many cases were saved which would have died had the circumstances been other. For instance, a man was brought into the Royal City of Dublin Hospital on Tuesday morning (April 25th), within half an hour of being shot in the back; the bullet had emerged under the right costal margin. He was immediately taken to the theatre and the abdomen opened; the right lobe of the liver was so extensively torn that it was impossible to suture it, but by packing both the torn cavity and all around the haemorrhage was checked, and the patient is now recovering. A few other abdominal cases were operated on, but so far as can be learnt without success, as in every case the damage done was extensive, the wounds being transverse or caused by soft-nosed bullets or ricochets.

The ammunition used by the rebels was of all kinds, from the modern nickel-covered rifle bullets to large soft lead bullets "with the point cut off, and even 12-bore cartridges filled with buck-shot and slugs." Some of the wounds inflicted on the military were in consequence very severe, specially those traversing the chest and head. At the Royal City of Dublin Hospital all the cases were washed with eusol, and extensive wounds were left open and packed with gauze wet with eusol, the surrounding skin being in all cases painted with tincture of iodine. This treatment appears to have been most successful, even the most extensive wounds in nearly all cases healing without severe sepsis.

The following communiqué was issued by General Sir John Maxwell on May 7th:

I desire to express my sincere appreciation of the services rendered during the recent disturbances in Dublin by the medical, surgical, and nursing staffs of many of the city hospitals, and in particular of the gallantry shown by those nurses who exposed themselves to a heavy fire in attending to and removing the wounded.

Also to the members of the Red Cross and St. John Ambulance Societies and the many medical men and private individuals who gave assistance in attending to the wounded, or placed their houses at the disposal of the military for use as dressing stations. In numerous instances these services were rendered at considerable personal risk, and under circumstances reflecting the greatest credit on those engaged in them.

J. G. MAXWELL,

General Commanding-in-Chief the Forces in Ireland.

Scotland.

TWENTY-FOUR new students have joined the Edinburgh School of Medicine for Women this summer; the number of women now attending the school is about 167 (entries not complete). At Queen Margaret College, Glasgow, the number of new women students in medicine is 20, compared with 10 a year ago. This brings the total number of women students in the medical faculty up to 207.

At a public meeting in Bothwell on May 3rd it was resolved to raise a fund of £1,000, with the object of erecting a suitable memorial to the late Dr. W. G. Macpherson, whose death from pneumonia on March 31st was recorded in the JOURNAL of April 15th. Dr. Macpherson's sterling qualities as a man and as a physician had earned him a large circle of friends and patients in the Lower Ward of Lanarkshire. He was active also in work for the profession; he was a loyal member of the British Medical Association, and at the time of his death a member of its Scottish Committee.

ANNUAL MEETING OF THE EDINBURGH ROYAL MATERNITY HOSPITAL.

Dr. Freeland Barbour, President of the Royal College of Physicians of Edinburgh, who presided over a large gathering of the directors, staff, and supporters of the Edinburgh Royal Maternity Hospital on May 8th, 1916, referred to the loss the hospital and the community had sustained in the death of Sir Alexander Simpson, and spoke of the great work which during thirty-five years Sir Alexander had achieved in and for the hospital. He congratulated the directors on the fact that the number of in-patients during the year 1915 was the highest on record, and mentioned also that the number of undergraduates and of nurses trained in connexion with the institution had

both increased, from 51 (1914) to 87 (1915) in the case of the former, and from 53 (1914) to 61 (1915) in the case of the latter. The finances of the hospital were also satisfactory, and a small addition had been made to the reserve fund. He alluded with satisfaction to the establishment of a Central Midwives Board for Scotland, with Sir Halliday Croom, one of the hospital staff, as its chairman, and to the further development of the prematernity work, a department in which the hospital had led the way, and to which another member of the staff (Dr. Ballantyne) had greatly contributed. The chairman then moved the adoption of the annual report. The motion was seconded by Mrs. Leslie Mackenzie, who strongly advocated the necessity for caring for the health of the school child, not only when at school, but during the pre-school age, and also before birth through the mothers. The Rev. Norman Maclean, in moving a vote of thanks to the directors, medical staff, and Ladies' Committee, took occasion to name several of the greatest men the world had ever seen who all might well (if they came into life at this time) have been born in a maternity hospital. Sir Ludovic Grant moved a vote of thanks to the chairman.

England and Wales.

LANCASHIRE HEALTH REPORT.

THE report of the medical officer of health for the administrative county of Lancashire for the quarter ending March 31st shows that the death-rate corresponded to 13.2 per 1,000 of the estimated population, which was 1,666,488. The principal epidemic diseases, excluding diarrhoea, caused 264 deaths, or a rate of 0.63 per 1,000, as against 1.06 in the same quarter last year. From small-pox there were two deaths out of 14 cases notified. The only other noteworthy figures are 68 deaths from whooping-cough, as compared with 104, and 60 deaths from measles, as compared with 224 in the March quarter last year. There was also a considerable drop in the death-rate from bronchitis and pneumonia. The 14 small-pox cases were spread over seven districts, mostly in the south-east part of the county, not far from Manchester. The whole of the cases were isolated, and as a measure of precaution a very large number of vaccinations have been done. The number of notifications of tuberculosis rose in the same periods from 797 to 1,026. The figures for whooping-cough and measles fully bear out the statement of the medical officer of health for Manchester that for the moment whooping-cough, which is not notifiable, is a worse form of illness than measles. In Manchester, for the eight weeks ending April 29th, there were 102 deaths recorded from whooping-cough, as compared with 11 in the corresponding period in 1915, while there were 37 deaths from measles this year, as against 163 last year, during the same eight weeks. The number of cases of measles notified is very large, and about one-sixth of them are German measles. The isolation of measles, which is now insisted on, cannot, it is believed, fail to lessen the spread of the disease, which last year had a free course, as children were often to be seen in public conveyances or playing in the streets while covered with the rash.

The report on the working of the Midwives Act in Lancashire shows that there were 920 midwives on the roll, of whom the large number of 487 were only on the roll by virtue of having been in bona fide practice before the Act came into operation. During the quarter there were 644 records of midwives having sent for medical aid, of which 151 were for the newly-born, and 493 for the mothers. The number of cases of puerperal fever which came under notice was 28, with 8 deaths. Only 12 of these were notified by midwives, though 16 of the confinements appear to have been attended by midwives alone, 6 by doctors alone, and 6 by midwives acting under doctors. In 7 cases charges were made against midwives of negligence or misconduct in connexion with cases of puerperal fever, and a number of other charges were dealt with of failure to summon medical aid when the rules required it. During the quarter there were 95 cases of ophthalmia neonatorum reported, and investigation showed that in 13 cases midwives had failed to comply with the requirements in these cases.

INSPECTION OF SCHOOL CHILDREN.

The annual report of the school medical officer for Bootle, Dr. W. A. Daley, contains information showing the benefits derived from medical inspection. The cost of this for a period of twelve months was 11.7d. a child. The number of new cases inspected in 1915 was 1,109, compared with 900 in 1914. The number of children in the schools with some physical defect reached the high percentage of 81.2; 8.6 per cent. were ill nourished, 23.7 suffered from enlarged tonsils, 37.4 per cent. showed four or more carious teeth, and 17.86 per cent. suffered from defective vision. All these percentages were higher than in the previous year. The nutrition of 7.11 per cent. was excellent, and 84.3 per cent. was normal; 7.48 per cent. of the children were recorded as dirty. Systematic examination of the heads of the girls was made by the school nurses, and of 5,531 inspected 1,103 were found to have very dirty heads. It was sufficient to draw the attention of the parents in 714 cases for the neglect to be remedied. In the remaining 389 improvement seemed extremely difficult to obtain. Dr. Daley draws attention to the fact that as lice are regarded as typhus carriers and typhus fever is not unknown in the vicinity, care should be given to this condition and every endeavour made to keep the children from becoming verminous. A beginning has been made to improve the condition of the children's teeth, and a dental surgeon was appointed in October last. Of 202 children examined during the last three months of the year, only 15 per cent. had all the teeth sound.

DOMESTIC DESTRUCTION OF REFUSE.

Dr. T. W. N. Barlow, medical officer of health for Wallasey, in his report to the Health Committee, urges the importance of householders burning their refuse, in view of the fact that the sanitary service is being depleted owing to the demands of the military authorities. He foresees that the weekly collection of house refuse will perforce become a fortnightly, and later on a three-weekly, collection. Dr. Barlow says: "If it could be rendered certain that all the refuse collected from houses was innocuous—that is, burnt refuse—it could not only easily be dumped on waste ground without offence as the clinker now is, but no nuisance would arise at individual houses even if the corporation were unable to collect it for a month." He is also of the opinion that the fly pest and its concomitant dangers would be mitigated, if not avoided, by the householder carrying out this suggestion, which indeed ought to be done in normal times for his own and the public welfare.

Canada.

Two MCGILL V.C.'s.

On Tuesday afternoon, April 25th, enlarged photographs were unveiled in the McGill Union of the two McGill men who have won the Victoria Cross. One of them, Captain F. A. C. Scrimger, M.D., a member of the teaching staff of the medical college and a graduate of the university, accompanied the 14th Battalion as its medical officer, which battalion formed part of the first Canadian contingent. The following is the official report of the deed which won for Captain Scrimger the coveted honour of the Victoria Cross:

On the afternoon of April 25th, 1915, in the neighbourhood of Ypres, when in charge of an advanced dressing station in some farm buildings, which were being heavily shelled by the enemy, he directed, under heavy fire, the removal of the wounded, and he himself carried a severely wounded officer out of a stable in search of a place of greater safety. When he was unable alone to carry this officer further, he remained with him under fire till help could be obtained. During the very heavy fighting between April 22nd and 25th Captain Scrimger displayed continuously day and night the greatest devotion to his duty among the wounded at the front.

Captain Scrimger is the son of the late Reverend John Scrimger, D.D., Principal of the Presbyterian College, Montreal. Fortunately Dr. Scrimger lived long enough to learn of the heroism of his son. Two days previously, on April 23rd, 1915, another McGill man, the late Lance-Corporal Fred Fisher, of the 13th Battalion, who did not live to know of the honour bestowed upon him, gained the Victoria Cross under the following circumstances:

On April 23rd, 1915, in the neighbourhood of St. Julien, he went forward with the machine gun, of which he was in charge, under heavy fire, and most gallantly assisted in covering the retreat of a battery, losing four men of his gun team. Later, after obtaining four more men, he went onward again to the firing line, and was himself killed while bringing his machine gun into action under very heavy fire in order to cover the advance of supports.

The photographs, both of which are excellent likenesses, were unveiled by Sir William Peterson, the principal of the university, who proudly referred to the fact that between 1,400 and 1,500 names are now on the honour roll of the university. "I know," he said, "of no greater proof of the righteousness of this war than the fact that in our somewhat disjointed empire there was not a single constituent part that hesitated for twenty-four hours as to whether she should take the place that she might rightfully claim by the side of the British forces."

CANADIAN CASUALTIES.

Sir Robert Borden, on March 31st, informed the House of Commons that since the commencement of the war the casualties in the Canadian forces had amounted to 22,000. Wastage, apart from casualties, had amounted to 21,700. Enlistment of all ranks had amounted to a total of 290,000, the effective fighting force being therefore 247,000, of which 112,000 were then overseas and 135,000 in Canada. The total expenditure by Canada for war purposes up to the end of February had been \$187,000,000.

Correspondence.

THE INTERNAL USE OF POTASSIUM CHLORATE.

SIR,—The great value of the internal use of potassium chlorate in bad cases of follicular tonsillitis in children and young adults, and in ulcerative stomatitis of children, needs no confirmation, one would suppose, but for many years there has been a profound mistrust and even fear of the internal use of this drug on the Continent. For instance, half a gram ($7\frac{1}{2}$ grains) for a child of 5 years suffering from bad follicular tonsillitis may be regarded by some young doctors as a high, if not a dangerous, dose, though it is well within the ordinary limits. According to Tappeiner's *Lehrbuch der Arzneimittellehre*, grave toxic symptoms may be produced by 2 to 3 grams in children, and by 8 to 10 grams in adults, the toxic action being favoured by concentration of the solution, emptiness of the stomach, and diminished excretion owing to renal disease; the toxic action is likely to commence when the potassium chlorate is present in the blood to the amount of over 0.025 per cent. In Hutchison and Collier's *Index of Treatment* (first edition) it is, as everywhere else, recommended for ulcerative stomatitis in children, "a child of 4 or 5 years taking as much as 25 grains daily in divided doses."

I would ask, then, What are the grounds, if any, for the extreme mistrust of the internal use of the drug which has developed, at all events at some centres of teaching, on the Continent? One of the reasons is possibly the belief that the curative action may be obtained equally well by the local external use of the drug in the form of a mouth-wash or gargle. But I am convinced that the efficacy of the drug depends partly on its excretion from the circulating blood into the mouth. Gargles and mouth-washes may, of course, on account of the likelihood of their being swallowed, be more risky in the case of young children than the internal use of the drug in prescribed doses. Before Behring's discovery of diphtheria antitoxin potassium chlorate was much used internally in cases of diphtheria, and its supersession in diphtheria may have contributed to its relative neglect on the Continent in follicular tonsillitis.

The main purpose, however, of this letter is, if possible, to obtain information as to whether severe toxic results have really been known to follow moderate doses of the drug. I have heard much of the dangers of the drug from young Continental doctors, but in England I have never observed or heard of untoward effects of moderate doses in cases of ulcerative stomatitis in children or in cases of follicular tonsillitis, even when the latter disease has been associated with considerable fever and slight temporary albuminuria.—I am, etc.,

London, W., April 29th.

F. PARKES WEBER.

THE INGUINAL INCISION FOR INTRASCROTAL AFFECTIONS.

SIR,—Arising out of Mr. Maylard's memorandum (April 22nd, p. 589) I have to say that the inguinal incision for intrascrotal affections is one I have practised for at least twenty-four years with convenience and advantage. In this I agree with him, as no doubt do many others. Perhaps in adopting this practice we did not always bear in mind the analogy of scrotal hernia, which in herniotomy is operated on through an inguinal incision.

I do not think that the elaborate attempts to disinfect the scrotal skin which many of us made in the days when we applied irritating antiseptics to the skin, and even wound, are any longer required, now that we avoid irritating the wound, with the increased primary discharge of blood and serum and the consequent encouragement of decomposition, set up by such irritation. But whether operating through the groin, or the scrotum itself as we have to when the latter is ulcerated, I have not found real difficulty in keeping the wound aseptic when the dressings cover and support the genitals, leaving the penis protruding through them. I well remember in those days, especially when mercuric chloride was the disinfectant used and also applied to wet the dressings, the abundant collection of epidermis and exudation with their pungent odour, even when the wound remained sterile. A single disinfection with iodine solution, or with carbolic lotion 1 in 20, as advised by Lister, during the anaesthetic process, and the use of dry cyanide or plain gauze at the dressing, with the greatly lessened discharge, leaves the scrotum harmless, even if not thoroughly disinfected. —I am, etc.,

RUSHTON PARKER,

Professor of Surgery in the University of Liverpool;
Lieutenant-Colonel 1st Western General
Hospital, R.A.M.C.(T.F.).

Liverpool, April 30th.

JEJUNOSTOMY AND JEJUNO-COLOSTOMY.

SIR,—Dr. Victor Bonney is much to be congratulated on bringing forward a new method offering an improved prospect of successful treatment for the very dangerous cases in which persistent symptoms resembling those of intestinal obstruction follow an abdominal operation. He has a friendly difference of opinion with his colleague, Mr. Sampson Handley, as to the cause of the conditions discussed, and I should like to be allowed to add a third view. Handley, as I understand him, attributes the symptoms to peritonitis. Bonney says: "It is to changes occurring inside the bowel that the symptomatology must be ascribed." As long ago as 1887 I argued that the symptoms in these cases are due to a weakening of peristaltic action caused by manipulation and exposure of the bowel, but since reading Professor Arthur Keith's most instructive Cavendish lecture,¹ it seems to me that a temporary lack of co-ordination between the different parts of the intestine is also an important cause.

In 1914 I recorded certain cases in which deaths which appeared inevitable were prevented by draining the caecum or the small intestine, nothing more being required to effect a cure except the closing of the fistula. In these cases there was certainly no true obstruction and no true paralysis of the bowel, and I claimed that the histories proved that only a short rest of the intestine was required.

In his paper in the *JOURNAL* of April 8th Handley dates his interest in these cases back ten years, and I am disappointed that in the four previous years, when we worked together at the Samaritan Free Hospital, I failed to give his views a slightly different bent. In my first paper on this subject it was stated that "a general peritonitis—in the absence of septic influences—is one of the rarest complications of operations involving division of the peritoneum," and that few patients die from these operations without signs of diffuse peritonitis being found at the autopsies. This peritonitis was at that time supposed to be the cause of death, but I showed that there was no sign of peritonitis during an interval after distension and vomiting were well developed, but before the patient was moribund. Handley urges anew that general peritonitis found after death is not necessarily a confirmation of a diagnosis of general peritonitis during life, but he does not carry his argument to the conclusion that the distension of the intestine is the cause of the spreading of the peri-

tonitis, and yet he is careful to reduce distension in treating these cases. He cannot prevent the spreading of the peritonitis unless he avoids or relieves intestinal distension, and when this distension is relieved the peritonitis is harmless or requires peritoneal drainage.

Bonney's cases, like my own above mentioned, seem to offer an absolute proof that only drainage of the intestine and a short rest for the bowel are necessary to effect a cure. He attributes the deaths, when death occurs, to absorption of poisonous fluids. On the other hand, one of Handley's points is to save this fluid for the body as much as possible. In 1893 I recorded² that in certain cases after the abdomen was very large, and vomiting of black foul-smelling fluid was copious, so that death seemed unavoidable, a sudden relief occurred, apparently from a shifting of some plug of faeces in the colon. These cases were first observed when opium was given in full doses for a week after every abdominal section, and the improvement was not accompanied by an action of the bowels. Only gases escaped, but the distension quickly passed off, vomiting immediately ceased, and the general condition rapidly improved. A large quantity of intestinal fluid must have been absorbed when this improvement was taking place, whereas when the fluid was being thrown out freely the patient's condition was rapidly deteriorating. This evidence seems to show that the fluid is not so very septic, and Bonney on April 22nd wrote of its escape from a jejunal fistula that "although the fluid must be highly infective it does not seem to affect the wound to a marked degree."

It seems to me that in these cases death is due to heart failure and starvation. The distension of the intestines and of the abdomen offers an increasing opposition to the blood flow, and the heart is further hampered by direct pressure, whilst enormous quantities of fluid are lost to the body, and the provision of fresh nourishment in adequate amount is impossible. Nevertheless, until the patient is almost moribund relief of the distension may effect a rapid cure.

I agree with Bonney that the urgent necessity in these cases is drainage of the intestine, and the point that attracts me in his paper is not specially emphasized by him nor even definitely mentioned. I refer to the proof that we can drain the small intestine upwards. It is obvious that the small intestine very easily discharges its contents into the stomach if their passage down the bowel is interfered with; but I did not know until now that the passage upwards through the duodenum, stomach, and oesophagus offers a sufficient obstruction to bring about the immense abdominal distension which occurs in the cases under consideration. I have hitherto endeavoured in these cases to open the intestine high enough to drain its healthy part, but otherwise as low as possible. If, however, it can be drained upwards, we can always with certainty relieve intestinal distension, and Bonney assures us that for some little time the patient need not die of starvation. His plan appeals to me strongly, and I shall try it on the first suitable opportunity. Nevertheless these difficulties should be avoided if possible, and I have now on a considerable number of occasions opened the caecum when I anticipated danger from retention of gases. This has been followed often by the most uninterrupted recovery, so that the procedure appeared quite unnecessary, but it does not follow that my fears would have been groundless if the fistula had not been made.—I am, etc.,

London, W., May 8th.

JOHN D. MALCOLM.

TYPHUS FEVER.

SIR,—In the excellent review of Dr. Jeanneret-Minkine's monograph on typhus, published in your issue of April 29th, one sentence needs qualification. Speaking of the author's views on prognosis, your reviewer says: "It (prognosis) is better among the well-to-do and the courageous than among the poor and depressed." Dr. Jeanneret-Minkine indeed cites certain statistics of Curschmann which show a higher fatality rate among the poor than among the rich, but he explicitly calls attention (p. 90) to the enormous fatality seen among medical men, and implies that the rate was also above the average in the case of the prosperous classes of Serbia, a circumstance which he attributes to intestinal

¹ *West London Medical Journal*, 1915, p. 145.

² *The Physiology of Death from Traumatic Fever*, p. 81.

auto-intoxication consequent upon an almost exclusive meat diet.

The high fatality of epidemic typhus among the more prosperous classes has been commented on by numerous writers, especially Graves (*Clinical Medicine*, pp. 59-60) and Creighton (*History of Epidemics in Britain*, vol. ii, p. 100 et seq., and especially pp. 290-1). Jeanneret-Minkine's observations fall into line with those of earlier writers. Davy and Brown's figures (*BRITISH MEDICAL JOURNAL*, November 20th, 1915) are consistent with the fatality-rate upon the medical officers being above the general average, but the absolute numbers are small.

The point is of both theoretical and practical interest, which is my excuse for calling attention to it.—I am, etc.,

M. GREENWOOD, Jun.,

Captain 1st London (City of London) Sanitary Co.

Loughton, May 2nd.

THE "SOLDIER'S HEART" AND ITS RELATION TO THYROIDISM.

SIR,—I do not think that Dr. Harry Campbell is quite correct in his supposition that Sir James Barr is the first to draw attention to the hormonal origin of the symptoms of "soldier's heart."

Some months ago, in the *Lancet*, January 8th, 1916, Dr. Hernaman-Johnson and Dr. Percival White pointed out the fact that "soldier's heart" is really due to Graves's disease, and therefore can be cured by x-ray treatment. At the discussion on "irritable heart" at the Royal Society of Medicine on January 18th, 1916 (reported in the *February Proceedings of the Royal Society of Medicine*), I brought forward the same view, but got no support from the meeting. In the *Lancet* of April 8th I again urged the same fact, and quoted cases cured by x rays to prove the contention.

That the thyroid is not primary in Graves's disease, but that toxic influences play a large part in causing thyro degeneration, few will deny.

Sir James Barr's paper is very valuable as again pressing this connexion. His method of treatment is considerably less laborious than x-ray treatment, which latter, however, gives very satisfactory results.—I am, etc.,

FLORENCE A. STONEY, M.D., B.S.Lond.

London, W., May 1st.

INFANTILE MORTALITY.

SIR,—When Dr. S. G. Moore said in his Milroy Lectures that there was nothing to prevent the continuance in the decline of the birth-rate, he surely did not mean that it would continue declining until it equalled the death-rate. He must know that the birth-rate of Australia and New Zealand ceased falling some ten or more years ago, and that ours may be expected to do the same when serious poverty has been eliminated. The scheme which he favours of public assistance to necessitous mothers and infants will merely ensure that the further decline of our birth-rate will be mainly among the people with over 30s. a week.—I am, etc.,

London, S.W., May 8th.

BINNIE DUNLOP, M.B., Ch.B.

IN an address delivered at the second scientific Pan-American Congress at Washington on January 7th, Mr. Frederick L. Hoffman stated that the estimated annual mortality from cancer in the continental United States is 80,000 (32,000 males, 48,000 females). Excluding cases of disease of the generative organs and the breast, the rates for the two sexes in the registration area of the United States, are about the same. The rate is somewhat higher in urban than in rural centres, the difference being partly accounted for by deaths in institutions. The death-rate in thirty southern cities was 80.3 per 100,000 of population among whites and 55.2 among the coloured. There has been a considerable increase in the negro rate since the Civil War, particularly in cancer of the uterus. A comparison of the cancer mortality rates in the eastern and western hemispheres seems to show a decrease in prevalence corresponding with diminishing distance from the equator. For the eastern hemisphere the rate was 98.3 and for the western 78 per 100,000 of population. There would seem to be a very close relation between the frequency of cancer and the degree of civilization. The disease was extremely rare among the North American Indians, the Eskimos, and West Indian negroes.

Universities and Colleges.

UNIVERSITY OF CAMBRIDGE.

The following candidates have been approved at the examination indicated:

SECOND M.B. (Part II, Pharmacology and General Pathology).—B. F. Ammitage, H. Barbash, P. F. Bishop, C. V. Brainbridge, E. P. Brockman, G. E. Burton, T. A. Butcher, S. P. Castell, C. B. Cohen, A. J. Copeland, E. C. Curwen, J. C. Davies, C. C. R. Downing, G. A. Fisher, W. S. Gross, A. C. Halliwell, J. C. N. Harris, A. T. Hawley, W. M. Heald, T. L. Hillier, S. C. Ho, P. C. Livingston, A. G. F. McArthur, E. G. D. Murray, P. M. Neighbour, J. W. McK. Nicholl, F. C. Odling, R. A. Olphert, F. P. N. Parsons, R. H. Reece, R. H. O. B. Robinson, N. Rumbold, E. D. Spackman, H. F. Squire, W. S. Sykes, M. S. Thomson, G. H. Ward, J. P. Wells, R. L. Williams, D. W. Winnicott, J. M. McC. Wright.

UNIVERSITY OF EDINBURGH.

GENERAL COUNCIL.

At the statutory half-yearly meeting of the General Council, on May 3rd, resolutions were adopted recording the Council's appreciation of the services of late Principal Sir William Turner, Emeritus Professor Sir Alexander R. Simpson, Emeritus Professor John Wyllie, Dr. Allan Jamieson, and Professor Hardie.

The draft ordinance for the Degree in Education, which will be one of the most comprehensive in any English-speaking university, was approved.

The report of the Finance Committee showed that the total of matriculated students for the year 1914-15 was 2,417 (1,941 men, 476 women). There had been a marked decrease both of men and women in all the faculties except that of science, where there were eight more women than in the previous year. There was an increased deficit in the General University Fund, the deficiency now amounting to £12,814—a fact which showed the need for unappropriated donations. The increase in bursary funds ought not to be allowed to distract attention from this urgent and more general need.

A motion to provide that all future appointments of principals and professors should terminate either at a definite age limit or after a definite period of office, was adopted, with the addition of the words "unless the university shall request such principal or professors to continue in office thereafter for a further period."

The name of Mrs. A. B. Lothian (née Maccallum), M.B., Ch.B., D.P.H., was added to the Business Committee.

ROYAL COLLEGE OF PHYSICIANS OF EDINBURGH.

At its quarterly meeting, on May 2nd, the Royal College of Physicians of Edinburgh resolved to offer its diploma of membership to Major Harold Edgar Priestley, Captain Alan Canliffe Vidal, and Captain James Lafayette Lauder in appreciation of their conduct as physicians at Wittenberg.

Obituary.

JAMES BROWN BIRD, M.D. EDIN.,

PHYSICIAN, CUMBERLAND INFIRMARY.

DR. J. B. BIRD, of Carlisle, died of influenza on April 22nd at the early age of 47. He was born in 1869 in Berwickshire, and received his professional education at Edinburgh University; he was Stark Scholar for post-graduate research in 1888-9, and graduated M.B., and C.M. in 1890. After holding a junior resident appointment at the Crichton Royal Institute, he was appointed house-physician to the Brompton Hospital for Consumption, and his studies in that institution afforded the subject for the thesis on phthisis for his M.D. degree, conferred upon him in 1897. In 1891 he became house-surgeon to the Cumberland Infirmary, Carlisle, and when the period of office elapsed he set up in practice in that city. He was placed on the honorary staff of the infirmary in 1897, and became full physician in 1903. He was largely instrumental in founding the Cumberland Sanatorium, for which he was secretary for many years, and he was for a time president of the Burns Club. In 1906 Dr. Bird was Chairman of the English Division of the Association and President of the Border Counties Branch in 1910. In 1896, when the annual meeting of the Association was held in Carlisle, he was active in its organization. He was universally respected by his fellow citizens, and at the funeral, on April 25th, a large and representative gathering assembled at the service held in St. Paul's Church, Carlisle. He was held in high esteem by his professional brethren, and his death is greatly

deplored by them. In addition to a large general practice he was very rapidly securing a considerable consulting practice both in the north of England and in the south of Scotland, and his opinion, founded on much careful bedside work in hospital, carried great weight both with the patients and their medical advisers. Unfortunately his death has come before he had made that due provision for his family which he would have liked, and an influential committee has been formed for the purpose of raising a memorial fund for the education of his children. Already £800 has been promised, and, in view of the widespread public sympathy shown, it is expected that a considerable sum will be obtained.

DEPUTY SURGEON-GENERAL C. J. MANSFIELD,
M.V.O., M.D., R.N.

AFTER an illness of four weeks (suppurating cervical glands followed by septicaemia) Deputy Surgeon-General Mansfield died on May 7th at Haslar, where he had worked as senior medical officer of the medical section since July of last year. Born on June 19th, 1861, he was the youngest and only surviving son of the late Rev. Edward Mansfield, vicar of Highnam, near Gloucester, and was a descendant of the well-known Chief Justice of Common Pleas, and a relation of Lord Sandhurst. He was educated at Cheltenham, qualified M.B., C.M. at Aberdeen in 1883, and proceeded to M.D. in 1896. Entering the Royal Navy in 1885, he subsequently had an extensive experience in the cadet and boys' training establishments of the Royal Navy, having been surgeon in the old *Britannia* (1892-3), fleet surgeon at the Royal Naval College, Osborne (1905-9), while the present Prince of Wales was in residence, and in H.M.S. *Impregnable* (1911-13). After the last appointment he was deputy surgeon-general at the Royal Naval Barracks, Chatham (1914-15). A hard-working officer, he was most unselfish and kindly to patients and colleagues alike, and was therefore universally respected and beloved. He made some contributions to medical literature, but his memory will be mainly preserved in the affections of his numerous friends. He was created M.V.O. (Fourth Class) in 1909. The naval funeral took place at Haslar on May 10th.

JAMES GILBERT HOPE, whose death at his house, 6, Royal Circus, Edinburgh, occurred on May 6th, was 42 years of age. He passed the examinations necessary for the triple qualification (L.R.C.P., L.R.C.S. Edin., L.R.F.P.S. Glasg.) in 1898, and settled in private practice in the Comely Bank district of Edinburgh, his residence being next door to the house once occupied by Thomas Carlyle. He was one of the medical officers to the New Town Dispensary and visiting physician to the Livingstone Dispensary of the Edinburgh Medical Missionary Society. He had also served as house-surgeon to the Ear, Throat, and Nose Department and as clinical assistant to the Skin Department in the Edinburgh Royal Infirmary. He is survived by his widow and four children.

DR. JOSEPH WILLIAM SMITH, J.P., died rather suddenly on April 12th at Weaverham, Northwich, Cheshire, where he was born in 1844. He was the son of the late Dr. Samuel Smith, who had two other sons in the profession. He received his education at King's College, and took the diplomas of M.R.C.S., L.M., and L.S.A. in 1866. He became a leading practitioner in mid-Cheshire, and was highly popular with all classes, as it was recognized that his main aim was to do good to others, whilst he set before himself the highest ideals of citizenship. Dr. Joseph Smith was surgeon to the Northwich Infirmary, and an original member of the Cheshire County Council, on which he sat as representative of Weaverham from 1889 to 1913; he also held a number of public appointments. A few years ago he was presented by his numerous friends with a valuable motor car, and a garage was built for him.

DR. ALEXANDER BARR POLLOCK, who practised for thirty-five years at Hillhead, Glasgow, died on April 27th, in his 66th year, after a prolonged illness. He was the youngest son of the late Mr. William Pollock of Tradeston. Dr. Pollock graduated M.D. and C.M. Glasg. in 1879, and for a

time assisted the late Professor's Sir George Macleod and George Buchanan. Two of his five sons are members of the medical profession and two are serving in the army.

THE HON. JAMES HERBERT HUGH HARRISON, J.P., principal medical officer British Honduras, died suddenly at Belize, British Honduras, on May 5th, aged 52. He was educated at University College, London, and took the diplomas of M.R.C.S. and L.R.C.P. in 1889, and subsequently that of D.T.M. Liverpool. He was resident medical officer at Belize, and became a member of the Legislative Council, British Honduras. He was also a Fellow of the Royal Geographical Society.

DR. JAMES ROBERTSON died at the age of 73 at his residence, Fricockheim, Forfar, at the end of April. His mother was a cousin of Mr. W. E. Gladstone. He took the diplomas of L.R.C.P. Ed. and L.F.P.S. Glasg. in 1868. Dr. Robertson was well known and highly esteemed in the district in which he had resided for many years after his retirement, as he was ever ready to give health and relief, especially to the poor. He began his professional career as a medical missionary in Calabar, and, returning to this country, practised for a number of years in Auchencairn, Ayrshire, and, later, for a shorter time in Birmingham.

DR. CHARLES JOHN GRELLET died at his residence in Hitchin, Herts, on April 23th, aged 73 years. He began his professional career as apprentice to Sir Cordy Burrows of Brighton, and afterwards studied at St. Bartholomew's Hospital. He took the diplomas of M.R.C.S. and L.S.A. in 1864. After holding the appointment of surgeon to a colliery company at Clay Cross, he became Admiralty surgeon at Oxford Ness, Suffolk, and finally, in 1871, settled at Hitchin, where he practised till his death. Dr. Grellet was surgeon to the North Herts and South Beds Hospital at Hitchin until five years ago, when he was placed on the consulting staff. He was much esteemed for his courtesy, his devotion to duty, and his zeal for the welfare of the town in which he had practised for nearly half a century. Two of his four sons practise in Hitchin, and a third, Captain R. C. Grellet, 8th Yorkshire Regiment, is now in France.

LIEUTENANT-COLONEL WOODFORDE WOODFORDE-FINDEN, Bengal Medical Service (ret.), died in a nursing home at Harrow, after a long illness, on April 27th, aged 71. He was born on July 18th, 1844, the only son of the late George Corfield Finden, of Gloucester Terrace, Hyde Park. He was educated at King's College, London, and in Paris, took the diploma of M.R.C.S. in 1865, and that of L.R.C.P. Edin. in 1866. He entered the Indian Medical Service as assistant surgeon on October 1st, 1866, became surgeon on March 1st, 1873, surgeon-major on October 2nd, 1878, and brigade surgeon lieutenant-colonel on November 2nd, 1891, and retired on December 21st, 1896. He put in all his service in military employ, chiefly in the 2nd Gurkhas. He served in the Afghan war of 1878-80, when he took part in Roberts's march from Kabul to the relief of Kandahar, and in the battle of Kandahar, being mentioned in dispatches, in G.G.O. No. 556 of 1880, receiving the medal with a clasp and the bronze star; in Burma in 1887-88, medal with clasp; and on the north-west frontier of India, in the second Miranzai campaign of 1891, clasp.

DR. MIGUEL A. FARGAS Y ROCA, professor of obstetrics and gynaecology in the University of Barcelona, was recognized as one of the leading authorities on his speciality in Spain. He was a brilliant teacher who, with scanty material, built up a successful clinic in the Hospital de Santa Cruz. He was a pioneer of aseptics in Barcelona, where, as Dr. Blanc expressed it, in referring to his death at a meeting of the Sociedad Ginecológica Española on February 23rd, he "operated aseptically in a septic hospital." Professor Fargas did good work in general surgery as well as in his own chosen field of practice. He was an honorary Fellow of the Spanish Academy of Medicine.

DR. HENRI Secrétan, who died on March 5th at the age of 60, was recognized as the leading authority in Switzerland on accident assurance. He was a son of the distinguished philosopher, Charles Secrétan, and, after studying at Lausanne, Geneva, and Pisa, took his doctor's degree at the Paris Faculty in 1885. In the same year he began the practice of medicine at Lausanne. He embodied the fruits of his experience in a number of writings on acute abscess of the lung, the treatment of chronic serous effusions, hydrophobia, the treatment of wounds and other subjects. Twenty years ago, when assurance against accidents first came within the sphere of practical politics in Switzerland, he turned his attention to that new field of medicine. He collected a number of articles into a volume, entitled *L'Assurance contre les accidents*, founded wholly on his own experience; it has passed through three editions. Secrétan was a man of wide culture and varied intellectual interests. He wrote on the depopulation of the Roman Empire and the Germanic invasions; the end of the empire of the West and the beginning of the Middle Ages; Christian propaganda and persecution, and other historical and sociological subjects.

The Services.

EXCHANGE.

M.O. Wessex Division, at present under canvas at Hursley Camp, would like to exchange with Territorial M.O. serving in Portsmouth district. Address No. 1750, BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C.

Medical News.

WE regret to have to record the death of Dr. Arnold Lea, surgeon to St. Mary's Hospital for Women and Children, Manchester, which occurred on May 7th. We hope to publish some account of his life in an early issue.

THE Government of Panama has established a national department of Uncinariasis or Tropical Anaemia for the organization and conduct of an active campaign against the disease in the territory of the republic.

DR. PHILIP GELL GARRETT and six more nurses have gone out this week to Corfu, under the auspices of the Wounded Allies Relief Committee, of Sardinia House, Kingsway, W.C., to the relief of sick and wounded Serbian soldiers.

THE first Pan-American Congress on Childhood will be held at Buenos Aires in July next. Dr. Julieta Lauteri Renshaw is president of the organizing committee. The work of the congress will be divided among seven sections, which deal with infant legislation, industrial legislation, hygiene, education, psychology, aid to the mother and the child, and sociology.

A MEETING of mobilized chemists was held at Angoulême on April 23rd to consider the question of founding a general union of the chemists of France. The object of the proposed organization is to form a combination of all French chemists for the study of questions relating to chemistry in general, and in particular to enable French chemical science to compete successfully with the powerful German organizations.

AT the meeting of the Röntgen Society on May 2nd, Major Robert Wilson of the Canadian Medical Service showed an enclosed tungsten arc lamp which he has devised for the treatment of wounds by ultra-violet radiation. His idea, he said, had been simply to produce a lamp much more cheaply constructed than the ordinary arc lamp in use at some of the hospitals, and more effective than the Finsen-Reyn lamp. As a result of experiment, he found it best to have a pure tungsten base as one electrode and carbon cored with tungsten powder as the other. The tungsten powder was made into a paste and forced into the central cavity of the carbon, being reduced in the intense heat which followed when the arc was formed. Various pairs were tried but nothing answered so well as these. The spectroscopic results showed the issue of radiation having wave lengths of 2,000 Angström units, and the arc had the advantage of being steady and free from sputter. He had several diaphragms available, but one great desideratum was to have the application of the rays upon the part as cold as possible. In order to direct the radiation, he used a mirror having such a curvature as to give a very slightly divergent ray at a distance of 12 in. from the light source.

Letters, Notes, and Answers.

THE telegraphic addresses of the BRITISH MEDICAL ASSOCIATION and JOURNAL are: (1) EDITOR of the BRITISH MEDICAL JOURNAL, *Atiology, Westrand, London*; telephone, 2631, Gerrard. (2) FINANCIAL SECRETARY AND BUSINESS MANAGER (advertisements, etc.), *Articulate, Westrand, London*; telephone, 2630, Gerrard. (3) MEDICAL SECRETARY, *Medisecra, Westrand, London*; telephone, 2634, Gerrard. The address of the Irish office of the British Medical Association is 16, South Frederick Street, Dublin.

QUERIES.

LOCAL ENDARTERITIS.

A. F. F. asks whether it is possible to have endarteritis absolutely blocking the axillary artery in its first part. No evidence elsewhere.

* * We have been unable to find any case recorded in which a strictly localized endarteritis has blocked an artery the size of the axillary. Thrombosis following local injury seems the likeliest cause of blockage in the case; or embolism; or spread of thrombosis from aortic aneurysm—though this would be excluded if the subclavian artery was unaffected.

ANSWERS.

LEUCODERMA.

DR. S. J. ROSS (Bedford) writes in reply to "L.R.C.P.": In two cases of leucoderma which have been under my care benefit was derived by the use of a lotion of mercury perchloride (1 in 1,000). In the syphilitic variety antisyphilitic remedies will prove of value.

LETTERS, NOTES, ETC.

COLD FEET AND STUFFY HEADS.

DR. E. LLOYD OWEN (Criccieth) writes: Professor Leonard Hill, F.R.S. (writing in the BRITISH MEDICAL JOURNAL for April 8th), probably rightly regards a cold in the head (and he might add diphtheria and most other infectious diseases) as most commonly due to infecting microbes transmitted in masses to a person through the saliva spray or mucous spray of another present in more or less close propinquity in the same room, that room being most frequently at the time imperfectly ventilated, and the microbes perhaps finding a favourable opportunity to commence operations after their new host has gone out into the cold air.

Such an imperfectly ventilated room would, in Dr. Hill's opinion, be one which is over-heated (this, however, being possibly accompanied by a cold draught at the level of the feet), and in which the air is over-humid and also too still and monotonous. Dr. Hill having found that, while the rate of cooling at the foot level in the House of Commons was high, that at the head level was low, remarks that this condition of things (cold feet and stuffy head, as he terms it), is not the best for our legislators.

But is he right? It may be granted that the conditions may not be altogether comfortable, but one would think, unless the feet are so cold as to distract the attention of the owners from the matter of debate, that by allowing blood to fill the brain (not the nasal mucous membrane merely), cold or at least cool feet would tend to mental alertness. Stuffy noses do not necessarily mean stuffy brains.

Are not cool feet and a warm brain the antithesis of the conditions that obtain when one is in bed asleep? Is there not during sleep a certain amount of anaemia (in spite of the horizontal attitude), resulting from determination of blood to the feet, and indeed to every part of the body covered by the bedclothes? My own experience is that to remain in a warm, luxurious bed, with only the head out, even after a prolonged sleep of eight or nine hours, is not very favourable to hard thinking. I fancy that I have read of some eminent authors who testified that some of their best work had been done with cold feet (or rather, while their feet were cold).

So I should say that cool feet and warm heads are, instead of the worst, the very best conditions for our legislators. On this matter depends the question whether fresh air inlets should be placed as low as possible (as hitherto in the House of Commons) or at a higher level.

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

	£	s.	d.
Seven lines and under	0 5 0
Each additional line	0 0 8
A whole column	3 10 0
A page	10 0 0

An average line contains six words.

All remittances by Post Office Orders must be made payable to the British Medical Association at the General Post Office, London. No responsibility will be accepted for any such remittance not so safeguarded.

Advertisements should be delivered, addressed to the Manager, 429, Strand, London, not later than the first post on Wednesday morning preceding publication, and, if not paid for at the time, should be accompanied by a reference.

NOTE.—It is against the rules of the Post Office to receive *poste restante* letters addressed either in initials or numbers.

Notes on Military Orthopaedics.

III. THE SOLDIER'S FOOT AND THE TREATMENT OF COMMON DEFORMITIES OF THE FOOT.

BY

LIEUTENANT-COLONEL ROBERT JONES, CH.M.,
F.R.C.S.I. (Hon.),

INSPECTOR OF MILITARY ORTHOPAEDICS, ARMY MEDICAL SERVICE.

PART I. FLAT-FOOT.

The foot must be regarded for our present purpose as consisting of two parts: The hinder part, behind the mid-tarsal joint formed by the os calcis and astragalus; and the fore part, in front of that joint, consisting of the rest of the tarsus, the metatarsus and the toes.

The Three Arches of the Foot.

The hinder part of the foot is designed to carry the body weight when standing. The os calcis and astragalus are strongly bound together by ligaments, and the astragalus is securely set between the two malleoli at the ankle joint.

The fore part of the foot is much more mobile, and is designed to give spring to the foot when walking. This spring depends on the efficiency of the small muscles of the foot, on the integrity of the longitudinal and transverse arches, and on the freedom of movement of the toes themselves.

Regarded as a base of support, the foot is a tripod resting on the heel, the head of the first metatarsal bone, and the heads of the fourth and fifth metatarsal bones. Each side of the triangle formed by these three points is arched. The outer side formed by the os calcis, cuboid, and the fourth and fifth metatarsal bones is so slightly arched that practically the whole length of it rests on the ground when standing. This element of the foot is therefore not very susceptible of strain, and need concern us no more.

The inner side is strongly arched; the arch runs from the heel upwards and forwards to the neck of the astragalus, then downwards, forwards, and *inwards* through the scaphoid, internal cuneiform, and first metatarsal bones to the ball of the great toe. This arch, which varies in height in different individuals, is composed of a number of bones, is very susceptible to strain, and is in consequence the seat of a number of disabilities which we shall group together as "flat-foot."

The third side of the triangle runs from the head of the first metatarsal bone to the heads of the fourth and fifth metatarsal bones, and forms the front part of the transverse arch of the foot. It must be remembered that this transverse arch extends backward throughout the whole of the forepart of the foot. The cuneiform bones and cuboid bones are arranged in a transverse arch as well as the metatarsal bones.

Deformities and Disabilities of the Foot.

In considering deformities and disabilities of the foot due value must be given to its various mechanical elements—that is to say, not only to its bony structure but also to the muscles and ligaments which help to maintain its shape.

Looked at in this way we find among the deformities and disabilities of the toes such conditions as hallux rigidus, hallux valgus, and hammer-toe, and we note that the two former in particular are frequently associated with some degree of flat-foot.

Impairment of the transverse arch is specially apt to be associated with the painful condition known as metatarsalgia.

Impairments of the longitudinal arch are associated with a train of symptoms which are found in the various degrees of weak foot, everted foot, and flat-foot.

All these types of derangement of the mechanical elements of the foot and the resulting disabilities depend on strains about the complicated series of joints in the fore part of the foot.

In the hind part of the foot the disabilities are fewer. They are mainly connected with painful conditions of the heel, due to such conditions as strain of the insertion of the tendo Achillis, or periostitis of the os calcis, due to trauma or sepsis.

When a clear idea of these several disabilities and of the measures suitable for the prevention or treatment of each has been obtained, it will be more easy to grasp and understand the various disabilities of the foot to which the soldier is liable, always remembering that two or more types often occur simultaneously, and that all must be appropriately treated.

Flat-foot.

The term "flat-foot" may be taken as a generic term to include all degrees of strain of the longitudinal arch of the foot. To these various conditions different names have been given, which need not detain us here. The point to be understood is that all degrees occur, from slight strain of the ligaments and tendons by which the arch is maintained to complete descent of the arch with osseous deformity, obvious to the most casual observer.

The essential fact in the deformity is abduction and eversion of the fore part of the foot (Fig. 1). If it commences as a sudden acute condition, it is associated with strain of the inferior calcaneo-scapoid ligament; to this is due the tenderness elicited on pressure on this ligament just below the tubercle of the scaphoid. This tenderness is characteristic. Pain in this situation is often most acute in patients who have naturally a very high arch. When such an arch begins to give way the strain on the "spring" ligament is great and the pain correspondingly severe, but the foot is not physically flat, for the arch may still be higher than is normal in most people.



FIG. 1.—Flat everted foot.

As the foot becomes more strained under continued exercise, the bones of the tarsus begin to descend and pain is complained of across the dorsum of the foot.

Finally, when the deformity becomes still greater, there may be pain on the outer side of the os calcis below the tip of the external malleolus. This is probably to be attributed to bruising of the periosteum due to the os calcis impinging on the malleolus; in some cases an adventitious bursa is ultimately produced in this situation.

Acute Flat-foot.

All the above symptoms, and also actual descent of the arch with pronounced abduction and eversion of the foot at the mid-tarsal joint, may come on with great rapidity and then be associated with very severe pain, so that the patient cannot walk and can hardly bear to have the foot touched. Such a condition may fairly be described as acute flat-foot. It occurs in its typical form in people who are in poor physical condition, as, for instance, after an attack of influenza, and return too soon to work which involves much standing and lifting of weights—for example, hospital nurses. It occurs in exactly the same way in the recruit. Take, for example, the clerk who has taken little exercise and who has been in the habit of wearing boots in which there is no room for movement of the toes and bones of the fore part of the foot; all the muscles and ligaments controlling and supporting the arches of the foot are weak and out of condition from want of use; under the strain of hard drill they give way.

Treatment of Acute Flat-foot.

The treatment of such a case falls into three stages.

First Stage.—If the foot is acutely painful the patient should be put to bed and the feet gently massaged for two or three days till the acute tenderness passes off. During this time he must never be allowed to set foot to the ground, for the weight of the body would again strain the ligaments.

Second Stage.—As soon as the acute tenderness has passed off, the foot should be adducted and inverted so as completely to restore the arch, and the foot kept continuously in this position to allow stretched ligaments to shorten and become adapted to the correct position. Mere rest in bed is not enough, for then nothing is done to restore the proper shape of the arches, adaptation takes place in the flat-foot position, and the patient is left with a real flat-foot. It is often best to mould the foot into correct position and fix it in plaster-of-Paris for about ten days to allow the strained ligaments to recover completely.

Third Stage.—When the plaster is removed, after, say, ten days, the patient's foot is exercised—first of all by massage and exercise, particularly movements of the toes and inversion movements, never eversion movements. These inversion movements are intended to strengthen the muscles controlling the arch.

Boots.

The patient is allowed up in specially altered boots. The boots should grip comfortably round the ankle and heel, but the whole fore part of the boot should be roomy to allow free play of the small muscles inside the boot.



FIG. 2.—Boot with straight inner border, crooked and lengthened heel, patch to thicken sole.

Pointed toes are very harmful, as they abduct the fore part of the foot and help to produce the condition of flat-foot. The inner side of the boot should be straight, so that when the two boots are placed side by side the inner sides are parallel right forward to the great toe. This is not the conventional boot of the shoemaker, but it is the correct boot for a strong foot.

The present army boot is not perfect, but it is much better than it was some years ago.

Having seen that the boots are of suitable shape, they should be sent to the shoemaker to have the heels "crooked" on the inner side. By this is meant that the heel of the boot is made a third of an inch higher on the inner side, and tapering gradually to its outer side, so that the inner side of the heel is a third of an inch higher than the outer side. In addition, the length of the heel should be extended forwards by three-quarters of an inch on the inner side, and the sole should be raised one-third of an inch by a patch on the inner side of the sole just below the toe-joint (Fig. 2).

The patient must never put foot to the ground without an altered boot or shoe on, otherwise he will unwittingly let his arch descend and so inflict a fresh strain on the ligaments.

The man should then be instructed to walk with feet parallel, not with the toes turned out. The altered heel helps the patient to keep his toe turned in. Exercises should be graduated till the man is fit for full duty.

A bad case of *acute flat-foot* should be fit for light duty in three weeks, and for full duty with the heels of his boots raised on the inner side in six weeks to two months.

It is really a question whether the army authorities ought not to issue all boots with heels raised on the inner

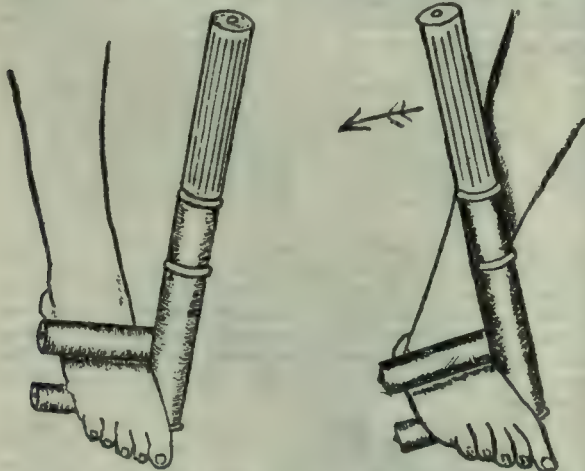


FIG. 3 A.—Thomas's wrench applied to invert everted foot.

FIG. 3 B.—Showing the position of the foot and direction of force at end of correction to inversion.

side, as this is a great relief to the foot on a long march and increases the man's weight-carrying and lasting power.

Certainly all recruits with weak feet should be started off with crooked heels on the boots until the muscles of their feet get into training. They should also be taught to walk with their feet parallel. If this were done the feet

would grow stronger rather than weaker, and considerably fewer men would require to be taken off duty.

Traumatic Flat-foot.

Flat-foot in every respect similar to that just described as acute flat-foot may arise from injury. For example, when the wheel of a trap runs over a man's foot and strains all the ligaments.

Flat-foot from Periarthritis.

Similar mechanical conditions arise in gonorrhoeal periarthritis when all the ligaments are sodden with exudate, become soft, and stretch. The same is true when the infection is of an ordinary septic character, for if the man puts weight on his foot before the arch is restored to its strength he will get a flat-foot. He can, however, walk with safety in a boot with the heel well crooked almost as soon as the disappearance of pain allows him to put his foot to the ground.

Rigid Flat-foot.

These cases lead us naturally to the rigid form of flat-foot which results from neglect in the acuter stages, whether the cause of the sudden yielding of the ligaments be overstrain due to unaccustomed exertion in walking, to injury, or to weakening of the ligaments by the products of infective agents.

The foot, therefore, should be maintained in the inverted and adducted position during recovery from the acuter conditions, and when the patient begins to walk the body weight should be deviated from the inner to the outer side (Fig. 2). If this important routine should be neglected the recovery of ligaments will occur in a flat-footed position with stiffness in all the joints. The patient in that case cannot stand on the outer edge of the foot or turn it into an arched shape.

Treatment is very simple, but must be thorough. The foot should be wrenched so as to break down all adhesions and make it thoroughly pliable (Fig. 3). The foot is by this means converted into an acute traumatic flat-foot, and it must undergo the course of treatment already described for that condition. It should be moulded into the correct position, and plaster-of-Paris applied. After two or three weeks of such rest, to allow recovery from the trauma, graduated exercise may be taken in boots so altered as to deviate body weight from the inner to outer side of tarsus. An outside iron is often found a great assistance in maintaining the correct position of the foot during walking (Fig. 4).

Osseous Flat-foot.

A real stiff flat-foot which has been neglected for years becomes an "osseous flat-foot"—that is to say, changes occur in the shapes of the bones to adapt them to the erroneous position. Though something can be done to improve such cases, they cannot always be made fit to be soldiers; the surgeon must, however, be sure that he is dealing with real osseous change and not merely with a flat-foot which is rigid owing to ligamentous contractures and adhesions.

Flat-foot due to Spasm of the Peronei.

I described this condition many years ago (Fig. 5), and stated that it was by no means uncommon. It may be found in any out-patient department if looked for, and I have operated upon as many as 150 cases in one year. It occurs usually after puberty and in early adolescence; it is common among the robust, not only among the weakly, and is not associated with the temperament known as neurotic. I will describe a typical case. A young man



FIG. 4.—Outside iron in addition to crooked long heel and piece to sole.



FIG. 5.—Peroneal spasm producing a flat everted foot.

of 18 limbs with a springless gait into the out-patient room. He walks with feet practically rigid and with toes pointing out. They are both everted, and the inner border over the region of the scaphoid appears thickened and even angular. Both the character of the walk and the appearance of the feet might lead to the diagnosis that osseous changes were advanced. On being questioned the patient may give a history of injury such as a fall on the feet; usually he cannot account for the origin of his trouble. The pain is often acute, the feet may perspire abnormally, and the patient may not be able to walk more than a short distance. Relief is experienced on removal of his boots; if he is asked to invert his foot he cannot do it, and when he attempts to do so the peronei become rigid. The surgeon when he examines the foot manually finds there is pain on pressure over the deltoid ligament, over the scaphoid, and over the tip of the external malleolus, where it impinges upon the os calcis, and tenderness over the peronei along the outer border of the foot. If the surgeon gently attempts to invert the ankle much pain is experienced and the peronei, so to speak, immediately place themselves on guard and strongly resist the surgeon's efforts. Now while the surgeon has firm hold of the foot, let him engage the patient in conversation, at the same time gently press in the direction of inversion. Then at the psychological moment, while the peronei are quiescent, very suddenly and very forcibly let the foot be inverted and held there. It is a very painful movement, but the character and contour of the foot is completely changed. It is no longer rigid, osseous changes are obviously absent, and the general appearance of the foot is almost normal. The moment the surgeon releases his hold, the old rigidity and deformity return.

For this condition mechanical measures are of no avail.



FIG. 6.—Exposure of tendons of peronei preparatory to excision of about $\frac{1}{2}$ in.

The patient must be anaesthetized to relax all spasm, and about three-quarters of an inch of each peroneus should be removed about an inch and a half above the malleolus (Fig. 6). The foot must then be fixed for about three weeks, well inverted and adducted at the mid-tarsal joint, and later the ordinary treatment for flat-foot. My old house-surgeon, Mr. Naughten Dunn, secured equally good results by pinching with a pair of forceps the nerve as it enters to supply the peronei. Simple

tenotomy of the peronei is not sufficiently drastic to prevent recurrence of deformity.

Diagnosis.

It is not an easy matter to lay down rules for a hard and fast differential diagnosis between these types of rigid feet, but the following considerations will help.

An osseous flat-foot which has become adapted to its new position is usually strong and painless.

A flat-foot rigid from adhesions and shortened ligaments is still susceptible to strain, and is liable to become painful after unusual exercise.

The type due to a spasmodic contraction of the peronei is characterized by pain, and the spasm may be overcome in the manner I have just indicated.

In the two last varieties, after the deformity has been over-corrected for a time, energetic massage and a correct deviation of body weight are essential elements in bringing about a cure. The osseous type, once the bones have completely dropped, may not only be painless, but may be strong enough to bear the strain of long marches. Wounded soldiers may constantly be met with whose feet are very flat, whose mid-tarsal joints are fixed, but who have undergone several months of hard training without a complaint. If in addition to these osseous changes the power of inversion of the foot is lost or the peronei are in spasm surgical attention is urgently called for.

The flat-foot for clinical purposes may be divided into two classes.

- (a) The foot which the patient can invert.
- (b) The foot which he cannot invert.

The first class will not respond to any mechanical treatment, such as a plate or alteration of the boot. It will not even suffer correction by means of a bandage to

an outside iron from knee to heel. An operation, or forcible manipulation and fixation under an anaesthetic, are essential preliminaries to the simpler mechanical methods.

The second class will never require an operation.

This simple clinical division should be helpful to the military surgeon.

Subacute Flat-foot (Ordinary Flat-foot).

The stage of flat-foot most commonly seen is neither an acutely painful foot too tender to be handled, nor a rigid flat-foot, but an intermediate stage, which may be called subacute.

The patient's feet give him little trouble in ordinary life, but a long walk makes them ache round the instep. When he goes to bed after a hard day's exercise his feet are apt to get stiff. Next morning they are stiff and painful when he gets up, but as he moves about this passes off; but later in the day, especially if he has to do a lot of standing and walking, the feet again become very painful.

Diagnosis.—This is made by considering the patient's history and by finding distinct tenderness on pressure below the tuberosity of the scaphoid; there may or may not be pain in other localities. Finally, the patient can voluntarily stand on the outer edge of his foot and can crook his foot into the arched position. This last point is very important, for it means that the patient will recover if the heels of his boots are crooked so as to deviate body weight on to the outer side of the foot.

The case should therefore at once be put through the last stage of treatment described under acute flat-foot—namely, graduated exercises—and he need not be taken off duty for more than a day or two while his boots are being altered. "Contrast baths" of hot and cold water alternately, to stimulate the circulation of the foot, are a great relief to the patient, especially at night, when his feet may be a little sore and swollen after having been walking about all day.

Conclusion.

I have purposely avoided all mention of tiptoe exercise. These exercises are excellent, but they will not cure a flat-foot if the patient is allowed to come down in the flat-footed position between the period of exercises.

If the principle of deviation of body weight on to the outer edge be loyally adhered to every ordinary case will recover, even without special tiptoe exercise. Loyal adhesion to the principle stated means that the patient never sets foot to the ground except in a properly crooked boot, shoe, or slipper. Even in his bath he must be careful to stand on the outer edge of the foot. The whole idea of treatment is to ensure that uninterrupted adaptive shortening of stretched structures shall take place.

Massage, tiptoe exercises, electric stimulation of muscles all help to hasten the recovery, but a few minutes' careless walking in stocking soles will undo all benefit from other treatment by again stretching recovering structures.

Frequently the high arched foot is the most troublesome type when the tendons are strained and the ligaments begin to give. The strain upon the astragalo-scaphoid joint in this type is, for obvious mechanical reasons, great, and the progress of the affection is often marked by a prominence about the scaphoid due to pressure osteitis.

THE census bureau of the United States Department of Commerce recently issued a summary of its statistics of causes of death in 1914 in the registration area, which comprises 435 cities and towns with populations ranging from 10,000 to 100,000, and represents about two-thirds of the total population of the United States. The total number of deaths was 898,059. Of these, 99,534 were due to diseases of the heart; 96,903 to tuberculosis (of disease of the lung in 84,366 cases); 83,804 to pneumonia; 67,545 to Bright's disease and nephritis; 52,420 to cancer and other malignant tumours; 52,407 to diarrhoea and enteritis; 51,272 to apoplexy; 15,044 to arterial diseases of various kinds; 11,786 to diphtheria; 10,666 to diabetes; 10,185 to typhoid fever; 15,617 to whooping-cough, measles, and scarlet fever. The statistics show that from 1904 there has been a continuous decrease in the mortality from tuberculosis and typhoid fever, while since 1900 there has been an almost continuous rise in that from cancer and diabetes.

THE CAUSES AND PREVENTION OF TRENCH FOOT.

By BASIL HUGHES, M.B., F.R.C.S.,
CAPTAIN R.A.M.C.(T.F.).

The pathologic condition which has been called "trench foot" has given rise to considerable discussion, and from time to time articles by different observers have been published in which various suggestions for its treatment have been made.

The importance of the discovery of the true cause of this condition can hardly be exaggerated, whether it be regarded from the point of view of the internal economy of the service, or that of the permanent disability that may result to the men so attacked.

Despite the conscientious following out of treatment recommended, numerous cases continue to occur, and, in consequence, much thought was given to the condition in the hope that the true cause might be found.

From October to the end of December, 1915, I was attached to a regiment which was holding a section of the line where the conditions were extremely bad. During August and September and July I had been attached to other regiments in the same salient, but the conditions during these three months were not comparable to those obtaining from the latter part of October to the end of December. During the earlier months the dug-out accommodation was good, and men could lie down during the day time; but during the later period many of the dug-outs had either fallen in or had been blown in, the parapet in other places had fallen in owing to the wet, and owing to difficulty in finding suitable soil it was not always possible to repair it. The men, therefore, during the day were unable to move about, and either had to stand or crouch until nightfall. At night they usually slept in a sitting position, when they slept at all.

The first case of trench foot I saw in October was that of a bomber who had been on duty through the night in a wet sap; and the next three or four cases were also of bombers who had been on duty in this sap, and the succeeding cases were sentries who had been in and about the entrance to this sap.

In all these cases the history was identical. The man had felt little inconvenience, except that the feet felt like "pins and needles," and had "gone to sleep." There was time and opportunity for one man at a time to sit down and get his feet up, but this particular sap was in such a bad condition that the one man who could sit could not get his legs up.

On coming off duty in the morning they were able to take their boots off, rub their feet, and turn in to a dug-out. In some of the dug-outs they could lie at full length, in others they were semi-recumbent. During their sleep, despite the fact that their puttees were off, their socks changed, and bootlaces slack, the feet swelled, became red and tender, and the circulation in them was sluggish. The oedema was soft and pitted on pressure. On putting their boots on again these men were unable to walk.

Another class of case I saw was in men who had been on sentry-go. They felt pain in and under the great toe; it spread rapidly to the heel and then along the outer border of the foot. This pain frequently came on during the resting period. Examination showed that the feet in the parts mentioned were red, tender, hot, and to some extent swollen; the condition resembled more the beginning of an acute inflammation than in the preceding cases.

Stage I.—The two above mentioned types of cases were seen in men who reported their condition early and may be called Stage I. It would seem that the exudation causing the oedema in the foot takes place first of all deep to the plantar fascia and extends to the dorsum of the foot, for the same reason that an inflammatory exudation deep to the plantar or palmar fascia usually manifests itself in oedema of the dorsal surfaces. The soles of the feet were very tender to deep pressure.

Stage II.—Men who did not report early, but persevered in treating themselves, and at the same time tried to do their share of duty in the trenches, presented a condition of the feet which differed materially from the stage already described. These men invariably reported twenty-four hours after the first stage had set in. Almost without

exception they told of the rapid onset of the initial swelling of their feet during the resting period, and that while on duty prior to their feet swelling they had noticed no inconvenience beyond some numbness and "pins and needles." The foot was swollen and cold, and the condition sometimes, though rarely, extended to the ankle and slightly above it. Pain was never a marked feature; loss of sensation seemed to take its place. The oedema was of quite a different kind, there was no pitting on pressure, and the feel imparted to the hand was that of a solid rubber ball. Circulation as tested peripherally was extremely sluggish, and in places about the toes it was questionable if it existed, but doubtless it did. This condition might be called Stage II.

Stage III.—The last and final stage is that in which gangrene supervenes. Fortunately, I met with no such cases in my own regiment, though I saw cases of this sort that had reached the hospitals in England late in 1914 and early in 1915.

After the occurrence of the first of my cases I went to the sap from which they had come. I examined the boots, socks, and feet of the men, the adjustment of their puttees, and was soon convinced that the rubbing of the feet was being most conscientiously seen to. The boots were letting in the thick soupy mud over the tops, and in some cases the fact that the tongue of the boot had not been stitched sufficiently high up made the letting in of this liquid mud the more easy. The socks were being frequently changed. In most cases two pairs were being worn, and the boots issued were a size larger than were normally required.

The only cause, or exciting cause, that could then be suggested was the soupy mud of the trenches, and its infective nature; it had come in contact with decomposing organic matter, which was present almost everywhere, and could neither be removed nor kept covered for any length of time owing to the enemy's artillery.

I then ascribed the condition to some infective agent, and set to work to examine cases more closely from this point of view. The socks of the men who came down with this condition had a faecal odour resembling that of wounds infected with the gas bacillus, but other men's socks, including my own, had the same odour, though there was no trace of trench foot. The smell was to be ascribed to the multiplication in the socks of organisms which got into the boots with the liquid mud.

Rubber knee boots were then issued to the men, and attention was paid to the socks being clean and dry. Rubbing the feet was persevered with both with antiseptic grease and whale oil. In addition, whenever possible, the men were given exercise. Yet, though the men's feet were saved from coming in contact with this liquid mud, still the incidence of "trench foot" did not abate.

It was at about this time that an article was published in the BRITISH MEDICAL JOURNAL ascribing a microbic cause for "trench foot." Interesting as it was, it was apparent now to me that bacteria were not the cause of the condition, and it was evident that the cause must be looked for in some other direction.

As times were now hard in the trenches, I thought of fatigue and consequent collection of waste products of metabolism in the cellular tissues of the lower extremities. This was very possible under the then existing conditions. It seemed reasonable to suppose that fatigue with stagnation of products of katabolism in the lower extremities might act as a predisposing cause, and cold and wet as the exciting cause. The symptoms and onset seemed to fit with this view, and a scheme on new lines was instituted. Hot soup, made from the bones of the fresh meat issued together with meat-extract cubes and vegetables, was sent up to the men in the trenches each night. The fresh meat was cut off the bones at the transport lines, passed through a mincing machine, and was, with the service biscuit, made up into most appetizing rissoles. These were cooked in the transport lines and sent up to the trenches, where they were heated up by the men in their mess tins. All suet fat was saved, and this, with flour and raisins bought from the profits of the dry canteen, was made up into plum-duff, which was exceptionally palatable and of high caloric value. On other days, where mutton had been an issue, Irish stew was made, and small suet dumplings included in it. It was served hot to the men in the trenches.

I will not go into the daily menu arranged by the commanding officer for the men, beyond saying that the rations were made most appetizing and were used to the last calorie; nothing was cast aside, the profits of the dry canteen being used to buy vegetables, flour, raisins, etc., by which means every particle of fat was turned to useful purpose. The soup made from the bones, etc., was excellent and was served most nights in the regimental head-quarters mess.

With this feeding the health of the men improved. There was less sickness; in fact, sick parades were for men in the trenches, under the conditions then existing, extraordinarily small, and incidentally the number of cases of trench foot began to fall. At this time an issue of long rubber boots had been made, and the men's feet were protected from trench mud, though not from wet, as socks got wet owing to condensation in the boot. The fact, however, remained that the number of cases of "trench foot," Stage II, fell.

This suggested that by an improvement in the general health of the men, by giving stimulating hot drinks at night with a rum issue at stand-to in the morning, and by the wearing of long rubber boots, we might hope to get rid of the condition entirely.

In this we were again disappointed, for though the number of Stage II cases fell almost to nil, yet a number of men paraded with painful swollen feet, that is Stage I, though their number was smaller than formerly. They were sent to hospital, and returned at the end of ten days, only frequently to relapse again. In the end those men who showed tendency to relapse were given employment further back, where they could turn in at nights, and under these conditions the trouble did not seem to recur.

We left that portion of the line at the end of the year, and went to another part where the trenches were in good condition, and were deep, so that men could move about during the day time. The weather, however, was bad, with much snow, frost, and wet.

I was doing my round of the trenches the first night we got in, and incidentally stopped to rest on the fire-step with my legs hanging down. I was surprised to find that at the end of three minutes my feet had "gone to sleep," there was the sensation of pins and needles, and the feet felt numb. Thinking this might be a coincidence, I tried it on two successive occasions, only to find the same thing happened each time. After the third time my feet in the morning were tender, and decidedly swollen, so that I could not get my boots on. I stayed in my dug-out the next day with my legs raised, and had my feet rubbed frequently. At the end of forty-eight hours all swelling and pain had gone. This experience caused me to go round at night and insist that when men were on duty in pairs the man whose turn it was to rest should lie with his feet up on the fire-step. Every man had a blanket; so that each man resting had two, his own and that of his acting partner. By this means every man resting did so with his feet up, and he had his great-coat and two blankets to cover him.

It was a pleasant change to see these men sleeping, and to find that they were warm and comparatively comfortable.

Though the weather we have experienced in the trenches has been most inclement, yet since taking this precaution we have had no cases of trench foot over a period of twelve days in the trenches. This is not a coincidence, I think; the unit which occupied the same trenches before us had several cases.

From the accompanying illustration it will be seen how congestion of the feet may readily be brought about by a man sitting on the fire-step and going to sleep. The sharp edge of the fire-step can exert considerable pressure over the popliteal space, and so impede the return of blood along the popliteal vein, without stopping the flow along the popliteal artery, and the soldier who is not on duty will invariably go to sleep sitting on this step, unless he is watched and warned to the contrary.



From the results and observations in the trenches, I have come to the conclusion that two factors are at work in producing trench foot:

1. A predisposing factor, namely, fatigue.
2. An exciting factor which is purely mechanical, namely, venous stagnation and consequent exudation of material into the tissues of the foot.

The condition may be classed in three stages, as follows:

Stage I, or the stage of congestion, brought about by resting, especially after any exertion or long standing, with the legs down. This is brought on more quickly if fatigue is in any way present, as after long standing while on sentry-go, when the lower extremity contains waste products of katabolism, so facilitating exudation from the capillaries into the connective tissue spaces. It will easily be seen how sitting on a fire-step, with the legs hanging down, would favour this, specially where there is some pressure exerted on the popliteal vein. The symptoms of Stage I have already been alluded to.

Stage II, or the stage of coagulation. Here the exuded material appears to have undergone coagulation. This, again, would be hastened and favoured by the presence of toxic katabolic products in the intercellular tissues. The feel of the foot in this condition, like to that of a solid india-rubber ball, coldness, and loss of sensation, marks some radical change between this stage and Stage I. Further, ordinary rubbing and massage seems to have but little influence on this condition, and electric vibratory massage combined with effleurage seem to be the only agents for removing the exuded material.

Stage III, or the state of gangrene, is brought about by the pressure of this exuded material on arteries and veins. There is thrombosis in the smaller venules, and such would be hastened by the presence of toxic katabolic substances present.

TREATMENT.

The whole plan of treatment aims at prevention. If once the condition has progressed to Stage II, then the case necessarily passes out of the hands of the regimental medical officer, and colleagues further down the line can better speak of the

treatment of the condition than I. The same applies to cases that have progressed to Stage III.

What concerns us who are working in the front line is prevention and the treatment of Stage I, which is the stage of congestion.

Prevention is attained by insisting, whenever possible, that the men while resting should do so with their legs elevated. This cannot too strongly be impressed on officers commanding battalions, the second in command, and especially company and platoon officers. In addition to this, a nightly tour of the trenches, to convince oneself that such recommendations are being carried out, is essential. A daily tour is not necessary from this point of view, as most of the men are sleeping in their dug-outs in the recumbent posture.

One blanket per man should be insisted on, so that the sentry resting at night on the fire-step has two blankets to roll himself in and lie with his feet up on the step.

Hot soup and rum ration are, in my opinion, valuable assets for the general vitality in trench life; and other little alterations in the method of serving up the daily ration have already been referred to. Attention to this is all-important in warding off fatigue.

These points seem small and perhaps tending to "spoil the soldier," but, in my experience, they are thoroughly appreciated and call forth better spirit and better work, and have done much to ward off fatigue.

Rubbing of the feet does no harm and may do good, but the good, I think, comes from the fact that the men change their socks after doing it.

Let me here repeat that the main points in prevention are:

1. Keep the feet raised whenever possible so as to prevent stagnation, especially after a period of standing while on sentry-go or in a listening sap.

2. Keep the soldier fit by getting the full calorific equivalent out of his ration, thus keeping the blood pressure up and "warding off fatigue."

If congestion (Stage I) has occurred, I have always detained the men at the regimental aid post for twenty-four to thirty-six hours. If a regimental aid post has not existed in the part of the line to be held I have immediately made one, and have always been supplied with a fatigue by the commanding officer to erect it in minimum time. This dug-out will usually accommodate six to eight men, and timely massage with rest have rendered the men fit to go back to trenches in thirty-six hours. They report each day for three days for further massage, and at the end of this time, with instructions as to the keeping up of their legs whenever possible, I have had no further trouble.

By this means many men were kept in the firing line who would otherwise have been temporarily lost to the unit, and this is a point the importance of which need not be emphasized.

I have to thank my commanding officer for the kind help and co-operation he has shown in this endeavour against "trench foot," and I have every confidence that we shall be able to face another winter campaign with a minimum of men going down with this condition.

The remarks and suggestions made in this paper may not be new to many, but what I have written has been the result of careful and persistent investigation of my own cases, which at first were considerable in number, but which have, I am glad to say, been reduced to nil.

THE EXCYSTATION OF ENTAMOEBA HISTOLYTICA (TETRAGENA) AS AN INDICATION OF THE VITALITY OF THE CYSTS.

BY

W. J. PENFOLD, M.B., H. M. WOODCOCK,
D.P.H., D.Sc.

(From the Bacteriological Laboratory, the King George
Hospital, Waterloo, S.E.).

AND

A. H. DREW,

BACTERIOLOGIST, ROYAL INSTITUTE OF PUBLIC HEALTH.

In the course of an experimental investigation undertaken to ascertain the value of emetine as a prophylactic for amoebic dysentery we have found kittens extremely refractory to the cysts of *E. histolytica* (*tetragena*)—that is, only a very small proportion (one out of twelve, after a three weeks' incubation period) of those fed with faeces containing large numbers of cysts become infected. We were thus led to endeavour to cultivate the *Entamoeba* from the cysts in order to obtain, if possible, stock cultures of active forms for rectal inoculation. Owing to the fact that we are going abroad very shortly, this work has now to be broken off for the time being. As we have found a method of causing the cysts present in the faeces to excyst and liberate the contained *Entamoeba*, we think it worth while to indicate briefly the results obtained, since this method furnishes the most reliable, and, indeed, the only conclusive, evidence of the vitality of the cysts. This is a point of the utmost practical importance as bearing upon the duration of life and the infective power of the cysts under varying environmental conditions.

A sample of faeces containing a good infection with cysts is well emulsified with saline (or water) and filtered through three or four layers of fine gauze, to remove the larger faecal particles. The filtrate is then centrifugalized and the deposit washed three or four times, the supernatant liquid, which contains large numbers of bacteria but no cysts, being pipetted off each time. By this means toxic products are removed and the cysts are concentrated in a mass of fine faecal debris. As excysting agents we have tried pepsin, in an acid medium, bile, and pancreatic extract, either alone, consecutively, or together, as appeared indicated, but the only success we have had has been with pancreatic extract used alone. The preparation used is Benger's *liquor pancreaticus*. A mixture is made

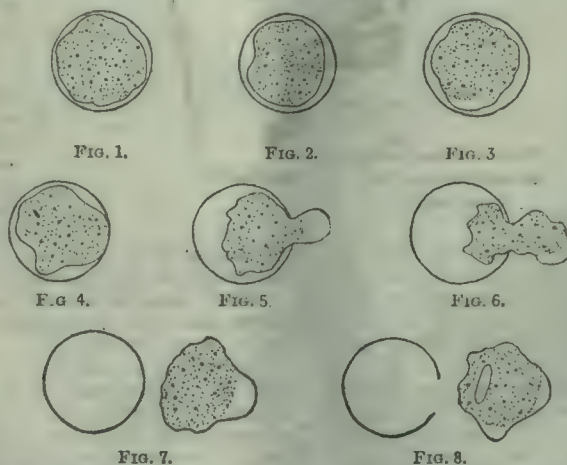
up in the following proportions: Nutrient broth 5 parts, liquor pancreaticus 2 (or 3), cyst-containing sediment 1 part. This mixture is then incubated for five to seven hours at 37° C. At the same time a drop of the mixture is placed on a slide, covered, and the cover-slip ringed to prevent evaporation; this is also incubated. This observation-preparation serves as a control to the tube and can be taken out and rapidly examined whenever desired, to ascertain how excystation is progressing; after five or six hours excystation is usually taking place.

Even of cysts in freshly passed faeces, the majority of which appear quite normal, only a small proportion excyst. The first indication of approaching excystation is that the protoplasm becomes very slightly retracted from the cyst-membrane and appears somewhat crinkled (Fig. 1). By careful watching it can be seen that the contour of the body is very slowly changing its shape, that is to say, the *Entamoeba* is becoming slightly amoeboid (Figs. 2, 3). The nuclei are not visible; it may be pointed

out that when the nuclear rings are clearly visible in a fresh *tetragena* cyst, it is a sign that the cyst contents are dead; in this respect the *tetragena* cyst differs from the cyst of *E. coli*. Next, the periphery of the body becomes applied to the thin cyst membrane in the region where the wall is about to be dissolved (Fig. 4). Dissolution of the cyst-membrane takes place over a small area only. It is brought about, we consider, by the action of external influences; for example, the pancreatic juice, probably helped to some extent also by bacterial ferments present in the intestinal contents.

In the next stage (Fig. 5) the *Entamoeba* is beginning to emerge from the cyst. A small protuberance, often finger-like, is thrust out through the aperture; it may appear clearer than the bulk of the protoplasm, and be

mainly ectoplasmic in character. The whole of the protoplasm now gradually flows out of the cyst (Fig. 6); the entire process of emergence may take only about ten minutes, though it may take longer. In every instance which we have observed, the entire protoplasm comes out as a single *Entamoeba*; there is no indication whatever of division while still inside the cyst. We are strongly of the opinion that this is the normal method of excystation. It may be mentioned that tyrosin was always present to saturation in the liquor pancreaticus which we used, the white deposit which is usually seen at the bottom of a bottle of this preparation (after keeping for a while) consisting of pure tyrosin needles and sheaves which have crystallized out. We are informed by Dr. Maclean that the amount of this amino-acid normally present in the duodenum is not likely to represent a greater concentration than we have



Excystation of *Entamoeba histolytica* (*tetragena*); from sketches made at the time of observation. Figs. 1, 2, and 3. Slight amoeboid changes within the cyst. Fig. 3 shows a slight development of ectoplasm (this is unusual, and only seen if excystation is apparently delayed). Figs. 5 and 6. Emergence of the *Entamoeba* through an aperture in the cyst membrane. Figs. 7 and 8. Two liberated *Entamoebae*, with their empty cysts (seen in optical section): in the latter figure the aperture in the membrane is in focus, and this *Entamoeba* possesses a "chromidial block" (the endoplasm is dotted to indicate its finely granular character; the ectoplasm is left clear).

used in our tubes. From our observations we do not consider that a division into four amoebulae takes place, as a rule, within the cyst. After the *Entamoeba* has completely emerged, the cyst-membrane left behind appears like a very delicate, single-contoured, usually spherical ring (Fig. 7); only by careful focussing at a particular level can the break in the wall be made out, which represents the dissolved area (Fig. 8).

We have seen excystation of amoebae which had no chromidial block in the protoplasm (Fig. 6), as well as of others which possessed this structure (Fig. 8); so that one of these conditions cannot be said, apparently, to represent a riper phase, as regards readiness for excystation, than the other. For a little while the liberated *Entamoeba* remains more or less rounded and sluggish; but soon it begins to throw out the typical clear, blunt pseudopodia of the *histolytica* type, these often welling out laterally in the characteristic manner. We have not yet been able to carry out direct observations further at this period, and cannot say, therefore, whether the *Entamoeba* proceeds to divide into four, and, if so, how soon this occurs. Indeed, from our living observations, we could not tell whether the amoebae which excysted had always four nuclei, or whether individuals with only one or two nuclei also had been able to excyst.

When we have ascertained that excystation was proceeding actively in the tubes, we have always subcultured from them into the expression-liquid of blood-agar tubes, to which either two parts of citrated blood or equal parts of citrated blood and fresh serum were added. These new tubes were then placed in a vacuum and incubated at 37° C. At from eighteen to twenty hours after the excystation period we have seen both small and moderate-sized active *histolytica* forms in these cultures, a few of the larger individuals containing red blood cells. It is a moot point whether any multiplication had occurred, beyond probably division of some of the originally encysted forms into four; and even in regard to this we do not feel certain. In spite of all our efforts so far, the growth of bacteria has always been excessive and gave no promise of successful cultivation of the *Entamoebae*. On one or two occasions, twenty-four hours later—that is to say, from forty-two to forty-four hours after excystation—we have found one or two amoebae still alive but moribund.

To our surprise, the above method, which has proved so successful for the excystation of *E. histolytica*, has entirely failed to produce excystation of *E. coli*, and by none of the other methods tried have we been able to induce this form to excyst. We have evidence, however, that the small "minuta" form, which we have recently described,¹ excysts in the same manner as *histolytica* (tetragena), using the same method; and this bears out our view as to the close relationship of these two forms.

In the case of *Lambliia*, also, we have been unable to induce excystation. From the appearances of the cyst contents which we have observed, we are strongly of opinion that only a single individual will be liberated and not two separate individuals. In other words, we consider, as we have previously stated,² that conjugation and not division occurs within the *Lambliia* cyst. Wenyon³ has expressed the view that these cysts are multiplicative, and represent, indeed, the endogenous form of multiplication shown by these parasites within the host. In our opinion this view is mistaken, and does not take into account the biological factors (environmental conditions) which influence both encystment and excystation (Cropper and Drew,⁴ Woodcock and Lapage⁵). Not to enter into details here, we will only point out that when permanent (resistant) cysts, such as are passed out with the faeces, are formed in the bowel, conditions other than those prevailing in the region where encystment is occurring are necessary for excystation and the commencement of a fresh cycle of activity. Equally as is the case with the cysts of the parasitic *Entamoebae*, for instance, we have little doubt that these *Lambliia* cysts only undergo excystation on passing down the alimentary tract of a fresh host and coming into contact with its digestive juices. From our experience of multiplication in flagellates we should say the process takes place very rapidly; and it is quite likely that it occurs mainly amongst those parasites which are attached to the epithelium.

Had time permitted we had intended to use the above described method of inducing excystation of the cysts of

E. histolytica to test the vitality, and consequently the infective power, of the cysts, when kept under different conditions for varying lengths of time; much more evidence is needed in regard to this point on account of its great hygienic and sanitary importance. The chief experiment which we have had opportunity to carry out, so far, in this direction has been to keep cysts in a very slowly running current of water for fifteen days and to ascertain that certainly some were still alive at the end of this period. By this time the debris was practically freed from faecal bacteria, apart from those normally occurring in the water, and free-living protozoa (ciliates and flagellates) were present. We should say, therefore, that water which has been contaminated with cyst-containing faeces may remain a source of infection for a considerable period.

REFERENCES.

- ¹ Woodcock and Penfold, *BRITISH MEDICAL JOURNAL*, 1916, i, p. 407.
² Tedingham, Penfold, and Woodcock, *BRITISH MEDICAL JOURNAL*, 1915, ii, p. 710. ³ *Lancet*, 1915, ii, p. 1295. ⁴ *Researches on Induced Cell Reproduction in Amoebae*. ⁵ *Proc. Roy. Soc.*, B, 88, 1915, p. 353.

AMOEBIC DYSENTERY IN A MAN WHO HAD NEVER LEFT ENGLAND.

BY

C. WORSTER-DROUGHT, M.B.CANTAB.,

TEMPORARY LIEUTENANT R.A.M.C.,

AND

D. D. ROSEWARNE, M.R.C.S.ENG., L.R.C.P.LOND.,

TEMPORARY LIEUTENANT R.A.M.C.,

ATTACHED TO BACTERIOLOGICAL LABORATORY, ROYAL HERBERT HOSPITAL.

AMOEBIC DYSENTERY occurring in the British Isles is remarkably rare. Most of the cases hitherto recorded have been conditions of intestinal ulceration associated with liver abscess which have only been diagnosed *post mortem*. Thus Dickinson,¹ in 1862, described the occurrence of a hepatic abscess of considerable size with ulceration of the large intestine in a woman who had never been out of England. In 1881 Dickinson² again recorded a second case, that of a man aged 36, who also had never left England. *Post mortem*, ulceration of the large intestine was found coexisting with a liver abscess. In the same year Moore³ described a further case, that of a child aged 3½, who died with two hepatic abscesses and extensive ulceration of the large bowel. She had never been out of London. Amoebae are not mentioned in connexion with any of these cases, though the organism is said to have been discovered by Lamb in early as 1859, subsequently being more fully described under the name *Amoeba dysenteriae* by Lösch in 1875.

Saundby and Miller,⁴ however, in 1909 recorded the case of a man aged 42, in whom, *post mortem*, were found extensive ulceration of the large intestine and a liver abscess. Amoebae were demonstrated both in the intestinal ulcers and in the abscess cavity.

In none of these cases was the diagnosis made until after death, and it remained for Marshall,⁵ in 1912, to report the first case occurring in the British Isles which was diagnosed during life. This was a man who had never left Scotland, and in whose stools amoebae were repeatedly demonstrated; he made a good recovery. An ex-soldier, living near this patient, had spent some time in India, but gave no history of dysentery. Amoebae were not found in this man's faeces, and feeding experiments on a cat gave negative results.

Our patient was a private, who enlisted at the beginning of 1915. Prior to enlistment he had always lived in or about Manchester. The great majority of the men in his unit had been abroad at some time, but none had been out of England during the present war. Of three men who were sleeping in the same room as the patient only one had been abroad. This man had served in the South African war, where he had had diarrhoea of three days' duration only, which never recurred. His faeces, as well as those of five others in the unit, including the cook, who were said to have had dysentery abroad some years ago, were examined, with negative results. One, however, showed encysted forms of *Entamoeba coli*.

The patient, rather a stout man, aged 39, but looking considerably older, was admitted to hospital on February 16th, 1916. He had had no previous illness up till the onset of his present

complaint. Ten days before admission he complained of slight abdominal pain which increased in severity. Diarrhoea did not commence until four days later; from that time the number of motions varied from six to twelve per day, and were associated with some degree of tenesmus. It was not until the fourth day of diarrhoea (two days before admission) that he noticed "blackish blood" in the stools, and from this time onwards they continued to be blood-stained with an average of about twelve in the twenty-four hours.

On admission the temperature was 99° F., and the pulse 80. The tongue was furred, the teeth discoloured and carious, and he complained of pain across the lower part of the abdomen. There was marked tenderness in the left iliac region, and also to the right of the umbilicus, but no rigidity of the abdominal wall. The liver and spleen were not enlarged, and nothing was felt on rectal examination. The faeces were dark in colour, and contained mucus and dark red blood. A microscopical examination of the motion the following day revealed the presence of a large number of *Entamoeba histolytica*.

On the patient's fourth day in hospital emetine treatment was commenced. One grain of emetine hydrochloride was given by hypodermic injection daily for fourteen days (one-third of a grain in the morning and two-thirds of a grain at night).

During the first three days after admission the number of motions averaged twelve in the twenty-four hours; they were quite loose, and contained a quantity of blood and mucus. After six days of emetine treatment the number of motions had fallen from twelve to four in the twenty-four hours; they were still loose, and contained mucus but much less blood. Three days later the motions had diminished to three a day; they were loose, but there was only a small quantity of blood, and the patient was feeling much better. On the twelfth day with emetine the motions, though still inclined to be loose, were free from blood, and for the first time amoebae were absent. On the last day emetine was given the patient had but one motion, semi-solid, with a little mucus but no blood. Five days later the motion was fully formed, and mucus and blood were absent. From this date the patient progressed favourably without further incident.

The faeces were frequently examined throughout the illness, and active forms of *Entamoeba histolytica* were found up till the tenth day of treatment with emetine, but at no time afterwards. No cystic forms of the parasite were ever seen, although the motions were examined until three weeks after the patient's recovery, and no bacilli of the typhoid-dysentery group were isolated.

The blood tested as regards agglutinating power against the dysenteric organisms "Shiga," "Flexner," and "Y" types, proved negative.

The tongue, which was furred from the beginning, continued so until about the seventh day with emetine injections, when it began to clear. It was quite clean when they were stopped. The liver was frequently examined, but at no time was any enlargement noted. Abdominal pain persisted with diminishing severity until, practically, the motions were fully formed. During the first ten days in hospital he frequently complained of considerable pain after defaecation. The tenderness to the right of the umbilicus, mentioned on admission, had quite disappeared by the ninth day of emetine treatment, while that in the left iliac region did not disappear until three days after the motions were quite normal.

As regards temperature, at no time was it above 99.4°, which point it frequently reached during the first ten days after admission, but from this time onwards it was normal.

Although we failed to find pathogenic amoebae or their cysts in the faeces of those men examined, it is possible that the carrier was among other men in the unit who had been transferred to duties elsewhere before the patient came under observation.

The case we have recorded, therefore, appears only to be the second reported as occurring in Britain in which amoebic dysentery was diagnosed as a primary condition, and during life.

REFERENCES.

- ¹ Dickinson, *Trans. Pathol. Soc. Lond.*, vol. xlii, 1882, p. 121.
² Dickinson, *ibid.*, vol. xxiii, 1881, p. 127. ³ Moore, *ibid.*, vol. xxiii, 1881, p. 132. ⁴ Saunders and Miller, *BRITISH MEDICAL JOURNAL*, March 27th, 1909. ⁵ Marshall, *Edin. Med. Journ.*, p. 223, March, 1912.

SIXTEEN cases of plague have been notified in Hong Kong since January 1st.

The *Boston Medical and Surgical Journal* states that it has been computed that there are now more than two hundred open-air schools and classes for tuberculous and anaemic children in the United States. Massachusetts heads the list with 86, of which 80 are in Boston; next come New York with 29 and Ohio with 21. The first school of this kind was opened in 1907, and in 1910 there were only thirteen at work. It is estimated that there should be in cities one open-air school for every 25,000 of population.

THE TREATMENT OF PUERPERAL SEPSIS BY UTERINE SUCTION AND DRAINAGE.

BY

NORMAN PORRITT, M.R.C.S., L.R.C.P. LOND.,

CONSULTING SURGEON, HUDDERSFIELD ROYAL INFIRMARY.

THE suction tube has all the advantages with none of the dangers of the uterine douche. In at least two cases I have seen the uterine douche convert a smart sapraemia into a rapidly fatal general infection, whilst in another case it set up acute, presumably chemical, peritonitis. Whilst I was administering the douche the woman was seized with agonizing abdominal pain, which was quickly followed by general collapse and rapidly developing abdominal tenderness and distension. The douching was at once stopped, but the patient died five hours after the onset of the acute pain.

Dr. Goodall¹ has collected sixteen examples of chemical peritonitis following intrauterine douches. He says:

My eyes have been opened recently to the great ease with which fluid can be forced from the uterine cavity into the peritoneum. This was first brought to my notice by the frequency with which watery fluid was found in the peritoneal cavity after curettage. In not a few cases I have been astounded at the amount, and have examined the uterus for evidence of puncture, but this was never found. But the condition was readily explained when, later, Dr. Chapman began to inject a strong solution of iodine into the uterus in carcinoma cases in order to kill out the malignant cells and prevent their contaminating the field of operation. It was then found that, though a minimum of force was used, invariably the pelvic peritoneum was deeply stained, and contained fluid iodine in variable quantity.

To illustrate the patulousness of the Fallopian tubes Dr. Goodall narrates a case of congenital atresia of the sigmoid. The abdomen was markedly distended, and dark liquid blood was coming in spurts from the vagina. On operating, the abdomen was found full of blood and meconium, the sigmoid having ruptured. At the autopsy, four hours later, blood was still coming from the vagina.

In the cadaver Dr. Goodall has injected methylene blue into the uterine cavity with douche-can and cannula, imitating as closely as possible the technique of operative work. With a pressure of only two feet of elevation, and in some cases only eighteen inches, and with a temporary obstruction to the outflow, such as is frequently caused by clots and fragments of tissue, he was able to send fluid into the peritoneal cavity through the Fallopian tubes. Hence, he says, the risk of chemical peritonitis, not to speak of septic peritoneal contamination.

Then it should be possible to remove retained decidua from the uterus by means of the suction tube, and obviate the need for the deadly curette and the dangerous digital exploration of the uterus. The method of treatment is illustrated in the following cases:

CASE I.

On August 4th, 1914, I was asked to see a primipara, aged 25 years, who nine days before had been attended by a qualified midwife, who is also a trained hospital nurse. The labour was normal, and the placenta came away intact in about twenty minutes. When I saw the patient she had a temperature of 103.8° and a pulse of 140. The lochia had been and were normal and odourless, but the large uterus was retroverted. The uterus was reduced and a saline ordered. Next day, after vaginal douching, a gauze drain was put into the uterus, and renewed daily. For three days the temperature hovered round 103°, the patient was apathetic, semidelirious, had intense headache, there was some abdominal distension, and the lochia became fetid. On the thirteenth day after delivery a glass Budin's catheter, to which the inlet end of a Higginson's enema syringe was attached, was passed into the uterus. To secure the syringe to the Budin's catheter the inlet valve was removed. The tube of the syringe between the bulb and the catheter was held firmly and the bulb squeezed, so as to drive out the contained air through the nozzle. On releasing the pressure on the bulb, the valve behind the nozzle closed and prevented the return of the air. There was then a vacuum in the syringe, and on releasing the pressure on the tube, between the bulb and the Budin's catheter, suction was exerted through the catheter within the uterus. No air was drawn into the uterus, although the suction drew into the orifices of the catheter thick, grumous, semipurulent masses, which were too big to pass through, and, when the catheter was withdrawn, came with it. Reintroduction of the catheter and suction drew out more of these thick pieces. The vagina was syringed, and a gauze drain was inserted into the uterus. The next day the patient was free from headache, and the temperature had fallen to 100.8°. The fetor of the discharge was less, though the labia were swollen and red, and an abscess with no well-

defined limits formed over the sacrum. This was incised later. Suction was applied to the uterus on two successive days, after which the temperature did not rise above 99°, and the patient made a good recovery.

CASE II.

I was called to a primipara, aged 21, on January 6th, 1915. Just before my arrival she had given birth to a dead, decomposing six or seven months child. The placenta came away intact whilst I was separating the child. No vaginal examination was made. The same night the temperature was 99.4°, the next night 101.2°, and on the following morning 103°, with a pulse of 140. The vagina was douched night and morning, and Budin's catheter passed into the uterus. On suction by means of the Higginson syringe thick debris filled the tube and was brought away, after which a gauze drain was left in the uterus; 3 grains of calomel were given. The temperature at night was 100.8° F., pulse 120. There was no abdominal distension. The lochia were most offensive, and the smell was intensified when the gauze drain was taken out of the uterus. The suction tube was passed daily, and a gauze drain left in the uterus. On January 13th there was some odourless discharge on the diaper, and the smell in the room was only just perceptible. As soon, however, as the catheter was passed into the uterus it filled with thick, dirty, bloody liquid, smelling most offensively. About an ounce and a half of this offensive material, together with a quantity of blood clot, were sucked out of the uterus. On the next day, although there was only a little almost odourless discharge on the diaper, a quantity of thick fetid red liquid was evacuated from the uterus.

On the next day there was a similar experience. Though the diaper was covered with more discharge, free from offensive smell, thick, foul-smelling liquid was obtained from the uterus. The temperature, which for the last six days had not been above 101° at night, now reached 102°; the pulse was 120. As there was evidently imperfect drainage from the uterus, a piece 3 in. long was cut from the end of a large size celluloid Budin's catheter, and, held in a pair of forceps, was passed into the uterus. A string was attached to the piece of catheter for withdrawal, and the tube was retained in the uterus by a gauze vaginal plug. The tube was removed, sterilized, and reinserted daily. In two days the temperature fell to normal, and as it was normal on the following day, and only a small quantity of odourless, glairy mucus was obtained on suction of the uterus, a gauze wick was substituted for the celluloid drain. The next day the temperature rose to 100°, and as some thick, grumous liquid, very like thick pus, together with mucus and blood came away, the celluloid tube was reinserted into the uterus. The same night the temperature dropped to normal, and, next day, though nothing could be sucked out of the uterus, the gauze in the vagina, as well as the diaper, were soaked with discharge. Evidently the uterus was draining well. The temperature remained normal for three days after the reinsertion of the tube, and it was then removed and no drain of any kind was put into the uterus. The same night the temperature rose to 102°, and the patient had a rigor. It was found impossible to insert the celluloid tube into the uterus, which was acutely anteverted, but the next day after softening the tube in hot water and bending it, it was inserted without difficulty. It remained in the uterus forty-eight hours, when it was finally removed, and as tender peritumescence thickening became perceptible, and as it was impossible for the girl to remain longer where she was, she was removed to the Liverpool Hospital for Women. The peritumescence subsided satisfactorily, and the patient left the hospital in nine days.

I was not aware when I drained this girl's uterus, by placing a tube within it, that the same thing had been done before. Mr. H. Milton¹ has drained the puerperal uterus, keeping the tube in the uterus six, ten, and fourteen days; whilst Dr. Ernest Gallant,² of New York, has reported 252 cases of continuous uterine drainage in non-puerperal cases. The tubes were worn in the uterus without removal for so long as five, six, and seven months. The results of Mr. Milton and Dr. Gallant suggest that I need not have removed the tube from my patient's uterus so soon after the temperature fell.

The following is another case in which similar principles were adopted:

CASE III.

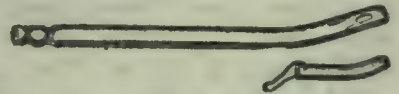
Mrs. E., aged 30. The child was born just before I arrived at the house, and the placenta was easily expelled intact in about four minutes. No vaginal examination was made, but three stitches were put into the perineum. In an adjoining room the patient's father was dying from an ulcerating epithelioma of the lips, face, and mouth. The stench from it filled the whole house. The day after the child was born the mother's temperature was 99.6°, on the second day 103°, after which it fell to 100°. The lochia became very offensive, the smell resembling closely that from the father's room. Till the seventh day vaginal douching night and morning was used, and then, as the temperature remained above 100°, Budin's catheter was passed, and a small quantity of offensive brown liquid was withdrawn on using suction. A gauze drain was passed into the uterus. The next day, on inserting the tube into the uterus, it filled at once with thick brown liquid, less offensive than before. The suction tube was used daily, and each day the fluid removed became less offensive,

less opaque and thick, until, at the end of five days, just a small quantity of clear, odourless, blood-stained fluid, free from shreds and semi-solid matter, was sucked out. After this the only local measure used was a vaginal douche night and morning. The condition of the patient, however, became more grave, though Dr. Wille³ of Liverpool, who kindly saw the patient with me, agreed that there was then nothing abnormal in or around the uterus. The clinical picture—profound anaemia, intractable vomiting, lethargy, intermittent abdominal distension and visible peristalsis, pigmentation of the breasts, legs, and abdomen—suggested Addison's disease. On the twenty-fourth day after delivery the patient died.

This case was one of true septicaemia, apparently, producing fatal blood destruction. The woman's father, whom I look upon as the source of the infection, died ten days after the birth of the child. I regret now that I did not give the woman antistreptococcal serum at the outset. But the first symptoms were not severe, and my experience of serum treatment in puerperal cases has been most disappointing.

Uterine suction tells us the conditions in the interior of the uterus. It is most instructive to watch the gradual alteration of the stuff withdrawn from a thick, offensive fluid, loaded with semi-solid purulent masses, to a clear red liquid, and from that to an inoffensive mucus. Moreover, it prevents us from being misled, as we doubtless often are, by the deceptive character of what we find upon the diaper. The diaper may be covered with discharge, which may be only an overflow, or may not come from the penthouse in the uterus at all, for there may be odourless discharge on the diaper, and foul, fetid fluid in the uterus. And efficient drainage of the uterus is the key to the successful treatment of puerperal sepsis.

The holes in the uterine end of the ordinary Budin's catheter are too small, and Messrs. Down Bros. have made to my instructions a larger model, which will allow the passage of uterine debris into the catheter. They



have also made for me a grooved celluloid drain for intra-uterine use, when the use of a drainage tube is indicated. Syringes other than the Higginson could be used to exhaust the suction tube, so long as they do not pump air into the uterus.

My cases are not numerous enough to dogmatize upon, but as now my opportunities for seeing such cases are limited I venture to publish them.

REFERENCES.

¹ Jas. R. Goodall, M.D., *Canadian Medical Association Journal*, July, 1914. ² *Lancet*, October 17th, 1891. ³ *New York Medical Journal*, October 10th, 1914.

A NOTE ON THE USE OF THE GALVANOMETER AS AN AID TO THE DIAGNOSIS OF NERVE LESIONS.

By G. NEPEAN LONGRIDGE, M.D. VICT.,
F.R.C.S. ENG., M.R.C.P. LOND.

SOME two years ago an article appeared in a medical periodical dealing with the electric currents which could be detected in the human body with the aid of a sensitive galvanometer. From the results obtained it was surmised that the brain is the seat of generation of an electro-motive force which is carried to the tissues by means of the nerves. Being sufficiently interested I put myself into communication with the author of the paper, and found that Mr. A. E. Baines, a submarine cable electrician, was the author of the theory. After some correspondence and interviews with this gentleman I obtained and set up an extremely sensitive astatic galvanometer of the Kelvin type. The instrument I am using has a resistance of 99,000 ohms.

Recently I have had an opportunity of examining two cases which, to my mind, constitute definite proof of the main truth of the theory. The examinations were made in a room at least half a mile away from the tram lines in the town which carry a continuous current of 500 volts, and in all cases the precaution was taken of earthing the patient before the readings were made. The method used was to fix a circular silver plate about an inch in diameter in the exact centre of the forehead; this plate

was connected to one pole of the galvanometer. The second pole was connected to a small silver button 2 mm. in diameter mounted in a vulcanite handle which could be brought into contact with any part it might be desired to test. With both poles in contact with the patient's body and the circuit key closed a deflection was obtained on the galvanometer scale which could be read off in millimetres.

The first case was that of a soldier under my care in the Racecourse Hospital, Cheltenham, with a wound just below the centre of the left forearm, and definite symptoms of paralysis of the median nerve below the seat of the injury. The wound had been inflicted several weeks before I saw him, and had healed.

On examination with the galvanometer the following deflections were obtained on the dates indicated, the moving contact being pressed upon the pulp of the fingers:

Galvanometric Deflections Obtained in Two Cases of Injury to Nerves.

	CASE I.—Wound of Median Nerve.				CASE II.— Wound of Ulnar Nerve.
	First Examination.	Feb. 21st.	March 15th.	April 1st.	April 1st.
Thumb ...	20 mm.	0 mm.	0 mm.	5 mm.	320 mm.
First finger ...	0 mm.	0 mm.	0 mm.	55 mm.	Off scale deflection.
Second finger	0 mm.	0 mm.	6 mm.	120 mm.	Do.
Third finger ...	75 mm.	90 mm.	130 mm.	Rapid off scale deflection 100 mm.	Do.
Radial side...	5 mm.	7 mm.	5 mm.		Do.
Ulnar side ...	155 mm.	140 mm.	150 mm.	Rapid off scale deflection Do.	3 mm.
Fourth finger	120 mm.	150 mm.	135 mm.		5 mm.
Hypothenar eminence	—	—	—	—	0 mm.
Thenar eminence	—	—	—	—	Off scale.

On February 18th, a few days after the first examination, I dissected out the median nerve, which was embedded for 1½ in. in dense scar tissue, and was partially divided on the ulnar side. After freeing the nerve from the scar tissue I resected three-quarters of an inch of it which was densely fibrosed, and joined the ends by catgut sutures. At the suggestion of Dr. Affleck, who was assisting me at the operation, I wrapped a piece of vitelline membrane from an egg round the seat of the suture. The wound healed moderately well, with the exception of a small area in the centre where the incision went through the old scar.

On April 1st the deflections obtained were better. On this occasion the man had walked a distance of two miles to the testing room, whereas on previous occasions he had been brought in a motor. The warmth of the day and the exercise perhaps accounted for the higher readings on this occasion.

In this case I have for the sake of simplicity only mentioned the finger deflections, although others were taken which were in consonance with the results obtained above.

On April 1st I was fortunate in being able to examine a man (Case II) with a healed wound just above the internal condyle of the left humerus, which was thought to have resulted in division of the ulnar nerve. The deflections in this case were the exact complement of the previous one.

These two cases to my mind demonstrate that something—it may be electricity or it may be something else—which acts upon a galvanometer in the same manner that electricity does is conducted by the nerves. The first case also shows that anatomical continuity of a nerve does not imply also its vital conductivity, since three days after complete section and restoration of its anatomical continuity it was not conducting any current which could be demonstrated by the galvanometer. I might mention that no deflection is obtained as a rule from scar tissue which is generally devoid of nerve fibrils.

In this short communication I do not wish to go into any of the wider applications of the galvanometer as an aid to diagnosis but simply to establish the fact that the nerves obviously do conduct electricity or a "trophic influence," which is at present indistinguishable from it.

A SIMPLE PORTABLE REFRIGERATING BOX AND ITS USE AS A TEMPORARY INCUBATOR IN MILITARY WORK.

By S. DELÉPINE,

DIRECTOR OF THE PUBLIC HEALTH LABORATORY, UNIVERSITY OF MANCHESTER.

LAST autumn a large number of soldiers who had returned from the Near East were admitted to several of the hospitals forming part of the 2nd Western Military Hospital. Most of these men were reported as convalescing from dysentery, typhoid fever, and paratyphoid fever. The excreta of all these cases had to be examined repeatedly before the men could be discharged from hospital.

At first these examinations were conducted at the Public Health Laboratory by Captain Sellers and Captain Loveday, but during the month of December the temporary services of three other bacteriologists became available.

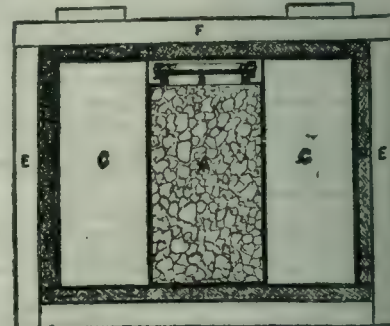
With regard to the typhoid cases, it would have been possible by an extension of the usual laboratory arrangements to examine daily a large number of cases, but as the faeces of the soldiers returning from the East had to be tested not only for the presence of typhoid, paratyphoid, and dysentery bacilli, but also for amoebae, it was desirable that the material should be examined while the stools were still warm, as this made the detection of motile protozoa easier and more rapid and certain.

It was, however, impossible to make arrangements to examine daily, immediately after evacuation, the stools of some 100 or 150 men, and it became necessary to devise means of collecting the material and keeping it warm for some time until the bacteriologist could conduct his examination.

It occurred to me that the portable refrigerators which are regularly used in the laboratory for the forwarding of samples of water, milk, and other products, would meet our requirements if used as warm chambers. These chambers allowed room for from thirty to sixty of the special tubes I have designed for the collection of samples of faeces for bacteriological purposes (see below). It seemed probable that the use of these temporary warm chambers would render the examination of a large number of specimens under suitable conditions not only possible but also convenient, and the experience gained in five months, during which more than 10,000 examinations of dysenteric faeces were made, has confirmed my expectations.

Description of the Portable Refrigerator.

The present form of the refrigerating box is a modification of a somewhat better but more fragile portable refrigerator, designed by me in 1892, and still in use both in my laboratory and elsewhere. The original box is a double-walled zinc chamber resembling a small incubator. The proportionally large cavity between the walls is filled with ice through a large lateral bunghole. The chief fault of this box is that its unsupported, comparatively thin walls suffer when the box is thrown about, as frequently occurs during railway transit. My new refrigerating box, which I have used for some years, is nearly as efficient as the first, and has great powers of resistance. It consists of a central or lateral metal ice-recipient, hermetically closed by means of a large screw bung. Round the ice-box a number of compartments are formed by metal partitions continuous with the walls of the refrigerating box. Each one of these compartments is



Portable Refrigerating Box (or Incubator).—The size of the box is 12 in. by 9½ in. by 8½ in. A, Recipient for ice or for warm water; B, screw bung for ditto; C, compartments for objects to be kept cool or warm; D, felt covering; E, wooden box; F, lid.

Round the ice-box a number of compartments are formed by metal partitions continuous with the walls of the refrigerating box. Each one of these compartments is

a tube of the same length as the refrigerating box. The bottom of these tubes may be closed by a metal plate or left open. Externally the refrigerating box and the system of compartments attached to it have the form of a cylinder, cube, or parallelepiped, as may be found most convenient. This part of the apparatus may be made of any metal, but on account of weight zinc and aluminium are the most suitable.

This metallic part of the apparatus is enclosed in a wooden box lined internally with a layer of loose felt $\frac{1}{2}$ in. to $\frac{3}{4}$ in. thick. To secure efficiency this felt should be quite dry, and to prevent any wetting taking place when the ice-box is filled, the opening of the box is at the bottom of a shallow tray, which must be mopped quite dry each time the box is filled. The felt may also be enclosed between layers of waterproof material. The capacity of the ice-box is 1,800 c.cm., and 1,000 grams of broken ice can easily be packed into it.

If in a room at 22° C. a bottle containing 250 c.cm. of water or milk at 15° C. is placed in one of the compartments of the refrigerator, and the wooden box is properly closed, the temperature of the water falls to 8° C. in one hour, to 4° C. in two hours, to about 2° C. in three hours, 1° C. in four hours, and remains below 2° C. for twelve hours more; it then rises gradually to 9° C. in another twelve hours. For at least eighteen hours the temperature of the water or milk remains below 4° C., and is sufficiently low to inhibit the growth of most bacteria.

In the case of water or milk at 36° C. the temperature is brought to about 8° C. in three hours, to below 4° C. in six hours, and continues to fall up to the fourteenth hour, after which it begins to rise slowly, but keeps below 4° C. for another ten hours.

No material multiplication of bacteria is observed in the course of twenty-four hours in a bottle of cow's milk placed in one of these refrigerators immediately after milking.

Peptone bouillon inoculated with a loopful of a culture of *Bacillus enteritidis* taken as an example of a very quickly growing organism, remains quite clear for over twenty-four hours when placed in a portable refrigerator; the same quantity of bouillon inoculated with the same amount of culture kept in a living-room at 18° C. is quite turbid after the same interval of time. In an incubator at 37° to 40° C. the growth of the bacillus renders the bouillon turbid in about four to five hours.

By removing daily the melted ice water and replacing it by fresh ice it is possible to keep the contents of the refrigerating box at a suitable temperature for several days when a large refrigerator is not available.

Description of Portable Temporary Warm Chamber or Incubator.

If the stoppered receptacle of the apparatus just described is filled with hot water or other material at a suitable temperature, capable of liberating heat gradually, a convenient form of temporary portable incubator is obtained. It is true that the temperature of products placed in this apparatus falls gradually and constantly, but this cooling takes place slowly, as is shown by the following observations.

The incubator being in a room at a temperature at 15° C., the stoppered receptacle was filled with water at 48° C. and a bottle containing 250 c.cm. of water at 34° C. was placed in one of the compartments of the apparatus. After two hours the temperature of the water in the bottle was 35° C.; after three hours it had returned to 34° C.; after six hours it was 30° C., and was still 20° C. fourteen to fifteen hours after the beginning of the experiment.

In another experiment, the temperature of the room being 15° C. and that of the water in the recipient 48° C., the cooling of 250 c.cm. of water placed in the incubator took place as follows:

The Original Temperature of the Water in the Bottle placed in one of the Compartments of the Incubator was slightly over 35° C.

After 1 hour	the temperature was about	...	37.0°
" 2 hours	"	"	36.7°
" 3 "	"	"	35.0°
" 4 "	"	"	33.5°
" 5 "	"	"	31.2°
" 6 "	"	"	30.0°
" 14 "	"	slightly below	20.0°
" 20 "	"	over	17.0°

At the end of 14 hours the temperature was still 5° above that of the air outside the apparatus refrigerator.

By filling the recipient with water at 55° to 60° C. a suitable range of temperatures, extending over a longer period, is obtained.

Practical tests gave results in accordance with the above findings. Peptone bouillon inoculated with one loopful of *Bacillus enteritidis* and placed in the portable incubator at 34° C. was nearly as turbid in five hours as a similar amount of bouillon inoculated with the same amount of *Bacillus enteritidis* and incubated at 36° C. in an ordinary incubator was found to be after the same interval of time.

After twenty-four hours the growth of the culture in the portable incubator had considerably increased, but, as could be expected, was somewhat less abundant than that of the culture kept during the same period at a constant temperature of 36° C.

With regard to intestinal protozoa, they remained motile in faeces contained in collecting tubes placed in the portable incubator while the stools were still warm—that is, for several hours.

The apparatus which I have devised for the collection of faeces consists of a deep round glass spoon a little over $\frac{1}{2}$ in. in diameter, provided with a long handle about 6 in. in length. This spoon is kept in a stout test tube, well closed with a cork through which the handle of the spoon passes. By means of this apparatus it is possible to take, with a minimum amount of inconvenience, suitable samples of the stools which have been passed into sterilized vessels provided for the purpose.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

CANCER ORIS TREATED BY GALYL.

A GIRL, aged 3 years, was admitted to the Ham Green Isolation Hospital on February 4th suffering from measles and bronchopneumonia. She was a feeble, ill-nourished child. There was a considerable amount of stomatitis, and the upper incisors were much decayed. On February 22nd the right upper central incisor dropped out, leaving a necrotic socket. By the next day, in association with extremely rapid sloughing of the mucous membrane on the premaxilla, two more of the incisors came away. A sloughing ulcer was also forming on the buccal surface of the upper lip opposite the upper incisors. On February 24th the condition was as follows: The whole of the premaxilla was devoid of mucous membrane and obviously dead. The mucous membrane reflected on to the buccal surface of the upper lip was destroyed for an area about the size of a shilling continuous with the necrotic surface on the premaxilla, and a deep hole was punched out of the lip though not perforating it. The fetor was extreme. The temperature from the beginning of the illness was swinging up to about 101° F.

Under chloroform Major Robert Lansdowne removed the whole of the dead bone, including the last incisor and both canines, and the corresponding embryonic teeth.

Next day, as the destructive process was extending rapidly, 6 cg. of galyol were injected intravenously without producing any toxic symptoms. Within forty-eight hours a line of demarcation formed between the living and dead tissues. By February 29th granulations were growing up through the sloughing areas, and the fetor was much less marked.

The improvement was maintained until about March 17th, when the granulations and line of demarcation began to disappear. By March 19th the destructive process was obviously again extending rapidly. Another dose of 6 cg. of galyol was given intramuscularly, as the previous intravenous injection was found very difficult in a child of this age. On March 21st a clear line of demarcation had again formed, and from this date the cavity began to heal rapidly; some small pieces of dead bone separated. The intramuscular injection caused some localized tenderness, but no pain or swelling.

On April 12th the right upper molar, which was loose, was removed. By this date the child's general condition was greatly improved, and the mouth nearly healed. She was discharged on April 25th, with the mouth completely healed and the deep cavity covered by healthy mucous membrane. Her general condition improved to a remarkable extent during the last four weeks in hospital, and she became fat and well.

The fact that rapid improvement occurred after each

dose of the galyl seems to show that it was due to that drug. Eusol was used locally to the mouth throughout the whole course of the illness. It is, perhaps, pertinent to remark that the child had had no mercury or other drugs which might cause this condition during any part of her treatment.

B. A. PETERS, M.D., B.C., D.P.H. Cantab.,
Medical Officer, Ham Green Hospital and Sanatorium,
Bristol.

THE USE OF SOME SIMPLE THINGS IN SURGERY.

I FOUND the following useful:

1. "Cements" for the removal of foreign bodies from urethra—chiefly stone. Pass a full-sized endoscopic tube with round, not oblique, end, down to body and fix latter by finger behind it from the outside. Remove moisture by cotton-wool. Melt some "elastic glue" and dip the pen end of a pen-handle therein; quickly pass this down the tube and retain in contact with the body for some time. Withdraw tube and pen-handle together. In the only case I tried this it was successful. Cold externally would make the "cement" set better, and perhaps other things (pitch, etc.) might stick firmer still. Forceps nearly always tear the mucous membrane. The same device might be used for the ear.
2. A condom tied over a catheter, lubricated, passed and inflated, is useful for urethral or prostatic hæmorrhage. Perhaps likewise for epistaxis.
3. A wine or whisky bottle containing hot water, and kept pressed to the perineum for some hours, the night of the day an instrument is passed, very materially aids the absorption of stricture, and is much more striking than fibrolysin; containing cold water it is the best means of subduing the erethism of inflammation. It is efficient in pruritus ani.
4. An elastic bandage applied at proper time after a hydrocele is injected (iodine and carbolic acid), by keeping the layers of tunica vaginalis in apposition, will often lead to radical cure.
5. Tinct. iodi painted on the hands, over this tinct. benzoin. co., and over this iodine again, is no mean substitute for gloves.
6. *Extemporary specula, etc.* The handles of two toothbrushes are an excellent anal speculum; the loop ends of hairpins bent at right angles, good nasal. Two teaspoons bent back $1\frac{1}{2}$ in. from bowls make a bladder speculum. Dinner forks bent forward at prongs are the best wound retractors.
7. The end of a scalpel handle flattened more, rounded off, and serrated forms a much needed dissector (separating bladder, etc., from adhesions).
8. Any thick-walled small rubber tube cut very obliquely at one end, the edge of the ellipse being smoothed off by a heated knife blade, constitutes, when well lubricated, a capital catheter.
9. A whalebone stylet bent into coudée shape in hot water, and passed into this or into any rubber catheter, makes the best coudée catheter.
10. Bristle and wire pipe cleaners, pulled to and fro through catheters, are the best cleaners of their lumens.
11. A tuning-fork is useful in the diagnosis of fracture.
12. The air balloon of a small football under a T bandage and inflated by a cycle pump makes the most efficient perineal pressure, and above the pubis the best uterine. A child's stout air balloon makes a Petersen's bag.
13. A strip of lint tied round the root of the penis and embracing the scrotum behind the testes is the handiest contrivance to which to attach the threads of a retained catheter.
14. The hair of women in scalp wounds, after disinfection of the parts by iodine, can be used as sutures by tying bundles of the hairs together. As far back as my student days I used this (and with no more sepsis than with ordinary nodes) in Dublin, a city then distinguished for its lacerated scalps.
15. A stout stick under the bent knees, the ends connected to the top of the operating table by two bandages, does for a Clover's crutch.

Finsbury Pavement, E.C.

JAMES MACMUNN.

By decree dated February 24th, 1916, the Italian Government gave official recognition to the national workshop for the manufacture of artificial limbs and other prosthetic apparatus for wounded soldiers established at Milan.

Reports of Societies.

ANNUAL CONGRESS OF THE OPTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM.

(Continued from p. 692.)

Discussion on Foreign Bodies in the Eye and Orbit, with Special Reference to Prognosis and Treatment.

THIS discussion was opened by Mr. A. L. WHITEHEAD and Mr. HERBERT PARSONS. Mr. Whitehead insisted, in the first place, upon early diagnosis, accurate localization, and early treatment. He pointed out that the great majority of bodies likely to enter the eyeball were opaque to x rays, but that glass (unless of the heavy lead variety), small pieces of aluminium or flint might be missed. He described the giant magnet he was in the habit of using, its great advantage being that it was very mobile and adjustable, and so was easily brought up to the patient's eye. For removal of bodies from the vitreous chamber Mr. Whitehead advocated incision of the sclera as near as possible to the foreign body and extraction by this route, rather than drawing it forward into the anterior chamber and removing it through a corneal incision.

Mr. PARSONS spoke of the need for more accurate knowledge of the anatomical relations of the eye to the orbit. He stated that fragments of copper might cause suppuration even in the absence of all pyogenic organisms, and discussed the chemistry of siderosis bulbi. Fine pigimentary changes at the yellow spot might follow perforation of the eyeball, irrespective of actual injury to this region (a case in which this had occurred was exhibited by the PRESIDENT). Mr. PARSONS stated that he did not think that mere retention of a sterile foreign body, whatever its nature, was of any importance at all, so far as sympathetic ophthalmitis was concerned.

Many members took part in the discussion which followed.

Discussion on the Treatment of Syphilitic Eye Affections by the Newer Methods.

Mr. LAW FORD, having surveyed the gradual development of the organic arsenic compounds, expressed doubt as to their value in the later manifestations of syphilis such as cycloplegia, mydriasis, miosis, and loss of light reflex. He did not think they should be used in cases of primary optic atrophy. In cases of interstitial keratitis he believed the general opinion was that these compounds had no striking effect, and would not prevent the second eye from becoming involved. He considered that the arsenic compounds should always be followed by a course of mercury and potassium iodide.

Mr. S. H. BROWNING spoke from a large experience at Horseferry Road. He advocated many injections of one or other of the arsenic salts supplemented always by mercury. The mercury should be given either by injection or as an intramuscular injection. He advocated the Wassermann test as being an essential indication as to treatment.

Colonel HARRISON spoke from an experience of over 40,000 injections of these salts. He stated that no treatment of syphilis was complete without one or other of them. He believed that kharsivan, salvarsan, and arseno-benzol were all equally efficacious. He was at present giving a concentrated course consisting of eight doses of 0.3 gram salvarsan and six injections of mercury in a month; the course was repeated after the lapse of two weeks if the Wassermann test was positive and if papillitis or ocular symptoms were present. With this line of treatment he had met with 1.6 per cent. of cases of dermatitis, including the very faintest macular eruption. He urged the importance of early diagnosis and early and vigorous treatment.

Mr. ERNEST LANE said that he had given up kharsivan, neo-kharsivan, and arseno-benzol on account of their toxicity. He referred to a case already reported by him in which, after two doses of kharsivan, exfoliative dermatitis and death ensued. He had given galyl almost exclusively during the last fifteen months in the following manner: Four doses of galyl were given at weekly intervals, followed by twelve intramuscular injections of calomel or grey oil, and after three months a Wassermann

test was made. Mr. Lane spoke favourably of luargol, the doses of which were 10, 15, 25, or 30 centigrams over two or three days until 1.2 grams had been administered. He insisted on the importance of early diagnosis and treatment.

Cures following Detachment of the Retina.

Mr. LESLIE PATON read the report of the committee appointed by the society to investigate the cases of cure of retinal detachments, composed of Messrs. Treacher Collins, Creeves, Mayon, Paton, Maitland Ramsay, and Storey. The committee had found it necessary to discard many cases on account of the incompleteness of the records, and no case was considered "cured" unless the retina was known to have remained reattached for at least six months. The 85 cases investigated were distributed amongst the literature as follows: 45 English, 26 German, 10 French, 4 American. In 44 cases the cure followed some operative procedure, and some other line of treatment in 41 cases. The etiological factor in the cases was in 50 myopia, in 11 traumatism, in 6 albuminuria, in 4 albuminuria of pregnancy, and in 1 pregnancy without albuminuria; 13 cases were "idiopathic."

Treatment of Large Traumatic Haemorrhages in the Vitreous.

Captain ORMOND, speaking from his experience at the 2nd London General Hospital, insisted on the desirability of discovering some means of assisting the rapid removal of large haemorrhages in the vitreous so as to prevent their organization with consequent shrinking of the globe. He believed that the beneficial effects of massage, sub-conjunctival injections, ionization, and dionine were due entirely to mechanical causes.

The Peripheral Lesions of Shell Concussion.

Mr. JAMESON EVANS tabulated 50 cases of defective vision ascribed to shell shock; he attributed 6 only to malingering or hysteroneurasthenia. He stated his belief that the ocular symptoms of shell shock were generally due to peripheral lesions rather than to commotio cerebri or psychic trauma.

In the discussion which followed Colonel LISTER took part.

The papers of pure ophthalmological interest were numerous, and were as follows:

Mr. S. Stephenson: A cyst of the pigment epithelium of the iris, with remarks.

Mr. M. Hine: Some observations with the Schiötz tonometer on the normal eye.

Mr. Treacher Collins: Contusion hypotony.

Mr. Affleck Greeves: Observations in a series of trephined eyes examined microscopically.

Mr. Richardson Cross: Severe kerato-iritis cured by tuberculin.

Mr. J. B. Storey: Implantation of fat after enucleation.

Mr. Beatson Hird: Notes on a case of tumour in the retina.

Mr. Gray Clegg: Spontaneous intraocular haemorrhages.

Mr. Maxwell: Capsulotomy after cataract extraction.

Mr. Leslie Paton: Functional spasm of accommodation.

Colonel Lister: Concussion changes in the retina and choroid.

Major Cunningham: Notes on some war wounds of the eye and orbit.

Captain Whiting: A preliminary note on concussion cataracts seen during the war.

Clinical Meeting.

At the clinical meeting at the Central London Ophthalmic Hospital many interesting cases were exhibited, and discussion followed. Captain PINCH, of the Radium Institute, took part in the discussion.

Museum.

During the congress a room was set apart as a museum, which had been got together and arranged by Mr. Mayon.

Localizing x-ray apparatus were shown by Dr. Finzi and Mr. A. D. Reid.

Mr. Holmes Spicer lent a collection of exceptionally beautiful drawings, made by himself, of disease of the fundus oculi.

Specimens exhibiting the results of perforation of the eye by foreign bodies were shown by Colonel Lister and Mr. Parsons (from the Moorfields Museum).

Mr. Mayon exhibited a combination electro-magnet and telephone probe.

Other specimens were shown by Messrs. Pooley, Mackay, Basil Graves, Jessop, etc.

CONTROL OF VENEREAL DISEASE.

At a meeting of the Association of Registered Medical Women on May 9th, Dr. JANE WALKER in the chair, Dr. MARY SCHARLIEB, in opening a discussion on the conclusions and recommendations of the Royal Commission

on Venereal Diseases, said that the Royal Commission was formed as a result of the great interest taken since the beginning of this century in the ravages of syphilis among children, combined with the increased possibility of successful diagnosis and treatment due to the discoveries of Schandinn, Wassermann, and Ehrlich. With regard to notification, it had not been found a success in Scandinavia, while in Italy it was unnecessary, as all who were diseased went willingly for treatment, which was free, and no inquiries were made. At the time when salvarsan had been discovered Rome had been placarded with notices inviting patients to come for treatment. In England the whole subject was kept secret and regarded as shameful, and the result of wrong-doing and notification might lead to loss of employment and of club benefits, etc. Statistics were of little value, as doctors rarely gave syphilis as the cause of death; they gave rather the results, such as aneurysm, epilepsy, etc. Hospital statistics were difficult to obtain, and ordinary general hospitals did not admit cases of recent syphilis, which was regarded as the result of misconduct. A report obtained from a special inspection of Poor Law institutions showed very bad conditions. In some the venereal diseases had been treated in wretched wards, badly lighted and ventilated, the patients unnecessarily confined to bed, and in one the only visitors had been a pauper and his wife acting as caretakers, no doctor visiting the patients. The recommendation that patients, found on admission to a Poor Law institution to be suffering from a venereal disease, should be detained until cured, had been passed after much discussion. This was the most debatable point of the report. Investigation had shown that the examination of female prisoners was not adequate, and the majority considered that medical women should be appointed for this purpose. Education had been specially considered, and it had been suggested that special facilities should be given, both to old-standing practitioners and to medical students, to learn modern methods. The Commission had not been in favour of teaching sexual hygiene to school children. Children should be taught physiology, but not pathology; young adults should be instructed before going out into the world. Teachers in training colleges should receive special instruction to enable them to assist the students; the general public should also be given facilities for instruction, men lecturing to men and women to women. With regard to marriage, divorce, and nullity, if a husband infected his wife, adultery and cruelty could be proved, and divorce instituted. If the husband had been infected before marriage, the Royal Commission considered that he was not in a condition to fulfil his contract, and that nullity should be proclaimed, any children being safeguarded. The Commission also considered that doctors should be protected by law against actions for slander and libel if bona fide they gave essential information to individuals. The Commission thought it impracticable to legislate against quacks, but considered that the law against indecent advertisements should be put in force. In the discussion which followed, Drs. FAIRFIELD, JEVONS, BOLTON, BENTHAM, Lady BARRETT, and the CHAIRMAN took part. Dr. SCHARLIEB, in replying, suggested that opinions of members should be formulated and sent to her or to Dr. Jane Walker, who would bring them before the National Council for Combating Venereal Diseases, on which both were acting.

WE have received the first number of the *Journal of Bacteriology*, a new periodical that is to come out six times a year. It is the official organ of the Society of American Bacteriologists, and is devoted to the advancement and dissemination of knowledge in regard to the bacteria and other micro-organisms. It is planned to make the new journal in particular an organ for the more fundamental and general aspects of bacteriology, but it will also print many papers whose interest is mainly technical, particularly in those fields of bacteriology which have now no satisfactory organ of publication at their disposal. It will include original papers and abstracts of American and Canadian bacteriological literature; perhaps the other literature will be included later. The journal is published at Baltimore, U.S.A., by the Williams and Wilkins Co. It may be obtained in this country through the Cambridge University Press, the annual subscription being 23s. The journal makes a good appearance and no doubt satisfies a want. We wish it all success.

Reviews.

THE INVOLUNTARY NERVOUS SYSTEM.

A SERIES of monographs dealing with branches of physiology which have shown important advances in recent time is to be published under the editorship of Professor STARLING, and the first to appear, *The Involuntary Nervous System*,¹ by the late WALTER HOLBROOK GASKELL, forms an admirably fitting introduction, since it treats of questions which recur in connexion with practically all physiological phenomena. We may well congratulate ourselves that the author had completed the manuscript before his unexpectedly sudden death removed from us a personality who could so ill be spared.

Before Gaskell's researches the sympathetic system had been almost universally regarded as a kind of independent nervous system, presiding over the so-called "organic" or visceral components of the organism. This view was in great part due to the influence of Bichat. Although certain facts had occasionally been pointed out which were not altogether in agreement with this theory, the great advance made by Gaskell was the complete proof that the involuntary nervous system, with which the present monograph is concerned, is entirely motor or excitor in function, and consists of a set of motor neurones sent out from the cerebro-spinal nervous system to structures whose activity is involuntary. Further, that these motor neurones have wandered out from the central nervous system to a greater or less distance, and that the medullated fibres of the white rami are to be regarded as connector fibres, belonging to intermediate neurones, between parts of the central nervous system itself. It is important to note that the afferent nerves of the viscera are not subject to a distinction of this kind.

Gaskell was pre-eminently a man of wide ideas, ideas which have had the most astonishing effect in provoking further work. The great value of Langley's detailed investigations on the manner of distribution of the nerves of the "autonomic" system, as he proposes to call them, receives repeated recognition in the present book. One of Gaskell's master ideas was stated by himself in the preface as follows: "The broader physiological problems cannot be satisfactorily solved without the assistance of morphology, and conversely the larger morphological problems, such as those concerned with evolution, must take into account the facts of physiology." Accordingly, we find that the meaning and significance of facts is continuously brought before us.

We find discussed in order the motor functions of the sympathetic, the bulbo-sacral and the mid-brain outflows of connector nerves, the inhibitory nerves, rhythmic and peristaltic movements, the innervation of glands and the phylogenetic origin of the sympathetic nervous system. A final summary is given. A valuable bibliography and a fairly complete index conclude the work. The reader's grasp of the morphological arrangements described is greatly facilitated by the coloured diagrams. Since, in all probability, the book will become a classic, the suggestion may be made that a portrait of the author would be a suitable frontispiece in subsequent editions.

Before proceeding to further detail, a mild protest may be made against the spelling of the word "neurone." Since the *o* is long, the spelling in English should surely be as given, not "neuron." Similarly, "axon" should be "axone." It is probably due to German influence that the final *e* is omitted. We find Pavlov still spelt in the German fashion. The frequent occurrence in scientific writing of another Germanism, the use of complex adjectives, such as "adrenaline-containing nerve cells," to mean "nerve cells containing adrenaline" or "which contain adrenaline," should also be deprecated. Adrenaline is sometimes spelt without the final *e*, which belongs to it as a definite organic base.

There are several points of importance in connexion with the various systems of connector nerves referred to above, to which our attention is directed. All the vaso-constrictor nerves of the body arise from the thoraco-lumbar or "sympathetic" outflow. It is

stated on p. 35 that there is no evidence whatever of vaso-constrictor fibres in other nerves. It might, perhaps, have been useful in the table on p. 36 to have given references to the papers which established the facts mentioned there, as it is not possible to obtain them from the bibliography. Further, from this same outflow are derived the motor nerves for the muscles of the sweat glands, for all unstriated muscle under the skin, and for all such muscle in structures derived from the segmental duct. The excitor nerves to the sphincters of the intestine arise from the same source. So that we have, as regards the motor or excitatory functions of this system, the supply of a layer of unstriated muscle under the skin, the blood vessels, the tubular structures of the segmental duct, and the sphincters of the intestine. With the constrictors of the blood vessels are to be included the accelerators of the heart. The name "vaso-dermal" is suggested for the muscular group in question. The unity of the sympathetic system is indicated by its extraordinary relationship to adrenaline, a fact to which further reference will be made. Indeed, this hormone is used as a test for sympathetic innervation.

In the bulbo-sacral outflow of motor connectors the cells are not arranged in a series of ganglia, as in the sympathetic; but in plexuses on the surfaces of the organs supplied. These are the plexus of Auerbach in the small intestine, and similar plexuses in outgrowths from this tube in the case of the vagus; on the large intestine and the uro-genital organs in the case of the sacral nerves, where the bundle of connectors is known as the "pelvic" nerve. An interesting discussion is devoted to certain peculiarities in the innervation of the bladder. Just as adrenaline picks out the sympathetic motor activities so does acetyl-choline pick out the motor activities of the bulbo-sacral connectors. The author proposes the name "enteral" for the latter system, to correspond with "sympathetic" for the former. The consideration in the fourth chapter of the outflow of connector nerves to the ciliary ganglion completes this part of the work.

The next chapter is devoted to the inhibitory nerves, and the author meets with greater difficulties here. It is first pointed out that we must admit the existence of nerves in the involuntary system which act upon muscle in such a way as to cause its relaxation directly and not by the putting out of action of a motor cell exciting the muscle, as in the case of voluntary muscle. The effect of adrenaline is evidence in addition to other facts. There exist, then, inhibitory nerves and cells in addition to motor ones. While the neurones of the two kinds are found peripherally in close contiguity, it does not always happen that the connector nerves pass out in the same outflow. In fact, as a rule, inhibitory cells of the enteral system have travelled out from the central nervous system along with excitor cells of the sympathetic and vice versa. An interesting fact is referred to in relation to this circumstance. The axones of many large nerve cells in invertebrates divide while still in the central nervous system. One fibre passes out as a large motor fibre to a group of muscles, while the other passes to the opposing muscles. It seems clear that one of the two must be inhibitory in function. The possibility of such an arrangement in the case of the cardiac fibres of the vagus is shown to be capable of explaining the apparent anomaly of these fibres being purely inhibitory in the majority of vertebrates, while having an excitor function on the muscle fibres responsible for the tonic changes in the tortoise auricle. Otherwise the double excitor and inhibitor innervation of the heart is clear. When we come to the inhibitory nerves of the blood vessels, the vaso-dilator nerves, we are met by the difficulty that in the activity of an organ metabolic products of an acid nature appear, which act directly on the muscle of the arterioles in such a way as to cause its relaxation. Nevertheless, there are many cases in which such an explanation of vascular dilatation is, to say the least, somewhat forced, and there is surely no difficulty in holding that the smooth muscle of the blood vessels resembles that in other situations in possessing a double innervation, and not one of excitors only. The explanation of the curious vaso-dilatation obtained from stimulation of peripheral ends of sensory nerves is perhaps one of the cases referred to in the preface as being not very satisfactory to Gaskell himself. It is rather remarkable that, while applying Langley's axone-reflexes to some

¹ *The Involuntary Nervous System*. By W. H. Gaskell, M.A., M.D., F.R.S. Monographs on Physiology, edited by E. H. Starling, M.D., D.Sc., F.R.S., F.R.C.P. London and New York: Longmans, Green and Co. 1916. (Med. 8vo, pp. 186; illustrated. 6s. net.)

other cases, he does not consider the possibility that has been suggested of its application to this case.

Chapter VIII is devoted to the consideration of the rhythmic movements of the heart and to the movements of the intestine. The former is especially valuable, as coming from the originator of the myogenic theory of the heart beat. Auerbach's plexus is regarded by Gaskell as demonstrably belonging to the vagus alone as regards its nerve cells, and this suggests an explanation of the "myenteric reflex," as it is called by Cannon, which does not involve the assumption of a true reflex. This explanation is on the lines of the fact referred to above, where the nerve fibres from one cell may simultaneously excite one muscle cell or motor neurone and inhibit another. A further discussion of this interesting question will be found on page 147 of the monograph. The phenomenon in the intestine must be a function of the vagus alone, since the sympathetic supplies no nerve cells to it. It seems that the original name of "law of the intestine," given by Bayliss and Starling may turn out to be more correct than the later one of Cannon.

As to the innervation of glands with ducts, it is pointed out that, omitting the kidney, which belongs to another category, there are two systems of nerve cells—namely, (1) those supplying epidermal structures, sweat glands, etc., which belong to the sympathetic system, and (2) those of the enteral system, belonging to the bulbar outflow. At the two extremities of the body a mixture takes place, so that the salivary glands, for example, receive a secretory innervation from both systems.

Chapter X gives an account of the position of the cells in the central nervous system from which the connector fibres of the involuntary nervous system take origin. The sympathetic and sacral outflows clearly arise from the lateral horn. Those in the cerebral outflows have a more complex origin, but there is much evidence for the view which assigns their origin to a column of the same nature as the lateral horn of the spinal cord.

As is natural, we find repeated references to the author's well-known theory of the origin of vertebrates, and Chapter XI is specially devoted to the phylogenetic origin of the sympathetic system. Whatever may be the opinion held as to the main theory, there can be no doubt of the extraordinary manner in which it throws light on difficult problems. It should receive welcome from the physiologist especially, on account of the preponderance given to the evolution of the central nervous system, with its control of the whole organism. The present reviewer regards the evidence as strong enough to bring almost complete conviction. Space does not permit of more than reference here to the interesting relations of the chromaffine cells and their adrenaline content to the sympathetic system.

Enough has been said to show how necessary a knowledge of the contents of this important monograph is to all those concerned in any way with the involuntary nervous system, be they morphologists, physiologists, or engaged in the practice of medicine.

W. M. B.

CLASS GYMNASTICS FOR WOUNDED MEN.

We noticed some time ago the appearance of a book by Dr. M. Carle (BRITISH MEDICAL JOURNAL, December 11th, 1915, p. 862) describing the schools for the industrial training of disabled soldiers established in France, and a further reference to the matter will be found in the JOURNAL of May 6th, p. 668. A small volume recently published by Dr. CH. GUILBERT and M. G. MAUCURIER,² supplements Dr. Carle's book by describing the advantages of gymnastic classes for dealing with the re-education of wounded soldiers at certain stages. Dr. Guilbert is at the head of the department for treatment by movement and gymnastics at the military hospital in the Grand Palais, Paris, and M. Maucurier is professor of physical education in the public schools of Paris. The authors, while fully recognizing the necessity for individual treatment in the early stages of most cases, have found that gymnastic exercises in class may be extremely useful later on; their book describes at length the various exercises which they have found most generally applicable. They

² *Guide de rééducation physique en groupe. Méthode de gymnastique rééducative pour les blessés militaires.* Par le Dr. Ch. Guilbert et G. Maucurier. Paris: J. B. Baillière et Fils. 1916. (Cr. 8vo, pp. 128; 59 figures. Fr. 2.50.)

attach great importance to the mental effect when men suffering from similar disabilities do exercises together. A spirit of emulation is aroused, and the appeal to his imagination encourages a man to make efforts which, if working by himself, he would find wearisome. Gymnastics in class are not applicable until the patient has attained a certain power of movement, but once that stage has been reached progress may be rapid. It has been found that no lesson should last more than half an hour, that no class should consist of more than twenty men, and that the teacher should have the help of a monitor who will show individuals who fail to accomplish a movement where their fault lies. The difficulty of obtaining good monitors is recognized; some have been found among wounded men who have themselves made good progress. They are given a short course of instruction for three or four weeks and then begin to work under the teacher. The greater part of the book consists of detailed instructions for various types of exercises with and without appliances. The directions are illustrated by excellent sketches, and the book altogether is of a thoroughly practical and helpful character.

PERSIA.

Dr. A. R. NELIGAN,³ physician to H.M. Legation at Teheran, has written an excellent account of the medical knowledge that should be at the disposal of all residents and travellers in Persia. There are but few of either class, so far as our own countrymen are concerned, now in Persia. In the past, however, Persia has owed much to the activities of its more civilized European residents; and when the shadow cast on all Eastern countries by the present war of German aggression has passed by, no doubt the British officials, travellers, and traders will return to Persia once more. Dr. Neligan's book combines the functions of a medical manual for laymen with those of a general guide to the country and its chief routes for travellers; the earlier pages give a brief account of how to live and dress and eat in Persia. Antityphoid inoculation is mentioned as an indispensable preliminary to travelling in Persia; water must never be drunk without preliminary boiling; mosquitos occur in most parts of the country, and mosquito nets should always be at hand; derangements of the digestion are peculiarly common, and often due to certain articles of Persian diet that prove too much for the unarméd digestive powers of Europeans. More than half the volume is taken up with details of the main routes in the country, with a few notes about the chief places and objects of interest to be seen. The notes as to the use of motor cars in Persia lead one to suspect that the roads must be generally execrable. The book is full of interest, and should have a future.

NOTES ON BOOKS.

VOLUME III of the second edition of the *Encyclopædia Medica*,⁴ issued under the general editorship of Dr. J. W. BALLANTYNE, contains articles from *Chloroform* to *Dyspnoea*. The authors are for the most part Scotsmen of medical or surgical distinction. Among the most important and interesting articles in the volume are those on chlorosis, chorea, colour vision, convulsions, deformities, diabetes, diet, and dysentery. The general scope and excellence of this *Encyclopædia* are well known, and need not be emphasized further in the present brief note. It may be added that the article on diabetes insipidus would, perhaps, gain by a reference to Finkelnburg's work on the division of the cases—namely, those with a primary polydipsia and those with a primary polyuria; further, a reference might with advantage be given to Weil's account of the 229 descendants of one J. P. Schwartz, in five generations, out of whom 34 exhibited hereditary and apparently harmless diabetes insipidus.

The Seven Ages of Woman,⁵ by Dr. MARY SCHARLIEB, is the best book of its kind we have seen. It is written in an

³ *Hints for Residents and Travellers in Persia.* By A. R. Neligan, M.D., London, M.R.C.S., Eng., D.T.M., and H. Cantab. London: J. Bale, Sons, and Danielsson, Ltd. 1914. (Cr. 8vo, pp. 201; 1 map. 5s. net.)

⁴ *Encyclopædia Medica.* Under the general editorship of J. W. Ballantyne, M.D., C.M., F.R.C.P.E. Volume III, *Chloroform* to *Dyspnoea*. Second edition. Edinburgh and London: W. Green and Sons, Ltd. 1916. (Roy. 8vo, pp. 680; illustrated. 20s. net.)

⁵ *The Seven Ages of Woman: A Consideration of the Successive Phases of Woman's Life.* By M. Scharlieb, M.D., London, New York, Toronto and Melbourne: Cassell and Co., Ltd. 1915. (Post 8vo, pp. 239. 6s. net.)

easy, pleasant way, and in it advice and guidance are given, as its title suggests, to girls and women. The book is divided into seven parts, and begins with most helpful advice on the upbringing of girls. The parts devoted to the young wife, the young mother, and nursing mother, are likely to be particularly helpful to those to whom they are addressed, for in them the advice is sound and practical, neither alarming the ignorant nor making the more experienced mother too bold. The chapter on the "Mother in the noisy years" deals with the problem of childhood, while that on the "Woman in middle and old age" shows how health may be maintained when the vigour of life is passing. Mrs. Scharlieb seems to us to have struck the right note throughout the book, and the appendix with its list of simple formulae will be useful to those who turn to the book for help and guidance. We would suggest that it would have been better to have adopted a paper cover to the book less in the style of the cheap novel of the bookstall, and we trust this may be done in future editions.

CEREBRO-SPINAL FEVER.

THE Local Government Board in England has issued a Blue Book of nearly 200 pages on cerebro-spinal fever, with special reference to the occurrence of the disease since the outbreak of the war.¹ The volume contains five reports by different workers, and an introductory memorandum by the medical officer.

Epidemiology.

Dr. Bruce Low contributes an essay occupying some seventy pages on the prevalence of cerebro-spinal fever throughout the world in recent times. It gives a very clear comprehensive survey of the history of the disease for the last thirty years, within which period knowledge of its nature has made great progress. It describes the occurrence of the disease in the British Isles at considerable length, and then passes on to the observations of outbreaks in France, the Low Countries, Scandinavia, Germany, Austria, Russia, Roumania, the Mediterranean, Switzerland, Portugal, and Spain, as well as in Africa, New Zealand, India, China, and in the American continents. The essay will possess permanent value, but it is particularly useful at this time in that it puts recent outbreaks in proper perspective.

Dr. R. J. Reece has written a report on cerebro-spinal fever among the civil population in England and Wales with special reference to outbreaks in certain districts during the first six months of 1915. The districts especially dealt with at length are Wiltshire, where a certain number of cases occurred in the second part of 1914 and in the early part of the following year, Reading, Bristol, Portsmouth, and Liverpool. It does not include a full account of the incidence of the disease among troops, but this report, and that of Dr. Bruce Low, give examples of the excellent work done by the medical executive of the Local Government Board. They show that though small outbreaks occurred in the British Isles at earlier dates, the first of any magnitude to be recognized took place in Glasgow and Belfast in 1907. As it is well known that the bringing together of a large number of recruits in camps and billets is very apt to be followed by a prevalence of the disease, the danger was foreseen, but as a matter of fact it appears that one of the Canadian contingents had cases at Valcartier camp before leaving Canada; cases continued to occur after they had reached this country and were encamped on Salisbury Plain, and the disease was definitely established among them by the end of 1914. It should be noted, however, that a few cases had occurred among the civil population early in the autumn, and a few more in December. During the first half of 1915, 9 cases occurred in Wiltshire, the largest number being observed in February. In 1915, 40 cases occurred in the city of Salisbury, which had become a busy military centre, 11 in other urban districts in the county, and 39 in rural districts. The Corporation of Salisbury established under the direction of Dr. Penfold, of the Lister Institute, a bacteriological laboratory for the diagnosis of cases and for the detection of carriers. The inhabitants were advised to submit to inoculation with a vaccine prepared from killed cultures of a local strain of the

meningococcus, and the M.O.H., Dr. Fison, estimates that at least 3,500 persons received preventive inoculation—that is to say, about 31 per cent. of the census population. Special attempts were, however, made to secure the inoculation of all contacts, and the results were such as to encourage resort to this measure in any future outbreak. Dr. Fison reported that the reaction from the inoculation was not severe, that no inoculated person contracted the disease; in two instances all the junior members of a family had been inoculated except the one attacked, and in another the father was attacked, but his inoculated children escaped. The outbreak in Reading included some twenty cases among the troops billeted in the town. The first civil case occurred on January 14th, and no connexion with the military could be traced. The first military case occurred on February 7th. The danger was dealt with energetically by the corporation and its officers with the assistance of the military authorities by way of isolation, early bacteriological diagnosis, and treatment of contacts. Cases, however, continued among the civil and military population during the whole of the period under review—namely, the first six months of 1915. In Bristol 90 cases were notified in the first six months of 1915. There had been 32 cases among the civil population in 1914, the majority children, though 6 were over 20 years of age. In Portsmouth the first cases occurred among the naval and military population, but subsequently over 50 were notified among the civilians. A small outbreak in Winchester seems also to have originated from the military. In a concluding note Dr. Reece points out that of the 2,045 cases known to have occurred in England and Wales during the first six months of 1915 the majority—1,656, or 81 per cent.—were observed south of a line drawn from the Wash to the Bristol Channel. For military purposes the greater number of troops were stationed in the east and south-east part of England, and the facts, he considers, confirm the belief that a manifestation of the disease was in some way associated with the presence of troops in the areas specially affected.

Bacteriology.

The bacteriological questions which arise are discussed in three reports by Dr. Eastwood, Dr. F. Griffith, and Dr. W. M. Scott; these are concerned largely with the prevalence of meningococcus-like organisms in the naso-pharynx. Dr. Eastwood, however, gives a long and interesting historical survey of the growth of knowledge, but he begins with 1906, so that he attributes to Lingelsheim the first observations on the value of fermentation tests for these organisms, thus ignoring the paper by Dunn and Gordon published in this JOURNAL in August, 1905, in which Lingelsheim's results were to a large extent anticipated.

In the second part of his report Dr. Eastwood gives an account of the investigations made in the Board's laboratory, describing the method adopted by himself and Dr. Fred. Griffith for the investigation of meningococci from cerebro-spinal fluid, and relates investigations made by them and by Dr. W. M. Scott on naso-pharyngeal swabs from non-contacts. The contribution from Dr. Griffith is on the identification of the meningococcus in the naso-pharynx, with special reference to serological reactions. His general conclusion is that all strains of Gram-negative cocci obtained from the naso-pharynx which are identical microscopically, culturally, and in fermentation tests with meningococci must, in default of a specific test for virulence and until the serological relations have provided definite evidence to the contrary, be considered to be meningococci.

Dr. W. M. Scott's conclusion from his study of meningococci occurring in spinal fluid and of similar organisms in the naso-pharynx does not materially differ. He states that micro-organisms indistinguishable from meningococci by microscopical, cultural, and fermentation tests were found in the naso-pharynx in 22 per cent. of 138 non-contacts from an urban population (Lambeth out-patients). In 63 per cent. of these organisms the serological tests, he considers, confirmed their identity with meningococci, or their close relationship to them. The agglutinating properties of the organisms were not, in general, so strongly marked with the serums used as those of known pathogenic strains, but they showed definite absorption

¹ Reports of the Local Government Board on Public Health and Medical Subjects in series. No. 110: Reports on Cerebro-spinal Fever. Price 2s.

of the specific agglutinin. They appeared to differ from the majority of the spinal strains not in the quality, but in the quantitative intensity of their specific affinities. Some spinal strains, however, resemble them in this. The patients, as has been said, were believed not to have been in actual contact with cases of cerebro-spinal fever, but a considerable number of cases of the disease were occurring in London and elsewhere, so that this point does not seem to be completely established.

Dr. Newsholme, in his introductory memorandum, expresses the opinion that the special importance of the results obtained by the investigations of the Local Government Board lies in the fact that they were concerned with persons who had not been in close association with cases of cerebro-spinal fever. He acknowledges that the investigations, which are being continued, have not, so far, settled the question of the measure of importance which should be attached to the finding of meningococcus-like organisms in the naso-pharynx.

From the summaries of the investigations of Drs. Eastwood and Griffith it appears that altogether 480 swabs from the naso-pharynx of non-contacts were examined, and that of these 49 yielded cultures which resembled meningococci in their morphological and cultural characters, and in their response to fermentation tests. It appears that of these 49 cocci 28 were investigated serologically. For this purpose Dr. Griffith used, we gather, seven monovalent serums prepared by him from strains isolated from the cerebro-spinal fluid of cases of the disease. While 15 of the naso-pharyngeal cocci showed good agglutination, 6 gave a less marked result, and 7 gave either a slight or a negative reaction. It is added that five of these naso-pharyngeal strains absorbed from the respective agglutinating serums the specific agglutinin for the homologous strain of meningococcus, but nothing is said as to the behaviour of the others in this respect. In an attempt to summarize the matter, we find that out of 49 meningococcus-like organisms collected from the naso-pharynx of 480 non-contacts 28 were submitted to serological examination, and that of these 5 gave evidence by absorption tests that they were true meningococci. As to all the others considerable doubt must be felt, and from Dr. Newsholme's observation on the point it would appear that the serological evidence is against their being meningococci. Dr. Scott examined the naso-pharyngeal secretion from 138 out-patients at the Lambeth Infirmary and 56 children at a rural school in Kent; 30 of the Lambeth cases and one of the school children yielded cocci that resembled the meningococcus in their cultural and fermentative characters; 29 of them were submitted to serological tests, and 7 showed complete agglutination at 1 in 200, or in higher dilution; 12 did not appear to have agglutinated in a higher proportion than 1 in 100, and the remainder, including that from the school child, showed only slight agglutination with the serums employed. On the whole, therefore, it does not seem that the evidence Drs. Eastwood, Griffith, and Scott have advanced establishes the proposition that more than a proportion of the meningococcus-like organisms found in the throats of these non-contacts were true meningococci.

Difficulties in the Identification of the Meningococcus.

There can be no doubt that the identification of the organism in the naso-pharynx is not a simple matter. One difficulty arises from the fact that the investigation during the recent epidemic of meningococci from the cerebro-spinal fluid itself has shown that while the organisms may be alike in their morphological, staining, cultural, and fermentative characters, they differ among themselves in their serological characters. A number of types have been distinguished, but it would appear from the work of Colonel M. H. Gordon and Mr. E. G. Murray at the Central Cerebro-spinal Fever Laboratory at the R.A.M. College, Millbank,² that, so far as concerns cases of cerebro-spinal fever occurring among the military in this country, only four different types need, for practical purposes, be considered; of these four types only two occurred with any considerable frequency. Captain Ellis and Dr. Arkwright have also found evidence of at least two distinct types. Another difficulty in the way of the in-

vestigators is that the naso-pharynx and other parts of the upper respiratory passages habitually contain various sorts of Gram-negative cocci. The more common of these differ so much in their morphological, cultural, or fermentative characters from the meningococcus that they can be easily distinguished. There are other Gram-negative cocci, however, which it would seem can only be distinguished from the meningococcus by their serological characters. This test, therefore, is of great importance, and appears to be the most trustworthy means of identifying the meningococcus of any one of the various types distinguished. Elser and Huntoon, of whose researches for the Health Board of New York Dr. Eastwood gives an account, as well as other workers both in Germany and in this country, have fully established the point that Gram-negative cocci may be found in the naso-pharynx which resemble the meningococcus in morphological, cultural, and fermentative characters, but are serologically distinct, and Elser and Huntoon apply to them the term "pseudo-meningococci," distinguishing six strains. These pseudo-meningococci have been found in certain cases of catarrh and colds in large numbers in the secretion of the respiratory passages, and may possibly be the cause of catarrh, but so far as present evidence goes they are not true meningococci.

Immunology.

From the report of the Medical Research Committee already mentioned, it appears that Colonel Gordon and his colleagues at the R.A.M. College have now worked out in detail the immunological characters of the strains of meningococcus concerned in the past epidemic, and the laboratory now supplies monovalent rabbit serums which will agglutinate all the epidemic strains of meningococci commonly found up to a dilution of 1 in 400. These homologous serums will, it is expected, facilitate the recognition of the epidemic types of the meningococcus, and will, moreover, afford the serum treatment a better chance than it has hitherto had to prove its value. Not only will it be possible to produce a properly balanced polyvalent serum for general use, but by identification of the type of coccus in any given case the way will be opened for the use of a monovalent homologous serum presumably of greater potency. Such serums are already in preparation. Provided with a series of specific agglutinating serums of the various types of meningococcus occurring in the cerebro-spinal fluid, the bacteriologist will be able to distinguish the true meningococcus when it occurs in the naso-pharynx, and will be justified in refusing to admit any suspect coccus from the naso-pharynx to be a true meningococcus unless its serological behaviour corresponds with one or other of the types found in the cerebro-spinal fluid of developed cerebro-spinal fever.

THE DR. JAMES B. BIRD MEMORIAL FUND.

In the notice of the life of Dr. J. B. Bird, of Carlisle, published in the JOURNAL of May 13th, p. 706, it was said that he had died at so early an age that he had been unable to make due provision for his family, and that a committee had been formed for the purpose of raising a memorial fund for the education of his children. We are informed that the fund already amounts to £1,190; further subscriptions should be sent to the honorary treasurer, Mr. James Nelson, Bank of Liverpool, Limited, Carlisle. The fund will be administered by trustees. The proposal has been warmly taken up by the members of the Border Counties Branch, and the following is a list of subscriptions already received from medical friends:

	£ s. d.		£ s. d.
Dr. Henry Barnes, Carlisle...	10 10 0	Dr. Maxwell Ross, Dumfries...	3 3 0
Dr. Lediard, Carlisle...	10 10 0	Dr. Ormer, Maryport...	3 3 0
Dr. W. S. Syme, Glasgow	10 10 0	Dr. Murphy, Carlisle...	2 2 0
Dr. Easterbrook, Dumfries...	5 5 0	Dr. G. H. Ruston-Harrison, Wincoburne...	2 2 0
Dr. Clarke, Dumfries...	5 5 0	Dr. Matthews, Kirkby Lonsdale...	2 2 0
Dr. George Martin, Silloth...	5 5 0	Dr. Coulthard, Aspatria...	2 2 0
Dr. G. R. Murray, Manchester...	5 5 0	Dr. J. Findlay, Blackpool...	1 1 0
Dr. W. Murray, Eden...	5 5 0	Dr. J. K. Duff, Aspatria...	1 1 0
Dr. Goodchild, Blencathra Sanatorium...	5 0 0	Dr. Martin, Newbridge, Dumfries...	0 10 6
Dr. E. M. Dolan, Wigton	3 3 0		
Dr. A. Smith Hannay, Wigton...	3 3 0		
			88 9 6

²Medical Research Committee. Report of the Special Advisory Committee upon Bacteriological Studies of Cerebro-spinal Fever during the Epidemic of 1915. London: H.M. Stationery Office. 1916. Price 6d.

British Medical Journal.

SATURDAY, MAY 20TH, 1916.

CERVANTES AND MEDICINE.

CERVANTES, the tercentenary of whose death, like that of Shakespeare, falls in the present year, took as keen and intelligent an interest in medicine as his great contemporary. Hernández Morejón, in his *Historia Bibliografica de la Medicina Española*, devotes a chapter to the "beauties of practical medicine discovered in the immortal work of Cervantes." Olmedilla y Puig, Cristóbal Pérez Pastor, Menéndez Pelayo, Pardo Figueroa, and many other writers have treated of his medical knowledge. His father, Rodrigo de Cervantes, was a surgeon apothecary, and he had himself a considerable experience as a patient. At Lepanto, when his ship, the *Marquesa*, came into action, he was below, ill with fever, but he insisted on playing his part in the fighting, and received three gunshot wounds, two in the chest and another which permanently maimed his right hand. The hardships and privations which he endured as a captive in the hands of the Moors, and the lifelong poverty and frequent imprisonment which he suffered after his escape undermined his health. Professor José Gomez Ocaña, of the University of Madrid, in his essay on the clinical history of Cervantes published in 1899, expressed the opinion that he was the subject of arterio-sclerosis and heart disease; it is known that he died of dropsy. The word "corazon" (heart) occurs 141 times in *Don Quixote*; of course it is not always used in the literal sense, but this frequency may perhaps not be without significance. Cervantes mentions about a hundred plants, describing their medicinal and alimentary uses, and he was acquainted with the great compilation of Dioscorides on materia medica, at least in the Spanish translation of Andrés Laguna of Segovia, physician to Charles I (afterwards the Emperor Charles V) and Philip II. He had also read Pliny's *Natural History*, then held in Spain, as it was in England at that day, as of high authority on all things medical. He speaks of poisons which breed madness in men's brains, and discharges shafts of satire at druggists and doctors, but it is only pretenders and impostors at whom they are aimed.

In more than one passage Cervantes scoffs at secret and superstitious remedies. When Don Quixote is losing blood after a fight, he regrets that he had not by him the Balsam of Fierabras, a medicine of such potency that if his body were cloven in twain, one part could be accurately adjusted to the other "before the blood congeal," when two draughts would make him "sounder than an apple." This balsam was believed to be a part of that used by Joseph of Arimathea to embalm the body of Christ. Elsewhere Sancho prepares for his bruised master a compound of simples, over which he says a number of Paters, Aves, Salves, and Credos, with many signs of the cross.

Cervantes makes some unmistakable allusions to venereal disease. In *El Casamiento Engañoso* there is a description of an unfortunate officer leaving hospital where he had sweated away fourteen loads of buboes given him by a woman. In the same work mention is made of a disease called *lupicia* (alopecia) or *pelareta* (from *pelar*, to pluck out hair), treated by

sweating, which makes all the hair, including the eyebrows, eyelashes, and beard, fall out. The scene of the *Coloquio de los Perros* in the *Novelas Ejemplares* is laid in the hospital of the Resurrection at Valladolid. In many places Cervantes dwells on the hygienic value of plain diet and moderation in eating. Delightful fun is made of the dietetic crank, Dr. Pedro Recio de Agüero, who stands beside Sancho when he is at table and condemns the various dishes set before him—one as being too moist, another too heating, and so forth, till the starving governor of Barataria threatens to knock him on the head with the chair on which he is sitting, saying that if he is charged with murder he will plead in excuse that he has rendered a service to God by killing a bad doctor.

It was disease of the mind which most interested Cervantes, and Pi y Molist has written a book on him as a medical psychologist. If Cervantes does not bring so many mad folk before us as Shakespeare, he gives in *Don Quixote* the most finished picture in all literature of a certain type of insanity. Much reading of romances of chivalry had made the Knight of the Sorrowful Countenance mad. On all other subjects he was of good understanding and could discourse rationally. Cervantes speaks of hallucinations of smell which make the Don describe as an aromatic fragrance the odour diffused by his Dulcinea and attributed by the prosaic Sancho to perspiration from much exercise. He also refers to the loss of memory which makes the Knight exaggerate his adventures as caused by continual and extraordinary labours. The methods by which those about him seek to divert his mind from the exalted ideas which had led him to go about in search of adventures show that his creator had a clear notion of the value of moral treatment. The last illness of Quixote, in which he passes from madness to profound melancholy and recovers his reason with the onset of fever, may be compared with the death of Lear. Sancho Panza is an example of what Charles Lamb calls the "twilight state of insanity, the madness at second hand, the contagion caught from a stronger mind infected." In *El Licenciado Vidriera* Cervantes gives a picture of madness brought on in a student of Salamanca by a love philtre, such as is said to have caused the death of Lucretius. The young man imagined that he was made of glass from head to foot; when any one came near he would call upon him with terrible cries to keep away, lest he should be broken.

In the "Colloquy of the Dogs" we get a glimpse of the overcrowding of the medical profession in Cervantes's day. A student of Alcalá is quoted as saying that of the 5,000 students in that university 2,000 belonged to the medical faculty. The comment on this remark is that either all these doctors would require to have sufficient patients to cure—"which would be a terrible disaster"—or they must die of hunger. This makes one think of Abernethy's exclamation, on entering the crowded theatre of St. Bartholomew's on the opening day of a winter session: "God help you, gentlemen! What is to become of you all?"

The number of references in the works of Cervantes to medical subjects might be multiplied indefinitely. Like Shakespeare, he knew something of everything. He was not only a man of the most powerful creative faculty, but a close observer of facts and a deep thinker. It is not surprising, therefore, that he should have been made the subject of study by doctors. It would, of course, be absurd to regard *Don Quixote* as a medical treatise. But it is one of the profoundest studies of human nature ever made, and as such it is full of

instruction for the doctor, for there is a deep truth in the saying of a Spanish physician, Letamendi, that the man who only knows medicine does not know even that. The story of Richard Blackmore asking Sydenham what books of medicine he should read and being told, "Read *Don Quixote*; it is a very good book; I read it still," is well known. On this Johnson in his ponderous way observes that "the perverseness of mankind makes it often mischievous in men of eminence to give way to merriment. The idle and illiterate will long shelter themselves under this foolish apophthegm." But is it foolish? According to Frank Payne the obvious meaning is "Read what you like; reading books will never make a doctor." This interpretation would be quite in keeping with the character of Sydenham, who despised book learning and had no great respect even for science. But we are inclined to believe that he was at any rate partly in earnest, for the practitioner's equipment is incomplete without a knowledge of human nature, and this can only be got by a study of the great masters of the human heart who hold the keys that open the fountains of tears and laughter. Chief among them are Shakespeare and his immortal Spanish contemporary.

BACTERIOLOGY AND BREWING.

BEER has but few outspoken friends nowadays. Its patrons may still be many, whatever the degree of success attained by the discouragements effected by the Central Liquor Control Board, and however excellent the work of that Board is. But there is nothing heroic about the subjects of beer and brewing, nothing to stir the imagination. Hence people are apt to forget the great influence exercised by the brewing industry upon the development of the science of bacteriology in the Sixties, Seventies, and Eighties of last century. This influence has been traced out in detail by Mr. Horace T. Brown, F.R.S., in an interesting address read before the Institute of Brewing last week. Mr. Brown has been closely connected with the brewing industry for half a century, and so is enabled to speak with first-hand knowledge of the trials and triumphs of those who endeavoured to apply scientific method to brewing practice in those far-off days.

It is just sixty years ago since Pasteur began his epoch-making studies in fermentation. He was living in Lille, and distillation was a very important industry in the town and its neighbourhood. He was consulted by a Lille distiller named Bigo, in 1856, as to certain difficulties met with in the manufacture of alcohol from beetroot. At that time the prevailing scientific notions about fermentation were those formulated by the celebrated chemists Liebig and Berzelius, and were wholly erroneous. The latter attributed fermentation to an obscure catalytic force, and regarded the yeast cells as a mere precipitation of a vegetable principle during the process. Liebig, on the other hand, defined ferments as extremely alterable organic substances able, under the influence of oxygenation, to communicate molecular motion to sugar and induce its decomposition into alcohol and carbonic acid gas.

Such ideas as these, however interesting from the historical point of view, were naturally sterile when confronted with the practical difficulties of the brewer. Pasteur swept them all aside, and after elaborate study and experimentation was able to state in 1860 that alcoholic fermentation was correlative with the life and organization of the yeast cell; a few years

later he was able to go further and show that each of many fermentative processes had its own specific organism by which it could be recognized. He linked up his work on alcoholic fermentation with that on the souring of milk and the lactic fermentation of sugar; and in 1863 took up the study of the fermentations involved in the production of wine, the greatest of French industries, publishing a book on the subject in 1866. Continuing his work on industrial fermentations, he wrote a book on the subject of beer in 1876. Thus the first twenty years of his active scientific life were largely occupied with the investigation of problems raised by the great fermentation industries, and he returned to them again and again in later years, as his biographer Vallery-Radot shows. The practical commercial value of his discoveries was incalculable; the scientific importance of the work was no less, and may not unfairly be regarded as one of the contributions made by beer to bacteriology. But beer has contributed more than that. Mr. Brown gives a most instructive analysis of the influence exercised by Pasteur's work on the development of Lister's antiseptic surgery in the Sixties. The researches from which Lister drew his inspiration were those suggested to Pasteur by his observations in Bigo's distillery at Lille.

Mr. Brown has many interesting facts to record in illustration of the slow progress made with the introduction of scientific methods into the conservative art of brewing. In the late Sixties there was no laboratory at all in the great Burton brewery he entered. It was not until 1869 or 1870 that he turned his attention to the systematic use of the microscope in his brewing work. The polarimeter, now indispensable to the brewing chemist as a means of estimating sugars, was not applied to this obvious service until 1870, when O'Sullivan took it in hand with brilliant results. The scientific members of the staffs of the various Burton breweries waited till 1876 before forming an informal scientific club for the discussion of scientific discoveries in chemistry and biology that had a bearing on the fermentation industry. It was not till 1879 that Hansen's work on the identification and cultivation of pure yeasts at the Carlsberg laboratory in Copenhagen began. It was not till the close of last century that the Guinness Research Laboratory was started in Dublin; for it Mr. Brown laid out a detailed scheme of work in 1901. In the closing paragraphs of his address Mr. Brown points out many other particulars, besides those already mentioned, in which science owes a debt to the fermentation industries; at the same time he shows how the benefits conferred have been mutual.

Other sciences besides bacteriology have gained by investigations set on foot by workers primarily interested in brewing. Chemistry has been enriched by a vast amount of work on enzymes, sugars, starch, to mention but a few out of many pioneer labours; vegetable physiology has learnt much from brewers, more particularly with regard to the synthesis of starch from carbon dioxide by chlorophyll-containing leaves; Pasteur's work on crystalline isomerism and molecular asymmetry was suggested to him by his bacteriological studies in the first instance, and has developed into the corner-stone of organic chemistry. Therapeutics has received illumination, as, for example, from the work of Raulin, a pupil of Pasteur, who found that minimal quantities of zinc salts might exercise a wholly disproportionate influence on the freedom with which moulds grow in artificial media; even 1 part of zinc in 100,000 of the nutritive solution in which the fungus was grown seemed

sufficient for its needs. This work has recently been confirmed and extended by Javillier,¹ who found that the addition of 1 part of zinc to over 50 million parts of culture medium was enough to increase the growth of the mould by 30 per cent. Figures such as these impress the imagination with the importance of the infinitely little, and at first sight may even seem to offer a general confirmation of the views of homoeopathy. But, applying the same figures to the case of a human being and the drug arsenic, it will be seen that the "infinitely little" suggested by the dilution of one in fifty million, in the case of the mould, is really a commonplace of daily medical practice. In Javillier's experiment quoted above the amount of zinc involved was 0.005 mg. in 250 c.cm. of culture medium, the amount of mould grown was 2.5 grams, dry weight, and the proportion between the two last quantities was 1 to 500,000. In the case of a human being weighing 11 st. the dry weight may be taken as 66 lb., or 462,000 grains; while the pharmacopoeial dose of arsenious acid is given as from one-sixtieth to one-fifteenth of a grain. Clearly, then, in order that the human being may receive as much arsenic, relatively, as the mould received of zinc in Javillier's experiment, a great many doses of the arsenic must be exhibited; in other words, the human being is more sensitive to the action of arsenic than the mould is to salts of zinc.

These considerations have led us rather far, perhaps, from the thesis of Mr. Brown's vindication of the scientific value of the fermentation industries and the history of their development from the laboratory point of view. But nobody can read his address, inspired as it is by the conviction bred of a deep knowledge of the subject, without feeling that in the growth of bacteriological science the art of brewing has played a most important part. And these are not the days when such a debt to the brewing industry should be forgotten.

THE LISTER INSTITUTE.

THE annual meeting of the members of the Lister Institute was held at the Institute, Chelsea Gardens, on May 17th. Surgeon-General Sir David Bruce, C.B., F.R.S., the chairman of the Governing Body, who presided, in presenting the annual report referred to the loss the Institute had sustained by the death of Sir Henry Roscoe, who took an active part in its foundation, and who had been subsequently, first as treasurer and afterwards as chairman of the Governing Body, intimately concerned with its welfare throughout the whole of its history. The Institute had also lost by death Mr. Pattison, who had been treasurer since 1899. His place had been taken by Lieutenant-Colonel G. W. Addison, R.E. In pursuance of the policy instituted by the Governing Body in 1914, the Institute had continued during 1915 to devote its energies almost entirely to war work. It had been deprived of the services of many of its permanent staff, including the director, Professor C. J. Martin, and many voluntary workers in the laboratories, who had been claimed by the army. The amount of original investigation and the number of papers published were on this account much smaller than usual; on the other hand, a great deal of important work in relation to the prophylaxis of disease had been carried on. The bacteriological department had prepared large quantities of typhoid, paratyphoid, and cholera vaccines for military purposes, and researches on the disinfecting action of hypochlorites were being conducted by Dr. Schütze, and on prophylactic

dysentery vaccines by Dr. J. D. Thomson. The Chairman paid special tribute to the manner in which Dr. MacConkey had overcome many difficulties at Elstree, and with the assistance of Dr. Zilva and Miss Homer had prepared large quantities of antitoxins for the use of the army and navy. Cultivations of strains of the meningococcus isolated from cases of cerebral meningitis had been used for the immunization of horses, and the serum so obtained had been employed with success both in France and at home. Much use was being made of the Institute's antidysentery serum, which also had given good results. The Governing Body expressed its indebtedness to the Hygienic Laboratory of the Public Health Department of the United States of America and to its director, Dr. J. F. Anderson, for the generous manner in which, after the outbreak of war, they placed at the disposal of the Institute supplies of standard diphtheria antitoxin and standard tetanus toxin. In the department of experimental pathology, of which Dr. C. J. Martin is director, the assistants, Miss Harriette Chick, D.Sc., and Miss Mabel Rhodes, had been largely occupied in the manufacture of agglutinating serums for the use of the army and navy medical services, and in this department various foodstuffs had been examined for the presence of vitamins, in view of the occurrence of deficiency diseases (beri-beri and scurvy) in some areas of the war. A number of dry portable foodstuffs had been examined with a view to ascertaining those most suited to the cure and prevention of these diseases among the troops. Researches on anaerobic organisms isolated from cases of gas gangrene and other forms of gangrene, undertaken by the director in co-operation with Miss Robertson, had been completed by the latter, who had published a paper on the subject. She was now engaged in an investigation with the object of ascertaining whether an organism isolated by Dr. Penfold from cases of typhus fever conferred immunity against that disease. The calf lymph laboratory had been removed from Bushey to Hayle, Cornwall, where suitable premises had been acquired for a period of five years. The laboratory was under the direction of Dr. Green, and its removal liberated laboratories at Elstree needed for other purposes. The biochemical staff of the Medical Research Committee had occupied several laboratories in the Institute, and accommodation had also been placed at the disposal of the Ministry of Munitions. Mr. Bacot having successfully completed his work in Sierra Leone for the Yellow Fever Commission, returned to the Institute in October, 1915, and has been engaged in investigations on the bionomics of lice, with the object of devising a simple means of sterilizing clothing and preventing infection. Dr. Harden continues to act as deputy director during Dr. Martin's absence. The report was adopted, as was also the financial statement. It was announced that the council had elected Professor F. W. Andrewes, M.D., F.R.S., to be a member of the Governing Body in the room of Sir Henry Roscoe, and that it had also elected to be members of the Governing Body Sir John Rose Bradford and Sir E. Ray Lankester. Sir R. J. Godlee was elected a member of the council in the room of the late Mr. Pattison.

EFFECTS OF WAR ON POPULATION.

At a meeting of the Royal Statistical Society on May 16th two papers were read in which the changes which are occurring in the age distribution, birth-rate, and death-rate of the population of England and Wales were discussed. Sir J. Athelstane Baines showed that the relative number of the marriageable of both sexes has risen considerably since 1871, but that the number who marry is proportionally smaller. There was also, he said, a tendency to marry later, thereby shortening the productive period, and for the married to have smaller families. A great decline in the birth-rate had been the result.

¹ See A. J. Brown's Cantor Lectures, Royal Society of Arts, 1911.

especially since the beginning of the century. Owing, however, to a similar decline in the death-rate, the rate of natural increase of the population, though generally on the down grade, had been falling more rapidly of late, as the births had been declining in number more than the deaths. The distribution of the population by age and sex had been materially affected. In regard to age, the diminution of the number of children, which set in in the late Seventies of the nineteenth century, at first raised the proportion of adults in the prime of life, and at the most productive ages, and, so far, was economically to the good. It also tended to lower the death-rate, which is at its lowest during adolescence and early middle life. But, as the diminution continued, the people of middle life began to pass into the ranks of veterans, amongst whom the mortality is almost as high as at the beginning of life; the death-rate, therefore, tended to rise and the population to be older, not by reason of greater longevity, but from the lack of reinforcements from below. As the numbers at the productive ages grew smaller, the birth-rate tended to decline, irrespective of less or later marriage or the voluntary restriction of child-bearing. As the mortality of females is considerably lower than that of males, and as it is the men chiefly who leave the country for foreign parts, the balance of sex is slowly inclining more and more on the side of women. The falling off in the marriage-rate is more marked among women than among men, and one of the most important features in the present distribution of population is the rise in the ratio of unmarried women to bachelors. As a counterpoise, to some extent, for this phase in the national life, there is the much wider field now opening for women in occupations of all sorts. Sir Athelstane Baines concluded by expressing the opinion that the short supply of children was not entirely irremediable, since it might be somewhat counteracted by the measures now being put into force for the preservation of infant life. It might be hoped that a relatively greater number would reach maturity. The other paper, by Mr. J. W. Nixon, discussed the effect of war on national vital statistics, and was founded on a study of the effect of the Franco-Prussian war. The statistics of births, deaths and marriages in France and Prussia for the period 1868-73 were analysed, and it was shown that both countries experienced a rise in the death-rate in 1870 and 1871—the increase in the number of “civil” deaths being greater than the number of “military” deaths. This was especially marked in the case of France, the number of “civil” deaths being 437,000 more in 1870-1 than in 1868-69, while the number of “military” deaths was at the most 150,000. The rise in the death-rate was felt at all ages and shared equally by the two sexes. Not only the two belligerents but the three surrounding neutral States of Belgium, Holland and Switzerland all showed a period of maximum mortality in 1871. England and Wales remained unaffected. After the war, rapid recoveries set in in all countries except Prussia; the death-rate in France falling in 1872 to 22.0 per 1,000—the lowest on record. A serious fall in fertility was experienced by France and Prussia in 1871, and the three neighbouring neutrals similarly suffered a reduction in their birth-rates. There was a sudden decrease in marriage-rates in France and Prussia in 1870; it was partly made up in 1871 on the conclusion of peace, but the year 1872 was a “boom” year in both countries, the marriage-rate reaching the highest on record. The war had apparently no effect on illegitimacy, infant mortality, stillbirths, and the proportion of boys born to girls. Mr. Nixon considered corresponding figures for England, France, and Germany in the present war, though the data available are necessarily very limited. As in the Franco-Prussian war, all three countries are experiencing a serious fall in the birth-rate. The death-rate has not yet been seriously affected in England, the slight rise in 1915 being due to some extent to the bad winter and to an epidemic of measles. On the marriage-

rate, the effect has been the reverse of that in the Franco-Prussian war—a large rise having taken place last year. The theory advanced early in the war that it was having the effect of increasing the proportion of male births was found to be groundless, as was also the “war baby” theory. The serious effect which the war is having on the vital statistics of the nation was, Mr. Nixon said, to be seen in the fact that the “natural increase” of population in 1913 was 377,000. In 1915 it fell to 252,000, exclusive of deaths of soldiers abroad.

THE LIQUOR RESTRICTIONS.

THE regulations issued by the Central Control Board on February 17th, 1916, for the restriction of liquor traffic possess for members of the medical profession a more than mere academic interest, as has recently been demonstrated by proceedings which have been taken, and to which we shall refer. The regulations, speaking broadly, aim at restricting the number of hours daily during which intoxicating liquor may be supplied in licensed premises, and also provide additional restrictions on the sale of spirits. One of these latter restrictions is that “spirits to be consumed off the premises shall not be sold or supplied in or taken from any licensed premises in any bottle or other vessel not bearing a label showing the name and situation of the premises, or in any vessel of a capacity less than one reputed quart, or in any less quantity than one reputed quart, or in any open vessel.” To this, however, an exception is made where a person produces a “certificate in writing, dated and signed by a duly qualified medical practitioner, that the spirits are immediately required for medicinal purposes, and specifying the quantity of spirits required.” It will be noticed, therefore, that in order to satisfy this exception, and so entitle its recipient to purchase a quantity of spirits less than a reputed quart, the certificate must satisfy four conditions. It must be dated; it must state that spirits are required medicinally; it must limit the amount of the supply; and, finally, must be signed by a qualified medical practitioner. Now, in the proceedings to which we have already referred, which were taken for breaches of the regulations and which were heard by the Royton Petty Sessions on May 3rd, Dr. Forbes Kinnear of Royton had given one of his patients a certificate in these terms: “Please supply F. M. with whisky, gill quantities, weekly”; and beyond the doctor’s signature nothing further appeared on the certificate. The patient’s mother, by aid of this certificate, had for some weeks prior to the date of the proceedings obtained a gill of whisky almost weekly at a certain public house in Royton. Three charges were made. The publican was charged with having supplied less than a reputed quart of spirit for consumption off the licensed premises; the patient’s mother (S. M.) with carrying away the whisky; and Dr. Kinnear with aiding and abetting in the commission of the offence. Dr. Kinnear, who was represented by a solicitor instructed by Messrs. Hempson for the Medical Defence Union, admitted that the certificate in question did not satisfy the terms of the regulations, with which he was previously unacquainted. He stated that he and his colleagues had met and had agreed that they would charge a shilling apiece for these certificates, and intimated that for the future they would be signed and dated in conformity with the regulations. With this the case against him was dismissed without costs, and the publican was discharged with a caution. Without attempting in any way to criticize the general object with which these regulations were drafted, it would certainly appear unnecessary to put patients requiring small quantities of spirits for medicinal purposes and members of the medical profession to such inconvenience. Suppose a man requires, say, a dose of brandy in an emergency, is he or someone on his behalf, to be compelled to purchase a whole quart, or, as an alternative, to wait until a doctor can be found and a certificate complete in every detail given? Moreover, presumably the doctor would first have to

satisfy himself by seeing the patient that brandy was a medical necessity before he could give the certificate. No doubt if proceedings were taken in such circumstances the bench would consider that a technical offence merely had been committed. But it is to be regretted that those responsible for the conception of these provisions were unable to evolve a simpler method of meeting the point. Under the regulations a medical man must apparently certify each time a supply of spirits is purchased and not merely give a certificate that a weekly supply is necessary. We fail to understand what reason there can be for imposing this burden upon him.

THE FIFTH ARM.

DETAILS given in earlier issues of the physiological tests applied to would-be aviators in this country and in France showed that they were practically tests of "nerve." The training undergone by pupils in the French military aviation school at Buc near Paris, which turns out pilots at the rate of 160 a month, has been described in several recent publications. The pupils are drawn from all branches of the services, and receive a preliminary course of education in the theory of the subject that lasts three or four weeks. Then the pupil is taught to fly by one of two methods. Either he learns by himself, practising first on an aeroplane, nicknamed a "penguin," that can do no more than run along the ground, later he is given one that rises only five or fifteen yards in the air, finally he is put in charge of a normal full-powered aeroplane. Or, alternatively, he is taught to fly in a controlled machine, sitting in front of an expert pilot who controls the levers and steering as does the learner. This, it is said, is the more natural method of learning to fly. The pupil is up in the air with an expert pilot, and imitates his actions. With a beginner, the expert naturally takes complete command of the situation, and the pupil does little to regulate the flight. As the pupil acquires experience, the expert has less and less to do with the control of the flight. The first thing to be learnt is the art of landing. The flight is short and low, and the pupil's aim is to land at the required spot. Next he must learn to regulate the height at which he flies. All the flights taken are short, and are timed. After they have totalled twenty or five-and-twenty hours, the pupil is fit to go in for his qualifying tests. These consist in three triangular flights round three fixed points—three towns—and a couple of flights ascending to a height of 2,000 metres. Provided he has sound nerves, a strong constitution, and average intelligence, a man may become a pilot in thirty days. It is said that the art of learning to fly is best acquired slowly without undue hurry, and that the intellectual characteristics of the French as a race are just those required of aviators—intellectual concentration, rapidity of judgement, courage, and ease in grappling with the unforeseen. If a flier shows signs that his nerve is becoming affected, he is given furlough and ordered to rest, but Mr. Powell states that so great are the mental strain, exposure, and noise, that probably 25 per cent. of the aviators lose their nerve, and have to leave the service.

SCIENCE, INDUSTRY, AND MEDICINE.

THE annual meeting of the British Science Guild on Wednesday was made notable by an address by Mr. Andrew Fisher, the High Commissioner for the Australian Commonwealth, on the establishment of a national institute of science and industry in Australia. He defined science as the accurate, calculated application of experienced reason to practical problems. Early in the New Year Mr. Hughes, the Australian Premier, assembled representatives in Melbourne of all the universities, industries, and manufactures, and made it clear that the Government would lend its driving power to a movement for the establishment of a scientific institute. What he proposed was a central laboratory and bureau of

standards charged with the investigation of industrial problems. An Advisory Committee was appointed which reported within the incredibly short space of a fortnight in favour of a bold policy, recommending that the functions of the institute should be 'to collect and disseminate scientific information of all kinds, chiefly in connexion with the primary and secondary industries of Australia. Mr. Fisher also touched upon other recent scientific movements in the Commonwealth, and spoke at some length upon the Institute of Tropical Medicine at Townsville, Queensland, inaugurated in the beginning of 1910, and described in these columns not long afterwards. At the present time, Mr. Fisher said, an examination was being made of the blood conditions of children born and reared in North Queensland, with a view to proving whether the blood was normal or whether deterioration had taken place in the direction of anaemia which could be attributed to climatic conditions. As far as statistics had gone, Europeans had a better chance of life in the tropical portions of Australia than in the temperate zone of the continent. It was remarkable that Queensland—largely a tropical State—had at once the highest birth-rate and the lowest infantile death-rate; this was of vital importance to Australia, for it was hoped that it would decide the question of the climatic influence on the white man in the tropics. In proposing a vote of thanks to Mr. Fisher, Sir Alfred Keogh said that there were in the United Kingdom able, energetic, and brilliant scientific men, gifted perhaps above men of other countries in the quality of initiative, but they were fettered by tradition, and there was failure on the part of the nation to take advantage of their discoveries. He pleaded for the linking up of the universities with the industries. The industries should define the university syllabus for special research. In the profession of medicine this principle had been recognized in some measure, but he did not think it held true of any other profession. Speaking of his own department, he said that had it not been for the careful application of science before and during the war, the cases of typhoid fever among the troops—which now in France numbered only twenty-two—would probably have amounted to eighty or ninety thousand.

BENEVOLENT FUND FOR THE R.A.M.C. TERRITORIAL, SPECIAL RESERVE, AND NEW ARMIES.

A MEETING of medical officers of the Territorial, Special Reserve, and new armies to consider further the advisability of establishing, for the benefit of the widows and orphans of officers, non-commissioned officers, and men, some kind of benevolent organization similar to that which exists in the regular Royal Army Medical Corps, will be held at the Royal Army Medical College on Thursday, June 1st, at 2.45 p.m. The magnitude of the interests concerned is shown by the fact that there must be at least 9,000 medical officers belonging to the three categories, and from this some estimate may be formed of the number of non-commissioned officers and men. It is hoped that medical officers will take a lively interest in the proposal, and that as many as possible will attend the meeting on June 1st, when the Director-General, Sir Alfred Keogh, will be in the chair.

AT the meeting of the Medical Society of London on May 15th Mr. D'Arcy Power was elected president, Mr. Hugh Lett and Dr. W. J. Fenton honorary secretaries, and Dr. H. R. Spencer honorary secretary for foreign correspondence.

IN a note on the standard of vision in the army, published last week, the assumption was made that if vision equal to $\frac{1}{2}$ was enough for active service without glasses, $\frac{1}{4}$ with glasses would be sufficient for garrison duty. A correspondent has been good enough to inform us that this assumption is correct, and that an official memorandum was issued last year directing that men "who cannot be brought up to $\frac{1}{4}$ by means of spherical glasses should not be taken . . . for garrison duty."

Medical Notes in Parliament.

War Taxation and Finance.

THE second Budget of 1915 apparently required more parliamentary discussion than had been anticipated, and the latest proposals for obtaining more revenue from taxation have been placed before the Commons in two separate bills in order that more urgent matters may be dealt with at the earliest possible date. The first of these bills has now been disposed of, and the "new" taxes, such as the match duty and the entertainments tax, have now been cast in their final form, but the second has only recently been issued. This division of the Chancellor's proposals into separate bills may possibly absorb more Government time, but has obvious advantages in enabling the necessary administrative machinery to be set up immediately, thereby bringing the new duties into operation at an earlier date than would otherwise have been possible—an advantage not only to the Exchequer, but also to the traders concerned, who would probably prefer almost any trade conditions to those arising from uncertainty as to impending taxation.

We propose to deal with the second Finance Bill—Finance (No. 2) Act, 1916, as it will presumably become—but we may remark in passing that the substantial alterations effected in the mode of levying the match tax, made after the introduction of the first Finance Bill, afford an interesting illustration of the dilemma with which a British Chancellor is faced in proposing new taxes, that is, whether he is to rely mainly on the advice of the permanent officials, or whether he should obtain the opinion of the trade affected, and perhaps thereby run some avoidable risk of permitting an inkling of his proposals to become known in trade circles. Mr. McKenna—like previous Chancellors—seems to adopt the method of framing the system of levy to the best of his ability, trusting to our system of parliamentary discussion to afford ample opportunity for amending and elaborating the administration of the tax with the technical advice and co-operation which British taxpayers are not reluctant to supply where the tax is supported by the general sense of the nation.

Part I of the new bill deals with matters falling under the head of Customs and Excise, and is to a large extent devoted to increasing the duties on cocoa, coffee and coffee substitutes, and sugar, but also deals with customs and licence duties on table waters and cider. The duties on non-alcoholic beverages are to some extent intended to be a measure of justice to the tea merchants, whose commodity has previously borne a proportionately high rate of taxation. Section 10, which is of more interest than importance, may perhaps be mentioned. It imposes a 5s. duty on all "tinder boxes," or, as the bill, with that euphuism so often noticeable in statutory definitions of small articles, describes them, "mechanical and portable contrivances for producing a flame." Naturally the Government do not desire to see their latest tax rendered nugatory by an extended use of match substitutes, and a 5s. duty would seem an ample safeguard against that danger.

Section 11 is of direct importance to the medical profession, inasmuch as it carries into effect the proposed increase in the licences payable on motor cars by substituting a new scale of duties for that laid down in the Finance (1909-10) Act, 1910, and adopted hitherto. Most people will agree that the system of graduating the rates of duty according to the nature of the car—whether on the basis of horse-power, value, accommodation, or otherwise—is equitable, but an unfortunate feature of practically every operative system of graduation is that too much depends on the actual lines of division. For instance, if the car does not exceed 16-h.p., the new licence duty is £8 8s.; if it is between 16-h.p. and 26-h.p., the tax immediately becomes £18 18s. A further subdivision into intermediate groups, according to horse-power, would diminish the number of anomalous cases, but the practical advantages of basing the graduation on a division into groups probably stands in the way of a radical reconstruction of method by which alone all anomalies could be avoided—as, for instance, by the adoption of a system of percentage progression on each unit of horse-power. The actual phraseology of the section appears to suggest no

doubt as to the application of the rebate to the new scale of licences.

Part II of the bill deals with income tax—a more serious matter than even the substantial increase in motor licences. There are now three scales of rates: one applying to earned, another to unearned incomes, and a third scale, which is a modification of the earned rates in favour of soldiers and sailors. The super-tax rates are not raised, but the increase of the maximum income tax rate from 3s. for 1915-16 to 5s. for 1916-17 will probably affect the payers of the super-tax to an extent sufficient to prevent any lively feeling of gratitude on their part.

The ordinary income tax rates will apply as follows:

Total Income Not Exceeding	Earned Rate.	Unearned Rate.
£300	2s. 3d.	3s.
£500	2s. 3d.	3s. 6d.
£1,000	2s. 6d.	4s.
£1,500	3s.	4s. 6d.
£2,000	3s. 8d.	4s. 6d.
£2,500	4s. 4d.	5s.
Exceeding £2,500	5s.	5s.

It will be seen from the above that the graduation does not follow the same classification in each case. For instance, there is no special rate applying to earned incomes where the total income does not exceed £300, as in the case of the unearned rates, and the graduation of the latter rates stops at a point below that at which the classification of unearned income ceases. *Prima facie* one would have supposed that it would have been easier to graduate earned incomes according to a £300 limit than unearned incomes, seeing that the former are assessed directly upon the taxpayer and the latter are subjected to tax by deduction at the source. There may, of course, be insuperable difficulties which are not apparent on the surface, and no doubt an opportunity will arise during the debates for explaining their nature. One would certainly be inclined to suppose that if equity requires a graduation at the £300 limit in one case it would also call for a graduation at the same point where earned incomes are concerned.

Section 13 continues the operation of the relief afforded by the second Finance Act of 1914, the principle of which is that where a practice has suffered owing to the war, the average of the three previous years may be discarded in favour of an average of the two previous years and the current year, but the subsequent section grants a mode of relief which is simpler in its operation, and—where it applies—likely to be more fruitful in its results. It provides that where the "actual income" of a taxpayer from all sources for the year of assessment is less by more than 10 per cent. than the income on which he has been assessed and charged—as it may very well be if he is paying tax on an average of previous receipts, and is adversely affected by the war—then he shall be entitled to repayment of tax paid by him to the extent necessary to reduce that sum to the amount of tax on his "actual income." The remarks we have already made as to the tendency of our methods of taxation to sacrifice a logical application of equitable principles to practical simplicity apply with greater propriety here than even to the classification of motor cars for licence purposes. If this relief be given to a taxpayer whose income has fallen 11 per cent., it is difficult to see how in strict equity some measure of relief can be refused to one whose diminution is calculated at 9 per cent., but in point of fact, if this particular question be regarded in the light of the last Finance Act, the taxpayer would appear to have cause for gratitude rather than for complaint. In that Act it was provided that where the diminution exceeded 10 per cent. some percentage only, calculated by reference to a statutory scale, of the additional tax paid was repayable. So that, although there is no remedy where the percentage is less than 10 per cent., the complicated repayment by application of a scale is swept away to the clear advantage of the taxpayer. In other words, Section 19 of the present bill constitutes a desirable extension of a previous form of relief, and in such circumstances the "hard case" of the man who still remains outside the 10 per cent. rule—and such cases cannot be very grievous—is not likely to receive much practical legislative sympathy.

The question of applying war rates of taxation to officers in the army and navy has received, and without question will continue to receive, a considerable amount of parlia-

mentary attention. It will be remembered that for 1915-16 the relief given on grounds of military or naval service was restricted to the application of pre war rates of duty and abatements where the *total* income did not exceed £300. This allowance still holds good, but the bill adds a more precise definition of the persons who can claim this form of relief, and extends the allowance beyond its original scope. The new rates are as follows:

Where the total income does not exceed	£300	...	9d.
"	"	£1,000	2s. 1d.
"	"	£1,500	2s. 5d.
"	"	£2,000	2s. 9d.
"	"	£2,500	3s. 3d.
"	exceeds	£2,500	3s. 6d.

It will be seen, on comparing these figures with those in the ordinary earned income scale, that there is a reduction which should be quite perceptible, but perhaps the most striking feature is the wide gap between the £300 and the £1,000. The effect of this is to render the section almost inoperative to that very considerable body of officers who, in present circumstances, have a taxable income of between £300 and £500, inasmuch as they receive an allowance of 2d. in the £ only, although the relief is substantial where the total income is greater, gradually reaching a maximum of 1s. 6d. in the £. Bearing in mind, also, the very sudden rise in the rate which takes place when the £300 limit is crossed, we suggest that there are almost overwhelming arguments in favour of a special rate for total incomes between £300 and £500—say, for instance, 1s. 9d.

Another important matter in this connexion is the definition of the class of taxpayer to whom this relief is to apply, and we therefore make no apology for quoting the relevant portions of the two sections concerned in *extenso*:

§ 20. (1) Where any person who during the current income tax year has served or is serving as a member of any of the naval or military forces of the Crown or in service of a naval or military character in connexion with the present war for which payment is made out of money provided by Parliament, or in any work abroad of the British Red Cross Society or the St. John Ambulance Association, or any body with similar objects, claims, etc.: and

§ 21 (1) provides that a person shall not be deemed to have served as a member of the naval or military forces of the Crown unless he has served—

- (b) In the army, either with the colours or as an officer on full pay or at a rate of pay which appears to the Income Tax Commissioners concerned, after consultation with the Army Council, to be equivalent to full pay, and either out of the British Islands or for at least one month continuously in the British Islands.

For our present purposes these sections are important because of the large number of practitioners who are engaged on military hospital work in this country. Such work interferes seriously with the ordinary conduct of their civil practices, and frequently involves them in a considerable amount of additional work at a time when they are endeavouring to supply a lack of medical assistance and surgical skill arising from the absence on military service of other practitioners in the same locality. Whether or not such hospital remuneration will be taxed at the special reduced rate will depend on the final form taken by the two sections under consideration. Without attempting to decide whether, in such a case the practitioner would claim to be a member of the forces of the Crown, as defined by Section 21, it appears to us that he would be within the words of Section 20 "in service of a naval or military character in connexion with the present war, for which payment is made out of money provided by Parliament." If there be any doubt on the point it is to be hoped that the coming debates will dissipate it, or lead to the adoption of some other form of words to meet the case.

The remainder of the income tax sections are severely technical and not of substantial importance, with the exception of the somewhat complicated Section 23, which in effect places a maximum income tax of 3s. 6d. so far as the United Kingdom is concerned on colonial income which has already suffered colonial income tax at its source.

Part III of the Bill deals with the excess profits duty, and after increasing the levy for the second war year to 60 per cent., is concerned mainly with questions arising out of the assessments on shipping and munition businesses. This part of the Bill is to our readers a matter of general rather than personal interest.

War.

The Military Service Bill.

The consideration of the Military Service Bill has occupied much of the time of the House of Commons. The report stage was concluded on the evening of May 16th, and the bill was read a third time by 250 to 35. A number of amendments have been made of the exact effect of which it is difficult to judge until the bill has been reprinted. A great deal of interest was shown in an amendment, proposed in the interest primarily of the small shopkeeper, providing for exemption if it is proved that the man is the sole head of the business; that there is no other person available to carry it on; and that he has a wife and children depending upon it. Mr. Duke suggested that the wording of the exemption should be "On the ground that a man is carrying on business which is a means of livelihood to himself and not less than three other persons depending on him, and which cannot be continued without his services." Mr. Long undertook to issue an instruction under Section 5 to the tribunals, and this undertaking was accepted.

British Prisoners in Germany.

On May 11th Mr. R. McNeill asked a question as to statements made by Mr. Hanson, who has returned to England after eleven months of internment in Germany. The statements were to the effect that not more than 3½ oz. of meat and ½ lb. of bread, composed of a mixture of inferior rye, potatoes, and straw, together with coarse vegetable roots such as were usually fed to cattle, formed the daily allowance of civilian prisoners in Germany, and that the conditions for military prisoners were even worse. Mr. McNeill also asked whether attention had been called to Mr. Hanson's statement that he had frequently heard Mr. Gerard tell starving British prisoners that they had their own Government to thank for their sufferings; and whether any suggestions had been received by the Government from Mr. Gerard as to measures that might be taken to secure better treatment for British prisoners in Germany. Lord Robert Cecil said that quite recently the Government had asked the United States Ambassador in Berlin to inquire as to the quantity and quality of the food at present being supplied at Ruhleben. The United States Ambassador had been indefatigable in his efforts to improve the conditions obtaining in the prisoners' camps in Germany, and the country was most grateful to His Excellency for what he had done. In reply to supplementary questions, Lord Robert Cecil said that he hoped the statements quoted exaggerated the state of things in the camp. He would like to be able to say that such things never occurred, but the Government's information, speaking generally, had been that, although the food was insufficient, it was not so bad as described in the question.

Invalid Prisoners in Switzerland.

On May 10th Lord Robert Cecil said that the agreement under which German and British prisoners of war would be sent to Switzerland, together with a list of the diseases which would qualify for internment in that country, would be circulated very shortly, and Mr. Tennant said that the medical officers in prison camps in Great Britain were preparing a list of those invalid prisoners of war who, in their opinion, should be sent to Switzerland. In reply to questions by Mr. Malcolm, on May 15th, Lord Robert Cecil said that he was unable to state the exact date on which the Swiss Medical Commission to take evidence as to German prisoners in this country qualified by illness to be sent to Switzerland would reach this country. It was understood that the first batch of British prisoners would be sent to Chateau d'Oex and its neighbourhood, and it was hoped that the first batches of prisoners might leave this country and Germany at the end of May.

Jaw Injuries.

Mr. Pennefather, on May 11th, asked how many hospitals there were in this country in which jaw injuries suffered by soldiers could be treated by general surgeons and dental surgeons acting in collaboration, and how many had been established by the French authorities. Mr. Tennant replied that in all hospital centres arrangements had been made for jaw injuries to be treated by general surgeons and dental surgeons acting in concurrent

collaboration. He was not able to say how many special hospitals had been established in France.

Medical Examination of Recruits.—On May 9th Mr. Ashley asked whether it was the case that until recently Southern Command Orders included an order to medical officers of units to at once medically examine all men joining to ascertain whether they were fit for general military service, but that a short time ago medical officers were instructed not to examine recruits, and that a fortnight ago an order was issued in the command that no medical inspection should take place except for infectious diseases. He wished to know whether medical examination by medical officers attached to units would be resumed, so as to avoid waste of public money by inefficient soldiers being retained for a considerable time in the public service. Mr. Tennant said that orders in the Southern Command had been changed in this respect. Previous to the adoption of the system of examination of recruits by selected boards of R.A.M.C. officers, a large number were examined in the first instance by civil medical practitioners, and it was considered necessary that these men on joining their units should be re-examined by the regimental R.A.M.C. officers, as the civil medical practitioners had not always the necessary experience in examining recruits. As all recruits were now examined before enlistment by selected recruiting boards, the second examination by the regimental R.A.M.C. officer was not considered necessary, except for the purpose of detecting infectious disease. As it was unnecessary, public money and public time were saved by its abolition. In reply to a supplementary question, Mr. Tennant said that he presumed the order extended beyond the Southern Command. Mr. Billing, on May 11th, called attention to the fact that men in Hertfordshire were called upon to attend a medical board at Bedford, involving the loss of a day's work and travelling expenses, and asked whether the War Office would make arrangements for a medical board to attend one day a week or one day a fortnight at the chief town at each of the parliamentary constituencies of Hertfordshire. Mr. Tennant said that the question of placing the medical board for Hertfordshire in a more central position was under consideration, but it was impossible to obtain the services of sufficient medical officers to arrange for medical boards to visit the chief towns of all constituencies. If a man concerned was called to the colours, he received a free warrant. If he desired, as it was natural he should, to be examined by a medical board before he was called up, then he was travelling as an ordinary citizen, and was not given a free warrant. Mr. Tennant stated, on May 15th, that no man known rightfully to hold a certificate of rejection on medical grounds issued by an authorized official would be required to be re-examined unless there were reason to believe that his medical disability was temporary or of a nature which did not preclude his employment in some form of military service. There was no form of certificate which exempted a man from all forms of military service. A man might be employed in other categories than general service. He promised, however, to see if some means could be devised for granting a certificate showing in suitable cases that a man was absolutely rejected. On May 15th Mr. Tennant said that he was inquiring into the allegation that in some places married men had been refused facilities for submitting themselves to medical examination in order to ascertain at the earliest possible date whether their services would be required by the army.

Medical Boards.—In reply to Sir Ryland Adkins, on May 15th, Mr. Tennant said that the medical boards by which men previously rejected for the army on medical grounds would be re-examined were those appointed and working in each recruiting area. The presidents were appointed by the War Office and the members in the commands. In reply to a further question as to the propriety of having at least one civilian doctor on each board in view of the fact that the examinations were re-examinations and awakened a great deal of public interest and anxiety, Mr. Tennant said that the War Office was utilizing the services of a large number of civilian doctors. The number of the boards would be sufficient to ensure adequate and proper examination of each individual.

Khaki Helmets.—On May 15th Mr. Tennant told Mr. Malcolm that the Commander-in-Chief of the British Expeditionary Force in France reported that all existing steel helmets were provided with covers or rough paint. The question of which method was the more efficacious was engaging his attention, but he was not in a position to make a recommendation.

Army Dental Treatment.—On May 10th Mr. Tennant informed Mr. Pennefather that he was not able to say how many qualified dental surgeons had been recruited for combatant service, but it was true that qualified dental surgeons were still being recruited for combatant service. He added that full provision for dental surgeons for the army had been made, and that all demands for such service for the troops both at home and abroad had been supplied. There was a large number of applicants for dental commissions, and no difficulty was anticipated in meeting any demands that might remain. The War Office had no information as to the number of dental surgeons employed by the French Government to look after the teeth of French soldiers, nor those employed in the Canadian forces.

Petrol Supplies.—On May 15th Sir H. Craik asked the President of the Board of Trade a question as to the dearth of petrol for necessary purposes, such as the requirements of the medical services in country districts

where long distances had to be traversed; and whether regulations would be made to secure that the supply for such necessary purposes should not be interfered with by the use of petrol for purposes of luxury and amusement. Mr. Runciman said that he was aware of the position with regard to petrol and had appointed a Committee to consider what measures were necessary to secure adequate supplies for the purposes of the war and other essential needs, including medical services. The Committee was now inquiring into the whole subject. In reply to a further question by Mr. Cathcart Wason as to whether the regulations of the Board of Trade with reference to railway trains had not accentuated the dearth of petrol by leading to the increase of private motor cars, Mr. Runciman said that he had been making inquiries, but could not find that there had been any increase in the use of private motor cars. So far as he could ascertain, the number in use was lower than before. On May 16th Mr. Cathcart Wason asked whether it would be desirable and practicable to draw a distinction between cars used for business purposes and cars used for pleasure and luxury, so that petrol could be obtained at a more reasonable rate for professional and business purposes. It was, he said, practically impossible for doctors to obtain petrol, owing to its scarcity. Mr. McKenna repudiated responsibility for this, stating that it did not come within the purview of the Home Department.

Motor Car Duties.—On May 10th Mr. Cathcart Wason asked the Chancellor of the Exchequer whether he was aware that the increased taxation of motor cars used by doctors pressed on the medical profession, and that the public interest suffered; and whether he would take into consideration the desirability of making a further concession, with especial consideration to the increased price of petrol and the difficulty of obtaining it. Mr. McKenna replied as follows: "As I have already stated, I am considering all questions relevant to the proposed increase of motor car licence duty; but I must add that it would be difficult to justify any change which would give members of the medical profession—who only pay half duty—a greater proportional preference over other users of motor cars."

Science and Education.—Sir Philip Magnus asked the Prime Minister on May 9th whether, having regard to the general demand for an exhaustive inquiry into the present educational system, particularly with regard to the claims of science to occupy a more important place in the curriculum of schools, he was able to make any statement as to the proposal submitted to him for the appointment of a Royal Commission to consider and to report upon the question of the organization of education in this country. The Prime Minister replied that when the Government was in possession of the results of the various inquiries set on foot it would be possible to decide whether any useful purpose would be served by setting up a Royal Commission. In reply to Mr. Lynch, he expressed his willingness to receive a concrete suggestion for some better method of inquiry than by a Royal Commission.

Dope Poisoning.—In reply to a question by Mr. Bowerman, on May 11th, Mr. Brace, Under Secretary, said that the Home Office had been in constant communication with the departments concerned, and it was understood that the arrangements set on foot some time ago for securing an adequate supply of a satisfactory dope free from tetrachlorethane for use in aircraft works were now approaching completion; it was hoped that the approved dope would shortly be manufactured in such quantities as to meet all requirements. The use of any other non-poisonous dope prepared by private makers must depend on its suitability for aircraft purposes, a matter for the War Office and Admiralty to decide.

Old Age Pensions.—In a written reply to Mr. Wing, on May 9th, Mr. Montagu stated that the total number of old age pensions payable on December 31st, 1915, was 982,384, of which 364,464 were to men and 617,920 to women, the numbers payable at the several rates being:

5s.	4s.	3s.	2s.	1s.
928,085	19,540	19,986	9,697	5,076

THE WAR.

LICE.

DR. ALBRECHT HASE of Jena, who was deputed by the German War Office to study the plague of lice on the eastern front in the summer of 1915, has reported.¹ As regards susceptibility to the bite of the body louse, inquiry among nearly a thousand individuals established the existence of the following groups: (a) Those whom lice do not frequent although they are in the midst of lice; (b) persons who are attacked by lice and continue to be susceptible to their bites over long periods; (c) those who are susceptible to begin with, but cease after a time to be affected by the bites although they still harbour the parasites; and (d) individuals who have harboured lice for long periods but have never been affected by their bites. No case in which insusceptibility had been replaced by susceptibility was met with.

Groups (c) and (d) are especially dangerous from the hygienic standpoint since they do not suffer any inconvenience, and consequently have less incentive to free themselves from the vermin. No relation between susceptibility to the bites of fleas and of lice could be made out. One hundred and eighty-one substances were tested for their capacity to protect against infection with lice; the great majority were quite useless, and Dr. Hase comments caustically on the fraud perpetrated by the vendors of these valueless preparations, sold under high-sounding names, at exorbitant prices. The conclusion arrived at is that even the most active substances known, in the largest doses, will not protect the person from lice for more than one or two days. This is confirmed by Galli-Valerio,² who finds that lice will even bite through skin covered with substances which cause their death. Some active compounds, such as, for instance, paradichlorobenzol, caused burns of the skin, even when the bags containing it were worn outside the shirt; others, such as clove oil, are too expensive.

There is no clear evidence that close contact with horses protects from or predisposes to lice, nor has any connexion been found to exist between perspiration, hairiness of the body, or previous infectious disease to susceptibility to lice. It is, however, asserted that underclothes heavily soiled with sweat are a protection as compared with clean garments; the explanation suggested is that the soiled garments are comparatively impervious to air and moisture, so that when the wearer works hard in warm weather the atmosphere between the clothes and the skin becomes too close and warm even for the louse. The men had rediscovered for themselves the fact that ants are antagonistic to lice, and some buried their shirts in ant-heaps in order to free them from the pest. When troops are stationary lice can be kept under only by unremitting attention to billets and clothing, and with the co-operation of every individual; where troops are continually being moved any considerable measure of success is impossible. Friedmann³ has investigated the various procedures for killing the body louse and its nits on clothes and in rooms. Normal nits incubated at 32° C. in an atmosphere containing 40 to 60 per cent. of moisture hatched this way in eight to twelve days. Exposure to air at a temperature of 76° C. for five minutes killed both lice and nits wrapped in wool. He considered that "insect powders" were valueless, and found that lice sought out woollen materials but avoided silk, on which they would not deposit nits. He recommends the vapour of carbon disulphide for killing lice and nits in clothes and rooms. The fluid is exposed in a thin layer in flat dishes, 100 c.cm. being allowed per cubic metre of room space and allowed to act for ten to twelve hours. Clothes are well penetrated, and even furs and skins, which are soon damaged by a temperature of 80° C., are not harmed. Airing soon removes the smell, but it is to be remembered that the vapour cannot be breathed with impunity, and that there is danger from a naked flame. Although carbon disulphide is dearer than sulphurous acid it is to be preferred owing to its volatility and because it is harmless to clothes.

¹ *Centralbl. f. Bakt.*, vol. lxxvii, p. 153.

² *Ibid.*, vol. lxxvii, p. 262.

³ *Ibid.*, vol. 77, p. 322.

DISINFECTION BY HOT AIR.

In the earliest forms of disinfectors for clothes hot air was used. Probably the best apparatus of the kind was that devised a good many years ago by Ransome. It was a chamber lined with non-conducting material, and had an outlet at the top. The air was heated by gas jets, the temperature of the ingoing hot blast being kept constant by an automatic regulator. The best working temperature was found to be 255° F. (124° C.), which was the highest that could be used for any length of time without risk of singeing cotton goods. This, and the fact that the heat penetrated bulky articles slowly, were the chief objections to it.¹ Hot air, however, is still used for leather articles, india-rubber, furs, and books; for the disinfection of other articles of clothing it has been almost completely displaced by moist heat. Rautmann² now claims to have obtained highly satisfactory results by means of a current of dry hot air in an apparatus devised by Vondran. A current of air heated by passing over an electric radiator is propelled into the disinfecting chamber under pressure by an electric motor; the hot current enters at the bottom of the chamber and is drawn out from the top, returning into the blast again. This circulation of the air reduces to a minimum the amount of heat required. To test the penetrating powers of the hot air under these conditions rolls of cotton-wool weighing $\frac{1}{2}$ lb. and 6 in. in diameter and 8 in. long, were exposed in the apparatus for fifty-two minutes; maximum thermometers placed in the centre of the rolls recorded temperatures of 150° C. and upward. By way of control, similar rolls of cotton-wool were exposed to the same temperature in an ordinary hot-air oven, without any special device for producing a current; no rise in the thermometers in the centre of the rolls occurred. The effect of moisture on the penetration was tested with rolls of cotton-wool which weighed 2 lb., and had a diameter of 11 in.; no difference due to the moisture was detected. Leather articles, such as boots and gloves, showed no damage after an exposure of thirty-five minutes to hot air at 178° C., which killed anthrax spores on silk threads. Boots were undamaged, even when they had been soaked in water prior to exposure in the apparatus.

Rautmann's conclusions seem to be based on laboratory experiments, for a small bundle of cotton-wool is a very different thing from a blanket or great-coat, so that although the results are promising, he does not seem to have established the practical value of the apparatus he recommends. If his statements prove even approximately correct, it might prove convenient for the destruction of lice.

CASUALTIES IN THE MEDICAL SERVICES.

ARMY.

Killed in Action.

LIEUTENANT AINSLIE BOOTH, R.A.M.C., whose death in action was noted last week, was killed on April 30th. He was the son of the Rev. Dr. Booth, of Cape Town, South Africa.

Died on Service.

Captain N. J. L. Yellowlees, of the Canadian Army Medical Corps, was reported to have died on service, in the casualty list published on May 11th.

Third-class Assistant Surgeon Joseph Valentine Fernandez, of the Indian Subordinate Medical Department, died on active service in Mesopotamia on December 1st last. He was born on January 22nd, 1885, attained warrant rank in the Bombay Army on December 31st, 1906, and was promoted to the third class on December 31st, 1911. Prior to the war he was stationed at Almadnagar.

Wounded.

Captain A. S. Plant, R.A.M.C., temporary.
Captain O. L. V. de Wesselow, R.A.M.C., temporary.
Captain H. F. N. Scott, R.A.M.C., temporary.
Captain F. B. Winfield, R.A.M.C., temporary.
Captain E. J. Blair, R.A.M.C.(T.F.).

Missing.

Captain W. R. O'Farrell, R.A.M.C.

DEATHS AMONG SONS OF MEDICAL MEN.

Allatt, H. T., Colonel Royal Irish Rifles, late Duke of Cornwall's Light Infantry, son of the late Dr. C. J. R. Allatt, died

¹ Notter and Firth's *Hygiene*. Third edition, 1908, p. 745.

² *Centralbl. f. Bakt.*, vol. lxxvii, p. 50.

suddenly on May 8th at Belfast of heart failure, following his exertions in Dublin during the rebellion. He had served in South Africa, and held the Queen's medal with four clasps. He had retired from the army for some years, but rejoined when the war broke out, and was attached to the Royal Irish Rifles. He was on duty in Dublin in charge of an armoured car.

Beatty, Eric Edge, Lieutenant Connaught Rangers, third son of Dr. Wallace Beatty, physician, Adelaide Hospital, Dublin, killed in action on April 29th, 1916, aged 22. He was educated at St. Columba's College and at Trinity College, Dublin, where he was a fourth-year medical student and half-back in the university Rugby fifteen. He got a commission in the 6th Service Battalion of the Connaught Rangers in September, 1914, and was promoted to lieutenant on February 11th, 1915.

Collins, N. H., Second Lieutenant Royal Inniskilling Fusiliers, only son of Dr. Collins of Laghey, county Donegal, killed in action. He was born in May, 1889, educated at Mountjoy school, Dublin, and got his commission on March 15th, 1915.

McConaghey, Charles Jack, Lieutenant Black Watch, son of the late Colonel John McConaghey, I.M.S., killed in action on April 21st-22nd. He was educated at Allhallows, Honiton, and at Bradfield College, Berkshire, and entered the Royal Military College, Sandhurst, in August, 1914. He got his commission on December 16th, 1914, went to Flanders in May, 1915, was wounded in the shoulder at La Bassée in September, and rejoined last February.

Wyatt, William Herbert, Second Lieutenant East Yorkshire Regiment, only son of the late Dr. W. T. Wyatt, was killed in action on May 4th. He was educated at Marlborough and at Exeter College, Oxford, where he graduated as B.A. He represented both his school and his college in the football and hockey teams. He was admitted a solicitor in July, 1913. At the beginning of the war he enlisted in the Artists Rifles, and got a commission on April 23rd, 1915.

Captain Randolph Noel Churchill Murray, Royal Inniskilling Fusiliers, reported missing, is the son of G. M. P. Murray, F.R.C.S.I., of Dublin, and a second-year medical student at Trinity College. Second Lieutenant George Malone, Royal Irish Regiment, wounded in the Dublin rebellion, is also a second-year medical student at Trinity College, Dublin.

NOTES.

Mr. J. LYNN THOMAS, C.B., F.R.C.S., Surgeon to the King Edward VII Hospital, Cardiff, has been appointed Consulting Surgeon to the Western Command, with the temporary rank of honorary Lieutenant-Colonel, R.A.M.C. Mr. Lynn Thomas served with the Welsh Hospital in South Africa with the rank of Captain, and received the medal with three clasps. He retired in 1913 with the rank of Major, R.A.M.C.(T.F.).

MESOPOTAMIA.

The Joint Executive Committee of the British Red Cross and the St. John Ambulance Association has received an interim report from its commissioner, Mr. Ridsdale, who arrived in Bombay on April 4th. On his way to Bombay he stopped at Aden, and was able to supply some stores of which the medical officers were in need, and cabled to London, with the result that ice machines, disinfectors, and stores were at once dispatched to Aden. At the same time he was able to arrange with Dr. Ruffer in Alexandria and with the Red Cross commissioner in Egypt to supply additional stores and green vegetables as required. Mr. Ridsdale on his arrival in Bombay seems to have found that the Red Cross voluntary aid work was in an unsatisfactory state, and hampered by the need for constant reference to Simla. At his suggestion the Executive Committee has appointed Major Hepper, agent for the Great Indian Peninsular Railway, to be its commissioner at Bombay. Mr. Ridsdale reported that Lady Willingdon's War Supplies organization was extremely well managed by a committee of business men, and the Executive Committee has arranged to establish a branch in Bombay of an "All India" effort to help the Red Cross side of Lady Willingdon's organization. Owing, apparently, partly to Mr. Ridsdale's efforts in Bombay the audit office there is being prepared, by direction of the Government of India, as a military hospital for white troops. Mr. Ridsdale arrived at Basra on April 16th, and in response to his request a large quantity of stores have been sent out from this country to that port, consisting chiefly of water and air beds, ice machines, wheeled chairs, and medical comforts. It is reported that three motor boats sent out by the Executive Committee have reached Basra, as also two sent by the Scottish Branch of the Red Cross; five other boats are on their way out, and fifteen more will be ready by the end of May. Their arrival is anxiously awaited, as the great difficulty has been in respect of transport. The Executive Committee is also preparing a shallow draught hospital ship for use on the Tigris, very similar in construction to the three hospital ships at present under construc-

tion by the Government for river service. It will be remembered that Mr. Ridsdale is a member of the Government Committee of Inquiry into the treatment of the sick and wounded in Mesopotamia, the other members being General Bingley and Sir William Vincent.

SIR JOHN NIXON'S DISPATCH.

CTESIPHON AND KUT.

On May 10th the War Office published a dispatch from General Sir John Nixon, dated January 17th, 1916, on the operations in Mesopotamia during October, November, and December, 1915. This dispatch contains the following references to the work of the medical department:

"The medical services have had to face very trying and unusual conditions. On more than one occasion the number and severity of the casualties have thrown the greatest strain on them, but the organization and efficiency of the arrangements have ensured as speedy an evacuation of the wounded as the means placed at their disposal permitted. In this connexion I wish to bring forward the name of Surgeon-General H. G. Hathaway. . . . The British General Hospital has throughout been in charge of Lieutenant-Colonel D. J. Collins, R.A.M.C., whose zeal, energy, and organizing power have rendered it a model hospital of its kind. Credit is also due to Lieutenant-Colonel G. B. Irvine, I.M.S., for his devoted and careful supervision of the Indian General Hospital."

At the end of the dispatch the names of nineteen officers are specially mentioned; among them is Captain W. H. Hamilton, I.M.S.

HONOURS.

The names of the following officers are included in the list of officers who have been awarded the Distinguished Service Order or the Military Cross in a special supplement to the *London Gazette* of May 16th:

D.S.O.

Temporary Captain Robert McCowan Hill, R.A.M.C. (attached 2nd Battalion Argyll and Sutherland Highlanders), for conspicuous gallantry and devotion to duty. He went to an area which was under intense bombardment, amputated the leg of a wounded officer, and attended to other wounded under most difficult and dangerous circumstances. Finally, he accompanied two stretcher cases back under shell-fire.

Captain R. McCowan Hill graduated M.B., Ch.B. Glasg., and practised in Upper Tooting, S.W., before the war.

Military Cross.

Temporary Captain James Lennox Stewart, M.B., R.A.M.C. (attached 1st Battalion Gordon Highlanders). For conspicuous gallantry and devotion to duty on several occasions when tending the wounded under heavy fire. On one occasion he rallied men, and set a splendid example of coolness and bravery.

Captain J. Lennox Stewart, who received his medical education at Guy's Hospital, took the degrees of M.B., B.S. Lond. in 1912.

Serbian Orders.

The King has granted unrestricted permission for the wearing of the Order of St. Sava, of the class indicated, conferred by His Majesty the King of Serbia on the following members of the Royal Army Medical Corps Mission to Serbia, March to June, 1915:

2nd Class: Temporary Colonel William Hunter, C.B., M.D., F.R.C.P.

3rd Class: Lieutenant-Colonel George E. F. Stammers.

4th Class: Captain Sydney W. Lund, M.B., Mr. William W. O. Topley (late Captain R.A.M.C.).

5th Class: Captains: Norman Cameron, M.B., Edward S. Walls. Temporary Captains: John M. Clements, M.D., Bernard C. Ewens, Alexander K. Forbes, M.B., Charles M. Forster, J. McAdam Hill, M.B., Samuel E. McClatchey, M.B., Charles R. Nicholson, Thomas H. Ravenhill, M.B., Hugh Y. Riddell, M.B., John H. V. Scott, M.B., Philip J. A. Seccombe, M.B., Bryce McC. Smith, M.B., Charles E. H. Smith, Robert H. Spittal, M.B., Lewis A. Walker, M.D., Gerald Whittington, M.B., John S. Williamson, William M. Will, M.B., and Mr. Francis F. Brown (late Lieutenant R.A.M.C.).

Indian Army.

In the *London Gazette* of May 2nd, in a list of Indian officers on whom the Indian Order of Merit had been bestowed, with effect from January 1st, for gallantry and distinguished service in the Dardanelles, was the name of 1st Class Subassistent-Surgeon Ghaus Muhammad, I.S.M.D.

A Correction.

In the list published in our issue of May 6th, p. 670, of those upon whom the honour of C.M.G. had been conferred, the name of the undermentioned officer should have appeared as follows:

Major (temporary Lieutenant-Colonel) Creighton Hutchinson Lindsay, M.D., R.A.M.C.(T.F.).

England and Wales.

THE WELSH NATIONAL MEDICAL SCHOOL.

A TREASURY minute dated April 18th, 1916, on the reports of the Advisory Committee on grants to universities and colleges and of the departmental committee on the National Medical School for Wales, together with copies of these reports, has been issued as a White Paper.

It appears from a memorandum of February 26th, 1914, that the grants to the University of Wales and its three constituent colleges from the Treasury amounted to £31,000, and from local authorities to £2,000. It is proposed that the grant by the Treasury should eventually be increased by £11,000, and the grants by local authorities by £9,000. Pending the report of the Royal Commission recently appointed to inquire into the organization and work of the university and colleges, and into the relations of the university to the colleges and to other institutions in Wales providing education of a post-secondary nature, the Treasury is prepared to concur in the recommendations of the Advisory Committee on university grants. Provided that, pending the reconstitution of the university, the new grants are applied wholly to meet existing liabilities, and conditionally on the continuance of the grant of £2,000 at present contributed by the Cardiff local authority, the Treasury undertakes to include in the Estimates for 1916-17 an additional sum of £5,500 for the first year of the new grants. Of this sum £1,000 will be allocated to the university, £1,125 to Aberystwyth, £1,125 to Bangor, and £2,250 to Cardiff. The Advisory Committee recommended that this State grant should be contingent upon a further sum of £3,500 being raised from the rates during the year in addition to the rate aid already given by Cardiff, but the Treasury is willing to waive this condition during the war. After its termination, however, further State assistance will be contingent upon its fulfilment. The Treasury will then be prepared to pay £500 over and above £5,500 for each further £500 raised by the local authorities until the total additional grant from the Exchequer to the university and the colleges reaches £11,000 a year. The Treasury also concurs in the recommendation that in future the contributions by local authorities should be regarded as support of the university as a whole, and should be allocated between the university and the colleges in the proportions indicated above.

National Medical School.

Subject to the acceptance of the future decision of the Government on the report of the Royal Commission with regard to the control of the National Medical School, and of the postponement until after the war of such part of the work on the new buildings as has not been specifically sanctioned by the Treasury, it will be prepared in due course to make a maximum grant in respect of the medical work of the college on certain conditions. The report of the Advisory Committee, dated February 26th, 1914, contains the following passages:

The most important claim is that for the extension of the medical school. Cardiff is the only centre in Wales where an effective medical school can be conducted, and at the last quinquennial distribution a grant of £1,500 a year was made by the Treasury to enable the College to found a medical school giving instruction in the preliminary and intermediate subjects. The College now desires to complete its medical school by undertaking the final and clinical subjects which hitherto students have had to study either in London or elsewhere. If such a complete school is to compete successfully with the large and well-equipped schools of medicine already in existence elsewhere, and if it is to provide a fitting medical education for students of the Principality, it must, in our opinion, be conceived on the most modern line and be based on the "unit" system, as described in the recent report of the Royal Commission on University Education in London, with salaried heads, graded assistants, and well-equipped laboratories. The control of the departments in the clinical subjects and the appointment of the staff in charge of those departments must be secured by the close co-operation of the academic authorities with the hospital authorities. The financing of a medical school on these lines is a very serious undertaking.

Even should the establishment of a modern clinical

school with a full equipment of medical, surgical, and gynaecological "units" be delayed, additional income would still be needed for the salaries and maintenance of the departments of science ancillary to the study of medicine and surgery and for increasing the efficiency of the instruction in the intermediate subjects. Our estimates of the immediate needs are therefore in the main unaffected by the larger issue we have been obliged to raise.

The Departmental Committee, in a report dated December 9th, 1914, gives the following estimate of the additional sums which would be required for the first ten years:

	£		£
1st year ...	4,565	6th year ...	9,365
2nd " ...	6,490	7th " ...	8,865
3rd " ...	9,240	8th " ...	8,490
4th " ...	8,990	9th " ...	8,240
5th " ...	9,990	10th " ...	8,115

In its previous report the committee had expressed itself strongly of opinion "that a school of medicine which aims at being national in its character must command support from the Welsh people as a whole and must receive from private donors and local authorities in the Principality adequate contributions for its maintenance." In considering how the additional sums required ought to be apportioned between the Imperial Exchequer and the locality (in this case the Principality) the medical school is designed to serve, the committee was guided by the extent to which local support, both over the whole of Wales and over Cardiff and its vicinity, already contributed towards university education as compared with the position in England. It also took into consideration the amount at present paid by the State in grants to medical schools in other parts of the country. Upon this the report contains the following observations:

3. With regard to the first of these points, we observe that, taking local support as including annual grants from local authorities, income from endowments and annual subscriptions, the ratio of local support to aid from the Exchequer in 1912-13 was 1.33 : 1 for the whole of England, while for the whole of Wales it was not more than 0.33 : 1. In making this comparison we do not wish to be understood as suggesting that the ratio of local support over an area which is in general of relatively low rateable value should be the same as it is in the case of England, of which the rateable value is relatively high, and we realize also that several heavy calls have of recent years been made upon the liberality of the Welsh people for the foundation of other national institutions connected with learning and preventive medicine. But even if these factors are taken as accounting in some degree for the low ratio of local contribution in Wales towards university education, we do suggest that, in a matter in which the interest of the whole country is so strong, and has been of such long standing, a larger measure of support may reasonably be expected.

When we come to consider the individual case of the University College of South Wales and Monmouthshire, which alone of the Welsh university colleges receives a grant for general maintenance from local authorities, the inadequacy of the local contribution stands out more clearly. Cardiff itself, and the districts which this college may be regarded as primarily serving, constitute a very thriving centre of commerce and industry, and their resources are fairly comparable to those of the wealthy English localities which contribute towards the maintenance of the modern English universities and university colleges. But whereas the ratio of local support to Exchequer grant averages, as we have seen, 1.33 : 1 for the English institutions, and in no comparable case sinks below 0.96 : 1; in the case of the college at Cardiff the ratio is only 0.45 : 1. We are convinced that the needs of university education in South Wales demand from Cardiff and the localities concerned a much larger contribution than is at present made if it is to be maintained at a reasonable level of efficiency.

4. The second of the considerations to which we referred above is the degree of assistance already given by the State to medical schools in England. The grants at present forthcoming in aid of these schools are paid by the Board of Education under the "Statement of Grants available in aid of Technological and Professional Work," and in the case of the largest school amounted in 1914-15 to nearly £4,600. This grant of £4,600 was in respect of nearly 300 full-time and about 80 part-time students. Under Regulation 7 of the "Statement" the maximum rates of grant which the Board can pay are £20 per full-time student and £8 per part-time student; but the rates actually paid in no case

reached these figures, and in the great majority fell very considerably below them.

It is in our opinion necessary to bear in mind these grants made by the Board of Education to the medical schools in England in considering what proportion the Exchequer can properly be asked to pay of the large additional sum required to establish in completeness at Cardiff a medical school which at the best will only be moderate in size. If Professor Hepburn's anticipations prove correct, the school will have fifty-three full-time students in the first year of the new conditions and 165 in the fifth year, when the total additional income required will have risen to nearly £10,000. At the same time we realize that due allowance should be made for the fact that the school is to be organized on the "unit system," the expenses of which may be expected to be greater than those entailed by the organization which at present prevails in the medical schools in England.

5. In paragraph 1 of this report we expressed our belief that for the maintenance of a national medical school at Cardiff additional sums will be required, rising from about £4,600 in the first year to about £10,000 in the fifth year. On a review of all the circumstances of the case we have come to the conclusion that half of the additional sums there specified as needed in each of the first five years might appropriately be contributed by the Exchequer on the understanding that an equivalent sum is forthcoming each year from fresh "local support" as defined in paragraph 3 above. Under this arrangement the Exchequer contribution would not in any of the five years exceed £5,000, and in most would fall considerably below that sum. It should be made a further condition of any grant from the Treasury that the share forthcoming from "local support" in each year should, with an equivalent contribution from the Treasury, make up the full amount estimated as necessary for the year.

It may be hoped that once the National Medical School is fairly started the success of its work will secure for it a stability and prestige which will assure its satisfactory development for the future. In view, however, of the fact that the task before the promoters of the scheme, involving as it does the building up on comparatively humble foundations of an important national institution, depends for its successful accomplishment on a variety of circumstances which cannot be foreseen with certainty, we consider that any such financial arrangement as we suggest should be subject to revision at the end of the first five years in the light of the experience which that period has afforded of the working and progress of the school. It is to be noticed that the estimates to which we have referred depend in part at least on the scale of fees proposed in Professor Hepburn's statement (see Appendix IV of interim report). In accepting these estimates we therefore assume that no alteration in this scale will be made during the period in question.

We are aware that if in accordance with our proposals a special grant is made from the Exchequer towards the maintenance of the school, there is a possibility of its overlapping to some extent with a portion of any increased grant to the University College of South Wales and Monmouthshire that might result from a reassessment of the grants to the Welsh university colleges, made on the recommendations of the Board's Advisory Committee on University Grants. This would, however, be a matter for adjustment by the Treasury and does not seem to call for further consideration by this committee, who are here only concerned with recommendations as to a "special grant" in aid of a national medical school for Wales.

The Treasury will not pay a special grant for the National Medical School for the year 1916-17, because the new physiological block is not yet completed and in use, and it is uncertain what the financial requirements of the school will be for this year. Any provision that may be necessary will be made in the estimates for 1917-18 on the receipt of information by January 1st next as to the financial position of the school and the grant likely to be required on the approved basis. The new grant will be conditional on the whole capital cost of the new buildings, including fittings, furniture, and equipment necessary for the complete school, being met entirely from local sources.

LIVERPOOL: INFANT AND MATERNAL WELFARE SCHEME.

A report by Dr. E. W. Hope, M.O.H., gives an account of the measures taken to preserve and protect infant life by antenatal, natal, and post-natal hygiene. The infant mortality-rate is nine times as great as it is among children between 2 and 5 years. One-half of these deaths occurs within three months of birth, and death to a great

extent depends on causes operating before birth. The mortality varies widely in different districts of Liverpool; for instance, twice as many children survived the first year period in the Walton as in the Scotland district. The work of the corporation infant welfare centres consisted originally in supplying a suitable food for infants whose mothers were unable to suckle them. They are also made use of for instructing mothers, and at the same time of ensuring the supervision of the feeding of these infants. Infantile cholera ranks as the most fatal disease of infants under 3 months of age, and it was found that deaths from this cause were fifteen times as numerous among artificially fed children as among breast-fed infants. Dr. Hope, while insisting on the importance of breast feeding, urges that every step should be taken to ensure this by antenatal treatment. Systematic home visitation by competent health visitors was inaugurated in 1897. The visitors put the mothers in touch with the Invalid Children's Association, or the various infant welfare centres where help and advice is obtainable, nursing mothers are cared for, and, where there is a lack of proper nourishment, means are taken to provide suitable food, so that the mother's maternal duties are not imperilled.

During the summer months particular attention is paid to the thickly populated districts of the city, and the home storage of food, the destruction of refuse and flies are matters to which householders are invited by cards and personal interviews to give especial care. Dr. Hope strikes a personal note in drawing attention to the qualifications of the health visitor. She should be brought into intimate contact with her surroundings, and display infinite tact towards the householders whom she desires to benefit. The midwives, who attend practically four-fifths of the total number of births, have themselves taken the initiative in advising those patients whom they know from past experience to require medical attention to seek medical aid at an early stage of pregnancy at the corporation antenatal centres. Two female inspectors specially trained to deal with ophthalmia neonatorum have been appointed, and as notification of this disease has been compulsory since April, 1914, no time is lost in bringing the infants under medical treatment. Nine beds and nine cots are reserved in St. Paul's Eye Hospital for these cases, and bacteriological examination is undertaken by the city bacteriologist in any case that is at all suspicious. How important prevention is in ophthalmia neonatorum may be gauged by the fact that over one-third of the inmates of schools for the blind have lost their eyesight from this cause.

In 1914 the mortality from puerperal fever was 1.34 per 1,000 births.

For girls attending the senior classes in the elementary schools a special course of instruction is provided on the "care of the baby," and practical demonstrations in the cutting out and making of a set of infant's first clothes are given.

The Liverpool Maternity Hospital and Ladies' Charity have provided a "rest house" available either for expectant mothers needing temporary rest and observation prior to the birth of the child or for a short period of post-natal tranquillity.

It will thus be seen that Liverpool is thoroughly cognizant of the importance of a healthy and vigorous race, and with a falling birth-rate is leaving no stone unturned to preserve the viability of the child, and thus in a measure stem the loss in population due to disease, and minimize the baneful influence of race suicide.

LONDON.

Infant Mortality.

At the meeting of the London County Council on May 16th, after a report on the subject from the Public Health Committee had been considered, a resolution was passed unanimously expressing regret that adequate steps had not been taken by all the local health authorities in the county effectively to diminish infant mortality and suffering by administering the scheme for maternity and child welfare outlined in the circular of the Local Government Board of July 29th, 1915, on this subject. An addendum by Mr. H. Mills was also agreed to, urging that action should be taken against the delinquent local authorities. It was resolved to communicate the opinion of the council to the Local Government Board.

Residential Treatment of Tuberculosis.

It was agreed to continue the existing agreements with various institutions for the residential treatment of tuberculosis for a further period of twelve months. It was decided also to continue the arrangement with the Metropolitan Asylums Board by which the council has the use of beds at three institutions under the control of that body; the number of adults undergoing residential treatment on January 1st was 112, and of children 236; by March 31st these numbers had been increased to 137 and 289 respectively.

Cases of Mental Defect.

During the first three months of the present year information was received of 105 alleged cases of mental defect in London, while the cases previously tabulated, but dealt with during the same period, numbered 116. Of this total of 221 cases 123 would be dealt with. The information was furnished in 78 of the cases by the local education authority.

Ireland.

We learn that certain adverse rumours concerning Dr. Maurice Hayes, Honorary Secretary of the Irish Medical War Committee, were in circulation in Belfast, and probably in other parts of Ireland, last week. Dr. Hayes was spending the Easter at Newcastle, co. Down, when the rebellion broke out in Dublin. He returned to Dublin with all speed, and was engaged in the Mater Misericordiae Hospital for the rest of the week, giving attendance to the wounded. He is not related to any other Dr. Hayes in Ireland.

THE REBELLION IN DUBLIN.

We have received the following note from a correspondent who was in Dublin during the insurrection:

The rebels took possession of the College of Surgeons on Easter Monday, and the building was held by them until the following Sunday, when they surrendered. The college overlooks Stephen's Green Park, which had also been occupied by the rebels; when they evacuated it, they fell back on the College of Surgeons. The windows, masonry, and massive columns in the front of the college show many signs of the heavy rifle fire of the military in their efforts to dislodge the rebels. The building, however, has suffered no irreparable or substantial damage. Previous to and at the time of the outbreak Trinity College was occupied by an Officers' Training Corps, and no attempt was made by the rebels to capture it. Practically no damage was done to the building, notwithstanding that the Officers' Training Corps was early engaged with small bands of the rebels behind the Bank of Ireland (old Parliament House).

In connexion with the charges and counter charges which have been made as regards firing on the Red Cross, I am inclined to believe, as the result of some personal investigation, that there is no foundation for them, and that in those cases in which a few Red Cross workers were injured this was accidental and the result of cross-firing between the military and the rebels. The wounds inflicted by the rebels were of a more varied character, and not so clean as those inflicted by the military. This is accounted for by the fact that many of the rebels were armed with old-fashioned game guns.

THE Local Government Board has issued an Order dated May 15th requiring medical officers of health in England and Wales to furnish to the Army Council particulars of all male persons between the ages of 18 and 45 on January 1st, 1916, who have been notified since February 1st, 1915, as suffering from tuberculosis. The object of the Order is to assist the Army Council in securing that men suffering from tuberculosis are not enlisted into the army. If the M.O.H. has difficulty in ascertaining whether a notified person was within the limits of age, he is instructed to include any doubtful case in the list supplied to the Army Council, which, it is suggested, should be prepared at the same time as the weekly statement of notifications required to be sent to the county medical officer of health. The information is to be regarded as confidential and is to be forwarded to the Secretary of the War Office in a sealed envelope.

Correspondence.

HOW MEDICAL WRITINGS MAY BE GIVEN A MARKED DEVELOPMENT.

SIR,—It is to be regretted that we have never adopted the admirable proposal of Dean Swift, to keep all adjectives under lock and key, and issue them to writers only on payment of a heavy fee. Certain words are so shockingly overworked by medical writers as to call loudly for the establishment of a Society for the Prevention of Cruelty to Adjectives. It would be invidious to quote from any individual writer to illustrate a vice so generally prevalent, and therefore I will disguise the reference by altering the disease; but, *mutatis mutandis*, I recently read in your columns an account that ran much as follows: A marked erythema was followed by a marked ulceration, with a markedly sinuous edge, which spread with marked rapidity, and developed a marked discharge, having a markedly purulent character, increased to a markedly large size, and was accompanied by a marked enlargement of the lymphatic glands. Treatment brought about a marked improvement with marked rapidity, and the ulcer healed, leaving a markedly thickened scar, which became the seat of marked keloid.

I do not suppose that medical writers are wantonly cruel to their adjectives, or that they are intentionally cruel to their readers; but, as Tennyson very truly says, evil is wrought by want of thought as well as by want of heart, and in these writings want of thought is so conspicuous as to arouse doubts of the intelligence of the writers. May I suggest to them that, while this unfortunate adjective and its corresponding adverb are so cruelly worked to death, there are plenty of others, much more vigorous, eating their heads off in the stable? In most cases in which "marked" is used it has no meaning, or what meaning it has is emotional, and not intellectual. It is used as a mere intensive, and has precisely the same significance as the adjective "bloody" in the mouth of a costermonger. I suggest that when medical writers desire to express some real quality in what they are describing they should choose the adjective which expresses that quality with accuracy. It is certain from the context that when the adjective "marked" is used to express a quality, the quality it is desired to express is not that of bearing a mark. It is used, as far as one can judge, as common form for decided, pronounced, evident, clear, unmistakable, unquestionable, perceptible, tangible, visible, slight, considerable, great, copious, abundant, actual, scanty, prevalent, scattered, occasional, and many more.

Another word that is abominably treated by medical writers is the word "develop." It is remarkable that, whereas patients used to catch, or contract, or exhibit, or manifest, or suffer from, or be attacked by, or have, or get diseases, they now do none of these things. According to medical writers, their patients now develop diseases—especially pneumonia. How they do this I do not know. "To develop" is not, except in photography, a transitive verb; and, although a disease may develop, it can no more be developed than it can be depended, or appeared, or looked. A disease, like many other things, may develop out of something else, or may simply develop. It may depend on something, or something may depend on it. It may appear, or a man may look on it. But a man can no more develop a disease than he can depend it, or appear it, or look it. No doubt he can assist a disease to develop, but this is not what medical writers mean when they say a man "develops" a disease—at least, I think not.

"He was given a pill." It is difficult to say which is more objectionable in this expression—the vile travesty of English or the falsehood. It is a falsehood to say he was given. He was not given. It is the pill that was given, and it was given to him. To put it in his own repulsive jargon, a writer who uses this expression is "developing a marked tendency to be given a kick." If I am again called upon to act as an examiner I shall take care that no candidate who expresses sloppy thought in such sloppy English "is given" (what on earth is the matter with the word "receives"?) a degree.

If a writer wishes to say that his patient was attacked by pneumonia, or received a dose of medicine, why cannot he say so in these words? There is nothing profane, or

obscene, or objectionable about them. If he wishes to say that a rash is copious, let him say that it is copious, and not that it is marked, which it is not. If he wishes to say that his patient is much worse, but finds this expression inadequate to express his emotion, let him not say the patient is markedly worse, which is intellectually silly, and emotionally inadequate: let him say the patient is a thundering sight worse.—I am, etc.,

Parkstone, Dorset, April 24th.

CHAS. A. MERCIER.

"THE SOLDIER'S HEART" AND ITS RELATION TO THYROIDISM.

SIR,—My article on the above subject in the *BRITISH MEDICAL JOURNAL* of April 15th having failed to draw a rejoinder from any of the protagonists with whom I was anxious to measure swords, I shall now bring the discussion to a close so far as I am concerned.

I must express my thanks to Dr. Harry Campbell for his very complimentary remarks. I fully appreciate his interesting observations on the causation of functional nervous disorders by morbid blood plasma, but I was dealing with what I considered to be a distinct entity, whether it be called morbid or functional, due to a definite cause, and I strictly confined my attention to the subject in hand. Moreover, the many toxæmias to which he refers can easily be eliminated in cases of "the soldier's heart."

I am afraid my friend Dr. William Inman has not read my paper carefully, or at least he has not profited thereby. It had nothing whatever to do with the toxic action of cordite, cocaine and veronal, the effects of tea on charwomen and washerwomen, scurvy and beri-beri. He says "tobacco is admittedly a common cause." A common cause of what? Personally I would much rather that soldiers had "tea taken from early morning to late at night" than unboiled water. The great success attending the work of another house-physician of mine, Lieutenant-Colonel Nimmo Walker, in the prevention of typhoid fever in the South African war was due to the fact that he always provided his men with boiled water on march and elsewhere.

The extraordinary confusion which prevails in medical literature is largely due to the fact that medical men will not adhere—probably from the lack of sufficient scientific training—to the dictum of Sir Isaac Newton, "that we should admit no more causes of natural phenomena than such as are both true and sufficient to explain their appearance." Can any one imagine Newton having a dozen causes to explain the fall of an apple?

I think I let Dr. Florence A. Stoney down very gently in my paper. There is no particular reason why I should do so now. I would strongly advise her before she begins to settle questions of priority to read a little more extensively and accurately. I can commend to her attention my letter in the *BRITISH MEDICAL JOURNAL* of November 20th, 1915, p. 747. The x-ray treatment of Graves's disease is now becoming a matter of ancient history, but she grumbles that her secondhand recommendation "got no support from the meeting" of the Royal Society of Medicine on January 18th, 1916. What I complain of is that Fellows of the Royal Society of Medicine, even Dr. Florence A. Stoney, can go about the world blind to the simplest fact until it hits them in the eye. They cannot see the wood for the trees. They are quite ready to give a dozen explanations of anything which they do not understand, like the ancient Fellows of the Royal Society who had a learned disquisition and many reasons why a fish does not displace water, until Charles II asked them to try, and, lo! the fact confuted their theories. The x-ray treatment of Graves's disease, or any other disease, should not be in the hands of amateurs. It is a powerful remedy; the dose not easily regulated, can readily work mischief, and, if prescribed by anybody and everybody, may soon fall into desuetude, like its employment in the treatment of spleno-medullary leukaemia, in which disease it was first used by Dr. William W. Keen, with, at first, an apparent amount of success. However, Dr. Florence Stoney seems to be an expert in x-ray work, and in her hands no ill effects may accrue, but, in the language of a Scotsman, I hae ma doots. She says "that toxic influences play a large part in causing thyroid degeneration," but what has that got to do with cases of hyperthyroidism? Her x-rays may cause

degeneration with a vengeance. It makes me smile to be told by a lady of whose existence I have only been aware since January 22nd, 1916, that my "paper is very valuable as again pressing this connexion." What connexion? I am afraid that accuracy of statement and clearness of definition are not strong points with Dr. Stoney. I suppose I should really have her testimonial framed, but Dr. Stoney must excuse me when I tell her that I am not going to indulge in such extravagance during war time.—I am, etc.,

Liverpool, May 13th.

JAMES BARR.

JEJUNOSTOMY AND JEJUNO-COLOSTOMY.

SIR,—Mr. Sampson Handley¹ and Mr. Victor Bonney² have raised the very important question of the best treatment of paralytic distension of the bowel from various causes. May I venture to congratulate both of them on their very interesting and suggestive papers, and also upon their success in saving lives under desperate conditions?

The issue is a little confused, for Mr. Handley deals exclusively with cases of general peritonitis with secondary obstruction, whereas Mr. Bonney's six cases include several instances of intestinal obstruction without peritonitis; but apparently these were such desperate cases that it would have been unwise to seek and remove the cause of obstruction in the form of band or kink. It may be remarked, however, that the finding and relieving of an obstruction of the small intestine is often a matter that can be accomplished in a very few minutes, and when this can be done it is clearly very desirable in order to avoid a secondary operation, either to close an artificial anus, or for the relief of recurrent obstruction. Except in extreme cases an effort should be made to ascertain the cause of the obstruction, even if it cannot be immediately removed, for when the obstruction is hopelessly irremovable an enterostomy should not be performed, for a permanent artificial anus in the small intestine is intolerable, and the higher it is the more intolerable, for most of the food and fluid are wasted, and the patient gets thin and also miserable from irritation of the skin. In these cases it is far better to make an anastomosis between the bowel above and below the obstruction, although this may involve a greater immediate risk.

1. But although it is clearly desirable to find and remove an obstructing band or kink, it is often necessary to drain the bowel in addition in order to save life.

2. Moreover, there are cases of intestinal obstruction so late and grave that an attempt to find the obstruction is dangerous.

3. In many cases of paralytic distension following peritonitis no very definite obstruction can be found. Moreover, in many of these cases a temporary enterostomy permanently relieves the obstruction.

In these cases, if an operation is to save life it must be speedy and simple. For this reason Mr. Handley's operation of jejuno-colostomy does not recommend itself to me so much as simple enterostomy. Moreover, a permanent fistula between the jejunum and colon is not likely to prove entirely harmless, judging by the history of patients suffering from jejuno-colic fistula following gastro-jejunos-tomy. These patients suffer from periodic attacks of diarrhoea and malnutrition. For less critical cases ileo-colostomy is especially valuable in the hands of an expert surgeon.

Mr. Handley has already mentioned many objections to jejunos-tomy as performed by Mr. Bonney,³ and I agree with him in not having been able to verify Mr. Bonney's three zones of intestine: "(a) A collapsed portion; (b) a portion above it much distended by gas, but containing no fluid matter; (c) a portion above that, distended with gas and fluid matter."

Mr. Bonney thinks it is necessary to drain the upper part of the jejunum. My experience is that it is neither necessary nor wise to drain the intestine so high up. It is not necessary for drainage at least 12 in. above the obstruction usually proves successful. It is not wise because every inch of small intestine is valuable for digestion and absorption. The ideal seems to be a simple, speedy, and efficient method of draining the distended bowel, and requiring no secondary severe operation to close the fistula. If this

¹ *BRITISH MEDICAL JOURNAL*, April 8th and 29th, 1916.

² *Ibid.*, April 22nd, 1916.

³ *Ibid.*, April 29th, 1916.

ideal could be approached surgeons would not be so averse to draining the small bowel in doubtful cases. For these reasons I strongly recommend the following simple plan, which I have used for years with a fair amount of success.⁴

The selected loop of bowel is drawn out, packed off, and clamped to prevent leakage. A soft rubber tube of quarter-inch internal diameter, and with several side holes close to the end, is inserted through a small opening on the free border of the bowel at least a foot above the obstruction. It is secured to the edges of the opening with a single suture of fine catgut. The tube is passed upwards and the invagination thus produced is confirmed by a few seromuscular sutures. Thus an airtight junction is made and the gas and liquid contents of the small intestine are freely drained away. As the contents of the small intestine are fluid a large tube is not required, and a small one has great advantages in damaging the bowel much less, so that spontaneous closing of the fistula is far more likely to occur in due course. The loop of bowel is returned into the abdomen amongst other coils, and not on any account is it to be retained outside the abdomen or sewn to the parietal peritoneum. The parietal wound is closed around the tube, and a stitch secures the latter to the skin to prevent any drag upon it. After the vomiting has entirely stopped for twenty-four hours the tube is released from the skin and gently withdrawn. By this time the fine catgut suture fixing the tube to the intestine offers little or no resistance. Peritoneal adhesions form very rapidly and prevent any leakage into the peritoneal cavity.

As a rule, the fistula soon closes spontaneously. Unless there is an obstruction lower down, it never can become an artificial anus, so that only a small proportion of the intestinal contents escapes through the fistula after the over-distension has been relieved. If the fistula fails to close and the patient is losing ground, the peritoneal cavity is opened between it and the middle line, and the attached loop is clamped and detached from the parietes. The edges of the fistula are freely pared and the opening thus left is closed, so that the suture line is transverse to the axis of the bowel, and no narrowing of the lumen results. Resection with end-to-end union is very rarely required.—I am, etc.,

London, W., May 9th.

R. P. ROWLANDS.

THE AMOUNT OF FREE HYPOCHLOROUS ACID IN EUSOL.

SIR,—Our attention has been directed to an error in calculation which has appeared in the papers on eusol published from this department.

The amount of free hypochlorous acid in the solution of eusol made up according to our recommendations was stated to be approximately 0.5 per cent. This should read approximately 0.27 per cent. As we have uniformly stated the weights of the constituents to be used in making the solution, this error does not in any way affect the validity of the results which have been recorded, but the point may have given rise to difficulty when solutions for intravenous injection were being tested by titration.

By following the directions given in our papers (namely, 12.5 grams bleaching powder, 12.5 grams boric acid to 1 litre of water) standard eusol is obtained, of which in general—

1 c.cm. = N/10 sodium arsenite solution
= 0.00354 gram chlorine
= 0.00262 gram hypochlorous acid.

Slight variations from this standard occur, depending on the percentage of "available chlorine" in the bleaching powder. With the best samples the percentage of hypochlorous acid in the solution rises to 0.3, but bleaching powder of B.P. standard (30 per cent. available chlorine) gives 0.27 per cent. hypochlorous acid.—We are, etc.,

J. LORRAIN SMITH,
THEODORE RETTIE,

Department of Pathology,
University of Edinburgh,
May 15th, 1916.

THE CONTROL OF VENEREAL DISEASES.

SIR,—As I do not wish to seem to "rail in matters whereof I am ignorant," I will not enter into the discussion of the control of venereal diseases. My sole object is to

say a word in regard to the last paragraph of Dr. Helen Wilson's letter of April 28th. To Dr. Wilson, and to all those who entertain the hope that somehow and sometime "moral causes" may become efficacious in preventing venereal disease, I would earnestly recommend the perusal of Sanger's monumental *History of Prostitution*, published by Harper's in 1859, and those three grim chapters wherein Thucydides dwells upon things which, he says, "always have occurred and always will occur so long as the nature of man remains the same" (Bk. III, 82-84).

Sanger (p. 671) says, giving the report of a medical board in New York:

A Utopian view of the perfectibility of man might look for the remedy to this evil in universal early marriages, in domestic happiness, and in a universal moral sense which will compel men and women to keep their marriage vows. But, taking man as he is, we find the tides of society set with constantly increasing strength against early marriages; that domestic happiness is not synonymous with marriage, whether early or late; and that the moral sense which should teach all men to observe even their solemn promises would be miraculous. . . .

But is there no hope in the societies of moral reform? For the suppression or even the checking of the general vice, none whatever. The association in New York deserves much praise for its zealous benevolence. They have brought back some of these erring women to the paths of virtue, but they have done no more to stop the current of prostitution than he could do to dry up the current of the Hudson who dips water with a bucket.

—I am, etc.,

Cambridge, May 7th.

W. J. YOUNG.

ECONOMIC OBSTACLES TO EARLY MARRIAGE.

SIR,—Dr. S. G. Moore, in his Milroy lectures on infant mortality, has left untouched, I think, one aspect of the problem.

We now all agree that the State must give help to expectant and nursing mothers. We must also insist on the importance of encouraging youthful parentage. The present-day tendency to late marriages increases every year. The children of such marriages are either absent, few, weakly, or ailing. They lack the vitality, and are by no means of such value to the State as the children of marriages between 21 and 26 years.

The State wants, not weaklings, but healthy, virile, vigorous citizens. They can only come of early unions. Clearly the State must remove some of the economic obstacles to such unions.—I am, etc.,

Dublin, May 9th.

J. C. MCWALTER, M.D., R.A.M.C.

ELECTION OF THE COUNCIL OF THE ROYAL COLLEGE OF SURGEONS OF ENGLAND.

SIR,—Many reforms and changes are, we know, due directly to the war, but there is one change which is badly needed and which the war has made pressing. This change is in the manner of voting for the Council of the Royal College of Surgeons. At present the time is too great for the men of the United Kingdom but does not allow the men in Egypt or India, or those further off, to take any part in the election. At the present time a great many men are going to be disfranchised through serving their country as they are in France, Malta, Salonica, Egypt, and Mesopotamia, and even those within reach of letters, if Australians, will not have the voting papers sent to them as their address must be that in Australia. I should like to inquire if there is any really adequate reason for this time being chosen, and not, say, a period of two or three months to allow all to vote.—I am, etc.,

London, W., May 16th.

DUNCAN C. L. FITZWILLIAMS.

THE ELECTION OF DIRECT REPRESENTATIVES ON THE GENERAL MEDICAL COUNCIL.

SIR,—The British Medical Association has proved that it can elect all four of their nominees against all who may be nominated outside the Association. It is an abuse of power not to allow members of the profession resident in England not to have one representative on the Council who are non-members of the Association. The British Medical Association has less than 22,000 members, including those in the British Isles and in all parts of the world. The Association should act with some regard to justice and honour, and give the opportunity for at least one to be sent to the General Medical Council as direct representative of the profession in England who are

⁴ *The Operations of Surgery*, vol. ii, p. 335, fig. 183.

non-members of the Association. If the Association persists in always electing all the direct representatives for England, then contests will cease, which would be a matter for regret.—I am, etc.,

Blackpool, May 5th.

JNO. BROWN.

As it is open to any twelve registered practitioners resident in the constituency to nominate a candidate, it does not seem that there is much substance in Dr. Brown's grievance.

OUR BELGIAN COLLEAGUES AT HOME AND ABROAD.

SUBSCRIPTIONS.

The subscriptions to the Belgian Doctors' and Pharmacists' Relief Fund received since the last list was published are as follows:

£ s. d.	£ s. d.
Dr. E. D. H. Carpenter (twelfth donation, total £12) ... 1 0 0	Messrs. J. Hayllar and Son ... 1 13 1
Royal College of Physicians of Ireland: Mr. R. B. Balfour, D.L. ... 2 2 0	Mr. A. Chapman ... 0 6 2
Interest (Cister Bank) ... 0 14 1	Brighton and Hove Association of Pharmacy ... 4 7 6
Mr. J. H. Topliss ... 5 5 0	Mr. J. W. Bygott ... 0 5 0
	Mr. M. E. Morris ... 0 5 0

Subscriptions to the Fund should be sent to the Treasurer of the Fund, Dr. H. A. Des Voeux, at 14, Buckingham Gate, London, S.W., and should be made payable to the Belgian Doctors' and Pharmacists' Relief Fund, crossed Lloyds Bank, Limited.

The stock of clothes for the Belgian Doctors' and Pharmacists' Relief Fund has nearly been exhausted, and the Directress of the Committee of Clothing earnestly begs for further parcels of garments of all kinds. More especially the following articles are desired: Ladies' and children's summer dresses, stockings, and socks; suits for men; vests; sports coats for boys and girls; thin overcoats or raincoats. Parcels should be addressed Mrs. de Bless, St. Andrew's Parish Room, Palace Street, Westminster.

Universities and Colleges.

ROYAL COLLEGE OF PHYSICIANS OF LONDON.

A COMITIA was held on May 11th, Dr. Frederick Taylor, the president, being in the chair.

Admission of Fellows.

The following members were admitted to the Fellowship, having been elected at the previous meeting:

Michael George Foster, M.D.Camb. (Harrogate), John MacLeod Hendrie MacLeod, M.D.Aberd. (London), Henry Lawrence McKinnel, M.D. Roy. Univ. Irel. (Belfast), Charles Hewitt Miller, M.D.Camb. (London), Harold Waterlow Wiltshire, M.D.Camb. (London), Charles Ernest Lakin, M.D.Lond. (London), Edward Alfred Cockayne, M.D.Oxf. (London).

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

THE secretary of the College of Surgeons has issued to the Fellows of the College the annual official circular on the elections. A meeting of the Fellows, he announces, will be held at the College in Lincoln's Inn Fields on Thursday, July 6th, at 3 p.m. for the election of four Fellows into the Council of the College in the vacancies occasioned by the retirement in rotation of Sir Alfred Pearce Gould, K.C.V.O., Mr. William F. Haslam, and Sir W. Arbuthnot Lane, Bt., and by the death of Mr. Stanley Boyd. Blank forms of the requisite notice from a candidate and of his nomination may be obtained on application to the secretary, and the same must be received by him, duly filled up, not later than Friday, June 9th. A voting paper will be sent by post to each Fellow, whose address in the United Kingdom is registered at the College, on Tuesday, June 20th. We are informed that there is much complaint about the very short time allowed for voting. Numerous Fellows are on the Continent, and their voting papers, even if they reach them, can hardly be returned in due time. The secretary particularly requests Fellows of the College to furnish him with their correct addresses.

The following list shows the present composition of the Council:

President.—Sir W. Watson Cheyne, Bt., K.C.M.G., C.B., F.R.S., C. (1) 1897 (substitute), (2) 1901, (3) 1909.
Vice-Presidents.—Sir Frederick H. Eve, C. (1) 1904 (substitute), (2) 1907 (substitute), (3) 1912; Mr. Harrison Cripps, C. (1) 1905 (substitute till 1908), (2) 1909.
Other Members of Council.—Sir A. Pearce Gould, K.C.V.O. (1) 1900, (2) 1908; Sir George H. Makins, K.C.M.G., C. (1) 1903, (2) 1911; Sir Anthony Bowlby, K.C.M.G., C. (1) 1904, (2) 1912; Mr. Charters J. Reynolds, C.B., C. (1) 1907, (2) 1915; Mr. W. F. Haslam, C. 1908; Sir W. Arbuthnot Lane, Bt., C. 1908; Mr. Bilton Pollard, C. 1910; Mr. C. A. Balam, M.V.O., C. (1) 1910 (substitute), (2) 1914; Sir John Bland-Sutton, C. 1910; Mr. D'Arcy Power, C. 1912; Sir Berkeley G. A. Moynihan, C. 1912 (substitute till 1919); Mr. James Ernest Lane, C. 1913; Mr. L. A. Dunn, C. 1913 (substitute till 1919); Mr. H. J. Waring, C. 1913; Mr. Stanley Boyd (deceased), C. 1914; Mr. W. Thorburn, C.B.,

C. 1914; Mr. W. McAdam Eccles, C. 1914; Mr. C. Ryall, C. (1) 1914 (substitute), (2) 1915; Mr. W. G. Spencer, C. 1915 (substitute till 1916); Mr. F. F. Burghard, C.B., 1915; Mr. H. F. Waterhouse, 1915.

The medical schools are represented as follows:

London:				
St. Bartholomew's	...	...	...	5
Charing Cross	...	...	...	2*
Guy's	...	...	...	3
King's College	...	...	...	2
London	...	...	...	1
Middlesex	...	...	...	2
St. Mary's	...	...	...	1
St. Thomas's	...	...	...	2
University College	...	...	...	1
Westminster	...	...	...	1
Special	...	...	...	1
Total London	...	...	...	21
Provincial:				
Birmingham	...	...	...	1
Leeds	...	...	...	1
Manchester	...	...	...	1
Total Provincial	...	...	...	3
Total Council	...	...	...	24

* One deceased.

CONJOINT BOARD IN ENGLAND.

At a meeting of Comitia of the Royal College of Physicians on April 27th, and of the Council of the Royal College of Surgeons on May 11th, diplomas of L.R.C.P. and M.R.C.S. were respectively conferred upon the following ninety-nine candidates:

* Hannah K. Alton, K. D. Atteridge, J. Aydon, A. J. Bado, H. J. Bensted, D. S. Brachman, J. P. Bracken, J. R. R. Brogden, A. S. Carter, H. H. Castle, L. A. Célestine, G. E. Chissell, *Hester M. Church, *Mabel C. Clark, A. H. Clarke, P. S. Clarke, H. M. Cohen, W. H. Coldwell, W. M. Crombie, R. C. Davenport, S. G. Dunn, F. Dunphy, M. Dwyer, W. F. Eberli, A. W. F. Edmonds, P. O. Ellison, G. I. Evans, H. S. Evans, L. W. Evans, W. Farquharson, G. Fehrsen, E. A. Fiddian, S. W. Fisk, M. R. V. Ford, A. R. Fuller, D. H. A. Galbraith, G. T. Garraway, S. C. Ghose, C. C. Goo'ell, P. H. S. Greenish, *Ethne Haigh, J. C. N. Harris, S. F. Harris, A. N. Haworth, N. N. Hayson, W. A. Hotson, E. G. Howell, G. P. B. Huddy, Edith C. Hudgell, S. Hutchinson, T. H. Jackson, B. B. Jareja, W. G. Johnston, A. M. Jones, T. Jones, V. Kameneff, T. L. Kan, R. P. Langford-Jones, E. E. Lightwood, C. W. B. Littlejohn, H. B. Logan, P. G. McEvedy, S. S. Malkani, P. S. Marshall, F. C. Mason, Adeline M. Matland, B. H. Mellon, H. W. L. Molesworth, T. D. Morgan, A. G. Morris, G. Moulson, S. Mutiah, K. V. Muttukumaru, F. Newey, D. C. Norris, A. J. Orenstein, F. C. Ormerod, P. E. D. Pank, G. E. Paul, R. B. Powell, J. N. Puri, H. M. Quackenbos, R. Rau Damodar, C. R. Reckitt, B. T. Rose, P. G. Russell, M. Schwartz, D. M. Smith, W. Steadman, H. G. Stormer, G. C. Swanson, D. G. C. Tasker, H. W. Taylor, G. B. Wild, B. W. Willenberg, G. C. Williams, A. Williams-Walker, C. E. Wise, R. S. Woods.

* Under the Medical Act, 876.

LONDON SCHOOL OF MEDICINE FOR WOMEN.

THE Dr. Edith Pechey Phipson Post-Graduate Scholarship of the value of £40, awarded annually in June by the Council of the London (Royal Free Hospital) School of Medicine for Women, is open to all medical women, preferably coming from India, or going to work in India, for assistance in post-graduate study; it may be held for three years. Applications on a form which will be supplied must be received by the secretary of the school by May 31st.

The Services.

R.A.M.C. (TERRITORIAL).

(Gratuity.)

WE are officially informed that officers of the Royal Army Medical Corps (Territorial Force) who resign their commissions owing to unwillingness to undertake the Imperial and general service obligation are entitled to the gratuity.

EXCHANGES.

M.O. to Divisional Train, Army Service Corps, probably at home for some time, desires immediate exchange with M.O. in 50th Division abroad.—Apply No. 1950, BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C.

M.O. Wessex Division, at present under canvas at Hursley Park, Winchester, would like to exchange with Territorial M.O. serving under the A.D.M.S., Portsmouth. Address No. 1949, BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C.

Medico-Legal.

ILLEGAL OPERATIONS.

IN the High Court of Justiciary, Edinburgh, on May 4th, Dr. John Thomas Dickie, 37, Lauriston Place, Edinburgh, and Ann Taylor, 4a, Lauriston Gardens, Edinburgh, were charged with having performed illegal operations upon two women, in the one case between June 6th and 13th, 1914, and in the other between January 29th and February 5th, 1916; both the women died. The jury found the prisoners guilty, and the Lord Justice Clerk, in passing sentence of five years' penal servitude on each prisoner, said that it was impossible to regard the offence of which they had been found guilty otherwise than as serious.

Obituary.

ARNOLD WILLIAM WARRINGTON LEA,
M.D.LOND., F.R.C.S.,
MANCHESTER.

ALTHOUGH Dr. Arnold Lea had been in ill health since the autumn of 1914, when he was compelled to retire from practice, the news of his death on May 7th at Southport was received with deep regret by his former colleagues in Manchester.

Dr. Lea, who was in his 49th year, was a son of Mr. Edward Lea of Sandbach, Cheshire, and his maternal uncle was Dr. Warrington of Congleton. He was a student of Owens College, Manchester, and obtained the diploma of M.R.C.S.Eng. in 1889, and that of F.R.C.S. in 1892. He graduated M.B.Lond. in 1890, taking honours in obstetric medicine and forensic medicine, and the gold medal and university scholarship in the former subject. He proceeded to the degree of M.D.Lond. in 1892, and graduated B.Sc.Vict. in 1904.

After holding resident appointments at Queen Charlotte's Hospital, the Manchester Royal Infirmary, and elsewhere, he settled in 1895 in Manchester, and became assistant to the late Sir William Japp Sinclair. In 1897 he joined the staff of the Northern Hospital for Women and Children, Manchester, where he distinguished himself as a sound and enterprising surgeon. In 1905 the Northern amalgamated with St. Mary's Hospital for Women and Children, and Dr. Lea remained on the staff. He took an active part, together with Sir W. Sinclair and Dr. Fothergill, in the foundation of the *Journal of Obstetrics and Gynaecology of the British Empire*. In 1912 he was elected president of the North of England Obstetrical Society. He contributed several papers of high merit to the Obstetrical Society of London, of which he was a Fellow, and to the Northern Obstetrical Society, and wrote an important work on *Puerperal Infection*.

Apart from the eminent position which Dr. Lea had attained as a gynaecologist with a large consulting practice, he had shown from the beginning of his career considerable literary powers. During and for some time after his student days in Manchester he was one of the most attractive speakers at the Manchester Medical Students' Debating Society, taking interest in general, scientific, literary, and especially sociological subjects. He became a member of the Manchester Fortnightly Society, where he frequently took part in discussions, and read several papers showing a highly cultivated literary taste, and eventually he was elected president of the society. Those who knew Dr. Lea intimately realized his sterling qualities as a man as well as his brilliance as a gynaecologist. He was always a delightful companion and faithful friend. About three years ago, largely as a result of overwork, he had a serious nervous breakdown, and was compelled to give up all work for some months. On returning to his duties he hoped to be able to work with his previous energy, but soon found himself compelled to retire permanently, and his death hardly came as a surprise to his numerous friends.

A funeral service for Dr. Arnold Lea was held at St. Chrysostom's Church, Victoria Park, Manchester, on the morning of May 11th, at which Professor Donald, Professor Elliot Smith, Dr. W. E. Fothergill, Colonel J. W. Smith, Dr. Lloyd Roberts, Dr. Fletcher Shaw, and Dr. W. K. Walls attended as representatives of Victoria University. The interment took place at St. Peter's Church, Congleton, in the afternoon.

Dr. C. RONEY SCHOFFIELD, of Southport, sends us the following tribute to Dr. Lea's memory:

The evening before his death he had greeted me with his old pleasant smile, though too exhausted to speak or take much interest in what went on around him. Over twenty years of intimate friendship, ending with over a year's close medical attendance on him, has been for me a privilege which I shall recall and value always, for during that time I learnt many lessons that only the example of a life of singular purity in thought, word, and deed can effectually teach.

Arnold Lea possessed a brilliant intellect, but, above all, he had the power of concentration and the gift of memory. His reasoning and deductive powers were logical and sound, while his conclusions invariably gave the impres-

sion of being the result of painstaking thought and conscientious research. No mere local fame belonged to him. Lea took a very high place among the English gynaecologists, but I want to speak of the man—the friend I loved. Never have I heard an uncharitable opinion, an unkind word, a harsh criticism pass from his lips on any man he knew. In any discussion that might arise Lea invariably found the way to introduce some excuse for the condemned action, some reason for an apparently malicious act, some virtue which palliated the alleged vice. And these without vehemence and without aggressiveness, but with a smiling gentleness which carried with it a reproof to a possible slanderer and aroused sympathy in the unprejudiced listener. He was ever ready to admire other men's good points, always generous in his estimate of them, and unstinting in his praise. His own achievements and his own methods were rarely referred to, and when he did allude to the latter his tone was almost apologetic, but lacked no enthusiasm when he described some colleague's work in the same direction. This characteristic modesty, together with his infinite charity, was, I think, what so endeared him to his friends. His ready sympathy in trouble, his effectual and shyly given help, his utterly unsuspicious nature—always attributing the best motives to any one's actions—these were the characteristics which make him so bitterly mourned and render his memory undying.

Had he lived a little longer, rewards for his long untiring devotion to his work must have fallen thickly upon him, for he fell ill when the years of toil were fructifying. His short married life, however, was one of intense happiness, as it afforded him through the whole length of his long and tedious illness the alleviation which only the most unselfish, devoted, and skilled wife could have given. While his place among his friends can never be filled, while an undying sorrow has come to his nearest and dearest, they can take some measure of comfort in knowing that what reward may be due to a man who has, by his example, left the world better than he found it, that reward is due to Arnold William Warrington Lea.

Dr. BRIGGS, Professor of Obstetrics and Gynaecology to the University of Liverpool, sends us the following appreciation:

Amongst the many prominent public services of the late Sir William Sinclair, none could have been more impressive than his choice of Dr. Arnold W. W. Lea as lecturer in obstetrics in the Victoria University (then Owens College), Manchester. Dr. Arnold Lea was physically a robust and powerful man with a bright and genial disposition. His extraordinary abilities were reflected in the highest of professional records. The addition then made to our ranks in the North of England has remained one of our happiest possessions. Until Dr. Lea's enormous energy had been too deeply drained by impaired health, there followed one continuous succession of written contributions and loyal services to the branch of the profession he so early adorned.

His book on *Puerperal Infection*, published in 1910, planned beyond the range of a textbook, became the standard work of reference. Evidence of the depth, extent, and difficulties of this work is borne in its pages. Its merit as a personal and professional sacrifice on the author's part is conspicuous in conjunction with the strenuous professional efforts of a junior teacher in an important and growing medical school. Of Dr. Arnold Lea's intense loyalty to Manchester, to its university, to his chief and to his colleagues there was one long, continuous, and convincing manifestation. Manchester in her great strength realizes the gigantic loss of one who had so capably, worthily, and cheerfully shared in the toils of her professional ranks. Dr. Arnold Lea originally came amongst us with the bright and welcome promise of a most brilliant future; he was soon marked as one of our leaders. Our sorrowful hearts mourn his departure, for he was a loving and loved friend to all of us.

C. J. GIBB, M.D.,

CONSULTING SURGEON, THE ROYAL INFIRMARY, NEWCASTLE.

Dr. CHARLES JOHN GIBB died in Newcastle-on-Tyne on May 13th, in his 90th year, being the oldest doctor in the Northumbrian capital, where his father, Dr. John Gibb, had practised for forty years. After serving an apprentice-

ship he attended some London and Continental schools, and took the diploma of M.R.C.S. and L.S.A. in 1847. Returning to Newcastle, he became connected with its Royal Infirmary, first as house-surgeon. He was afterwards surgeon to the institution; and remained to his death a member of the consulting staff. In 1853, when a grave epidemic of cholera occurred in Newcastle and more than 1,500 deaths were registered, Dr. C. Gibb took an active part in stamping out the disease, and drew up a report on epidemic cholera, which was published in the same year in the *Medical Times and Gazette*. The degree of M.D. of Durham was conferred on him in 1859. He was attached to the Newcastle-on-Tyne College of Medicine for a time as lecturer on pathology, physiology, and anatomy, and examiner in pathology.

JAMES WILLIAM WHITE,

LATE PROFESSOR OF SURGERY, PHILADELPHIA.

PROFESSOR JAMES WILLIAM WHITE, of Philadelphia, died on April 24th. He had been ill for some months, but the immediate cause of death was pneumonia. He was born in 1850. He was the son of Dr. J. W. White, founder of the Maternity Hospital of Philadelphia, and took the degrees of M.D. and Ph.D. at the University of Pennsylvania in 1871. Soon after graduation he went as a member of the scientific staff of the Hassler expedition under Agassiz. The expedition sailed from Boston on December 4th, 1871, visited the West Indies, the Straits of Magellan, Patagonia, and Tierra del Fuego, both coasts of South America, the Island of Juan Fernandez, the Galapagos Archipelago, Panama, and Mexico, and reached San Francisco on August 31st, 1872. On his return to Philadelphia White was for some years resident surgeon in the Eastern Penitentiary. Then he became associated with Dr. Hayes Agnew, and began a career of forty years as a teacher in his Alma Mater. He was first assistant, then professor of genito-urinary surgery. After some years he became professor of clinical surgery, and later, John Rhea Barton professor of surgery. In 1911 he was appointed a trustee of the University and Emeritus professor of surgery. He was senior surgeon to the University Hospital, and consulting surgeon to the Philadelphia, Jewish, Bryn Mawr, and Maternity Hospitals.

Professor White contributed largely to medical literature. He was joint translator and editor with Simes of Cornill's treatise on syphilis (1875); joint author with W. W. Keen of the *American Textbook of Surgery* (1896) and with Martin of a work on genito-urinary surgery (1897). He was one of the editors of the *Annals of Surgery*, and author of numerous papers on the surgery of the spine, the supposed curative effects of operations *per se*, the topical treatment of focal epilepsy, the Roentgen rays in surgery and other subjects. He also wrote a memoir of Hayes Agnew. On the outbreak of the war he came forward as an ardent supporter of the Allies, and in many letters and pamphlets—*A Primer for Americans*, *A Textbook for Americans*, and *Germany and Democracy*—he vigorously denounced Teutonic aggressiveness. His enthusiasm led him to establish a branch of the American Ambulance in Paris and to take personal charge of it for three months in 1915. His health, which was already undermined, broke down under the strain of the work.

Dr. White in his younger days was a famous swimmer and a good all-round athlete. His belief in the value of athletics led him in 1884 to become professor of physical education in the University of Pennsylvania; that post he held without salary for several years. In 1888 he appeared as a principal in the last duel fought in Philadelphia: it was on a quarrel with a Congressman as to the kind of uniform that should be worn by a surgeon of the City Troop in which he held a commission.

Dr. White was for many years in the habit of taking three months' holiday, and how he began this he explained once to the writer of this note. After ten or twelve years' constant work without a holiday as demonstrator of anatomy and as a teacher of surgery, he was beginning to attain considerable success in practice when his health gave way and his physician insisted upon his taking a long holiday. He obeyed, but in the lowest spirits, feeling that all the results of his strenuous work were to be thrown away. He stayed away the prescribed three months, and returned to find not that the public had

forgotten him, but that it was disposed to assume that he would be all the better for his holiday and for the new views in surgery which he would have picked up in Europe. In the succeeding nine months he made twice as much money as he had made in any preceding year, and he drew the wise conclusion that if that was what the public wanted it was for him to humour it. For many years he was an annual visitor to this country, where he made many friends, but latterly had gone to other parts of the world, and in particular made an adventurous journey to Alaska a few years ago.

Dr. White had many distinguished friends in his own country; among them were Henry James, Edwin A. Abbey the historical painter, and John Singer Sargent, who painted his portrait for the University of Pennsylvania after White had received the degree of LL.D. from the University of Aberdeen on the occasion of its quatercentenary in 1906. He was very popular with all sorts and conditions of men, and an idol of students, in whose welfare he always showed the liveliest interest.

DR. F. C. PLUMPTRE HOWES died at his residence in Lincoln on April 25th, aged 75. He studied at King's College, London, and at Edinburgh, and graduated M.D. Edin. in 1864. He was for many years house-surgeon to the Lincoln General Dispensary, where he proved a great friend of the poor, who regretted his retirement in 1896 to engage in private practice. Dr. Howes was a very familiar and popular figure in Lincoln.

DR. JAMES RICHARD LOWNDS died at his residence in Newcastle-on-Tyne on April 28th at the age of 82. He was a native of that town, and studied medicine there, and took the diplomas of M.R.C.S. and L.S.A. in 1855. Dr. Lownds practised first at Walker, near Newcastle, where he was for a time medical officer of health and consulting surgeon to the local hospital. Later in life he established a large practice in Newcastle, and was highly esteemed by his patients. He retired some two years ago, after having been in practice for nearly sixty years. His two sons are both doctors. Dr. Lownds was buried at Jesmond Old Cemetery on May 1st.

DR. TIMOTHY MURPHY of Birmingham died at his residence in Small Heath on April 23, aged 43. Born in 1872, he studied at Queen's College, Cork—his native city—and at Edinburgh and Glasgow, taking the diplomas of L.R.C.P. and L.R.C.S. Edin. and L.F.P.S. Glasg. in 1894. He practised for a time in the Tonymandy area, Wales, and on leaving was presented with a gold watch and guard as an acknowledgement of his valued services. Dr. Murphy set up in practice in Birmingham seventeen years ago, and became a member of the Central Division of the Birmingham Branch of the Association, and for a time member of the Birmingham board of guardians. The poor, together with Dr. Murphy's professional brethren and relatives, attended the requiem mass at St. Michael's, Moor Street, in great numbers. Dr. Murphy leaves a wife and five young children.

DR. ROBERT WALLACE BRUCE SMITH, of Toronto, died on March 28th, after an illness of some months. He was born at Mitchell, Ontario, in 1857, and educated at the Newmarket and Newburg High Schools. He took his medical degree at Victoria University, Toronto, in 1879, and went into practice at Seaford, Ontario. In 1894 Dr. Bruce Smith was appointed to the staff of the Hamilton Hospital for the Insane, and became superintendent of the Orchard Convalescent House attached to that institution. In 1900 he became assistant medical superintendent of the Brookville Asylum, and four years later was appointed inspector of asylums, hospitals, and charities for the province of Ontario. Dr. Bruce Smith was well known throughout Canada as a specialist in neurology and psychiatry, and a frequent contributor to medical literature. His genial nature made him many friends, and his personal qualities commanded both respect and admiration. In 1908 he made an official tour of the large hospitals of the United Kingdom as a representative of the Ontario Government. In 1894 he was appointed Vice-President of the Canadian Medical Association; in 1905 Vice-President of the Charities and Correction Association; and in 1909 a director of the Canadian Purity Association.

Medical News.

THE Library of the British Medical Association has now received, through the courtesy of Dr. Thurstan Holland of Liverpool, Part I of Section XXII (Radiology) of the International Medical Congress, 1913. The series of the proceedings of that Congress in the Library is thus completed.

IN view of the great increase in the prevalence of venereal disease in Italy caused by the conditions of warfare the Minister of the Interior has issued a circular to all prefects throughout the kingdom calling attention to the necessity of taking active measures against the scourge.

A CHAIR of clinical preventive medicine and hygiene has been established in the University of California, the object being to bring about the most effective possible co-operation between the University and the California State Board of Health. Dr. Wilbur A. Sawyer, secretary and executive officer of the Board, has been appointed to the new chair.

IN the night of Saturday-Sunday next, May 20th-21st, at 2 a.m., the time of all railways, and at post offices and other Government establishments, will be put forward one hour to 3 a.m. This altered time will be used for all ordinary purposes during this summer, and will apply to hours of medical practice, panel or other. It is believed that the alteration will reduce the number of hours during which artificial lighting is used in the evenings.

THE Ingleby lecture before the University of Birmingham will be given this year on Wednesday next at 4.30 p.m. in the medical lecture theatre. The lecturer is Dr. T. Sydney Short, physician to the General Hospital, and the subject chosen is gastric ulcer and its complications.

THE circumstances of the death of the wife of Dr. A. C. Herbert, of Sheerness, were recently the subject of an inquiry by the coroner for Kent. A post-mortem examination, confirmed by bacteriological examination, established the fact that death was due to cerebro-spinal fever, and the jury appended to a verdict to that effect the following rider: "The jury desire to express their deepest sympathy with Dr. Herbert in his loss, and feel grieved he should have been put through this painful ordeal as a result of dissatisfaction of relatives, and further sincerely hope that the doctor's career will be in no way affected by this painful inquiry."

Letters, Notes, and Answers.

CORRESPONDENTS who wish notice to be taken of their communications should authenticate them with their names—of course not necessarily for publication.

AUTHORS desiring reprints of their articles published in the BRITISH MEDICAL JOURNAL are requested to communicate with the Office, 429, Strand, W.C., on receipt of proof.

THE telegraphic addresses of the BRITISH MEDICAL ASSOCIATION and JOURNAL are: (1) EDITOR of the BRITISH MEDICAL JOURNAL, *Attilology, Westrand, London*; telephone, 2531, Gerrard. (2) FINANCIAL SECRETARY AND BUSINESS MANAGER (advertisements, etc.), *Articulate, Westrand, London*; telephone, 2630, Gerrard. (3) MEDICAL SECRETARY, *Medisecra, Westrand, London*; telephone, 2634, Gerrard. The address of the Irish office of the British Medical Association is 16, South Frederick Street, Dublin.

Queries, answers, and communications relating to subjects to which special departments of the BRITISH MEDICAL JOURNAL are devoted will be found under their respective headings.

QUERIES.

"INDICAN" invites suggestions for treatment of long-continued toxæmia, due either to intestinal intoxication or deep-seated ischio-rectal abscesses, thrice operated on. Symptoms: Severe urticaria, subacute diffuse fibrositis, indican, consistent subnormal temperature 95° to 97°. For the last three months there have been symptoms of mucous colitis, with six to eight motions daily, which have not yielded to diet or drugs.

INCOME TAX.

H. S. took over an additional practice on January 1st, 1916. He has paid one-quarter of the tax assessed on that practice for the financial year 1915-16, and expects to be called upon to pay tax thereon for 1916-17, although the earnings of the corresponding portion of his present practice are now appearing in his own books and will come in for future assessment. Can his wife's income be reckoned separately for purposes of "abatement"?

* * It was decided in the case of *Bell v. the National Provincial Bank* that the purchase and incorporation of a

branch into a business constituted a "succession," and rendered the successor liable to account for tax on the average profits earned thereby. It may be presumed that the Revenue officials were relying on that decision in requiring payment of the tax for the quarter to April, 1916. It should be remembered that our correspondent's return for 1915-16 would be based on the average profits for the three years 1912, 1913, and 1914, and it would seem to be not inequitable that on taking over an additional practice he should pay more tax than he would otherwise have done. This remark also applies to 1916-17, seeing that the profits of his new "branch" prior to January 1st, 1916, did not affect our correspondent's books, and therefore do not enter into a computation of his own profits on the average of the three years, 1913, 1914, and 1915. It might be well for H. S. to see the surveyor of taxes and come to an agreement with him as to the probable amount of the profits for 1913, 1914, and 1915 of the practice which is now amalgamated with his own, in order that he may be able to make a return for 1916-17 on the full average.

The wife's income is still reckoned with the husband's for purposes of abatement, except as regards income separately earned by her own personal labour, and then only where the amount of the total joint incomes does not exceed £500 per annum. This still holds good notwithstanding the right of separate assessment under Section 9 of the Finance Act, 1914.

ANSWERS.

PRURITUS OF FACE.

DR. WILLIAM BRAMWELL (Liverpool) writes: In reply to "Country Doctor," if his patient has been long under treatment, he may have noticed that the attacks increase in severity at this time of the year. If so, they are probably due to the ingestion of spring rhubarb. The number of cases suffering from "subcuticular roughness" and those conditions which Dr. Sequeira looks upon as allied to "Hutchinson's summer prurigo" is greatly increased when spring rhubarb is a daily article of dietary, the oxalic acid in the rhubarb being probably responsible for a lowered specific gravity of urine and the consequent retention of toxins; such lowered specific gravity being almost invariably present in such cases and due to a lowered vitality of the kidney eliminative cells, possibly a specific effect of the oxalic acid when there is an insufficiency of lime salts for its combination and elimination as calcium oxalate. The oxalic acid, therefore, or its combinations cause the mischief by its own retention and that of the products of katabolism. Hence a vicious circle is set up which may continue long after rhubarb has gone out of season. Nor will such vicious circle be broken and the numerous ailments it may give rise to in the more susceptible cases be cured until many other articles of diet besides rhubarb which have an irritative or toxic effect on the tissues be entirely expurgated from the dietary. In skin affections from such causes, x rays, like sun rays, very naturally do harm, as in "Country Doctor's" patient, and local applications are of very little use. In the BRITISH MEDICAL JOURNAL, 1902, I published a case of urticaria acuta in a child, brought on through an excessive ingestion of spring rhubarb, a writer in a previous issue having recorded a similar experience.

LETTERS, NOTES, ETC.

EMULSIONS FOR WIDAL'S TEST.

DR. ARTHUR HARDEN, Deputy Director, The Lister Institute of Preventive Medicine, Chelsea, Gardens, S.W., writes: Dr. Alfred C. Coles, in his paper on "An easy and rapid method of doing Widal's reaction for typhoid" (p. 684), states that "emulsions of dead typhoid bacilli" (for use in the Widal test) can be obtained from the Lister Institute. This statement needs correction. We understand that the standards department of the Pathological School at Oxford is prepared to issue killed standard emulsions of bacteria of the typhoid group to persons requiring them for agglutination work, and it therefore has not been necessary for the Lister Institute to supply such emulsions.

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

	£	s.	d.
Seven lines and under	0 5 0
Each additional line	0 0 8
A whole column	3 10 0
A page	40 0 0

An average line contains six words.

All remittances by Post Office Orders must be made payable to the British Medical Association at the General Post Office, London. No responsibility will be accepted for any such remittance not so safeguarded.

Advertisements should be delivered, addressed to the Manager, 429, Strand, London, not later than the first post on Wednesday morning preceding publication, and, if not paid for at the time, should be accompanied by a reference.

NOTE.—It is against the rules of the Post Office to receive *postea restant* letters addressed either in initials or numbers.

THE LOUSE PROBLEM AT THE WESTERN FRONT.

BY

LANCE-SERGEANT A. D. PEACOCK, M.Sc. (DUNELM.),
R.A.M.C. (T.F.);

FORMERLY ENTOMOLOGIST TO THE GOVERNMENT OF SOUTHERN
NIGERIA; LECTURER IN ZOOLOGY, UNIVERSITY
OF DURHAM.

The insect dealt with in this paper is the clothes or body louse—*Pediculus humanus*, Linnaeus; order *Anoplura* or *Siphunculata*.

ENTOMOLOGICAL. MORPHOLOGY.

Technique.—Microscopical preparations were made as follows:—the insects were chloroformed, fixed in formalin (10 per cent.) for a day, brought through the alcohols (50 per cent., 70 per cent., 90 per cent., absolute), cleared in xylol for a day or two, and mounted in Canada balsam. The drawings have been carefully prepared, and are as detailed and accurate as opportunity has permitted, but further work will, no doubt, reveal other features which may necessitate slight additions and modifications. The musculature and mouth parts, for instance, are not fully worked out.

The nomenclature of the parts may possibly need correction. As I am not aware of any other detailed drawings of this insect, it is hoped that these will be of utility.*

EXTERNAL CHARACTERS.

Only the most significant features are dealt with. The female is the larger, being about 4 mm. in length, while the male is about 3 mm. The proportion of the sexes is about equal. Soldiers speak of *black* and *grey* lice. With regard to the question whether these are different species, no distinctive features have been discovered which would necessitate separate classification. The black louse has a more dusky integument, the edges of the body are darkly pigmented and the dorsal regions of the segments darkly patched. Murray gives the information that the different coloured races of men have lice coloured to match. On the question whether the black variety exists peculiarly at the front, or more abundantly in proportion than in England, there is no evidence available. Eighteen hundred lice counted yielded 5.4 per cent. black. The bristles, of which there are two kinds, long and short, are placed all over the body, are somewhat sparse in number, and are roughly symmetrically arranged.

Head (see Figs. 3, 4, 5, and 6).

This bears the very simple sensory organs—the antennae and the black eyes. The entrance to the alimentary canal is at the anterior of the tubular chitinous mouth-part (5), which is nearly surrounded by a projecting sheath (1). This sheath rises from a thin chitinous diaphragm, which forms the greater portion of the anterior of the head. The dorsal margin overlaps and forms a blunt rostrum (2). Ventrally, are a pair of chitinous structures of unknown significance (3).

Thorax.

The three thoracic segments are fused and their boundaries are not sharply marked off. Mid-dorsally is an invagination. There are three pairs of strong legs which each end in sharp powerful gnarrels and spines.

Abdomen.

There are eight segments, the two posterior being fused. Each of the first six bears a breathing hole, the stigma, on either side. The male is pointed at the posterior, and the sharp tip of the penis may often be seen extruded. The female's posterior is bilobed and ventrally shows a pair of tooth-like appendages, the gonopods, which assist in copulation. In both sexes the anal region is fringed with numerous bristles.

* For bench room and facilities to finish certain microscopical and recording work I wish to acknowledge the kindness of Captain McNea, R.A.M.C.

INTERNAL CHARACTERS.

Mouth-parts.

The interesting question of the homologies of the mouth-parts the writer desires to leave till a more appropriate season, and, in the absence of knowledge on this point it would be best to use non-technical terms. The chitinous mouth-parts are (1) an outer structure adapted for sucking and for supporting the first pharynx; (2) two inner structures adapted for stabbing.

The strong outer apparatus is tubular for a certain length at the mouth end. When the insect is not feeding the entrance is lined with sharp chitinous teeth, seated in tissue and pointing inwards. When feeding the outer structure is thrust forward a little so that the mouth region projects beyond the protective sheath. This action, in some way, appears to relax the tissue bearing the teeth, and these, instead of lining the mouth, come to fringe it and point outwards. The first half of the outer structure, dorsally, is an arch which forms the roof of the beginning of the gullet. Backwards from the arch run two limbs to which are attached the protractor muscles which out-thrust the structure. They also support the sides of the first pharynx. In the arch run two curved walls, which appear to have their origin just ventral to where the arch bifurcates, and in the floor of the pharynx. Within these two curved walls lie the anterior portions of the two stabbing organs.

The inner mouth-parts, the two stabbing organs, are lodged in a tubular sac lying below the oesophagus and extending from the back of the head to the first pharynx. They are similar in so far as both are flexible, long (nearly the length of the head), enter the first pharynx together, and bifurcate posteriorly. They vary in detail. The uppermost resembles a thin, broad chisel, double-grooved along part (?) of its length. The lower is like a gouge bit, the tip being three-pointed. Protractor and retractor muscles bring the apparatus in and out of action.

Alimentary Canal.

The writer does not fully understand the relationships of the various structures composing the canal anterior to the first pharynx. It would seem, however, when human blood is being sucked, that a gutter or tube is formed, having for sides the curved structures of the outer mouth parts and for a floor the posterior length of the broad stabbing organ. It is possible, too, that the under-stabbing organ becomes closely apposed to the upper, so forming a narrow tube leading to the wound.

Following the feeding tube is the first pharynx, which has muscular walls and is lined with chitin. Its function as a pump is secured by the action of five pairs of muscles, which diverge from it dorsally. The second and smaller pharynx resembles the first. It leads to a narrow gullet which opens into the stomach.

For information concerning the salivary glands the writer is indebted to Major Sydney Rowland, R.A.M.C. The glands are situated far back in the thorax and consist of two on each side, one bifurcated and one globular. The duct from the bifurcated gland joins with that of the accessory gland to form a single duct, and this opens into the sac of the stabbing organs.

The stomach is of very large capacity and, anteriorly, has two pockets. A short, narrow, single-looped intestine follows and leads to a slight swelling, the beginning of the rectum. Into the intestine open eight excretory Malpighian tubules. A short rectum ends at the anus.

Circulatory System.

This is probably typical, a long tubular heart lying in a pericardial space dorsal to the gut, with few vessels and large blood sinuses.

Respiratory System.

The lateral stigmata lead to the tracheae which branch to smaller vessels to ramify the tissues.

Nervous System.

The brain lies behind the second pharynx, above the gullet, and is connected by lateral commissures to a sub-oesophageal portion. Backward from the sub-oesophageal ganglia runs the ventral nerve cord. An optic nerve runs

from the brain to the eye. The antennae are sensory. Apart from these, there is a marked absence of any structures denoting special sense.

Reproductive System.

With the exception of the penis the reproductive organs of the male have not been noted. Of the female only the eight (?) ovaries have been noticed. They are long tubes containing ova at various stages of development.

INSECTS, ETC., RESEMBLING LICE.

Many insects, etc., found in dug-outs, at first and casual glance may be easily mistaken for lice. The woodlouse or slater, a crustacean related to the crabs and lobsters, is regarded as an ancestral or originaive type of louse. Springtails, primitive insects which move by leaping, resemble lice when at rest. Certain small beetles may be taken for adult lice, and small mites, relatives of the spiders, look like young lice. These mites are very common in food which has been trodden into empty sandbags and the floors of dug outs.

HABITS OF LICE.

Habitat.

For shelter the louse depends upon the clothing, particularly the garments worn next the body, and prefers the comfort of the seams. Soldiers express a habit of the insect graphically when they say "It digs itself in," and, for this purpose, the beautiful musculature and the strong claws and spines of the legs are admirably adapted. The shirt is preferred, but in many cases most eggs are found at the fork of the trousers. This is because the trousers are worn consecutively for a much longer period than the shirt. In order of importance the areas most favoured for egg laying are the fork of the trousers and the armpits, the triangles at the tail of the shirt; next are the trousers and the shirt seams, and then the neck, but under present conditions there is general distribution also. Eggs have even been found in the beads of rosaries. It will be noticed that the insect accumulates where there is plenty of warmth, plenty of humidity, and plenty of shelter.

The possibilities of infestation are instanced in a case examined at hospital. Apart from extreme lousiness of underclothing, the man actually had lice and eggs at the back of the neck of the tunic, the pocket seams inside the tunic, and the flap seams of the pockets. A walking distributing agent!

Alimentation.

The insect feeds by sucking human blood, and adult lice may suck for twenty minutes at one time. They feed voraciously and wastefully, their excreta often consisting of what appears to be undigested human blood. The peristalsis is violent, and the whole alimentary canal may move backwards and forwards while feeding is in progress. Young lice feed immediately on hatching. In consonance with Warburton's experiments, it was found that the young may be reared by feeding twice a day on the arm. They suck for any length of time between nine and twenty-two minutes, averaging twelve. If allowed to feed three times a day they do not suck so long at one time.

The process seems to be—the stabbing organs are out-thrust, pierce deeply, and the sucking tube is anchored by the circumoral teeth to the skin; by means of muscular action on each pharynx the blood is drawn in; leakage into the sac of the stabbing organs is prevented by the upper stabber; the saliva pours into the sac, and, possibly via a tube formed by the upper and lower stabbers, reaches the wound and prevents the coagulation of blood; the blood is digested in the stomach and intestine; the waste

products from the gut and Malpighian tubules pass through the rectum and anus.

Life-History.

Concerning this it has not been possible to conduct many experiments. In copulation the male lies below the female, the penis is extruded, up-curved, and is retained in position by the gonopods of the female.

The eggs are about 0.8 mm. long and 0.3 mm. in diameter, and, according to Warburton, one female lays five at one sitting, and may produce a total of 125. They are clear and glistening when new, but towards the time of hatching appear a yellowish-brown, due to the colour of the developing insect inside. The experimental method of incubation was as follows:—small pieces of shirt seam bearing undisturbed eggs were placed in calico bags; these were tightly fastened with string to prevent the escape of any newly-hatched young; the bags were slung next the body under the armpits and examined twice a day, morning and evening. The conditions, therefore, were almost natural.

One exact result is of importance. A fortunate chance gave six newly-laid eggs. One young hatched out in six days, three in about seven days, one in seven days and a half, and one in eight days.

A total of 291 eggs, of unknown age, taken *in situ* on eight pieces of shirt which had been discarded for about one day, yielded, after two days' incubation, the following:

1. A constant succession of hatchings each day of 9, 23, 33, 24, 10, 11, 20, 7, 72, 5.
2. Total percentage hatched—82 per cent.
3. The greatest number took at least ten days to hatch. (Perhaps the one day's separation of the shirt from the body inhibited development.)
4. Incubation may often take at least twelve days.

The attempts to rear the young in calico bags carried at the armpits and by freeing to feed twice a day were not very successful. The results differ in certain respects from those of Warburton. The first moult took place at various periods—for example, about two days in one case, after three days in one case, five days in one case, and seven days in one case. One specimen lived fifteen days and moulted twice, the first time on the fifth day and the second time on the seventh. It looked only half-grown at the end of the time which Warburton suggests to be the limit of growth. The conditions of the experiments were almost natural, and the heavy mortality of the young is rather baffling and disappointing. It may be that the young are especially susceptible to even the slightest confinement.

Vitality.

The duration of life on the body is not known. Warburton kept a mature female alive for thirty days. This would make the total length of life about seven to eight weeks. The duration is said to be dependent upon three factors:—abundance of food, the normal body temperature, and body emanations. Kept at 37° C. dry heat in a bacteriological incubator, lice die in about three days. Specimens were fed twice a day and kept on a piece of clean shirt in a cardboard cylinder. This was carried under the armpit, so ensuring body temperature without body moisture. The insects died in about five days. Body moisture, therefore, seems necessary to the insects, but what is the more essential, the humidity only or the chemical quality, is not known to the writer. To these factors it is proposed to add freedom. Even under the very slight restraints imposed during experiments the adult insects died quickly, that is, in two or three days.

As a result of many experiments it was found that the longest period during which lice survived separation from

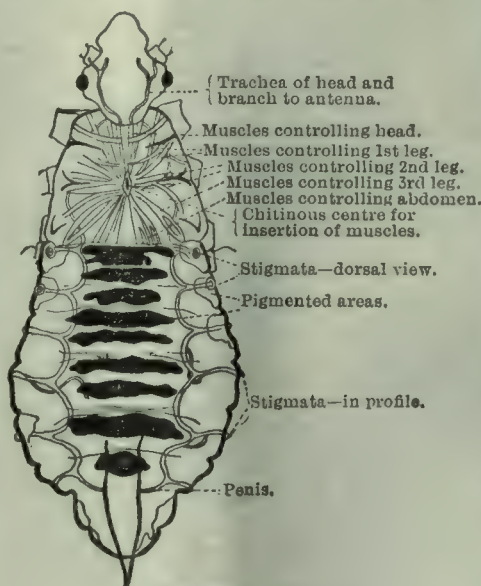


FIG. 2 (key to Fig. 1).

the human body was nearly nine days. The following results were noted:

On an infested shirt, newly discarded and exposed to the open, during which the temperature varied between 40° F. and 45° F., two days being raw and wet, lice lived as long as five days.

On infested shirts, taken singly and stored in large army biscuit tins, or in brown paper parcels, they may live about seven days; on shirts stored in bulk, eight days.

Placed upon freshly won soil, they lived seven days. On a piece of shirt which was placed upon soil in a large biscuit tin they lived eight days. Dry soil to the depth of 2 in. was placed at the bottom of a box 2 ft. x 1½ ft. x 1½ ft., and covering the soil were laid pieces of wood, so imitating in miniature the conditions of a dug-out. A lousy shirt was placed in the box. The lice congregated upon the uppermost part of the shirt and remained there alive for eight days.

A constant feature is the moribund condition into which the insects sink after two days' separation from the body.

This condition lasts till death. On taking a moribund louse, and placing it on the arm, there is evinced a quick response. The insect begins to take a distinct interest in life and shows it by perambulation and feeding. In connexion with this "warmth test" it is important to note that it may need to last quite five minutes at times.

With regard to vitality when subjected to various insecticides, the following results were noted:

Infested shirts dusted with a white mercury powder advertised as a vermicide, still held live lice at the end of four days. A similar test, using a powder of heavy oil residue (sulphonated), talc, and aloes, gave the result that the lice lived nearly nine days. The insects crawled regardlessly through both powders. Placed upon a small piece of shirt in a pill-box, the bottom of which was smeared with Vermijelli, they died in two hours, not having sense enough to keep away from the insecticide. They were killed by suffocation, their bodies becoming sticky with the preparation, and the stigmata choked. Similarly placed above N.C.I. powder they died in half an hour. A single infested shirt dusted with N.C.I. did not hold a live louse in ten hours. Shirts, each dusted with N.C.I. and stored in bundles of ten, each bundle being dusted above and below, did not contain live lice after three days. An infested shirt was immersed for half an hour in an emulsion of soapy water and crude paraffin oil (0.75 per cent. of emulsion being oil). The lice revived, and lived in pill-boxes for seven days.

The maximum time during which eggs away from the body may remain dormant has been found by Warburton to be about forty days. This was under laboratory conditions in England, and the temperature fell at times below freezing point. Similar experiments were carried out here, shirts holding eggs being exposed to weather conditions. Samples taken from one shirt which had been exposed for eight days hatched after four or five days' incubation on the body. During the time of exposure the temperature fell twice to freezing point, and two days were raw and wet. Samples taken from a shirt exposed thirteen days did not hatch after twenty eight days' incubation.

In applying this knowledge the important fact is that

eggs on the clothing, particularly the outer garments, if not treated regularly by ironing or disinfection, are a possible source of infestation for as long as a month after laying. Also, the removal of the clothing from the body for a few days in order to kill the eggs and lice by exposure, is not a practicable scheme.

The scanty existing information on the parasite's powers of endurance indicates them to be small. The examples cited, however, point to the conclusion that these powers are by no means inconsiderable.

The louse, therefore, is a parasite which is utterly dependent upon man's blood for sustenance and man's body and clothing for prolonged, prosperous longevity and reproduction.

INSTINCTS.

Migration.

To discover the capabilities of the louse with regard to its powers of locomotion and distribution the

following simple experiments were made. On four occasions, for a period of at least one hour, the tracks of four lice were charted. The diagrams (Fig. 8) illustrate two typical results.

The distance between the two lice farthest apart was 9 ft., two covering a distance, measured in a straight line, of 5 ft. The routes pursued were decidedly devious and exploratory. There was no desire evinced to make for a recently discarded shirt, which was laid as bait 6 and 12 in. from the insects. These charts demonstrate how, under certain conditions, the louse may go far afield to find a local habitation and a means of livelihood. It has been observed that the insects may climb the wall of a room to a height of 3 ft.

A box was made into a miniature dug-out; twenty lice were placed in it, and watched with very short breaks for eight hours. The insects scattered quickly, roamed round, and twelve in all left the box within half an hour. The remainder were lost. In another case, in which straw was placed in the box, only two migrated after two hours. After twenty-four hours two were found on the straw and six on the boards. The remaining ten were lost.

Such migratory powers are most probably only fully exerted in times of stress. This is borne out by their curious habits of "congregating." Whenever lice upon discarded clothing were the subject of experiment most of them invariably made for the uppermost portion of the material, and showed no desire to forsake it. There is therefore a decided preference for warm material. On a shirt in a condition generally termed "walking" were computed 10,000 live lice. This would indicate gregarious habit and comfortable inertia and that competition is no incentive to migration. Experiment also shows that light is not the stimulus to congregating.

Lice certainly do wander from the host. Although no experiments have been performed with the definite aim of ascertaining the stimulus of wandering, five months' experience with the insects suggests, that if the



FIG. 1.—The Clothes Louse—*Pediculus humanus*, Linnaeus (synonym, *P. vestimentis*). Male; black variety; enlarged about sixty times. Drawing made from cleared specimen, viewed dorsally, and seen by transmitted light.

surroundings of the host be warm and comfortable, lice are tempted to wander about. Such conditions exist in a warm bed or when soldiers are packed closely together. The insect, though moving about, is in its native air all the time, and there is not the adventure of changing an environment. In such circumstances a bed may be infected through the louse not being fortunate enough to return to

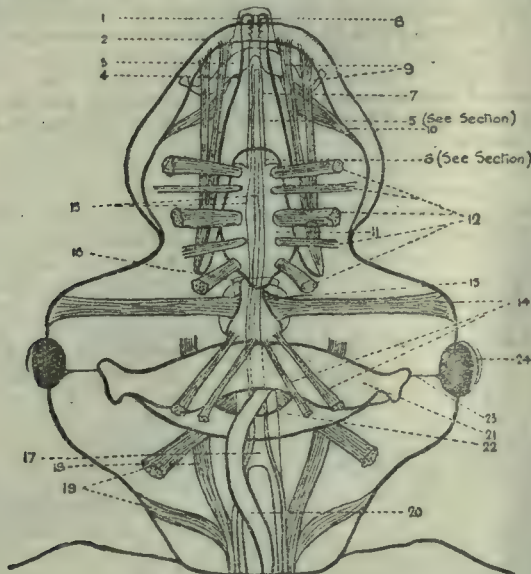


FIG. 3.

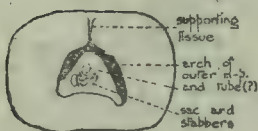


FIG. 4.

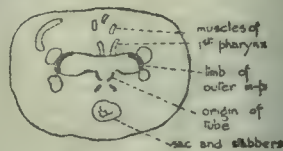


FIG. 5.

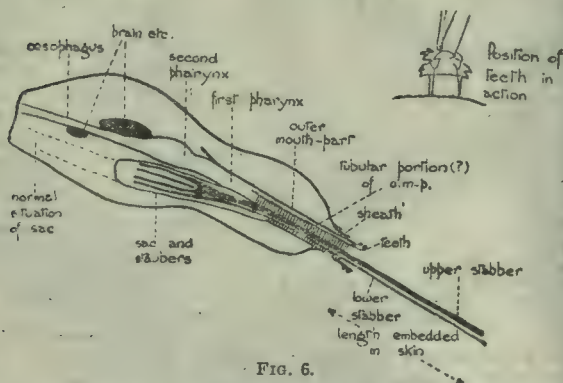


FIG. 6.

FIG. 3.—Diagram showing anatomy of head; dorsal aspect. Drawn from sections and cleared specimens; sections cut by Lieutenant J. Shaw Dunn, R.A.M.C. (1) Protective sheath—imcomplete tube; (2) projecting anterior dorsal margin of head; (3) paired anterior ventral structures; (4) anterior ventral margin of head; (5) chitinous outer mouth-part, with (6) its tube running forward (7), and terminal teeth (8); (9) protractor muscles of outer mouth-part, and (10) retractor muscles (?); (11) first pharynx, and (12) muscles; (13) second pharynx, and (14) muscles; (15) the two structures of the inner mouth-parts, the dorsal being thin and broad, the ventral narrower and thicker, with three (?) terminal points; (16) ventral sac lodging the inner mouth-parts; (17) bifurcated posterior ends of inner mouth-parts; (18) protractor muscles (?); (19) retractor muscles (?); (20) oesophagus—dorsal; (21) supra-oesophageal brain, and (22) sub-oesophageal portion; (23) optic nerve; (24) eye.

FIG. 4.—Transverse section through head at region 5 of Fig. 3.

FIG. 5.—Transverse section through head at region 6 of Fig. 3.

FIG. 6.—Diagram to illustrate mouth-parts in action.

the host before he leaves the bed, and other men, clean or otherwise, may become infected.

Selection and Preference.

Lice soon find the body if the host sleeps on any infected bedding. The discovery of the host may be due to three causes: (1) The warming of the bed giving the incentive

to wandering; (2) contact of the lice and the body; (3) the insect "scenting" the host. Which is the most important factor is not known. A deliberate effort to reach the human body or recently discarded and sweat-impregnated clothing has never been observed. The instincts of detecting and pursuing the host seem, therefore, to be very feeble, if not absent.

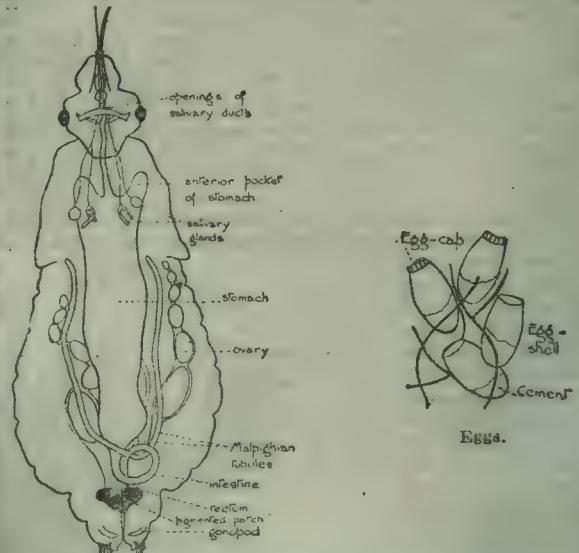


FIG. 7.—Diagram showing internal anatomy of female; ventral aspect. Drawn from dissections and cleared specimens.

These instincts being at best so feeble it seems still more improbable that the parasite has any instinct of preference—that is, as popularly expressed, "choosing one person rather than another." Three types suffer most from lice—the person badly infested, the person with a very sensitive skin, and the person who has never been verminous before. The first type may be an unfortunate soldier, physically unclean through campaigner's luck, or may be a man of unclean habits, in both cases the parasites having every

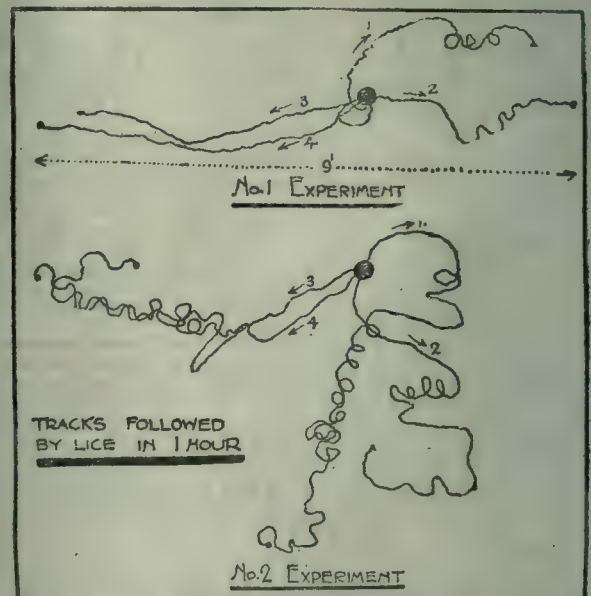


FIG. 8.—Tracks of lice; the breadth of the diagram represents 9 ft.

opportunity for success. In the other two types it is a matter of susceptibility to the touch and stab of the insects.

MEDICAL AND MILITARY SIGNIFICANCE.

Scratching, such as louse irritation induces, renders the skin prone to sepsis. "Louse rash," if it may be termed so, has been found distressingly common, and has frequently been mistaken for scabies.

Lousiness is felt mostly at night. This is in spite of

the fact that practically the same number of lice is present on the body during the day. Probably the distractions of the day keep the mind away from the pest, but at night, when everything is conducive to the desire for rest and comfort, the mind is most sensitive to the slightest irritation. Then the crawling of the insects, their sharp stabs, the itchiness of each tiny wound, and the fierce desire to scratch become intolerable. As one man said, "You feel as if you could rive yourself to pieces." Sleep, at best, is broken and uneasy, but is usually impossible. Consequent upon loss of sleep, impaired vitality and mental weariness become very real miseries to the soldier, the value of whom depends upon a high pitch of bodily well-being.

These are the soldier's most acute troubles, primarily due to lice at this front, but it must never be lost sight of that the menace of typhus, possibly more imminent at the Eastern fronts, is still present at the Western.

(To be continued.)

Notes on Military Orthopaedics.

III. THE SOLDIER'S FOOT AND THE TREATMENT OF COMMON DEFORMITIES OF THE FOOT.

BY

LIEUTENANT-COLONEL ROBERT JONES, CH.M.,
F.R.C.S.I. (HON.),

INSPECTOR OF MILITARY ORTHOPAEDICS, ARMY MEDICAL SERVICE.

(Continued from page 711.)

PART II. CLAW-FOOT.

ONE of the surprises the military surgeon meets is the number of men with claw-feet who have been passed into the army; but still more surprising is the fact that many such cases have found their way to the front after the vigorous initial training which the recruit undergoes. Sooner or later, however, these men gravitate to hospital, and very few of them return to the ranks as efficient. A patient with this condition of the foot is quite unfit for military service, and should never be accepted as a recruit. The affection usually begins in early life, and is often not recognized until it has reached what I have termed its second stage; until then serious trouble hardly ever arises.

The etiology of "claw" or "hollow" foot is still uncertain. It is very often associated with a slight contraction of the Achilles tendon in childhood, and in some cases is due to a transitory paralysis of the extensor group of muscles. The short boot also stands in some causal relation to it. The whole question is, however, too vexed to be discussed here.

Clinically the condition presents five degrees or stages. The progress of the development of the deformity from one degree to another, though often continuous, is frequently arrested in one of the early stages; or perhaps the facts may be better stated by saying that progress from the first two stages to the later more severe stages is very slow, and sometimes does not take place.

1. The First Degree of Claw-foot.

The first degree occurs in childhood, and is easily overlooked. There is no visible increase in the height of the arch—in fact, the foot looks normal. The complaint made is that the child is clumsy, especially when running, and frequently stumbles or trips without obvious cause.

It will be found in such a case that the foot cannot be dorsiflexed beyond a right angle with the leg, and that there is commencing contraction of the Achilles tendon and the structures in the sole. The child's tendency to stumble is thus explained, for the fore part of his foot gets in his way as he tries to run.

The treatment in this stage is obviously to stretch the Achilles tendon and the plantar structures and so restore the power of dorsiflexion of the foot at the ankle. This can usually be effected by manipulation, after which the boot in which the patient walks should have no

heel to it, but a bar half an inch thick placed transversely under the tread. In some cases it may be necessary to lengthen the Achilles tendon. This is best done subcutaneously by the following procedure (Fig. 1). The tenotome is entered on one side near the heel, and one-half only of the tendon is divided. The tenotome is next entered one and a half to two inches further up on the other side, and the other half of the tendon is divided. Now, by forcible dorsiflexion of the foot, the two halves of the tendon are made to slide on one another until the required lengthening is obtained. A rectangular splint is then applied so as to keep the Achilles tendon at rest in the corrected position and to maintain tension on the sole of the foot. This method is always preferable to the other method of complete division of the tendon at one level as the period of convalescence is shortened, and functional power in the calf muscles is more speedily restored.

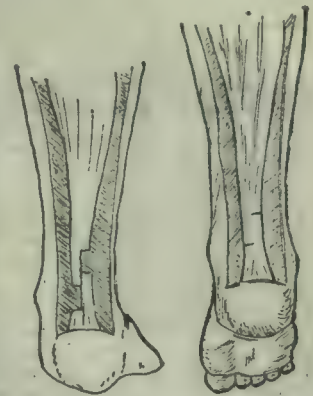


FIG. 1.—Anatomical diagram to illustrate the two stages of the operation for the lengthening of the Achilles tendon by subcutaneous tenotomy.

2. Degree of Claw-foot.

In the second degree there is definite contraction of the plantar fascia, and the characteristic deformity of the foot is easily observed (Fig. 2). The fore part of the foot is dropped—that is to say, there is flexion at the mid-tarsal joint or exaggeration of the arch of the foot. At the same time the great toe is dorsiflexed at the metatarso-phalangeal joint, and the tendon of the extensor proprius hallucis stands out prominently. Further, if the surgeon places his finger under the ball of the great toe he easily lifts it, and the toe automatically straightens out (Fig. 3). The other toes do not present a similar deformity at this stage, but the Achilles tendon is shortened. Even in this condition the patient may not complain of pain or disability; especially is this the case in the very young. In older folk, such as the recruit, complaints may begin whenever long marches are repeated. The men have to fall out because of pain and fatigue. They have frequently been suspected unjustly, for even at this stage there are no very obvious objective signs. The arch of the foot is not collapsed, but, on the contrary, slightly exaggerated. But if the surgeon makes a careful examination he will note tenderness beneath the metatarso-phalangeal range, and when the patient is asked to extend his toes the big toe responds to a disproportionate extent.



FIG. 2.—Claw-foot, second degree.

Treatment at this stage must be drastic. If the patient is to be rendered able to get about with ease and comfort, nothing less than operation will suffice. A radical attack may save the situation, and in a few weeks the soldier may return to duty. The operation consists in dividing and stretching the plantar fascia and then in making an incision over the tendon of the extensor of the great toe (extensor proprius hallucis), and the tendon is severed from its attachment. Two holes are drilled close to each other behind the metatarsal head, forming a tunnel through which the tendon is drawn by means of a catgut



FIG. 3.—Claw-foot, second degree. The surgeon's finger easily replaces the dropped head of the metatarsal bone of the great toe; a case in this stage is suitable for tendon transplantation.

ligature (Fig. 4). The tendon is then pulled so as to raise the dropped metatarsal head into position (Fig. 5), and its lower end is stitched to its upper part just above its entrance into the bone (Fig. 6). This completes the operation, but the foot must be firmly bandaged down to a metal sole plate with a thick roll of wool placed transversely just behind the heads of the metatarsals so as to flatten the arch as much as possible. The whole foot is then fixed in a shoe splint, which is bent to rather less than a right angle. After the stitches are taken out, the foot is put up in plaster-of-Paris in the fully corrected position, and the patient is allowed to walk in this for from three to six weeks. He should then for a few weeks wear boots with no heels, and a bar across the sole beneath the heads of the metatarsal bones so as to keep the foot dorsiflexed when walking.



FIG. 4.—Claw-foot, second degree. Operation by transplantation of tendon of the extensor of the great toe. The diagram shows how the tendon of the extensor proprius hallucis is introduced through the tunnel above the head of the metatarsal bone.

structures; the operation just described for the second degree would therefore be useless. Further, the other toes also are now dorsiflexed, and the characteristic deformity which at first was visible only in the great toe is now shared by all the toes. The movements of the toes are limited, and they are beginning to become rigid in the position of deformity. Corns and callosities are formed across the ball of the foot owing to the increased pressure of body weight, for in this stage the patient can hardly get his heel to the ground at all. The Achilles tendon and plantar fascia are still more contracted than in the first two stages.

Operative treatment has now to be carried out in two stages.

A. The first stage includes division of the plantar fascia and severe wrenching to flatten the foot as far as possible, but as at this stage all the metatarsal bones are very obliquely placed it is necessary also to remove bone. The operation consists in removing through separate incisions on the dorsum of the foot a half to one inch from the shafts of the first, second, third, and fourth metatarsal bones toward the bases without opening the joints. The fifth metatarsal is retained intact, as it forms a useful splint for the rest of the bones. Removal of the head of the metatarsal should be avoided. The extensor and flexor tendons should be divided.

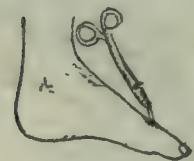


FIG. 5.—Claw-foot, second degree. Operation showing the tendon of the extensor proprius hallucis passed through the head of the metatarsal bone of the great toe and pulled before fixing.

B. As it is impossible to correct all the cavus deformity in this way, at a later stage the Achilles tendon is divided by the sliding operation, and the foot wrenched into dorsiflexion. The after-treatment and alteration in boots follow the same lines as those already prescribed.

4. Fourth Degree of Claw-foot.

In the fourth stage, in addition to all the deformities already described the foot acquires a well-marked varus deformity (Fig. 8). Callosities are even more tender, and walking is painful and difficult.

Treatment has to be still more drastic. After dividing

and wrenching all tense structures so as to mould the foot towards the correct position, it will be necessary to divide also the flexor and extensor tendons, and then remove the astragalus. This releases the remaining tension on the sole, and the foot can be moulded into shape, so as eventually to carry body weight with comfort to the patient.

5. Fifth Degree of Claw-foot.

The last stage of claw-foot leaves the patient in a pitiable condition. The toes are blue and contracted, the callosities exquisitely tender. The deformity is that of equino-varus (Fig. 9). The patient longs for amputation. This should never be done, and I would recommend as a substitute an operation I have designed and practised with success on many occasions.

In such a case the astragalus should first be removed, and then a flap incision made along the base of the toes on the sole of the foot. A flap should also be raised from the dorsum of the foot, and the heads of the metatarsal bones exposed. The toes and the heads of the metatarsal bones are removed. The result of this operation is excellent (Figs. 10 and 11).

Although the various operative procedures I have described as necessary in the treatment of the later stages of "claw-foot" do not result in producing an efficient soldier, there is every reason that they should be known. The military surgeon



FIG. 7.—Claw-foot, third degree.



FIG. 8.—Claw-foot, fourth degree.

has to consider the usefulness of citizens when the war is ended, and operations such as I have described, with



FIG. 9.—Claw-foot, fifth degree. Front view after operation recommended in the text. The toes and the heads of the metatarsal bones, as well as the astragalus, have been removed.



FIG. 10.—Claw-foot, fifth degree. Side view after same operation.



FIG. 11.—Claw-foot, fifth degree. Side view after same operation.

appropriate variation, will be needed for many types of contracted feet following injuries received from the enemy.

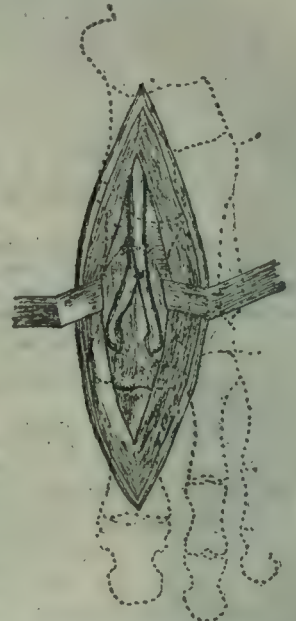


FIG. 6.—Claw-foot, second degree. Operation for second degree, showing how the tendon of the extensor proprius hallucis, after traversing the tunnel in the bone, is attached to itself and secured.

HALLUX RIGIDUS, HALLUX VALGUS, AND METATARSALGIA.

The conditions known as hallux rigidus, hallux valgus, and metatarsalgia, or Morton's disease, are all frequently associated with flat-foot; they all have some features in common both as regards the nature of the pain experienced and the alterations required in the boot to relieve mild cases and to complete the after-treatment in cases which have required operation.

THE MARCHING BOOT.

Mobility of the Toe.

This is a convenient point at which to make a digression to discuss the importance of correct position and free mobility of the great toe in marching.

In young children of all races the great toe is directed slightly inwards towards the middle line of the body, in line with the anterior part of the inner longitudinal arch of the foot, to the structure of which attention was directed in the article on flat-foot published on May 20th (p. 709). In races who habitually go barefoot this position of the great toe is preserved in adult life. In civilized races—those, at least, who wear boots—the toes are often cramped into boots of unsuitable shape, so that the small muscles of the foot suffer atrophy from disuse, and the power to spread the great toe inwards in walking is much impaired. In a strong foot which has not been deformed by wearing pointed boots the great toe is spread inwards by the action of the abductor hallucis when balancing on one foot, when the weight of the body is on the fore part of the foot in walking, and still more so when carrying a pack on the shoulders.

Qualities of a Good Marching Boot.

A good marching boot should therefore leave the foot free to adapt itself to altering conditions of balance and strain.

First. The boot should fit comfortably and closely round the heel and ankle so as to avoid lifting of the heel in the boot, which results in chafing, ending in a blister of the heel.

Second. To save the arch from giving way and to avoid flat-foot the heel of the boot should be slightly higher on the inner side than on the outer. (See the article on flat-foot, p. 710.)

Third. The inner side of the boot should be straight right up to the tip of the big toe—that is to say, the inner sides of the two boots should be parallel to each other all the way along to the great toe. There should be no trace of pointedness, for pointedness tends to produce hallux valgus, and helps to cause flat-foot.

Fourth. The sole of the boot inside should be as broad as the foot with the weight of the body on it. In the case of a soldier it should be as broad as the foot is when carrying the weight of the soldier in full marching order—that is to say, the weight of the soldier himself, his pack, and all his accoutrements.

Fifth. The upper of the boot should not compress the fore part of the foot in any way. The toecap should be stiff and deep enough to clear the toes and allow free movement inside the boot. This stiffening should run back on the inner side of the boot to a point behind the metatarso-phalangeal joint of the great toe.

Sixth. The boot should be long enough to allow the foot to extend to its full length when the soldier is carrying his pack and all his accoutrements.

These last points, dealing with freedom of movement of the fore part of the foot, are essential to the full development of the small muscles of the foot on which the soldier's endurance and marching powers depend to so large an extent.

Corns do not develop in a foot encased in a boot which allows free play to the fore part of the foot. The regimental chiropodist is a most valuable asset, but his existence is, *ipso facto*, a confession that the fit of the men's boots is not all it might and ought to be. The man should not be allowed to judge of the tightness of his boot when his foot is cool. On the contrary, boots should be served out when men have come in from a long route march, and their feet are engorged with blood, and therefore at their largest. If this were done, interference with the circulation of the foot by the boot would less often occur. When a foot swells after a march, the

swelling is practically all in the fore part, not round the heel. To serve out boots, therefore, after a route march would not prevent a man from choosing a pair which fitted properly round the heel and ankle.

The present army boot is a great improvement on the boot served out at the time of the South African war, but it is still lacking in two points—namely, the straight inner side and the clear free stiffened arch in the upper of the fore part.

HALLUX RIGIDUS.

Hallux rigidus (Fig. 12) is a condition characterized by limitation of the power to dorsiflex the great toe at the metatarso-phalangeal joint.

If we remember that in straining on tip-toe or in stepping off with the foot in marching this joint must be dorsiflexed, it is evident that any limitation of the movement of dorsiflexion must, in the course of a long or hard march, result in straining the joint so that it becomes painful and inflamed.

As hallux rigidus and hallux valgus are both disorders of the same joint and are often intimately connected, the rigid toe may lead on to valgus deformity and a hallux valgus may become rigid. There is no essential difference in the pathological condition of the joint, but only in the direction of the deformity associated with it.



FIG. 12.—Hallux rigidus.

Treatment.

The treatment of hallux rigidus must be to restore the power of dorsiflexion of the great toe at the metatarso-phalangeal joint.

In the early stages, when the tenderness and inflammation either about the joint or in the joint has not resulted in osseous changes, palliative measures may still lead to recovery.

First the joint must be relieved of strain, so that the inflammation may be allayed. This can be brought about by arranging a bar like a football bar fully one-third of an inch thick and about an inch broad placed on the boot behind the head of the metatarsal bone. This causes the body weight to be borne on the neck of the metatarsal rather than on the tender joint, so assuring rest to the joint. As soon as the inflammatory tenderness becomes less the patient finds that the power to dorsiflex the toe begins to return. This is the moment to begin massage, movement, and hot and cold contrast bathing in order to hurry up the processes of repair.

In more advanced cases, and in cases resulting directly from trauma—as, for instance, dropping a weight on the joint or violently “stabbing” the toe, osseous changes due to formative periostitis occur round the joint. There may be lipping of the base of the phalanx, and usually some nodular thickening of the head of the metatarsal, especially in its upper aspect. This osseous outgrowth forms a mechanical block, preventing hyperextension. The impact of the bones on each other maintains the periostitis, and the condition gets progressively worse. Palliative measures may enable a civilian to go about his business with some degree of comfort, but he cannot do a day's shooting, and palliative measures are of no use for a man who must march.

Operation alone will remove the obstruction to movement and give permanent relief.

The operation follows exactly the lines to be described below for hallux valgus, and need not be described here.

HALLUX VALGUS.

Hallux valgus (Fig. 13) is a deformity of the first metatarso-phalangeal joint, the essential feature of which is that the great toe is deflected outwards, and in extreme cases may lie over or under the second toe.

One consequence of this position of deformity is that the head of the metatarsal and the base of the proximal phalanx form an undue angular prominence on the inner border of the foot. As a result of chafing and pressure by the boot a bursa, or bunion, forms over the thinned inner

part of the capsule of the joint. It may communicate with the synovial cavity.

The continued pressure and friction causes the skin over the bursa to become indurated and horny, and this greatly adds to the pain and discomfort suffered by the patient.

Frequently suppurative inflammation occurs in the bursa (septic bursitis); this may be followed by septic cellulitis with inflammatory thickening of the tissues round the joint or, in cases in which the bursa communicates with the joint cavity, it may lead directly to septic arthritis.

It has been a surprise to many surgeons that soldiers have been able to go through their training and even to serve in France with pronounced hallux valgus deformity. The reason is that the disability is not due merely to the visible deformity but to the addition of the following three conditions:

1. Inflammation of the bursa (bunion).
2. Traumatic arthritis, of the same type as the arthritis in cases of hallux rigidus.

FIG. 13.—Hallux valgus.

3. Tenderness due to pressure on digital nerves in every respect similar to the tenderness in a classical case of metatarsalgia or Morton's disease.

Of these three causes of disability bursitis is the most common; the dangers of septic bursitis communicating with the joint have already been noted.

Arthritis is much more rare, and is usually of the sub-acute type common in cases of hallux rigidus without the valgoid deformity. It is diagnosed by tenderness and pain on any movement of the joint, even gentle attempts at passive rotation of the toe.

The third variety, comparable to Morton's disease, is marked by acute pain on oblique pressure on the joint between the finger and thumb, and is due to excessive sensitiveness of the digital nerves and adjacent tissues outside the joint. It is not, as a rule, marked by any objective signs other than the valgoid deformity, and in cases of hallux rigidus of this variety there is no visible deformity—only tenderness on pressure on the joint.

It is difficult to make a sharp division between hallux rigidus and hallux valgus. The same types of pain and disability occur in both. It may, however, be said that with a distinct valgoid deformity it is comparatively rare to find rigidity, but that in cases of painful great toe without valgoid deformity—that is, in cases classed as hallux rigidus—arthritis and the resulting rigidity are much more common. Hence the difference in descriptive terminology—but to understand the conditions properly they should be taken together.

Treatment.

In mild cases palliative measures may suffice. First, the weight of the body should be taken off the joint by putting a bar—like a football bar—across the sole of the boot behind the head of the metatarsal. If the boots are specially made, this is worked into the thickness of the sole with a hollow in the sole for the great toe joint. The bar on the sole will, however, keep a man on his feet who would otherwise be disabled by pain in the great toe joint. The boot should, of course, be straight on the inner side, and the upper should spring clear up, leaving room for the large head of the first metatarsal—a feature unfortunately absent from the regulation boot. If the boots are roomy enough, a piece of felt with a hole in it to accommodate the bunion will afford relief.

Such measures, however, are only curative in the milder cases, and are not applicable to the man on service.

Operative Treatment.

Operative treatment of hallux valgus must not merely aim at correcting the deviation, but must also be directed to securing free dorsiflexion of the great toe, otherwise the patient will be left with all the disability of a hallux rigidus.

It follows, therefore, that, apart from the correction of the valgoid deformity, the operative procedure is practically the same in principle in both conditions, and one description suffices for both.

First let it be stated that there are two operations sometimes performed, which need only be mentioned to be condemned. The first is transplantation of the extensor proprius hallucis tendon to the inner side of the metatarsal head in the hope that it will correct the outward deviation. Experience has proved that this operation is generally useless; it is therefore a waste of time to perform it. The second operation—excision of the joint—cannot be too emphatically condemned, as it is liable to end in a stiff joint, bringing with it all the crippling disability of hallux rigidus in its worst form.

Finally, no operation should be performed while there is any inflammation of the bursa or surrounding tissues.

A. In early cases in which there is valgoid deformity but not much enlargement of the head of the metatarsal by bony outgrowths, osteotomy of the neck of the first metatarsal bone, either linear or cuneiform (Fig. 14), associated with tenotomy of the extensor proprius hallucis tendon will suffice.

B. In later stages, with bony excrescences round the joint, more free removal of bone and some form of pseudarthrosis must be performed to secure the free movement of the toe, which is essential to comfort.

1. Free excision of the head of the first metatarsal bone, with interposition of a flap of tissue, or of part of the bursa, is not satisfactory in a soldier, though it has proved satisfactory in civilians who do not have hard walking or marching to do. The reason is that the lower part of the head of the bone is an important part of the weight-bearing apparatus, and must be preserved.

2. The operation to be preferred is resection of the head of the metatarsal bone (Fig. 15), leaving as much as possible of the lower part, taking care to clear away all bony excrescences which obstruct dorsiflexion or full correction of the valgus deformity.

The bursal flap is then interposed as a covering for the raw surface of bone. At one time I used to interpose the whole bursal sac, but nearly twenty years ago several patients developed bursitis in the transposed bursa. The procedure I now adopt, therefore, is to open the bursa and interpose only one wall as a covering for the bone (Fig. 16), or obliterate the bursal cavity.

3. In some cases (more often in cases of hallux rigidus than in those of hallux valgus) it is possible to preserve the articular cartilage of the head of the metatarsal bone,



FIG. 14.—Hallux valgus. To illustrate osteotomy of the neck of the metatarsal bone, showing the wedge to be removed.



FIG. 15.—Hallux valgus. To illustrate resection of head of the metatarsal bone by oblique incision through the bone.

This may be done in two ways: The one method is to remove a wedge or slice from the posterior part of the head and then apply the cartilage to the raw surface of bone.



FIG. 16.—Hallux valgus. Showing flap to cover the end of the metatarsal bone in the operation illustrated in Fig. 15

The other is to cut a wedge of bone with the cartilage and mortise it into a cleft made in the bone further back, removing the intermediate bone.

In every case division of the extensor proprius hallucis is an essential part of the operation for hallux valgus,

otherwise the traction of this muscle will tend to reproduce the deformity.

Technique of the Operation and After-Treatment.

The skin incision should be a linear incision along the inner side of the joint. The flap incision round the bursa described by Mayo has not proved entirely satisfactory in my experience.

The skin having been freed and retracted, a flap incision is made in the underlying tissues with a second knife. The knife used for the skin may be infected with *Staphylococcus albus* from the skin; it is therefore a wise precaution never to use the skin knife for any deeper dissection, especially in plastic operations where the least infection may destroy the value of the operation.

The joint is thus opened, and the head of the metatarsal freely exposed. The surgeon can then decide how much bone he is to remove and exactly how the wedge is to be made so that the toe will be correctly in line after the operation. He can also decide whether he can usefully retain the articular cartilage or is to dissect out a flap of the wall of the bursa to cover the raw bone.

It should be noted that the sesamoid bones should rarely be removed, as they seem to form an essential part of the tread of the ball of the great toe. The pad of fat between the sesamoid bones is, however, sometimes thickened, red, and tender; if so it may be clipped away.

The whole operation must be carefully carried out with the most scrupulous attention to three points:

1. Preservation of part of the lower or weight-bearing portion of the head.
2. Restoration of free dorsiflexion, or the soldier will not march freely.
3. Correction of the valgoid deformity in cases of hallux valgus.

The valgoid deformity is purposely placed last, for in a sense it is the least important from the point of view of restoring the man's marching power.

A hallux valgus splint should be applied at the end of the operation. The splint I use is made of thin metal, as shown in Fig. 17. The hole in the splint fits over the inner side of the head of the metatarsal bone and prevents pressure from occurring at this prominent point. The base of the splint is strapped or bandaged to the inner side of the foot. The toe is then drawn inwards and secured to the narrow end of the splint, care being taken that the alignment is correct.

After-treatment in cases of hallux rigidus and hallux valgus is quite as important as the operation if we are to succeed in restoring function. Three

weeks after the operation the patient may walk, provided he has a proper boot. Gradual exercise and the correct bearing of the body weight in a properly designed boot is an essential part of the treatment.

The boot, in the first instance, should be made of soft material with a stiff leather sole. On the sole is put a

leather bar $\frac{1}{4}$ in. thick and $\frac{1}{2}$ in. to 1 in. wide behind the heads of the metatarsal bones. The body weight thus falls for the time on the necks of the metatarsals rather than on the heads. Further, the heel should be made $\frac{1}{2}$ in. higher on the inner side than on the outer side, in order to deviate body weight to the outer side of the foot and relieve strain on the inner side and great toe. This is, of course, also the appropriate treatment for the flat-foot so commonly associated both with hallux valgus and rigidus. The inner border of the boot must be straight, so as to allow the toe to be drawn inwards freely, so that no pressure of the boot will tend to reproduce the valgus deformity.

As a rule, patients shod in this way can walk at once with comfort. Later, an ordinary boot may be altered in the same way. The operation area is too tender to bear the pressure of leather for two or three weeks after operation.

It is while walking in these boots, with the body weight carried on the outer edge of the foot, that the real cure takes place. Under the normal physiological stimulus of walking repair is hastened, and the small muscles of the foot recover strength.

To let the patient get up in a slipper is absurd, for the weight falls then on the head of the metatarsal, and by irritating the new bone formed at the site of operation it sets up a fresh process of osteo-arthritis, which may leave him worse than he was before. The patient must therefore be strictly kept reclining, and never allowed to set foot to the ground till the time has come when he may be allowed to walk in a properly altered boot.

A CASE OF ARTERIO-VEIN ANEURYSM OF THE SUBCLAVIAN ARTERY AND VEIN

TREATED BY EXCISION OF THE SAC AND THE SECOND AND THIRD PARTS OF THE ARTERY.

BY

COMYNS BERKELEY, AND VICTOR BONNEY,

M.C. CANTAB., ETC.,

M.S. LOND., ETC.,

HONORARY SURGEONS IN CHARGE OF THE MIDDLESEX CLEARING HOSPITAL, EASTERN COMMAND, AT CLACTON-ON-SEA.

ARTERIO-VEIN aneurysm of the subclavian artery and vein has been until this war an unusual condition, and records of its treatment by operation appear to be very rare, if not entirely wanting.

A private of the Cameron Highlanders was admitted to the Middlesex Clearing Hospital, Eastern Command, Clacton-on-Sea, on October 1st, 1915. He had been wounded in Flanders on September 26th, a rifle bullet striking him just outside the axillary border of the right scapula near its inferior angle, and emerging just above the middle of the right clavicle. The wound of entrance was healed and the wound of exit practically healed, but underlying it in the subclavian triangle was a pulsating swelling about the size of a double walnut. There was a very marked thrill, which could be felt and heard even as far as the bend of the elbow. The right arm was entirely paralysed.

A diagnosis of arterio-venous aneurysm of the third part of the subclavian artery and vein and injury to the brachial plexus was made, and as the swelling in the neck was steadily enlarging and the patient was painfully conscious of the loud thrill, it was decided to operate.

Operation.

An angular incision was made: its lower limb ran along the clavicle, while the upper followed the middle line of the sterno-mastoid muscle; a skin flap was turned up which included the wound of exit. The external jugular vein, which was greatly distended, was ligatured in two places and divided. The deep fascia was then incised, but in doing so the sac of the aneurysm, which lay immediately underneath, was opened and a great gush of blood followed. This was restrained by pressure with a finger while the clavicular fibres of the sterno-mastoid were divided.

An attempt was now made to reach the artery on the proximal side of the sac, but owing to the cramped space and infiltrated state of the tissues it failed, and a second

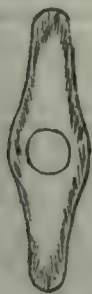


FIG. 17.—Splint for hallux valgus after operation.

puncture was made in the sac, the outflow of blood from which was restrained by the pressure of a second finger.

The clavicle was resected between the costo-clavicular and the coraco-clavicular ligaments. The subclavian vein was then exposed at its junction with the internal jugular vein, and in the angle formed by that junction the first part of the subclavian artery was isolated and divided between two silk ligatures outside the origin of the thyroid axis.

By means of the outermost ligature (left long to act as a tractor) the distal portion of the artery was pulled forwards and outwards until the inner edge of the scalenus anticus was reached; the superior intercostal artery was divided in the process. The muscle being divided with scissors, the second portion of the artery was pulled up, and it became possible to insinuate the finger between the third part of the artery and the first rib, and raise it and the sac forwards.

One blade of a long artery forceps was thrust in behind the raised mass, along the upper edge of the subclavian vein, and the forceps being shut, the tissue was divided parallel with the blades.

The bleeding, which had been considerable in spite of the digital pressure exercised on the holes in the sac, now ceased, and it was possible to separate deliberately the sac from the lower cords of the brachial plexus. A ligature was then placed on the uppermost part of the axillary artery, and the mass of tissue, which consisted of the aneurysmal sac, and the third, second, and part of the first portions of the subclavian artery, was completely cut away. The forceps, which had been applied along the subclavian vein, and which controlled a small hole in its wall, was replaced by a lateral ligature.

All the bleeding now stopped; the exsected clavicle was wired into position, and the skin flap was sutured back after the exit wound had been excised. None of the cords of the brachial plexus appeared to have been divided by the bullet, but the patient's condition and the infiltrated state of the tissues precluded very thorough examination.

Dr. Beattie administered the anaesthetic most skilfully.

Description of Parts Removed.

The sac lay between the third part of the subclavian artery and vein, and communicated with both. The aperture into the vein was fortunately small, and was situated about the point where the external jugular joins it. The sac wall was very thin. Its front part was formed by the deep cervical fascia; behind and above it adhered to the brachial plexus, while the first rib and clavicle had limited it below.

After-History.

There was some shock, but although the pulse could not be felt either at the wrist or at the bend in the elbow, or in the line of the brachial artery, no gangrene or even discoloration of the arm occurred. Slight oedema of the upper arm appeared about a week after the operation, but subsided in a few days.

The result of the replacement of the exsected clavicle was not successful; suppuration occurred in the wound after the lapse of ten days, and the bone, failing to unite, had to be removed nearly a month later.

On the twelfth day fairly free bleeding from the wound took place; it was stopped by pressure. During November and December the patient had six further haemorrhages, the blood on each occasion flowing from a deep sinus that probably led down to the ligature on the end of the subclavian artery. The bleeding could always be stopped by

pressure on the mouth of the sinus. The amount lost varied; on the fifth occasion it was so severe that the patient required intravenous saline infusion, and as a result of these losses of blood he became extremely anaemic and ill.

Re-ligature of Subclavian Artery.

The last haemorrhage occurred at the end of December, in the early hours of the morning. The case appearing desperate, one of us (V. B.) who was on duty at the time, determined to tie the innominate artery. An incision was made along the anterior edge of the sterno-mastoid, and from thence downward somewhat over the sternum. The lower portion of the common carotid was exposed and freed from its sheath, and, by means of a loop of silk passed under it, the vessel was pulled up until the point of origin of the subclavian artery was reached. A second loop was then passed under the latter vessel, and by making traction on both loops the innominate artery was brought fairly into view. It was then found that traction on the loop passed under the subclavian artery arrested the pulsation which till then had been visible at the site of the sinus. The innominate artery was therefore not tied, but a catgut ligature was placed on the subclavian about one-quarter of an inch from its origin from the innominate.

No ill results followed this operation, although the new wound suppurated slightly, nor was there any further bleeding from the sinus. A small amount of haemorrhage from the new wound took place some three weeks after the second operation, but there was reason to believe it was caused by the patient fingering the part.

Present Condition. Both wounds are practically healed. No abnormal pulsation can be found in the neck, nor any pulsation at all in the arm, which is normal in warmth and colour. The arm, however, is still paralysed, though there is some return of power in the muscles of the shoulder and the flexors of the forearm. There is loss of sensation over that part of the hand supplied by the ulnar nerve.

PREVIOUS CASES.

Several cases of arterio-venous aneurysm of the subclavian have already been published during the present war, but none of these had been operated upon. From the South African war one case is recorded by Makins, the history of which is very interesting.¹

Arterio-venous Aneurysm of the Subclavian.—This patient had a pulsatile swelling with a thrill which was considered to be an arterio-venous aneurysm of the right common carotid, just at its origin from the innominate artery.

No operation was performed, and the man was invalided out of the service. After a considerable period he improved sufficiently to be able to do light work, and although the swelling still remained, the thrill gradually disappeared.

Nine years afterwards he began to have cerebral attacks deemed to be due to small emboli originating in the aneurysm sac. Distal ligature of the common carotid was therefore performed, but the patient died during the operation. *Post-mortem* examination showed a large aneurysm of the subclavian artery. The communication with the vein had closed.

Traumatic Aneurysm of the Third Part of the Subclavian Artery.—A case of this condition, not, however, communicating with the vein, has been recorded lately.² Ligatures were placed on the first part of the artery and on the brachial artery, but the patient died of respiratory failure before the operation was concluded.

REMARKS ON THE CASE HERE RECORDED.

We decided to operate because (1) the sac was obviously enlarging, and (2) if the enlargement continued the difficulties of the operation would speedily have become so great as to make any such attempt useless.

A perusal of Makins's case—the only one in which the

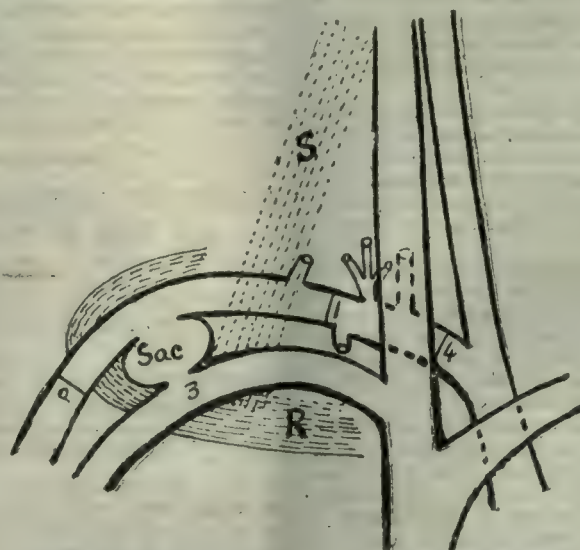


Diagram to show the position of the sac, and the ligatures. S = Scalenus anticus. R = First rib. (1) Position of first ligature applied to the subclavian artery; (2) ligature on uppermost part of axillary artery; (3) lateral ligature on subclavian vein; (4) position of second ligature applied to the subclavian artery.

after-history of an arterio-venous aneurysm in this situation is available—and the successful result we have attained appear to us to justify our decision.

We had to choose between, on the one hand, attempting to place a ligature on the artery on either side of the sac and, on the other, excising the whole sac and the involved portion of the artery. We chose the latter alternative because of the difficulty in isolating and ligaturing the artery sufficiently near to the sac (especially on the distal side, on account of the enormously dilated veins) to ensure against collateral channels re-establishing circulation into the sac.

If we ever have to perform the operation again we shall not replace the resected clavicle, for we think that if we had not done this the suppuration which determined the subsequent haemorrhages from the ligatured end of the artery might not have occurred. It would have been better not to have used silk for the main arterial ligatures. In military surgery, where asepsis of the wound can rarely with certainty be attained, catgut of an absorption rate of not more than twenty days should be used for large arteries, so as to minimize the duration of a ligature sinus if such occur, and which, so long as it exists, is a menace of haemorrhage.

NOTES ON A CASE OF PENETRATING WOUND OF THE HEART.

BY

R. GARSIDE DIXON, M.B., CH.B., CAPT. R.A.M.C.(T.F.),

SURGICAL SPECIALIST, CASUALTY CLEARING STATION (T.F.), ON ACTIVE SERVICE; HONORARY SURGEON, BINGLEY COTTAGE HOSPITAL;

AND

P. McEWAN, M.A., M.B., CH.B., F.R.C.S. EDIN.,

CAPT. R.A.M.C.(T.F.),

CASUALTY CLEARING STATION (T.F.), ON ACTIVE SERVICE; HONORARY ASSISTANT SURGEON, BRADFORD ROYAL INFIRMARY.

The following case is the only example of a wound of the heart in a series of 123 wounds of the thorax and its walls which have passed through this casualty clearing station during the last ten months. The great majority of penetrating wounds of the lungs have progressed sufficiently well to be sent to the base, and it is a recognized fact that most of these cases ultimately recover. Probably nearly all cardiac wounds produce death from haemorrhage too quickly to allow of the patients being removed alive even to a short distance from the battle-field.

In the case recorded here the patient was wounded, whilst in the upright position, by a rifle grenade, at 12.15 a.m., on March 23rd, 1916. He was admitted

to this hospital the same day at about 7 p.m., with a diagnosis of "gunshot wound of chest and right arm, compound fracture left elbow." His tally showed that he had had hypodermic injections of antitetanic serum (500 units) and of morphine ($\frac{1}{2}$ grain) at the field ambulance.

On admission, he was cold, suffering very severely from shock, short of breath, and cyanosed, but his lips were pale. Temperature 101° F., pulse 112, respiration 28. He was too ill for his wounds to be dressed then, but with brandy, salines, and hot-water bottles he improved sufficiently to have this done the following morning. His left arm, which was fractured, was transferred from a straight splint to a Thomas's, and the wound of his right arm, which was slight, was dressed. There was a small wound $\frac{1}{2}$ in. to the inner side and $\frac{1}{4}$ in. above the left nipple. A catheter was passed, and about a pint of normal urine drawn off. The patient was still very short of breath, and the dressing of his wounds was as much as his condition

In regard to ligature of the first part of the right subclavian artery, it is much easier, with an aneurysmal condition of the third part, to gain access to it inside the jugular vein and just outside its point of origin from the innominate, as was done at the second operation, than to secure it outside the jugular vein, as was done at the first operation.

At the bottom of the neck on the right side the jugular vein diverges outward from the carotid, leaving a small triangular space, crossing the base of which the subclavian artery will be found.

The upper end of the innominate artery and the root of the subclavian artery often lie well below the level of the manubrium sterni (they did in our case), but access to the latter can be attained by strong traction on the carotid and to the former by additional traction on the subclavian after this is found and isolated.

So resistant to trauma are large arteries that even strong traction on a considerable length of vessel stripped of its sheath and entirely isolated does not result in any harm.

REFERENCES.

¹ *Surgical Experiences in South Africa*, p. 142. ² *British Journal of Surgery*, vol. iii, No. 10.

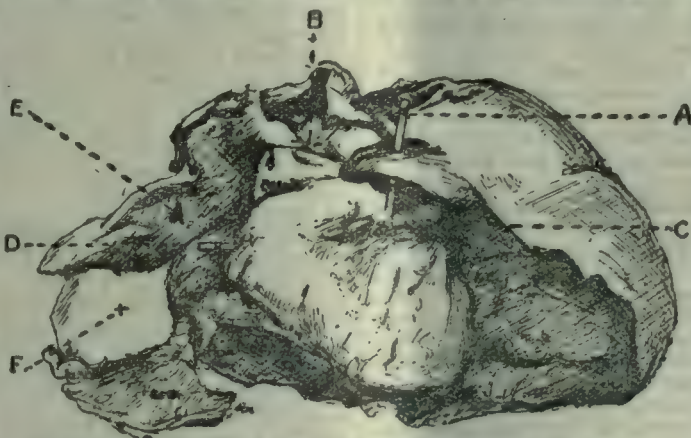
would permit of. At 2 p.m. the pallor increased, he became more cyanosed, and his breathing more difficult. His temperature rose to 102° F., pulse 130, respiration 45. At 6 p.m. morphine $\frac{1}{2}$ gr. was given hypodermically to relieve the distress caused by the shortness of breath. He was semi-conscious all the time he was in this hospital. He knew his name, regiment, and home address, but kept on trying to get out of bed, and was often delirious. He never complained of any pain either in the chest or arm, but suffered considerably from thirst. The heart sounds were normal. There were signs of fluid in both pleural cavities, more on the right than on the left side. There was neither cough nor expectoration. The cyanosis deepened, the pallor and dyspnoea increased, and he died at 11.45 a.m. on March 25th, having lived 59 $\frac{1}{2}$ hours after receiving the injury, and having during that time been conveyed from the regiment to the field ambulance, and from that unit to this clearing station.

Necropsy.

The body, which was examined four hours after death, before the onset of rigor mortis, was that of a well-built man of medium height and good muscular development. The skin was pale, but cyanosed, and there were no wounds other than the three already mentioned. The wounds of the left elbow and right arm were of no pathological interest, and could not have been factors of any importance in causing death. A small external wound, situated just above and internal to the left nipple, was traced transversely inwards for about two inches through the subcutaneous tissue and chest muscle; its subsequent course was through the sternum, leaving the internal mammary artery intact; then through the edge of the left lung, the pericardium, the right ventricle, and the pericardium; finally the missile was found imbedded in the right lung. It was

not removed for examination, but its small size could be judged from an x-ray photograph.

The left pleural cavity contained a considerable quantity of blood, but the lung was of nearly the normal size; the right pleural cavity was almost full of blood, and the lung was found to be collapsed. The blood was fluid except for a single clot on the right side. The left lung had a slit-like wound of entrance, detected with difficulty, half an inch from the margin, at the inner and lower part of the anterior surface of the upper lobe, and a larger wound of exit through the margin of the inferior surface; about half an inch of the lung tissue had been passed through. There was a patch of recent fibrinous pleurisy between the upper and lower lobes, extending for about 2 in. on to the anterior surface of the lower lobe. On the under surface of the middle lobe of the right lung, about half an inch from the inner margin, a small piece of metal could be seen lying in the lung substance. There was no recent pleurisy, but the upper and middle lobes were almost completely fused by dense old adhesions.



A, Probe through wound in left lung. B, Probe through two wounds in pericardium. C, Probe through entrance wound in right ventricle. D, Probe through exit wound in right ventricle. E, Piece of metal in right lung. F, Wad of cotton-wool to evert margin of right lung to show piece of rifle grenade.

Description of Cardiac Wounds.

The pericardium showed an entrance and an exit wound over the right ventricle. On opening the sac a small piece of khaki cloth was found, together with a small quantity of clotted and fluid blood. The pericardium presented the appearance of early pericarditis. The left ventricle was distended, but the right was partially collapsed, and near the centre of its anterior surface was a small circular wound of entrance which passed obliquely through the muscle to a wound of exit very near to the right border of the heart; an interval of an inch separated the two wounds, and round each was a small circular area of bruised tissue. The right ventricle was opened posteriorly and found to contain some very bright red blood clot. No wound was visible from the interior, and on passing a probe it was found that the wound passed through one of the lacunae between the pillars of cardiac muscle, having just penetrated the ventricular cavity.

The cause of death was severe haemorrhage, complicated with pulmonary collapse and interference with the heart's action. The enormous amount of blood in the pleural sacs came from the heart; the lung wounds were not capable of causing much haemorrhage. With each systole some blood would be forced through the small openings in the right ventricle into the pericardial sac, and from there blood would ooze through the pericardial openings into the pleurae. There was no attempt at closure of the openings by clot. Their small size accounts for the length of time the patient survived.

The occurrence of pericarditis and pleurisy (the latter being curiously localized) showed the beginning of an infective process.

The wounds of the left lung were no doubt closed by blood clot, while that of the right was kept open by the shrapnel on the surface causing collapse.

An x-ray photograph of the specimen was taken by Captain F. H. Gibson, R.A.M.C., and no foreign body other than the one described was found.

The specimen has been sent to the War Museum of the Royal College of Surgeons, London.

WHITE GANGRENE.

BY

MAJOR A. J. HULL, F.R.C.S., R.A.M.C.

In addition to gas gangrene and gangrene due to direct interference with the blood supply, septic gunshot wounds may be attacked by a very acute infective process which is a form of gangrene. The condition appears to be an acute streptococcal infection, and is, in appearance, not unlike phlegmasia alba dolens, but is attended by the local circumstances associated with gangrene and the general effects of an acute toxæmia.

This form of gangrene has only been seen in the lower extremity.

The skin is glazed and white, moist, cold, and pits on firm pressure. A very firm oedema is present, and the distal pulse in the limb cannot be felt. The glazed white appearance of the distended skin, instead of the usual redness, seems particularly characteristic. Early in the condition the patient is extremely ill, with clammy, sweating face, and running pulse. The condition is extremely fatal, and death occurs in about twelve hours. The infection is so rapidly fatal that little change in the colour of the limb has been noticed. In those cases which have survived somewhat longer, it has been found that, during the last few hours, the limb has become mottled black and the discharge exceedingly foul. No gas has been noticed in the discharge, and no crackling has been detected in the tissues. The appearance is somewhat suggestive of deep-seated pus, owing to the tension of the skin, but, on making an incision into the limb, the wound merely oozes serum.

In the more severe and extensive forms the infection is so severe and the patient's condition so serious that no treatment appears practicable.

Amputation gives the only chance of recovery, and is successful when the infection is more localized, as happened in Case I.

White Gangrene of the Leg.

CASE I.—Pte. S., wounded March 9th with rifle grenade, dressed at field ambulance and transferred to base. Shell wound of left leg with comminuted fracture of upper third of tibia and fibula, and flesh wounds in the region of knee. Leg swollen and white, extending well up to thigh, and looking like

phlegmasia alba dolens. Foot cold, and no pulsation to be felt in distal vessels of ankle; wound foul with sanious discharge; temperature 102°, pulse 124. Bacteriological examination showed streptococcus. Amputation through lower third of thigh; recovery (Lieutenant S.'s case).

CASE II.—Pte. L. was shot through the calf on September 24th and admitted to a base hospital on September 25th. There was a small wound of entrance and a wound of exit the size of half a crown, through which muscle bulged; the leg was white, the skin tense and cold. Incisions, 3 in. long, were made on each side through the bullet track, capillary bandages were inserted, and continuous saline irrigation applied. The next day the skin was much more swollen, it pitted on firm pressure, and had the appearance of a limb containing deep-seated pus but was white in colour. Very little pus came from the wounds; a thin, foul-smelling discharge exuded. The patient's temperature was 103°; he was restless, and his general condition was very much worse. Numerous incisions were made into the subcutaneous tissue. The patient's condition did not improve, the pulse became rapid, shock was very pronounced. The limb turned blotchy black and was extremely foul. The usual remedies were employed, including rectal saline injection. The patient died eight hours after the second operation.

CASE III.—Cpl. W., admitted to hospital suffering from a shell wound of thigh. There was a compound fracture of femur and severe destruction of the knee-joint. The wounds had been cleaned and dressed with cyanide gauze at a clearing station. About fifty-six hours after the injury the patient had a rigor. His temperature rose to 104° F.; vomiting and collapse occurred. The limb became cold and no pulse could be detected. The skin was white in colour, and a firm oedema rapidly occurred in the whole limb. No crackling was present, indicative of gas. The patient's condition did not admit of surgical interference; and he died twelve hours after the appearance of the gangrene. Bacteriological examination discovered streptococci in the blood and in the discharge from the wound.

SIMPLE AND INEXPENSIVE METHODS FOR
FERMENTATION TESTS AND FOR
OBTAINING CULTURES OF
ANAEROBES.

By J. M. BEATTIE, M.A., M.D.,

PROFESSOR OF BACTERIOLOGY, UNIVERSITY OF LIVERPOOL.

In most bacteriological laboratories the work during the war has been very much increased, and with the increased cost of apparatus and media various devices have had to be employed to reduce expenditure. It may, therefore, be of interest to record two methods which I am using, and which are simple, inexpensive, and, at the same time, efficient.

1. For Fermentation Tests.

For these I use small test tubes, which can be made in the laboratory from ordinary glass tubing of $\frac{1}{4}$ in. or $\frac{3}{8}$ in. diameter. Introduce into these tubes about $\frac{1}{2}$ c.cm. of any of the sugar media. These tubes, plugged and sterilized in the ordinary way, are inoculated with the organism whose reaction is to be tested, and then some sterilized vaseline, which has a melting point of about 55° C., poured into the tube. The vaseline solidifies and forms a plug, lying in contact with the fluid media. The tubes are then incubated in the ordinary way, and where gas is formed the vaseline plug is pushed up in the tube, and, if the media is cold when inoculated, there is sufficient absorbed oxygen to allow the free growth of the organism and to allow the reddening (the acid reaction) to show. In twenty-four hours, with the ordinary acid and gas-producing members of the typhoid-coli group, the reactions are very definite. Later, reduction takes place and the media becomes colourless, but if a hole is bored through the vaseline plug to allow ingress of air the red reaction reappears in a few minutes, starting at the upper part of the media and gradually spreading downwards. This method is simple and inexpensive, and it has the added advantage over the ordinary method that small quantities of gas, which may not be indicated by the ordinary Durham tube method, are always detected, the gas showing as small bubbles at the lower part of the vaseline plug. The method may be used for accurate estimation of the amount of gas produced by any given organism.

2. For Anaerobic Cultures.

Ordinary test tubes containing peptone broth or glucose peptone broth are used, and for the common anaerobes I find the peptone broth quite satisfactory. Melted sterilized vaseline is poured into the tube till it forms a

plug about $\frac{1}{2}$ to $\frac{3}{4}$ in. long. The broth and vaseline are then boiled for twenty to thirty minutes, so as to expel any absorbed air, and allowed to cool. The vaseline solidifies very rapidly and forms a very effective plug. The tubes can be kept for any length of time and are perfectly airtight.

When they have to be inoculated, they are put in a water bath at about 55° C. in order to melt the vaseline, and the infective material is introduced into the broth by means of a sterile pipette. Immediately after the tube has been inoculated it is my practice (though I think in most cases this is unnecessary) to heat the vaseline over the Bunsen flame before putting in the incubator, in case of infection of the surface vaseline during inoculation.

I have used the method for the common anaerobes, and I have never failed to get a good growth in twenty-four hours. The method has the advantage over the ordinary anaerobic methods of simplicity and cheapness, and I really adopted it because of the increased cost of and the difficulty of obtaining the reagents which are usually employed in anaerobic culture. It has a further advantage that the development of even mere traces of gas can be detected. For examination of the culture, the plan I use is to puncture the vaseline with a thinly drawn-out pipette sealed at the lower end, and constricted about half an inch from the sealed end. By pushing the pipette against the bottom of the tube it easily breaks at the constriction, and any quantity of the fluid culture can be drawn up. After the pipette is withdrawn the vaseline is melted and the tube is again tightly sealed.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

THE CAUSE OF APPENDICITIS.

PROFESSOR SHATTOCK'S paper in the Section of Pathology in the Royal Society of Medicine, which treats of the mechanical causation of appendicitis (p. 690), is of special interest to me. Having had it myself, a few facts as to my experience may help those who are trying to find out the true cause. Towards the end of 1881, when in practice at Eccles, I began to suffer from insomnia. If I fell asleep when I went to bed I awoke about 4 o'clock next morning, and could not sleep again; whereas if I did not sleep on going to bed, it was about 4 o'clock before I slept. That fact points to a periodicity which ought not to be overlooked. I did not feel ill, and went about my work as usual until about the middle of December, when I went to my ancestral home in Scotland for a holiday, hoping to get rid of the insomnia. While there I was out all day, generally with the gun. I ate as usual and the bowels acted every morning, but I was conscious that there was some difference in the motion. It was a spluttering motion, from flatus passing with the faeces. After ten days I returned to Eccles on December 24th. Having had breakfast before starting, I might have had a sandwich on the journey, and when I got home I had an egg, a slice of white toast, a cup of tea, and went to see a patient who was very ill. Going to bed at my usual time I fell asleep, and awoke about 4 a.m. with pain in the left side of the abdomen. I took a dose of castor oil, and was sick, but had no motion. In three days, having been in bed all the time, appendicitis was diagnosed by the late Sir William Roberts, who advised me to keep to peptonized milk as food and to have morphine to relieve pain. I had general peritonitis, and for twelve months afterwards could feel a lump, the size of a hen's egg, just inside the superior crest of the ilium, where, according to my observation, and not at McBurney's spot, the appendix lies. Having been about three weeks in bed I went to Scotland to recruit. I was astonished to find that my memory, which was very good before that illness, had failed. I have never had another attack, but ever since have had to be careful as to diet, and was induced to study the physiological action of foods for my own sake. As a result I published what I called *A Doctor's Discovery*, which, although not new, was quite original on my part; and there I think I prove that food is the chief cause of disease. Having got rid of all unnecessary fat I can feel my caecum, and, watching the effect of food on it, I find that vegetables

make it large and flabby, just like an uncontracted uterus after confinement; while on fruit it is small and firm, like the well-contracted uterus.

It was by mere accident that I came to the conclusion that animal food was not good for me, and I have been a vegetarian since 1896.

Professor Shattock from his researches concludes that vegetarianism—the recent rise of which he has recognized—may be the cause of appendicitis, leading to an increase in the formation of appendicular concretions. That conclusion, taken in connexion with my observations on the different effect of vegetables and of fruit upon the caecum, points towards food as having to do with the increase in the number of cases of appendicitis, and may help to direct the attention of physiologists to the physiological action of our common foods—a subject hitherto entirely neglected.

Denholm, Hawick.

JOHN HADDON, M.D.

Reports of Societies.

TOXIC CAUSES OF IDIOCY AND IMBECILITY.

At the ordinary quarterly meeting of the Medico-Psychological Association of Great Britain and Ireland, held at the rooms of the Medical Society of London on May 16th, when Lieutenant-Colonel DAVID G. THOMSON, President, was in the chair, two papers were read by Dr. Orr (Prestwich) and Major Rows, R.A.M.C. (Maghull, Liverpool), on experimental toxic lesions in the rabbit's brain and their bearing on the genesis of acquired idiocy and imbecility in man. Dr. ORR said that the communication was a continuation of experimental work on the action of bacterial poisons on the nervous system. In the former work the induced toxic action was studied in the spinal cord only; in the present series the research had been extended to the brain, a capsule containing *Staphylococcus aureus* being placed in contact with the common carotid artery in the neck. The positive results so far obtained helped to explain the pathogenesis of certain obscure lesions of the central nervous system in man. Rabbits were used for experiment. The alterations seen as the result of the poison were typically those of coagulation necrosis. The neuroglia participated actively in the inflammatory reaction, and around the area of softening there was found to be much neuroglial proliferation and hypertrophy. There was a high degree of proliferation of the adventitia of the small vessels in the immediate vicinity of the softening. The research showed that the two factors, degree and situation, could produce dissimilar pathological results although the pathogenesis was the same. Applying this to clinical neurology it became evident that certain nervous syndromes, though widely different in symptomatology, were, pathogenetically, one and the same disease, the different symptomatology being largely due to the anatomical site of the lesion. The experiments also shed light on the genesis of the infantile cerebropathies, now regarded as due to toxic-infections of medium intensity contracted between the fifth and the eighth month of fetal life, or, more rarely, in early infancy.

Major Rows, M.D., said that the term "vegetative system" comprised both the sympathetic and the autonomic systems. Under the term "vegetative nervous system" were included all the fibres which went to the organs having smooth muscles, such as intestines, blood vessels, glands, ducts, and skin, as well as the nerve structures exerting a secretory influence upon glands; it also embraced certain organs with cross-striated muscles, such as the heart, the beginning and the end of the alimentary canal, and the muscles of the genital apparatus. Anastomoses were common among the nerve fibres of the vegetative system. This system also had a much more independent action, and it reacted to drugs in an altogether different manner; indeed, it was from the latter that so much had been learnt about it. A sort of balance seemed to be maintained between the autonomic and the sympathetic systems, so that one assumed an exaggerated action if the influence of the other were interfered with. Both systems were much affected by the secretions of various endocrine glands. Dr. Orr and he had demonstrated that changes could be produced both in the vegetative system

and in the central nervous system by placing a capsule containing pathogenic organisms in the neck, near the carotid artery, or in the abdominal cavity, and they suggested that the disturbances in this system were closely connected with the origin of the lesion in the central nervous system, a view which was supported by clinical evidence, instances of which were given.

Rebieloz.

ABYSSINIAN MEDICINE.

ABYSSINIA is a country virtually untouched by political, social, or scientific evolution; it remains as it was three thousand years ago, without any change beyond a superficial Christianity. The native lives a simple life in a healthy climate at an altitude of 3,000 metres. He is not the prey of alcohol, and is comparatively free from cancer and tuberculosis. His natural indolence makes him patient in illness, and this is an aid to recovery. He holds scientific medicine in contempt, and places his trust largely in amulets, charms, and superstitious rites. But he also has a traditional pharmacopoeia of his own. An interesting account of Ethiopian medicine is given by Dr. MÉRAB,¹ whose position as private physician to the Emperor of Abyssinia, Menelik II, and head of the dispensary installed in the palace at Addis Ababa, gave him ample opportunities of studying the peculiarities of the native constitution. The most common disease in Abyssinia is tapeworm (*Taenia saginata*). The favourite remedy is koussou, which has sufficient reputation as an anthelmintic in this country to be maintained in the *British Pharmacopoeia* 1914. Notwithstanding the severity of its purging action it is often taken at regular intervals by Abyssinians who are free from the worm. Unwelcome visitors are told that the master of the house has taken koussou, as a formula equivalent to "not at home." Butter which has become rancid from long keeping—it may be ten years or more—is next in favour, either alone or mixed with honey. This "medicated butter" is largely used as a remedy for all sorts of ailments, notably for malaria. Syphilis is common, but the disease is generally mild among natives, though it is very severe in Europeans who contract it from Abyssinian women. Arterio-sclerosis, gout, and rheumatism are rare. Mérab estimates that there are one or two lepers in every thousand of the population of Abyssinia, making a total of 20,000 in the whole country. No measures are taken to stamp out the disease. Bone-setting of a rough nature is largely used among some tribes, who have also a certain skill in eye surgery. Massage is used in cases of recently consolidated fractures, unreduced dislocations, sprains, contusions, and neuralgic pains. Bullets are said to be extracted with the aid of a fly called *Ouagimbit*, which is placed on the wound and kept there till, in four or five days, it has eaten its way through to the foreign body, which is then removed with forceps! In battle bleeding is stopped with fresh dog's dung and a tight bandage or with boiling oil. On the whole Mérab's testimony goes to show that the Abyssinian suffers from few diseases in any way peculiar to himself, and is enviable free from many which afflict more highly civilized peoples.

OBSTETRIC EMERGENCIES.

THE call for a second edition of *The Difficulties and Emergencies of Obstetric Practice*,² by Dr. COMYNS BERKELEY and Dr. VICTOR BONNEY, within two years of its appearance shows that the profession in general has shared the favourable opinion of it which we expressed in the review of the first edition. The only changes in the present volume are the addition of some illustrations and the supplementing of the letterpress in some points. The whole work has been thoroughly revised at the same time.

¹ *Médecine et Médecine en Éthiopie*. Par le Docteur Mérab. Paris: Vigot Frères. 1912. (Demy 8vo, pp. 218. Fr. 4.)
² *The Difficulties and Emergencies of Obstetric Practice*. By C. Berkeley, M.A., M.D., M.C. Cantab., F.R.C.P. Lond., M.R.C.S. Eng., and V. Bonney, M.B., M.D., B.Sc. Lond., F.R.C.S. Eng., M.R.C.P. Lond. Second edition. London: J. and A. Churchill. 1915. (Roy. 8vo, pp. 818; 302 figures. 24s. net.)

To those who are unacquainted with it the book may be cordially recommended as an entirely practical work of reference. The authors have been careful never to lose sight of the aim of the book as expressed in the title, and have scrupulously avoided making it anything of a textbook. The arrangement and printing are excellent, the index is full and exact, and the numerous illustrations combine as much scientific accuracy as is compatible with the almost diagrammatic clearness essential in a work of the kind. The result is that the busy practitioner who wishes to refresh his knowledge or to receive guidance on any difficulty or emergency likely (or unlikely) to be met with in his obstetric practice may do so with the minimum of trouble and a maximum of profit.

HANDBOOKS OF MEDICINE.

DR. WILSON's admirable *Handbook of Medical Diagnosis*,³ first issued in 1909, is now in its fourth edition—a fact that may be taken as proof of the practical merits of the book. It is divided into four parts. The first and shortest of these is on medical diagnosis in general. The second, 350 pages in length, describes the methods of physical examination and laboratory procedures useful in diagnosis. The third, on symptoms and signs, is rather shorter, and gives an account of the ways in which diseases of the various systems of the body should be investigated. The fourth part, 800 pages in length, is to all intents and purposes a textbook of medicine from which all descriptions of treatment have been omitted. Thus it appears that this *Handbook* covers the ground usually occupied by two volumes—one on methods of diagnosis, the other on medicine in general, barring treatment. The text is clearly written, and errs perhaps on the side of undue fullness; it would be more impressive and convincing if the sentences and paragraphs could be made shorter. The matter of the text attains a high level of excellence, and seems well up to date. It is satisfactory to note that Dr. Wilson recognizes Poynton and Paine's *Diplococcus rheumaticus* as the cause of rheumatic fever; this recognition has long been delayed in America. We are not sure that we agree with the author in his estimate (p. 179) of the frequency with which double aortic disease (stenosis and reflux) occurs, as compared with the frequency of the double aortic ("to-and-fro") murmur. No reference to Graham Steel's diastolic murmur of relative pulmonary incompetence seems to be made, although the murmur is not rare in cases of well-marked mitral disease with considerable hypertrophy of the right ventricle. The book would gain if the magnifications of the figures of microscopic appearances were always inserted, so that the student could form some estimate of the real size of the objects depicted. These, however, are but unimportant defects in what is an excellent manual for advanced students and practitioners of medicine, and may be warmly recommended to such readers.

The fifth edition of *Wheeler's Handbook of Medicine*,⁴ edited by Dr. W. R. JACK, has been revised, added to, and brought up to date. It gives a brief and workmanlike account of the subject in the condensed and tabulated form that is believed to be appreciated by medical students. It contains a great deal of useful information for examinees, and a fair amount of space is given to treatment. Like all books of its class it appeals to the memory rather than the intelligence.

BIOLOGY.

PROFESSOR CALKINS has produced a work on *Biology*⁵ which should be read by medical students early in their careers. It does not attempt to cover the ground of any English examination; it is valuable because it is a sound introduction to the principles of biology and the essential results of modern thought and experimental work. Various

³ *A Handbook of Medical Diagnosis*. In Four Parts: I, Medical Diagnosis in General; II, The Methods and Their Immediate Results; III, Symptoms and Signs; IV, The Clinical Application. For the Use of Practitioners and Students. By J. C. Wilson, A.M., M.D. Philadelphia and London: J. B. Lippincott Co. 1915. (Med. 8vo, pp. 1463; 14 plates, 408 figures. 25s. net.)

⁴ *Wheeler's Handbook of Medicine*. By W. R. Jack, B.Sc., M.D., F.R.F.P.S.G. Fifth edition. Edinburgh: E. and S. Livingstone. 1916. (Cr. 8vo, pp. 566. 8s. net.)

⁵ *Biology*. By G. N. Calkins, Professor of Protozoology in Columbia University. New York: H. Holt and Co.; London: G. Bell and Sons, Ltd. 1915. (Demy 8vo, pp. 249; 101 figures. 7s. 6d. net.)

types of invertebrate animals and one or two plants are described, not always exhaustively, but rather as illustrations of some general principle of biology. Thus, in the description of the anatomy of the earthworm, emphasis is laid on the nervous system, the significance of the neurone, and of a reflex arc. Again, the chapter on classification and the phyletic significance of homologous organs leads on to a description of the lobster, a well-chosen example of serial homology. It is natural that Professor Calkins should explain the conjugation and division of *Paramecium* in terms of the cell theory, the individual, and sex, but it should not be forgotten that an increasing number of biologists oppose him in this, and refuse to describe these phenomena as sexual, regarding the protozoa as non-cellular rather than unicellular. Professor Calkins has the valuable gift of explaining matters of theory clearly to the unlearned, and within this short volume he introduces his pupils to all that is of highest importance in the principles of zoology, botany, and physiology; his subjects range from the differentiation of cells and tissues, the action of crystalloids, and the effect of enzymes on protoplasm, to parasitism, immunity, and the Mendelian theory of heredity. The index is adequate and the stereographic drawings of internal anatomy are excellent.

Dr. CHARNOCK BRADLEY'S *Structure of the Fowl*⁶ deals with its subject quite accurately, system by system, but we do not understand for what class of student it was written. Some of the common stumbling-blocks, the disposition of the peritoneum and the nature of the coelom, for instance, are slurred over, while other matters are discussed in a manner suited to a student who has not yet mastered the anatomy of the much-dissected frog. It is a pity, too, that an occasional word is not given to the physiology of the parts described; we notice, for instance, that when the author describes the anatomy of the syrinx he makes no mention of the fact that it is the bird's organ of voice. The author does not always express his meaning with clarity, and in a few cases is definitely careless—for example, in his use of "cranial" for "anterior," or, as the Americans would say, "cephalad." The chapter devoted to the embryology of the fowl is one of the most successful in the book, and the subject is by no means an easy one to summarize. It would perhaps have been better to say either a little more or a little less about the organogenesis of the urinogenital system, and the pro-, meso-, and meta-nephroi and their ducts. The figures are good, and the diagrams of sections, histological and embryological, are an unusual but not unsuccessful feature of the book; if a fault must be found, it is that they are a little too simple; some of the cells lack walls, others nuclei. The book has an adequate index.

The *Textbook of Economic Zoology*,⁷ by KELLOGG and DOANE, gives a broad outline of the whole animal kingdom, introducing the student first to a few types, the amoeba, the frog, and others, and then to each phylum in systematic sequence. Special attention is given to parasites and species of economic importance; the second part of the book is mainly devoted to insects which carry disease, or attack the orchard, the crops, or "garden truck." Short outlines are also given of some of the methods usually employed in controlling insect pests. All this information appears to be reliable, but the book undoubtedly suffers from a fault which is common to many elementary textbooks. Too much ground is covered; its educational value would have been greatly enhanced if the authors had been content to omit some of the smaller phyla and given more space to selection, variation, heredity, parasitism, and other general topics, some of which are discussed so shortly that they will hardly interest the elementary student, to whom the book is addressed. The illustrations, taken mainly from common American animals, are excellent, and the authors evidently desire to make their pupils study in the field, and think for themselves. Those parts of the book which are devoted to the pathogenic protozoa and the transmission of disease by insects are

rather uneven; for instance, the majority of the trypanosome diseases of domestic animals are mentioned, but there is no reference to the fact that lice carry typhus. As the field which this excellent manual covers is so wide, its value would have been greater if a select bibliography had been appended to it.

Under the title of *Modern Problems of Biology*⁸ Professor MINOT of Harvard University has published a very interesting course of lectures delivered by invitation of the Grand Duke of Saxe-Weimar at Jena, in December of 1912. The lectures were given before a mixed audience, a fact which must have added considerably to the difficulty of explaining so clearly the results of the latest research into the most intricate problems of biology. Special prominence is given to the work of American investigators, in view of the probability that such work would be less known in a foreign country than that of its own men of science. An introductory chapter deals with "the new cell doctrine," identifying as the chief problem of biology the investigation of the structure and composition not of cells as such, but of the living substance of which they are composed. The second lecture deals with cytomorphosis, the foundation of morphology, and its four stages—the undifferentiated or embryonic, the differentiated, the degenerative, and the culmination of this last in death. In the two succeeding lectures facts are adduced in support of the natural immortality of unicellular organisms, death being, in the author's opinion, the price paid by multicellular organisms for that higher form of existence which they owe to co-operative differentiation. The question of the function of conjugation is raised, the author citing the observations of H. S. Jennings as to the increased variability of *paramecium* after conjugation, as compared with ordinary division. On this view sexual reproduction may be conceived as a modified form of conjugation, as it also favours variability. In a chapter dealing with the determination of sex, an account is given of the important discovery by Professor C. E. McClung of the part taken by the accessory chromosomes in the sexual cells of certain insects. In the second division of the spermatocytes the accessory chromosomes each pass undivided into one of the daughter cells. Thus there are produced two distinct forms of spermatozoa, and, contrary to McClung's first conclusion, it has been demonstrated by E. B. Wilson that those which contain an accessory chromosome determine the formation of females. In his last lecture Professor Minot, dealing with the conception of life, expresses the conviction that the phylogenesis of vertebrates is dominated by the evolution of consciousness. Consciousness he regards not as a form of energy but as a something *sui generis*, revealing itself by the transformations of energy which in some unknown way it brings about.

NOTES ON BOOKS.

THE handbook, *Alcohol and the Human Body*,⁹ by Sir VICTOR HORSLEY and Dr. MARY STURGE, has now reached its fifth edition. It is issued at a price which places it within the reach of all. The case against alcohol could not be put more forcibly and fully than in these pages. The attitude assumed is very uncompromising, as may be judged from the statement on page 326, that "what is commonly described as moderate drinking has a most injurious influence on health and life."

The third part of Mr. JACKSON CLARKE'S book on *Protozoa and Disease* came out in 1912. The fourth part has now been published, under the title *Rhizopod Protozoa*.¹⁰ The author now finds himself in a position definitely to affirm that the protozoa he finds to be the cause of such diseases as cystic ureteritis, molluscum contagiosum, and cancer are in truth protozoa akin to

⁶ *Modern Problems of Biology*. By C. S. Minot, LL.D., D.Sc. Oxf. Philadelphia: P. Blakiston's Son and Co. 1913. (Demy 8vo, pp. 132; 53 figures. 1.25 dols. net.)

⁹ *Alcohol and the Human Body*. By Sir V. Horsley, F.R.S., F.R.C.S., M.B., B.S. Lond., Hon. M.D. Halle, etc., Major R.A.M.C., and Mary D. Sturge, M.D. Lond.; with a chapter by A. Newsholme, C.B., M.D., F.R.C.P., D.P.H., and a chapter written in collaboration with Sir L. Rogers, K.C.I.E., Lieutenant-Colonel I.M.S., M.D., F.R.C.S., etc. Fifth edition, enlarged. London: Macmillan and Co., Ltd. 1915. (Cup. 8vo, pp. 367; 39 figures. 1s. net.)

¹⁰ *Rhizopod Protozoa: The Cause of Cancer and other Diseases*, being Part IV of *Protozoa and Disease*. By J. Jackson Clarke, M.B. Lond., F.R.C.S. London: Baillière, Tindall, and Cox. 1915. (Cup. 4to, pp. 101; 67 figures. 7s. 6d. net.)

⁷ *The Structure of the Fowl*. By O. C. Bradley, M.D., D.Sc., M.R.C.V.S. The Edinburgh Medical Series. London: A. and C. Black. 1915. (Cr. 8vo, pp. 164; 75 figures. 3s. 6d. net.)

⁸ *Elementary Textbook of Economic Zoology and Entomology*. By V. L. Kellogg and R. W. Doane. London: Constable and Co., Limited. 1915. (Cr. 8vo, pp. 542; 245 figures. 6s. 6d. net.)

mycetoza. He holds that our imperial attack on the cancer problem has been a failure. His book is excellently illustrated; the problems with which it is concerned are largely matters for microbiologists and microscopists to decide, for they turn on the interpretation of microscopical appearances, a subject on which opinions are notoriously likely to differ.

A Manual for Midwives,¹¹ by Drs. C. N. LONGRIDGE and J. B. BANNISTER, is a practical book written in clear language, and with the essential points printed in strong type so that they cannot be easily overlooked. That the book has already reached a second edition proves that it has met a real want. We are inclined to think that the frontispiece, excellent though it is, may be a little confusing to some of the readers, as it shows the head of the fetus in the upper part of the fundus uteri. An illustration in so prominent a place is seen before the text is read, and may lead a beginner to think that this is the normal position of the fetus *in utero*. We feel that in all manuals for midwives every possible element of confused thought should be avoided.

Chestnut pudding on the dinner table is all very well and is in its place, but such chestnut pudding as Mr. GEOFFREY RHODES¹² offers us in literary form is neither appetizing nor digestible. His book *Mind Cures* is made up mainly of Early Victorian platitudes interspersed with anecdotes from John Abercrombie, W. B. Carpenter, Hack Tuke, and other worthies. If the anecdotes do not illustrate the thesis that Mr. Rhodes seeks to inculcate, that is not the fault of the anecdotes, many of which are quite good, or were, until they were worn out, but because it is not clear what thesis he desires to inculcate.

¹¹ *A Manual for Midwives*. By C. Nep an Longridge, M.D. Vict., F.R.C.S. Eng., M.R.C.P. Lond., and J. B. Bannister, M.A., M.D., B.C. Camb., M.R.C.P. Lond., F.R.C.S. Edin. Second edition. London: J. and A. Churchill 1915. (Cr. 8vo, pp. 339; illustrated. 3s. 6d. net.)
¹² *Mind Cures*. By Geoffrey Rhodes. London: Methuen and Co., Ltd. 1915. (Crown 8vo, pp. 286. 5s. net.)

ROYAL MEDICAL BENEVOLENT FUND.

At the meeting of the committee, held on May 9th, twenty cases were considered and £195 voted to fifteen of the applicants. The following is a summary of the cases:

L.S.A. Lond. who had practised at Hereford. Has now joined the R.A.M.C., and his inclusive pay is 18s. 6d. a day. He pays 17s. 6d. per week for a cottage. He gave up a practice worth £80 a year. Is married, and has one son, aged 16, at school at Dover, where the fees are £120. Applicant requires help to finish the education of his son. The boy has gained two scholarships worth £30, and if the Fund could provide £30 he could manage. His income is not sufficient to meet his expenses, which he puts down at—son £120, wife £100, self £100. Case sent by the Professional Classes War Relief Council. Voted £10 from the Emergency Fund and referred to the Guild.

Widow, aged 60, of L.R.C.S. Ire. who practised at Little Sutton and died in 1900. Applicant received about £25 per annum from property which was mortgaged, but owing to this being recalled, and the rate of interest on the new one increased and heavy repairs, it has taken the proceeds (£25). She has also taken in boarders, but recently has not been successful. Owing to this, the high price of food, and failing health, she finds herself in financial difficulties. Rent paid, £42 11s. per annum. Voted £10.

Widow, aged 56, of M.R.C.S. Eng. who practised at Bradworthy and died in 1908. Applicant has lost through bad investments all her late husband left. Has now lost her mental faculties. Has two daughters, aged 30 and 21, both governesses, who earn together £90, and one son, aged 26, single, an engineer with £160 per annum, and who provides a home for his mother, and the daughters give her £32 10s. Friends give £39. Referred to the Guild.

Widow, aged 70, of M.R.C.S. Eng. who practised at Liverpool and died in 1880. After the death of her husband she earned a living by taking in lodgers. One of her sons qualified as a medical man, and she kept house for him, but owing mainly to overwork through the war he died early this year, and all he left was an insurance of £250 which went to his mother. The applicant proposes to try and take lodgers again, but for the present has her son's house rent (£71 10s.) on her hands. Voted £10.

Widow, aged 57, of L.R.C.P. Edin. who practised at Blackburn and died in 1902. Used to earn a living by looking after children while their parents worked in the cotton mills, but owing to ill health has had to give this up. Has one daughter, aged 19, a shop assistant, who earns 15s. per week. This is their sole income apart from the fund. The Manchester Branch of the Guild speak well of this case and help a little. Previous relief, twice, £24. Voted £15 in twelve instalments.

Daughter, aged 69, of M.R.C.S. Eng. who practised at Cranbrook and died in 1890. Applicant is not very bright mentally,

and quite unable to work. She has an annuity from another charity, £30. She has to pay £1 per week for board and lodging, and as the landlady with whom she lived has just died she may have to pay more. She is a difficult person to get on with. Previous relief, five times, £60. Voted £12 in twelve instalments.

Daughter, aged 54, of M.R.C.S. Eng., L.R.C.P. Dublin, who practised at Rickmansworth and died in 1901. Applicant was left quite unprovided for, and suffers from arthritis and fibrosis, etc. Only income £39 from a relative. Pays £13 for rent of one room. Relieved three times, £30. Voted £10 in two instalments, and referred to the Guild.

Widow, aged 62, of M.D., Ch. McGill, who practised at Waterloo, Liverpool, and died in 1914. Owing to the very long illness of her late husband he was unable to provide for his family. There are five children, aged 30 to 38. The two sons are abroad and unable to help, and of the daughters, one is suffering from tuberculous kidney, another is dyspeptic, and the eldest is the only wage earner, and has £91 per year; £29 paid in rent. Relieved once, £18. Voted £18 in twelve instalments, and referred to the Guild.

Daughter, aged 69, of L.S.A. Lond. who practised at Christchurch and died in 1880. Has a life interest in an old house at Christchurch, but owing to increasing expenses does not benefit from it. Lived with a sister, recently dead, who had an artist's pension of £50, which went into the general fund. Applicant earns a little as an artist, but finds it very difficult to obtain commissions at present, and her eyesight is failing. Relieved once, £18. Voted £18 in twelve instalments.

Daughter, aged 44, of M.D. Aberd. who practised at Glasgow and in Australia and died in 1891. Applicant was without any means, and trained as a masseuse, and was able to earn her own living until her health became impaired two years ago, and was then only able to take occasional work. Has recently had diphtheria, and is now recovering, and hopes to work again soon. Relieved twice, £20; last 1914, £10. Voted £10.

Daughter, aged 60, of M.R.C.S. Eng. who practised at Blackheath and died in 1880. Applicant mentally deficient, and has to be provided for by a sister who has an interest in a girls' school, and has a difficulty in making ends meet, and the help previously given has been greatly appreciated. Strongly recommended by the Guild. Relieved eight times, £69; last £10, April 2nd, 1915. Voted £10 in two instalments.

Widow, aged 40, of L.R.C.P. and S. Edin. who practised at Clifton, co. Sligo, and died in 1912. After her husband's death applicant opened a sweet shop in Edinburgh, and managed to get on until she had to undergo an operation in May, 1915. The Fund then made her a grant of £10. In April, 1916, her shop was blown up by a bomb from a Zeppelin, and all her stock and furniture destroyed, and she was not insured. Now wants help to re-establish herself. Postponed for further inquiries.

Daughter, aged 61, of L.S.A. Lond. who practised at Cheadle and died in 1874. Was left totally unprovided for, and, owing to ill health, has never been able to undertake permanent work. Earns a few pounds a year by sewing, and a friend provides £25 per year. Rent 4s. 9d. per week. Relieved ten times, £88; last £12 12s., May, 1915. Voted £12 in twelve instalments.

Daughter, aged 65, of M.D. St. Andrews who practised at Dover and died in 1881. Has endeavoured to earn a living by conducting a servants' agency, but during the last two years, and especially since the war, has been very unsuccessful. She has also been in the habit of taking in some boarders, but these have ceased. Relieved twice, £20; last £10, May, 1915. Voted £10.

Widow, aged 49, of L.S.A. Lond. who practised at Leyton and died in 1914. Was left without any means with five young daughters. On the death of her husband it was discovered that the practice was much involved, and had to be sold to pay the creditors. Her brother, a medical man, bought the practice with a view of helping his sister and her children, but owing to the high salary that had to be paid to a locum, and the increased cost of drugs, the practice was not paying. Help wanted towards the education of the children. Previous relief, three times, £25. Voted £10.

M.R.C.S. Eng., married, and who had practised at Manchester and London. Owing to ill health unable to earn anything, and has lost all his savings. Only income an old age pension. Relieved twice, £19 10s. Voted £18 in twelve instalments, and referred to the Guild.

Wife, aged 50, deserted by her husband, who is an M.R.C.S. Eng. Has no means, and is a chronic invalid. Has one daughter, aged 22, who nurses her mother, and has a few day-school pupils, from whom she receives 6s. 6d. per week, of which 5s. has to be paid in rent. Relieved three times, £36. Voted £12 in twelve instalments.

Subscriptions may be sent to the honorary treasurer, Dr. Samuel West, at 11, Chandos Street, Cavendish Square, London, W.

The Royal Medical Benevolent Fund Guild is now called upon, as a result of the war, to deal with many widows and children who, in happier times, would not have thought of asking for assistance. It is glad to receive secondhand clothing and household linen. The class of clothes most wanted is that suitable for boys and girls working in offices, for women, and for old men. The gifts should be sent to the secretary of the Guild, 43, Bolsover Street, W.

British Medical Journal.

SATURDAY, MAY 27TH, 1916.

THE ENROLMENT SCHEME AND THE MILITARY SERVICE ACT.

THE Military Service Bill, when it left the House of Commons last week, contained no provision for dealing with the special circumstances attending the recruitment of medical officers for the army. In the House of Lords a new clause was introduced into the bill by the Government spokesman, Lord Sandhurst, at the instance of the Army Council. In the House of Commons it was carried, after a division, by 163 to 42. It forms part of the scheme of the Army Council for obtaining doctors for the army. They are needed to serve as doctors with commissions in the R.A.M.C. and not as ordinary combatants. The clause provides means whereby medical officers needed for service in the army may be selected with due regard to each of three considerations—the needs of the medical services of the forces; the medical needs of the civil population; and the financial and other circumstances of the individual doctor. The necessary adjustments can only be effected by a body which, in the first place, can make arrangements for carrying on the work for the civil population of the man selected to accept a commission in the medical service; which, in the second place, has local knowledge at its disposal; and which, in the third place, is capable of considering the problem as it arises in the different areas, from a central standpoint and on a comparative basis. The local tribunals under the Act are obviously not bodies capable of adjusting the matter, for they can only consider each case from its strictly individual and local aspects, and can do nothing in the way of providing for the carrying on of the work of the doctor who joins the medical service of the army or navy. Nor are they in a position to discover the real facts as to his position. They will not, for instance, know whether arrangements can be made for his work to be done by neighbouring colleagues, or for part of the income from that work to be secured for him or his wife during his absence. A local tribunal, being unable to judge whether a doctor could be spared without grave injury to the civil needs or without involving him in undue financial hardship, might therefore decide to exempt a doctor who could really be spared, with the result that some other practitioner would be taken whose departure would be seriously injurious to the medical needs of the civil population, or to whom the personal hardship would be much greater.

The new clause provides "for the establishment of professional committees to deal with claims for exemption made by duly qualified medical practitioners," and directs that any application made by a medical practitioner on any ground other than that of conscientious objection shall be referred by the tribunal to the appropriate professional committee, and that the recommendation of this committee shall be binding on any tribunal. The necessary machinery already exists in the professional committees which, at the request of the War Office, have been for some time past organizing the medical profession for war

purposes. The enrolment scheme which they have established is designed to enable the medical services of the navy and army to obtain the medical men they need and to ensure that the medical officers shall be selected in a manner to avoid needless injury to the medical requirements of the civil population, while having regard to the individual doctor's circumstances.

As readers of this JOURNAL are very well aware, enrolment under the scheme means that the enrolled doctor gives an undertaking to accept a commission in the Royal Army Medical Corps or, if he prefers, in the Royal Naval Medical Service if and when he is offered one. Though a large proportion of the doctors of military age and capacity have accepted this obligation, there is still a substantial number who have not done so. The reasons for this abstention no doubt vary in individual cases, but it is believed that the total number has been considerably affected by the possibility of resort to the local tribunals in the expectation of obtaining exemption from service, or the offer of service.

It is believed that the clause will also influence the decision of doctors between 41 and 45, who, though not within the compulsion of the Military Service Act, are eligible for commissions in the R.A.M.C. As is well known, a considerable number of men between these ages, both single and married, have already enrolled, but some have made the not unnatural condition that their offer of service should be contingent on the younger men being selected first. Evidence, in fact, has been afforded during the last few months that medical men between 41 and 45 may be deterred from enrolling by the apprehension that younger and perhaps unmarried members of the profession in the district may obtain exemption from the local tribunals. It is stated that some have in certain districts already done so, to the detriment of the enrolment scheme. It is clearly of great importance to secure as large an enrolment list as possible, since the wider the field of selection the better can the medical needs of the army be met, and the smaller will be the risk of endangering the civil needs in any area, or inflicting avoidable hardship on individual practitioners.

The only professional committees in England and Wales which possess the knowledge required to formulate recommendations to tribunals are the Central Medical War Committee and the reference committee appointed by the Royal Colleges of Physicians and Surgeons for the special consideration of the consultant and teaching staffs of the metropolitan hospitals. In Scotland the body corresponding to these is the Scottish Medical Service Emergency Committee. These two committees have been working for the War Office for nearly a year, and also for the Central Tribunal, of which Lord Sydenham is chairman, established under the principal Act (the first Military Service Act, 1916). The work of the Scottish Medical Service Emergency Committee is very thoroughly organized, and it has obtained accurate information with regard to all localities in Scotland. In England and Wales the Central Medical War Committee has the assistance of local Medical War Committees established in all parts of the country, from which it has obtained and can continue to obtain full and accurate information.

We learn that the War Office has decided to recognize, under the regulations to be made in fulfilment of the new clause, these three existing professional committees—namely, the Central Medical War Committee, and the reference committee of the Royal Colleges, for England and Wales, and the Scottish

Medical Service Emergency Committee for Scotland. We are informed that an Order in Council to this effect will be issued at once.

Thus, under the new clause, any application by a medical man to a tribunal for exemption from military service on any ground other than that of conscientious objection will be referred to the appropriate professional committee, and its decision will be final and binding on tribunals under the Act.

In its practical working, however, the new clause will apply only to those medical men who have not taken the precaution of enrolling, or do not enrol within such time as may still be available, either with the Central Medical War Committee for England and Wales (429, Strand) or the Scottish Medical Service Emergency Committee (at the Royal College of Physicians, Edinburgh).

Under the instructions issued by the Army Council the enrolled man is not to be called up by the recruiting department; if, by inadvertence, an enrolled man is so called up, it will be sufficient for him to produce his certificate of enrolment to stop all proceedings. The unenrolled man will have to go through a more roundabout process. He will have to apply for exemption to the tribunal under the Act, which will be bound to refer the matter to the professional committee—that is to say, his case will, in the end, go before the same professional committee as it would go before directly were he enrolled, and, as has been said, the recommendation of the professional committee is binding on any tribunal constituted under the Military Service Acts.

THE MORTALITY AMONG EDUCATED INDIANS.

UNDOUBTEDLY the death-rate in India, judged by the better of the European standards, is unduly high. More than 90 per cent. of the Indian population lives and dies without any adequate sanitary care or control; in 1911 more than four million of the inhabitants of India died of preventable fevers, malaria accounting for at least a million deaths; of the sixty-four largest towns in India, seven have an annual death-rate exceeding 70 per 1,000, and in only twenty-five was the rate below 30; in England the death-rate is now below 15. The Indian male at birth has an expectation of less than twenty-three years of life, whereas the Englishman's expectation of life is over forty-six years. In England the annual death-rate is lower in the upper classes than it is among the proletariat; in India, contrariwise, the educated classes have an even higher death-rate than the uneducated and poorer masses.

The chief conditions that prejudicially affect the health of the inhabitants of India have recently been subjected to a searching analysis¹ by Lieutenant-Colonel Prasad, I.M.S.(ret.), more particularly as they affect the educated classes of the population. Any one, he says, who is acquainted with modern India and has been in the country for any length of time, must have been struck by the frequency of premature and sudden death among young Indians of the well-to-do and educated classes. His essay is based on the recently collected experiences and opinions of the chief Indian medical and lay authorities who may have had occasion to consider the matter in its various bearings. Dr. Prasad is himself a Hindu and has worked as a medical officer

for many years in India, and so is able to write with authority upon this very complicated question. The high mortality he connects exclusively with the lack of adequate hygiene, using the term in its widest sense, that is still inevitable in the lives of almost all the inhabitants of India.

He illustrates this lack of hygiene by considering in turn all the various departments of Indian life and up-bringing. In the case of marriage, he notes that 98 per cent. of Indian girls are married before they reach the age of 15; the bridegroom is likely to be of much the same age. But in the upper classes a man can hardly complete his education before he is 25. Dr. Prasad would therefore have him defer marriage until about this age; yet if a boy remains unmarried until he has passed all his examinations, parents argue that they will not be able to secure for him a girl of good family, as no one wishes to give a girl of 15 to a man of 25. None the less, the common early marriages are, he holds, ruinous to the health of the contracting parties and are the chief cause of the terribly high mortality among the first children born to these youthful parents. Dr. Prasad points out that there is crying need for improvement in the sanitation of Indian towns and dwelling houses, in respect particularly to the supply of fresh air and good potable water. He holds that the average Indian diet is too nearly vegetarian and that it is lacking in protein, with the result that diabetes mellitus is of common occurrence. Here he enters upon a question that is nowadays widely discussed in India, and still far from settled. He is in favour of increasing the number and improving the quality of the games used for exercise, and gives a number of admirable instructions in personal hygiene that deserve general adoption.

The essay contains many severe comments on the low position of women, the lack of training and education in the all-important duties of motherhood, the survival of the *purdah* system, as well as on the deplorable effect of the system of early marriage. In Bombay the infantile mortality for the first year of life varies between 379 and 419 per 1,000, and it stands at 213 for the whole of India; in Norway, Sweden, and Hampstead, according to Dr. Prasad, it is only 50 per 1,000, but it is not quite fair to take the very special population of that suburb as a standard of comparison for the great population which includes all ranks and occupations.

He has much to say as to the changes that seem necessary in the education of Indian children, and in the local schools and colleges; only five in a thousand Indian women, it is said, can read and write.

The final conclusion to which he comes is this—that sanitation is the crying need in India at the present moment. He hopes to see the sanitary administration of the country put upon the same governmental basis as the departments of Public Works and Education, and extended downwards until it comes into touch with a proper staff of sanitary labourers in every town and village. As he says, sanitation "is the ultimate basis of all prosperity, and should be the first plank in the platform of every scientific and civilized government." He is inclined, perhaps, to make light of the difficulties and inertia that must impede the progress of modern improvements in a conservative population, but his essay is worthy of full consideration by those who have to deal with the problems raised, and is written by one who has the advantage of a full knowledge of the special obstacles that will have to be met and overcome if the high death-rate among Indians of all castes and classes is to be lowered.

¹ *Health and Mortality amongst Educated Indians*. By K. Prasad, M.D. Edin., Lieutenant-Colonel I.M.S. (retired). Bahadurganj, Allahabad: The Panini Office. 1915. (Med. 8vo, pp. 178, Rs.2.8.)

THE CHEMICAL TREATMENT OF CEREBRO-SPINAL MENINGITIS.

It is notorious that the curative treatment of cerebro-spinal meningitis is at present very unsatisfactory. In certain hands the use of antimeningococcal serum has proved satisfactory up to a certain point; many, however, of the practitioners who had to deal with epidemics of the disease in this country in 1915 came to the conclusion that treatment by repeated lumbar puncture was as good as treatment by lumbar puncture combined with the injection of antimeningococcal serum. Perhaps the serums available were not homologous with the types or strains of meningococci that were being met with. The possibilities of the treatment of the disease by intrathecal injections of chemical antiseptic drugs have recently been brought once more to the front in America. In 1902 Seager reported very favourably on the use of lysol in this way, on the strength of his experience of an epidemic of cerebro-spinal fever at Lisbon. The first results were not confirmed by later observations, and the treatment was dropped. Subsequently protargol was employed in the same way, in place of lysol. Drs. Flexner and Amoss¹ have studied the effects of these drugs in the treatment of experimental infections in monkeys and young guinea-pigs with meningococci. Neither protargol nor lysol proved to have any curative action on the experimental peritoneal infection of young guinea-pigs with young cultures of the meningococcus, and protargol was without curative action in subarachnoid meningococcal infections in the monkey. On the contrary, these authors point out that both drugs are antileucocytic and antiphagocytic in their influence on the leucocytes, and are potent protoplasmic poisons. Recovery from meningococcal infections in both man and experimental animals is accomplished chiefly through the process of phagocytosis. The specific antiserum acts curatively by increasing the emigration of leucocytes, by directly promoting phagocytosis, by agglutinating the meningococci, and also by neutralizing the bacterial endotoxin; lysol and protargol have none of these actions to their credit. Hence, whatever the theoretical bactericidal advantages drugs possess, it is more than offset by the harmful effects they cause. What is wanted in the treatment of cerebro-spinal meningitis is an antiserum that represents the several types and many strains of meningococci. The authors say that this problem is now in a fair way to being solved; there is nothing to show that treatment by chemicals or antiseptics has any future before it.

RESULTS OF SANATORIUM TREATMENT.

In a somewhat belated report the Council of King Edward VII Sanatorium at Midhurst present the account of their stewardship for the twelve eventful months ending July, 1915. Disturbed in the even course of its work by the requirements of the War Office, the sanatorium made provision for consumptive soldiers during the early months of 1915, but since the assumption of responsibility by the Insurance Commissioners during the month of June, 1915, the normal routine has been resumed. The absence of the first assistant medical officer and of the pathologist on military duty has necessitated the curtailment of some of the pathological and research work, and no reference to it appears in the report. The results of the treatment of 352 patients are recorded, and these include 94 military patients. The use of tuberculin was discontinued at the end of the year 1914. It had been employed in treatment for three complete years, and a long time must now elapse before its effect can be estimated with any certainty. Thus far it has not been shown to increase the efficiency of sanatorium treatment to any appreciable extent. In the tables of results the details of cases in which the

presence of tubercle bacilli were demonstrated are kept separate from those in which they were not. Every effort would appear to have been made to follow up the after-history of cases discharged, and the tables showing the number of patients alive for each successive year after discharge, with and without bacilli, are highly instructive. Of 1,461 patients discharged (with bacilli) in eight years, 714 were dead, 608 still living, and 139 lost sight of, while of those without demonstrable bacilli only 47 out of a total of 369 were dead, 271 still living and 51 lost sight of. These figures point once more with great force to the paramount need for treatment of the disease before the process of destruction has begun and the escape of bacilli rendered possible. Until this great lesson has been thoroughly instilled into the public mind, the relative success of sanatorium treatment will continue to be very far below the level at which it aims.

THE PROBLEM OF INSTINCT.

To what extent is the view still prevalent among biologists that instinct is a rudimentary form of the function which culminates in reason justifiable? Professor Bergson, a pioneer critic and opponent of this interpretation, regards it as a legacy from the doctrine of Aristotle, who saw in vegetative, instinctive and rational life three successive degrees of one and the same tendency, whereas they are, in his own opinion, "three divergent directions of an activity that has split up as it grew," the difference between them being one of kind, not merely of degree. The fact that we may all agree in regarding man as the masterpiece of Nature hardly justifies the conclusion that all organisms are to be appraised in terms of their approximation to the human type. Evolution is too vast and multiform a process to be fitly compressed within the conception of a linear process; there is much to be said for Bergson's contention that in the plant, the animal and man life reveals itself as a trichotomy, branching off at its outset in three main directions, and further subdividing in pursuit of many diverse goals. In Mr. N. C. Macnamara's *Instinct and Intelligence*, recently reviewed in these columns, the traditional view of instinct as a stage on the ascent towards reason is tacitly assumed, and the capacity for intelligent behaviour shown to increase with every advance towards the higher complexity and specific mechanism of the nervous system characteristic of man. This view is, we gather, endorsed by Colonel Kenneth Macleod in an able paper on *Instinct and Reason*, contributed to the April number of the *Caledonian Medical Journal*. Colonel Macleod even stigmatizes as a fallacious abstraction "the radical distinction commonly postulated between instinct and reason." Bergson's contention is that neither instinct nor reason are met with in experience in their purity, and that there is always an element of rationality in "instinct," of instinct in "reason," and we are inclined to support the author of *L'Évolution Créatrice* in making the distinction one of kind, not degree. If a generalization might be ventured, it would be that the typical instinctive act finds the means through the end, the typical rational act the end through the means. It is questionable whether the definition as "instinctive" of actions intelligently learned and become by force of habit automatic, may not have prejudiced the issue, for many truly instinctive actions reveal an almost transcendent precision and complexity, and yet cannot be ascribed, either from an evolutionary point of view or from that of immediate inception, to intelligence as commonly understood. Nor is it easy to believe that the power of instinctive reaction in its higher and more complex manifestations can have been built up piece-meal out of tentative reactions, under the sole guidance of natural selection. Even if it be admitted with Colonel Macleod that in a general way and in the human organism "certain portions of the nervous tissue subserve certain functions; the most

¹ S. Flexner and H. L. Amoss, *Journ. Experim. Med.*, Baltimore, 1916, xliii, 683.

distal elements simple reflex acts, intermediate parts, such as the basal ganglia, instinctive adjustments, and the cerebral lobes ratiocination," a caveat must be entered against the assumption that instinct is in itself and in its own sphere nothing more than we find it in ourselves. For there are good grounds for suspecting that we have developed reason not by the perfection but at the expense of instinct. And that being so, the elucidation of the problem of instinct should be sought not so much by the study of man, or of the higher mammalia as by that of organisms in which its guidance is, if not *unmixed*, at any rate predominant.

FOOD AND DRINK.

We have received a copy of the *True Temperance Annual*, 1916, issued by the True Temperance Association, Caxton House, Westminster, S.W. We know nothing about the association beyond what is to be gathered from this annual, but it would appear to be inspired by the same motives as the Public House Trust Company. Its two chief aims are "to create a healthy and reasonable public opinion on the subject of temperance in drinking," and to encourage the development of the public house into a place adapted to the social needs of the people, which to-day it is not. The community contains a certain proportion of persons who are so unfortunately constituted that, if they drink alcohol at all, they cannot resist the temptation to drink too much; there are those also who enjoy getting drunk, and set out on a holiday with the deliberate intention of returning home drunk. At the other end of the scale are persons so impressed by the evils arising from the use of alcoholic beverages that they would stop their sale altogether. Between these two extremes there is a very large number of persons who are in the habit of taking alcoholic beverages with meals, and who, judging from their own personal experience and observation, do not consider total abstinence necessary for themselves or total prohibition a sound national policy. But they hold, or the majority of them hold, that the ordinary public-house with its stand-up bar—a mere drinking place—is a national evil. Their view has been well stated by the Bishop of Birmingham when he said, in a diocesan address last November, that the remedy for drunkenness in this country lay very greatly with the improvement of the public-house itself, and that in countries where food and non-alcoholic drinks had the same attention paid to them in the public hosteleries as alcoholic drinks there was less likelihood of over-drinking. This opinion seems to be confirmed by the experience of France, where there has been a serious decay of the "café habit" and a growth of drinking bars, with a corresponding increase of the number of alcoholics. The evil and its remedy were recently discussed very fully by the Académie de Médecine, which reported in favour of stopping the sale of spirituous liquors containing over 50 per cent. of alcohol and of imposing a supertax on all drinks containing more than 15 per cent. of alcohol. Two or three members objected to the issue of a wine ration to French soldiers, but this was not approved by the large majority, and the ration is still being issued, though the sale of spirits is subject to severe restrictions. Cardinal Bourne, last February, said that in this country we needed, to take the place of public-houses, institutions providing recreation and the equivalent of home comfort. If by the last phrase food is intended to be included then the views of bishop and cardinal appear to be very nearly identical. The Central Control Board (Liquor Traffic) seems to hold a very similar opinion, for its first report contained the following paragraph: "The Board, however, attach very considerable importance to the constructive side of their work, and this side has received their careful consideration. The Board incline to the view that excessive drinking may often be traced to the want of adequate facilities for food, refreshment, and recreation, particularly in conjunction with long hours and overtime. The improvement of

public-houses and the provision of canteens may therefore do much to render less necessary the imposition of purely restrictive measures. The Board are accordingly encouraging by all the means in their power the efforts which are being made, whether by employers or by public-spirited voluntary societies or by other bodies interested, to improve the conditions under which adequate facilities for food and drink can be secured in munition and transport areas." The policy here outlined is one which could be applied everywhere, and, to put the matter on the lowest ground, we believe that there are not wanting abundant signs that the licensed trade will find it to its interest to abandon its present attitude. The evil of drunkenness and the failure of dealers to do anything to mitigate it have so impressed themselves on the minds of the people of Canada that total prohibition is now in force in many States, and will, it is thought, before long apply to the whole Dominion. Another sign of the times is that the Central Control Board has, at the request of the naval authorities, made an order prohibiting entirely the sale of spirits in the western parts of Inverness-shire, Ross-shire, Cromartys-shire, Skye, and all the outer islands from Lewis to Barra.

MEDICAL TERMS IN THE NEW ENGLISH DICTIONARY.¹

THE greater part of the current section of the *New English Dictionary* is the work of the late Sir James Murray, the remainder having been completed by the Scriptorium staff, with editorial revision by Dr. W. A. Craigie. The part of the alphabetic rubrics included in it runs from *turnadun* to *tzirid*, neither of them familiar words. A *turnadun* is a bull-roarer or rhombus, and a *tzirid* a jerid or wooden javelin. It is only when the last few pages of this section are reached that medical terms appear in any profusion. This is to be explained by the fact that in them only do words derived from the Greek make a show. They all begin with *ty*, and they come from *τύλος*, a knob, or *τύλη*, callus; from *τύμπανος*, a drum; from *τυφλός*, blind; from *τύφος*, smoke, vapour, stupor, or conceit; and from *τύρός*, cheese. There is, for instance, *tylosis*, the name given to three medical states—to an inflammatory disease of the eyelids, to an affection of the mucous membrane of the lips and mouth, and (most commonly) to a callous condition of the skin of the palms and soles. The earliest illustrative quotation goes no further back than 1890, but *tylotic* is illustrated from the year 1883. *Tympanum*, a drum, has given rise to a large group of very interesting medical words, including the obsolete *tympan* ("a dysease in the bely, enfleure"), and the more modern *tympanectomy* and *tympanic*, and *tympanites* and *tympanitic*, and the big group of the *tympano-* compounds. The *Dictionary* illustrates interestingly the curious figurative meanings which have been attached to some of these medical terms. There is *tympanize*, for instance, whose original meaning was to affect with a tympany or to distend the abdomen with gas, but which came to signify to be puffed up, to be proud; and so, for example, came C. Harvey's line, "My windy thoughts with pride are tympaniz'd," and Nashe's statement, "The therd sonne of Pride is Atheisme, which is when a man is so tympaniz'd with prosperity . . . that he forgets he had a Maker." *Tympany*, too, has had a wide use in medicine, and, figuratively, outside of it. It has not been restricted to distension of the abdomen by gas or air in the intestine, but has sometimes been employed for any morbid swelling or tumour. Thus, although John Wesley in his *Primitive Physic* (a very popular book in its day) referred to "the Tympany or Windy Dropsy," Cotgrave (in 1611) wrote of "Mole, a timpanie, or Moone-

¹ *A New English Dictionary on Historical Principles*. Edited by Sir James A. H. Murray, Henry Bradley, W. A. Craigie, and C. T. Onions. Vol. X, *Turnadun-Tzirid*. By Sir James A. H. Murray. Oxford: At the Clarendon Press; London, Edinburgh, New York, Toronto, Melbourne, and Bombay. Oxford University Press; Humphrey Milford. April, 1916. Price 2s. 6d. net.

calfe, a shapelesse lump of flesh, or hard swelling in the wombe." But it was further extended to mean a pregnancy, and a quotation of 1590 says "The maid fell sicke, and her disease was thought to be a tympany with two heeles." Davenant (1649) has, "Midwives believe that it foretells A hopeful tympany to come." Donne (1610) is, of course, using it figuratively when he speaks of "this Tympany of false conception, by which" spiritual power is blown up, and swelled with temporall." How *typhlitis* comes from the Greek word meaning blind, and *tyroma*, *tyrosin*, and *tyrotoxin* from the Greek name for cheese, is plainly told, but the reader is left rather in doubt as to the connexion existing between *typhus* meaning pride, haughtiness, or conceit, and the "fever characterized by great prostration and a petechial eruption, and occurring chiefly in crowded tenements." The connecting link is to be found in the fact that whilst the Greek word *typhos* meant smoke or vapour and therefore vanity or conceit (mental smoke!) it also signified stupor, and that symptom is common in typhus fever. The distinction between *typhoid* and *typhoid fever* is well and clearly drawn, and it is to be noted that the earliest illustrative quotation of typhoid fever given is dated 1845 (Budd, *Diseases of the Liver*). There are not a few other interesting medical or semi-medical terms in this part of the great *Dictionary*, which has now reached the end of T, with some blanks in S to be filled in.

TELESCOPIC SIGHTS FOR RIFLES.

RECENTLY when discussing trench warfare with a sergeant on furlough from France, he was asked whether the German snipers were better shots than the English. He stated that the Germans were more successful because their snipers were provided with telescopic sights which were illuminated at night. This device, he stated, placed them at a great advantage as compared with our own men, who, he stated, had no such aids to efficient marksmanship. We are well aware that telescopic and mirror sights are delicate and easily damaged, and are in consequence not well suited for general military use. There seems, however, no valid reason why picked shots detailed for special duty should not be provided with the most effective sights which exist, even if the rifle so fitted require special care. Several optical sights have been devised, and some of them have done excellent service in match shooting. They may be divided into three classes—the use of lenses without any tube, as in the early aerial telescopes; the employment of lenses to give a reference line, with or without optical aid, the so-called collimating sights; and finally, telescopes, prismatic or otherwise, complete in themselves with arrangements for elevation and deflection, and with means for ready attachment to the rifle. The best known telescopic sight is that of Dr. Common, which he perfected in 1901; as regards principle it has not been improved on. The Zeiss prism telescope sight is really a small periscope; it has the disadvantage that considerable light is lost in the prisms, far more than in a simple telescope. In this sight, and in the similar Goerz prism sight, means are provided for illuminating the cross wires at night. An illustrated article on telescopic sights is to be found in *Nature* for February 3rd, 1916.

EXTINCTION OF BOMB FIRES.

THE committee appointed by the Home Secretary to make experiments to test the value of dry powder fire extinguishers, as compared with water and other "first-aid" appliances for extinguishing or effectively controlling fires such as are likely to be caused by bombs, has reported generally against the use of such powders, which it considers to be inferior to water.¹ Experiments were conducted by dropping an incendiary bomb through the first floor of a condemned house and allowing it to burn

for forty-five seconds. The original intention of the committee was to allow the fire to burn for three minutes before attacking it, but it was found that it had in the interval become so fierce that the operator was unable to approach near enough to apply the powder extinguishers. In one such experiment the fire was extinguished in six minutes by the application of 18 gallons of water from a small hose jet. The general conclusion of the committee is that none of the agents employed, including water, could be said to have any material effect on the combustion of the bomb itself, but that there was a great general difference between those experiments in which water was used and those in which dry powder was used. The spread of the fire caused by the bomb was greatly limited, and in some cases totally prevented, by the application of water, whereas after the application of dry powder the fire continued to burn, although at each application some temporary check to the fire was noted. Analyses made for the committee in the National Physical Laboratory showed that dry powder fire extinguishers generally contained as their main constituent sodium bicarbonate, the amount of which varied in the different samples examined from about 42 per cent. to nearly 56 per cent. Some of the powders analysed contained also varying proportions of calcium carbonate. Sodium bicarbonate when heated gives off a certain quantity of carbon dioxide gas, but the committee thinks it doubtful whether the quantity generated has a materially effective influence on the action of the powder as an extinguisher, except possibly in small fires of a special nature and limited extent. Water, though failing to extinguish the bomb itself in its earlier stages of combustion, was found far more effective than dry powder, the wetting of the surrounding material preventing the spread of the fire. Water proved itself also much the more effective extinguishing agent for the fires caused by bombs. The analyses of the dry powders made for the committee showed that if the whole of the carbonic acid available on heating were given off suddenly when the powder was thrown upon the fire, approximately 1 cub. ft. of gas would be formed for each pound of powder used. The smothering effect of this quantity of gas is contrasted with that of the enormously larger volume of steam generated by the vaporization of 1 lb. of water, which gives over 25 cub. ft. (or over 1,600 times its volume) of steam at atmospheric pressure. The committee states "that most of the dry-powder fire extinguishers sold in this country are retailed at prices which can only be described as extortionate considering the cost of their constituents. The substance said to be the vital constituent—bicarbonate of soda—may be bought at present for 4s. 6d. per cwt., or almost exactly ½d. per lb. Thus the cost of the bicarbonate of soda contained in a tin of powder of the usual size could not exceed 1½d., the other constituents being still cheaper." The committee also made some experiments with sand, which it found to be less effective, weight for weight, than the dry powder, though three buckets full of sand (about 144 lb.) extinguished a fire which three tubes of a dry powder, weighing nearly 13 lb., failed to do. The committee considers that similar smothering effects could probably be obtained from almost any dry inert substance in sufficient bulk. In conclusion, the committee expresses the confident belief that by far the best extinguishing agent is a plentiful supply of water applied in the manner most convenient, and that the use of powder fire extinguishers is to be deprecated not only because they give a misleading sense of security, but because they are practically useless for extinguishing or effectively controlling fires likely to be caused by bombs. As to the best way of applying water, the committee ascertained that the same amount of water was more effective when directed in a jet from an extinguisher than when applied by buckets. This was probably due to the greater force of the jet and to the easier means of directing it. The committee adds a word of caution as to using only

¹H.M. Stationery Office. [Cd. 8250.] Price 1d.

extincteurs of reliable make, since fatal accidents have occurred from the employment of extincteurs of faulty construction or unsuitable type.

BENEVOLENT FUND FOR THE R.A.M.C. TERRITORIAL, SPECIAL RESERVE, AND NEW ARMIES.

A MEETING of medical officers of the Territorial, Special Reserve, and new armies to consider further the advisability of establishing, for the benefit of the widows and orphans of officers, non-commissioned officers, and men, some kind of benevolent organization similar to that which exists in the regular Royal Army Medical Corps, will be held at the Royal Army Medical College on Thursday next, June 1st, when Director-General Sir Alfred Keogh will take the chair at 2.45 p.m. Meantime, we understand that Lieutenant-Colonel G. St. C. Thom, R.A.M.C., War Office, S.W., will answer inquiries as to the purpose of the meeting.

PATHOMETRY.

At the meeting of the Royal Society on November 11th, 1915, as was noticed in our columns at the time, Sir Ronald Ross read an introductory paper on pathometry, indicating the method he proposed to follow in studying the nature of the functions according to which the number of individuals infected with some disease should vary from time to time, on the supposition that the laws governing the rate of transference were already known *a priori*. The Royal Society, which published this first part of his paper in its *Proceedings* of February 2nd, has now made a special Government grant to assist him in carrying out the detailed calculations necessary for the second part of his paper. Miss Hilda P. Hudson, Sc.D., lecturer on pure and applied mathematics in the London University Department of the West Ham Technical Institute, has been appointed to assist in the work, which will be partly carried on in the Marcus Beck Laboratory of the Royal Society of Medicine.

AMERICAN MEDICAL MISSION.

THE United States authorities have appointed a medical mission to study war conditions in Europe. Its members—Colonel Bradley, Major Lyster, and Major Ford, of the United States army, and Surgeon Pleadwell, of the United States navy—have already arrived in this country. The members of the mission were entertained to dinner at the Athenaeum Club on May 24th by Director-General Sir Alfred Keogh and Sir William Osler, when they had an opportunity of meeting a number of officers of the Royal Army Medical Corps, the Canadian Army Medical Corps, and the Medical Service of the Royal Navy. Among the guests was the American Ambassador, who paid a striking tribute to the work done by officers of the Medical Services of the United States Army and Navy in the suppression of yellow fever and malaria, and in bringing ankylostomiasis under control in Puerto Rico and the Southern States. Sir Alfred Keogh endorsed this tribute, and had some weighty words to say on the importance of the study of administrative work and the too common neglect of it by men of science. The plans arranged for the mission include an inspection of the system of dealing with the sick and wounded in this country, to be followed by a study of the hospitals and other medical arrangements in France.

SIR JAMES ALFRED EWING, K.C.B., F.R.S., has been elected Principal of the University of Edinburgh, in succession to the late Sir William Turner. Sir Alfred Ewing, who is a graduate of the University (M.A. and Hon. LL.D.) has been for the last thirteen years Director of Naval Education; before that he had been in succession Professor of Mechanical Engineering in the Imperial University, Tokyo, of Engineering in University College, Dundee, and of Applied Mechanics in the University of Cambridge. His scientific work has been chiefly in the investigation of magnetism and the physics of metals.

Medical Notes in Parliament.

Military Service Bill.

THE Military Service Bill was read a second time in the House of Lords on May 18th. In moving the second reading Lord Sandhurst said that the Government had only two amendments to propose. One of these had reference to the recruitment of members of the medical profession. The amendment took the form of the following new clause, which was introduced into the bill in Committee on May 22nd:

Provisions as to Exemption of Medical Practitioners.—Regulations made under the second schedule to the principal Act shall provide for the establishment of professional committees to deal with claims for exemption made by duly qualified medical practitioners; and any application made by such a medical practitioner on any ground, other than that of conscientious objection, for a certificate of exemption shall be referred by the tribunal to whom it is made to such a committee in accordance with those regulations; and the recommendation of the committee on the application shall be binding on any tribunal constituted under the principal Act.

The amendment was accepted, and the bill containing this and other amendments was read a third time and passed on May 23rd. On the motion for the third reading Earl Kitchener made a statement, in the course of which he said that when the bill had received the Royal assent the process of recruiting would be carried out with the minimum possible inconvenience to the men themselves. The idea, he said, had apparently been prevalent in certain quarters that, for some wholly inexplicable motive, the military authorities were prone to crowd and even to congest the ranks with men physically unfit to bear arms. No suggestion could be wider from the truth. The power given under the bill to call up men for medical re-examination would be used not to absorb the physically unfit, but to secure the physically efficient. Some men were undoubtedly sheltering behind certificates acquired in an unsatisfactory way, or under a temporary condition of ill health. The terms of the bill would make it possible to use the men who were discarded on account of physical disability for active service but who were suitable for home service, clerical work, and the like. In a word, the bill made directly and unmistakably for equality of sacrifice in the national cause. The Army Council would use every effort to render it as easy as possible for the men to be called up. The groups would be kept open for voluntary attestation until the appointed date. There was no doubt that the armies in the field would welcome the measure with intense satisfaction. Generals and staffs would be able to count with greater certainty on the necessary drafts for reinforcements, and the rank and file would be encouraged by the thought that all their countrymen at home were prepared to support them to the utmost of their power.

The Lords' amendments were considered by the House of Commons on Wednesday, May 24th. In moving the clause as to the exemption of medical practitioners, Mr. Long said that it was the result of very patient examination by the War Office and representatives of the civil members of the medical profession in this country. The War Office had reason to be greatly anxious as to the provision of medical men for the army without undue depletion of the supply of medical men for civil work at home. The clause was supported by Mr. Rawlinson, but opposed by Mr. King, partly on the ground that doctors were not entitled to a special tribunal of their own profession, partly because the medical men already employed by the army were being wasted by being put to unsuitable work, and in other ways, partly because he did not consider that the Central Medical War Committee was sufficiently representative of the profession, and partly because it was another example of the wild militarism of the Government. Mr. King was called to order by the Speaker, on the ground that his speech had ceased to have any relevance to the clause. The clause was also opposed by Mr. Holt, on the ground that it was an attempt to enable the army to lay hands on doctors more freely than the local tribunals had permitted, and also because medical students had been taken away from their studies in the early days of the war, so that if it went on for another year or so the position would be very serious. He proposed to move an amendment, but was ruled out of order by the Speaker. Mr. Boyton also

opposed the clause, on the ground that the House had not sufficiently clear and definite knowledge of the real opinions of the profession. Sir F. Lowe objected to the tribunals being bound to accept the recommendations of the medical committees, and proposed to leave out the sentence at the end of the clause making this provision. Mr. Whitehouse supported Sir F. Lowe on the ground that it would limit the rights of medical men as compared with the rights of other men to go before local tribunals. Mr. Long agreed that the clause did not give a right of appeal, but it was clear that if a special tribunal was appointed *ad hoc*, there could be no appeal from it to another body which had general powers and was appointed to deal with general cases. The main reason for the clause was that the supply of medical men for military purposes throughout the country had been unequal. In some districts as many medical men had been taken as could possibly be spared; indeed, the margin had perhaps been too nearly approached. In other districts medical men could be spared. There was a strong desire, which did great honour to all concerned, that there should be a definite plan worked out by those who could survey the whole ground, and look not only at the particular case and the particular district, and would endeavour to maintain the supply for the R.A.M.C., and at the same time run no risk of depriving the civil population of the medical attendance they needed. Mr. Ronald McNeill inquired as to the nature of the recommendations to be made, and also appealed for further information. Mr. Charles Roberts, who replied to this appeal on behalf of the Government, said that the medical profession was in an exceptional position; it had special obligations to the civil population, especially that part which was insured. In order that all the circumstances of the medical profession in the various areas might be looked into a special committee of professional men, with local committees in different parts of the country, was a better authority to deal with the problem than a local tribunal, which could not really know the civil medical needs as well as the Central Medical War Committee, which for a year had been carefully watching the enlistment and enrolment of doctors, both from the point of view of the army and of the civil population. That Committee did not represent only the British Medical Association, but had been carefully chosen to represent every section of the medical profession. It could look into the case of each area, and was bound to prevent a breakdown of the medical service, at all events as far as the insured population was concerned. Mr. Pringle opposed the clause on the ground that there was nothing in the case of the medical profession more than other professions which entitled a professional committee to have the absolute decision as to which man in a particular locality should go to the front and which man should be left. He also urged that doctors had been used by the army with reckless extravagance. Mr. J. M. Robertson said that the cases were quite different, for, as a matter of fact, the army did not want lawyers as lawyers, nor shopkeepers as shopkeepers, but it did want doctors as doctors. Those who opposed the clause could not have it both ways: they could not argue that medical men were not to be specially considered or to have a special tribunal any more than any other profession, and then assert that we were in special straits as to the economizing of medical force. The medical body itself, acting locally, and a central body, with knowledge of the whole medical strength of the country, was best able to secure a total economy of the medical forces. He considered that the case for a special medical tribunal to say what persons shall go to the army and who are wanted for professional and not for combatant purposes was a very strong case indeed. After some other members had spoken against the clause the House divided, and the clause was carried by 163 to 42.

We learn that the War Office has decided to recognize, under the Regulations to be made in fulfilment of the above new clause, the three existing professional committees—namely, for *England and Wales*, the Central Medical War Committee (whose offices are at 429, Strand); and the Committee of Reference (appointed by the Royal College of Physicians of London and the Royal College of Surgeons of England); and, for *Scotland*, the Scottish Medical Service Emergency Committee, whose offices are

at the Royal College of Physicians of Edinburgh. These committees have already, for some time past, been approved and recognized by the Government in the matter of arranging for the selection of medical men for service as doctors in the naval and military forces of the Crown, and in connexion with the work of the Central Tribunal. We are informed that an Order in Council under the new Clause and Regulations will be issued at once.

In practice the new clause will apply only to medical men who have not enrolled or do not now enrol. Army Council Instruction 485 (SUPPLEMENT, March 11th, 1916, p. 43) directed that after March 31st, 1916, the procedure should be as follows:

(a) If a qualified medical practitioner who is attested under the Group System, or is in one of the classes under the Military Service Act, 1916, and who is enrolled under the scheme of the Central Medical War Committee or the Scottish War Emergency Committee, or has been provisionally accepted by the War Office, receives a notice paper calling him up, he should return it to the recruiting officer, together with his certificate of enrolment or War Office letter. The notice will then be cancelled, and the practitioner will remain in reserve until selected for a commission in the Royal Army Medical Corps.

War Taxation and Finance.

The past week has not added much to our knowledge as to the final form of the Government's fiscal proposals for the current financial year. On the occasion of the second reading of the Finance (No. 2) Bill, the Chancellor referred to the hardship imposed on those persons who, receiving income taxed at the source at 5s. in the £, have, under present conditions, to wait until the end of the financial year before they can obtain a part or the whole of the tax so deducted, even though the title to repayment may be clear and indisputable. As a measure of redress, he promised that steps should be taken to provide for repayments in such cases being made half-yearly. The bill contains a clause, which has not attracted much comment in the daily press, but which throws an interesting light on the hardships arising from the operation of sharply defined lines of demarcation in a system of graduation. In the absence of special legislation, it is obvious that persons whose incomes just exceed any of the critical amounts—as, for instance, £600 or £1,500—are really worse off after payment of their increased tax than others whose incomes are just below the corresponding limits. The bill therefore introduces a novel principle, which is that a person may calculate his liability as if it did not exceed a particular limit, and pay over to the revenue officials the amount of tax so computed *plus* the sum by which his income does exceed the limit. The clause is certainly an ingenious means of avoiding hardship, but it introduces a complication which will make the calculation of an income tax liability more than ever of the nature of an arithmetical puzzle. It is to be noted that the Chancellor foreshadowed some readjustment of the scales of duty to bring the rates on small earned and small unearned incomes into closer relation with each other. We referred to this point in discussing the text of the bill, and it would now seem that some amendment of the rates of tax had then already been decided upon, if not actually settled.

War.

Invalid Prisoners in Switzerland.—On May 18th Mr. Theodore Taylor asked what steps were being taken to bring into operation the agreement under which British prisoners were being transferred from Germany to Switzerland, and German prisoners from Great Britain to Switzerland. Mr. Tennant replied as follows: "In order that there may be no unavoidable delay, an agreement has just been made with the German Government whereby the selection of those who are unquestionably included in the category of disabilities as justifying transport to Switzerland may be made by the medical authorities of the country where the prisoners are interned. The necessity for the majority of medical men on these selection boards being of Swiss nationality will be waived in this fresh selection. The necessary instructions have been issued." The Foreign Office has since made the following announcement:

In connexion with the transfer to Switzerland of British and German wounded and invalid combatant prisoners of war, whose disabilities do not bring them within the scope of the

agreement for repatriation, the decision whether a prisoner is eligible for transfer rests with medical boards on which Swiss medical opinion will be largely represented. The boards will visit all the camps where British or German combatant prisoners of war are interned, and all such prisoners will have the right to present themselves before the Board.

It will not be possible to bring individual cases to the notice of the Boards in any circumstances.

Medical Officers of Voluntary Military Hospitals.—Captain Douglas Hall asked on May 17th whether, in view of the fact that it was now proposed to give commissions and grant military rank to officers of volunteer corps, the War Office was prepared to grant similar privileges to medical officers in charge of voluntary military hospitals. Mr. Tennant replied that commissions had already been given to all medical men doing work which rendered military rank necessary. It was not proposed to recommend any further extension of the granting of temporary commissions in the R.A.M.C., except under this principle.

Temporary Officers R.A.M.C.—Mr. Joynson-Hicks asked, on May 18th, whether instructions had been issued that the contracts with temporary officers in the R.A.M.C. were not renewed unless the officers were passed fit for general service at home and abroad; and whether officers who were quite fit for home service could be utilized to release others on service abroad. Mr. Tennant's reply was to refer to the answer he gave on February 22nd, which was to the effect that temporarily commissioned officers of the Royal Army Medical Corps under 45 years of age and unfit for foreign service were not permitted to retain their commissions after the period of service for which they engaged had expired. No further commissions were being given to men under 45 years of age unless they were physically fit for active service. It was hoped by these methods to set free men who were physically capable of undertaking general military duties, and who had hitherto been employed in war hospitals in this country, or had been engaged in private practice.

Medical Practitioners' Chauffeurs.—On May 18th Mr. Boyton asked a question as to the difficulty experienced by consulting physicians and operating or consulting surgeons who devoted the whole or part of their time to work at the various military hospitals in getting chauffeurs of non-military age, and inquired whether the War Office would find soldiers to drive the cars of such physicians and surgeons as might apply and be approved. Mr. Tennant said that it would not be possible to release soldiers for this work. He had been told that women drivers had been employed in certain cases, and suggested that this was the solution of the difficulty. At the same time he desired to express his warm appreciation of the valuable assistance which had been given by consulting physicians and operating or consulting surgeons at the various military hospitals.

Position of Officers Resigned.—In reply to Sir C. Kinloch-Cooke, on May 17th, Mr. Tennant said that officers who had been found for various reasons inefficient in the discharge of their duties and had been allowed to resign their commissions became liable, if within the age limit, to be called to the colours under the Military Service Act.

Ration Allowance.—In reply to questions, on May 23rd, the Financial Secretary to the Treasury said that in those cases in which officers, to suit their own convenience, elected to take a money allowance instead of the ration in kind, the cash allowance was reduced in 1915 from 1s. 9d. a day to 1s. 5d. Following on a reduction in the meat ration by a quarter of a pound, the allowance had been further reduced to 1s. 3d.

R.A.M.C. Officers in German Typhus Camps.—On May 17th Mr. Malcolm asked whether the R.A.M.C. officers whose gallant behaviour at Wittenberg had been rewarded by His Majesty were volunteers for that particular work, or were detailed by the Germans to do it; and whether other British doctors in other typhus camps in Germany would be recommended for similar recognition. Mr. Tennant said that the three officers mentioned were detailed by the Germans for duty in the typhus camp at Wittenberg. It might be assumed that if other officers had done equally good work they would receive equal recognition.

Medical Examination of Recruits.—On May 15th Mr. Tennant said that he was inquiring into the facilities afforded to married men for submitting themselves to medical examination in order to ascertain whether their services would be required by the army. The War Office now announces that unattested men who desire can, by appointment, be medically examined by the medical board at the head quarters of the recruiting area in which they reside. It will be necessary for the man to apply by postcard to the recruiting officer nearest his place of

residence, so that arrangements may be made for an appointment, and he should wait until he is notified that such arrangements have been made.

Soldiers Physically Unfit.—On May 17th Mr. Cecil Harma-worth asked what was being done to release from service with the colours men physically unfit for any sort of arduous military duty, and whose return to civil employment was desirable in the interests of the army itself and of the trade of the country. Mr. Tennant said that men who were physically unfit for arduous military duty, but who could be usefully employed in the army to relieve men under training to go overseas, were retained in the service for this purpose. At present the number of these lower-grade men was insufficient to relieve from employments and fatigues all the fit men under training. Men who could not usefully be employed in the army were discharged unless they were likely to recover soon. In reply to Mr. Ashley, he added that many women clerks were being employed as substitutes for men in military indoor departments.

Artificial Limbs.—In reply to Mr. Hazleton, who asked whether disabled soldiers provided with artificial limbs would be required to renew such limbs, when worn out, at their own expense, Mr. Forster stated in a written answer, on May 18th, that repairs and renewals of artificial limbs were made at the public expense under the authority of paragraph 418 of the Regulations for the Army Medical Service.

Meat Prices.—In a written answer, on May 10th, Mr. Runc-man said that the price of South American beef had risen from 4d. for fores and 6d. for hinds on August 1st, 1914, to 8d. and 10d. respectively on May 1st, 1916. South American mutton had risen from 3d. to 9d., and South American lamb from 5d. to 9d.

THE WAR.

NOTES FROM SOUTH-EASTERN FRANCE.

(From an Occasional Correspondent.)

A CASE OF ARTIFICIAL ABSCESS.

A DOCTOR in charge of a French ambulance relates a case of simulation that has come under his notice which presents several points of interest. A soldier, aged 26, was hospitalized on account of a patch of "eczema" on the site of a former wound represented by a scar on the outer side of the knee. The skin over the affected area was uniformly red and dry, with flakes of desquamated epithelium corresponding to healing pustules, but its appearance at once excited suspicion on account of the sharply-defined edges, which were not raised, and the curiously symmetrical square shape. As, however, this might have been caused by an irritating dressing of some kind no comment was made. A few days later, when the man was about to be dispatched to his regimental dépôt, he suddenly developed another patch of dermatitis over the bursa patellae. The skin was florid, hot, and thickened, and there were a few small blisters filled with pus, without any thickened bases. Fluctuation could be felt, and, on squeezing, a grumous, sanguinolent pus welled out of two minute apertures such as would be made by a hypodermic needle. He was at once accused of having provoked the abscess, and ultimately admitted having injected paraffin. Our correspondent points out that the originators of these artificial abscesses often escape detection, because such cases are rare; it is not until, encouraged by their success, others seek to emulate their feats that suspicion is excited, whereupon close observation reveals the nature of the lesion. The substances employed for this purpose are, in the order of frequency: turpentine, paraffin, and petrol essence. The features to be remarked in this connexion are that these artificial abscesses are curiously painless, there is no glandular enlargement, and little constitutional reaction. The pus is grumous, non-homogeneous, containing much necrosed tissue, and is blood-stained. On evacuation of the pus, healing takes place with remarkable rapidity in the absence of secondary infection. Then, too, the pus, if examined bacteriologically, is found to be sterile. Pus from a paraffin abscess presents the characteristic odour, but from an abscess induced by turpentine or petrol essence the odour is faint. As a matter of fact, however, in the absence of a compromising odour, there is no absolutely pathognomonic sign, merely a group of highly suggestive features, so that a definite conclusion can only be arrived at by police methods, including close observation, inquiry, and exploration of the soldier's belongings (hypodermic syringe, phials smelling of the particular irritating agent, etc.). In view of the very grave consequences

Involved by such a charge, it is greatly to be desired that more trustworthy means of chemical or pathological identification could be devised.

A CASE OF EMOTIONAL MUTISM.

A robust young soldier was buried by the explosion of a shell at Verdun, and on being disinterred was found to have lost the faculty of speech. He was still mute when received at the inland ambulance a week later, though he understood what was said to him without difficulty, and could reply by signs. When directed to pronounce easy words, as "mamma" and "papa," he did not even move the lips, but with a little perseverance he was induced to whisper them. On laryngoscopic examination the vocal cords were seen to be completely paralysed in extreme abduction, and it was possible to see several tracheal rings. He was apparently quite unable to approximate them in the slightest degree. Judging from the absence of any reaction on the part of the pharyngeal mucosa, in spite of prolonged examination, there was also some anaesthesia. He remained in this state for a fortnight from the date of the traumatism, although on one occasion, not having bolted the closet door, he was startled by the nurse rushing in, which elicited an audible "Oh! pardon, madame." Even so the mutism persisted on his returning to the ward. He was sent to work in the vineyard, where, under the influence of plenty of wine and hard work, speech suddenly returned. This, indeed, is the universal experience—namely, that hard manual work is the best remedy for such functional incapacities of traumatic origin.

THE WAR AND THE BIRTH-RATE.

In all the belligerent countries, and not improbably in many others, the war is likely to have a disastrous effect on the birth-rate. In spite of the periodical issue of "tickets of leave" to men at the front, and notwithstanding a great, but probably much exaggerated, increase in the number of illegitimate births, the drop is simply tremendous. Evidence of this has been forthcoming from prolific Germany, and a correspondent who discharges the responsible functions of public vaccinator "somewhere in France" shows that the falling off is phenomenal. His observations bear on country parishes far removed from the sterilizing influences of urban life; so that the drop may fairly be attributed to absence of conception. The outbreak of war would naturally not greatly affect the number of infants coming up for vaccination in 1914, the year of the declaration of war, so this year may be taken as the standard. He finds that in a number of hamlets the infants eligible for vaccination in the years 1914, 1915, and 1916 were as follows:

1914.	1915.	1916.	1914.	1915.	1916.
7	4	2	16	10	9
11	4	3	11	2	1
15	8	5	10	6	3
7	1	1	22	13	7
12	9	1			
Total ...	...	...	106	57	11

In the town in which he resides the number of births, which was 173 in 1913, fell to 140 in 1914 and 86 in 1915. Taking the annual number of births in France as 775,000, and assuming that the decrease of vaccinifers corresponds to a paucity of babies, the fall during the year 1915, calculated on the above figures, which may probably be taken as a fair average for the provinces (outside the big towns where the returns are still more unfavourable), would amount to a loss of close upon 340,000, while in 1916 the loss will be not less than 541,000. If to this we add the direct loss of life on the battlefield and the enhanced mortality among the civil population owing to under-nourishment of infants, lack of adequate medical attention, and overwork among women, the sum total must be appalling in its magnitude. Nor is it to be hoped that the deficit will be made up after the war is over, because the immensely enhanced cost of living and the crushing taxation will infallibly make for voluntary sterility. The only consolation for France is that the sterilizing influence will tell on all countries and on all classes alike, though no doubt in variable degrees.

AUSTRO-GERMAN EXPERIENCES.

TWO UNFAMILIAR FEVERS.

Obscure Five-day Fever.

In a German field hospital on the east front Professor H. Werner¹ observed thirty-four cases, at first diagnosed as influenza, which subsequently showed a distinctive five-day type of fever. In each bout of fever the temperature rose to 38° to 40° C. for twenty-four hours, but sometimes for forty-eight hours. During the three- to four days' interval the temperature was steady. After a succession of such bouts the temperature ceased to rise and convalescence set in. The fever was accompanied by headache and pain in the limbs. The spleen was painful and the bones, particularly the tibiae, were tender. The patients were very tired and nervous. The rigor accompanying the rise of temperature was followed by a sense of excessive heat and perspiration, suggestive of malaria. The enlargement of the spleen was hardly demonstrable between the attacks of fever, during which the patients were flushed. In the afebrile interval they were pale and sometimes slightly jaundiced. The pain in the limbs increased during the febrile period and did not completely cease even when the temperature was normal. The micro-organisms of typhoid fever, malaria, and relapsing fever were not found. Possibly this five-day fever was an aberrant form of relapsing fever; and it was presumably identical with the "febris Wolhynica" described by His early in 1916. The following table is an example of the temperature in a typical case:

	A.M.	P.M.
December 25th ...	36.4° C.	39.4° C.
December 26th ...	36.9° C.	37.1° C.
December 27th ...	36.6° C.	37.0° C.
December 28th ...	36.5° C.	36.9° C.
December 29th ...	36.7° C.	37.0° C.
December 30th ...	37.2° C.	39.5° C.
December 31st ...	37.3° C.	36.7° C.

Gaiter-pain Fever.

Under the heading "Gaiter Pain" several Austrian writers have described a condition the most characteristic feature of which was severe pain in the shins. More than 200 such cases were observed by Dr. A. Grätzer² alone, from December, 1914, onwards, when his battalion was stationed on the Nida. In conjunction with Dr. Zanko he found that this "gaiter pain" was only one symptom, among many others, of a condition to which they gave the term "influenza polonica." The onset of the disease was acute, the temperature being sometimes over 40° C. at the outset. Severe headache was accompanied by stabbing pain in the region of the left costal arch, by great exhaustion, and frequently at first by constipation. Apart from the high temperature and considerable enlargement of the spleen, there was little objective evidence of disease. The spleen was strikingly hard, its lower border was sharply defined, and it was very tender. Herpes labialis was observed in a few cases. After three to four days, when the temperature had fallen below 38° C. and the headache had almost ceased, pain developed on the inner surface of the tibiae, of equal intensity on both sides. It was variously described as dragging, compressing, and throbbing. Its intensity was moderate in the morning, greater in the afternoon, and often unbearable at night. During the next few days the temperature became subfebrile or normal, and the spleen smaller and less tender. Large doses of salicylates and complete rest were alike useless, and it was only with a combination of morphine and veronal that a few hours' sleep could be secured. The disease sometimes lasted four to six weeks, during which the intensity of the pain showed slight variations, and the temperature was normal, or almost normal. At the end of this period improvement or recovery occurred, but in most cases during the following months there were frequent relapses accompanied by only slight rises of temperature, and hardly ever by any swelling of the spleen. The duration of a relapse was seldom as long as three weeks, but the pain was, as a rule, just as severe as at the first attack. Dr. Grätzer found large doses of quinine, given over a long

¹ Muench. med. Woch., March 14th, 1916.

² Wien. klin. Woch., March 9th, 1916.

period, shortened the course of the disease, and in many cases aborted relapses. The majority of the patients had never worn any kind of gaiter, and only in the case of an officer did the distribution of the pain coincide with the area covered by his gaiters. The disease was equally prevalent in marshy and in healthy districts; and while most of the cases occurred during the cold seasons, some of the worst were observed during the fine weather in June and July, 1915. The disease had certainly nothing to do with the wearing of gaiters, and it showed no definite relation to seasonal or local factors. It was certainly infectious, but the mode of its transmission from one patient to another was not ascertained, though Dr. Grätzer was inclined to suggest that it was conveyed by lice, as it flared up more frequently in some companies than others, although the whole battalion was living under the same sanitary conditions. The rarity with which officers developed this disease pointed in the same direction. The disease died out when the soldiers were on the march and slept in the open.

CASUALTIES IN THE MEDICAL SERVICES.

ARMY.

Killed in Action.

CAPTAIN ARTHUR CYRIL ALBERT JEKYLL, R.A.M.C., was reported as killed in action, in the casualty list published on May 20th. He was educated at Sydney University, where he graduated M.B.; he joined the army as a temporary lieutenant on March 15th, 1915, and was promoted to captain on completion of a year's service. He was attached to the Royal Scots, who lost nine other officers in the same casualty list—four killed, four wounded, and one missing.

Wounded.

Captain H. A. Pallant, R.A.M.C., temporary.

Lieutenant W. J. E. Stuttaford, R.A.M.C., temporary.

DEATHS AMONG SONS OF MEDICAL MEN.

Crawford, A. B., Captain West Yorkshire Regiment, son of Dr. A. D. Crawford, of Stanton Hill, killed in action, was educated at Oundle School, and was in practice as a solicitor at Boston. When the war began he enlisted in the Lincoln Regiment, and got a commission in the 14th service battalion of the Notts and Derby Regiment (Sherwood Foresters) on February 15th, 1915. He was a well-known cricketer, having played for both Notts and Warwickshire, and once made 51 against the Australians at Trent Bridge.

Daunt, Giles V., Second Lieutenant South Lancashire Regiment, youngest son of Dr. F. E. H. Daunt, of Clapham Road, London, S.W., killed in action on April 9th. His commission was dated December 29th, 1914.

Madge, Charles Albert, Lieutenant-Colonel South African Imperial Force, fourth son of the late Henry Madge Madge, M.D., of Upper Wimpole Street, killed on May 10th, aged 41. He was educated at Westminster, and went to South Africa with his regiment, the Royal Warwickshire, in 1900, served through the South African war, took part in the advance on Pretoria, was mentioned in dispatches, and gained the King's and Queen's medals with five clasps. In 1902 he was seconded for service under the Colonial Office, and in 1904 joined the Transvaal Consolidated Land and Exploration Company, and settled at Johannesburg. He served on the head quarters staff of General Botha in the campaign in German South-West Africa, and was mentioned in dispatches. On the conclusion of that campaign he came to Europe, and when killed was attached to the staff of a division. In 1910 he married Barbara, youngest daughter of Mr. H. Hylton-Foster, of Foxbury, Dorking, and Tolworth Hall, Surrey; and leaves a widow and two sons.

Mathews, R. H. F., 12th Yorkshire and Lancashire Regiment (Sheffield Battalion), in his 21st year, the second son of Dr. R. H. Mathews of Sheffield. He was educated at King Edward VII School, and had completed his first year as a medical student of Sheffield University, having obtained a scholarship. He joined immediately after the declaration of war.

Mitchell, Arthur Gorman, Second Lieutenant Royal Irish Rifles, son of Dr. A. B. Mitchell, of Belfast, killed in action, aged 19. He was educated at Campbell College, Belfast, and at Queen's College, Belfast, where he was studying medicine, and was a member of the O.T.C. He got his commission on May 8th, 1915.

Owen, Bruce Lloyd, Lieutenant-Commander R.N., fourth son of the late Dr. Lloyd Owen of Southsea, died at Newcastle-on-Tyne on May 16th. He attained that rank on June 30th, 1911, and was acting as commander at the time of his death.

Vardon, Evelyn F. Claude, Second Lieutenant Royal Dublin Fusiliers, only son of the late Dr. Evelyn Vardon, M.D., killed in action on May 12th, aged 36. He got his commission last July.

NOTES.

MR. T. YOUNG SIMPSON, F.R.C.S., of Plymouth, has been appointed Chirurgien Chef to the Hôpital Anglais 249 bis, Rhône, France. The hospital has 300 beds.

A committee of American surgeons and dentists has issued an appeal for funds to establish another special hospital in France for the treatment of wounds of the face and jaw. Accommodation for 500 patients is to be provided, and many well-known surgeons have offered their services. The French Minister of War has agreed to place a suitable building in Paris at the disposal of the promoters, and the American Red Cross will furnish supplies.

BRIGHTON HOSPITAL FOR OFFICERS.

Baths for the *eau courante* treatment of injuries of the arm and leg have been installed in connexion with the Red Cross Auxiliary Hospitals for Officers, Brighton. The apparatus was generously presented by H.R.H. the Princess Royal.

THE KUT GARRISON.

Mr. Edmund Candler, representative of the British Press with the Expeditionary Force in Mesopotamia, writing from the Mesopotamian front on May 9th, gives some account of the sufferings of the garrison at Kut, based on information given to him by four officers who had been in hospital there. The real privations of the garrison began in the middle of February. When the milk gave out the hospital diet was confined to corn-flour or rice water for the sick and ordinary rations for the wounded. On April 21st the 4-oz. grain ration gave out, and from April 22nd to 25th the garrison subsisted on the two days' reserve ration issued in January; and from April 25th to 29th on supplies dropped by aeroplane. The rations were supplemented to a certain extent by fish caught in the river. During the last days of the siege eight deaths were occurring daily among the British and twenty-one among the Indians. All the artillery horses and transport animals were killed for food, and mule flesh, it was said, was generally preferred to horse. Fortunately just before the force was besieged in Kut a large consignment of warm clothing had been received from the British Red Cross Society. This probably saved many lives, as the garrison had only the summer kit they stood up in. In addition to the four British officers, about six Indian officers, 100 British rank and file, and 963 Indian soldiers and followers were brought down from Kut in hospital ships, Turkish prisoners being given in exchange.

BRITISH RED CROSS MANUALS.

We are indebted to Mr. Hastings, secretary of the British Red Cross Society, for a set of the manuals¹ issued by the society at the price of 1s. each. No. 1, *First-aid Manual*, No. 2, *Nursing Manual*, and No. 3, *Training Manual*, are by Mr. James Cantlie, Honorary Surgeon-Colonel, R.A.M.C.(T.F.). They were all first published three or four years ago and are well known; since the war began they have been reprinted on many occasions. No. 4, *Hygiene and Sanitation Manual*, is by Lieutenant-Colonel S. Guise Moores, and was first published in January, 1914; it has been twice reprinted. It bears as motto the very true aphorism of Florence Nightingale: "You cannot improvise the sanitary care of an army in the field." All these manuals are well illustrated, coloured plates being inserted where necessary. No. 5, *Cookery Manual*, published last year, is by Mr. C. Herman Senn, and is intended for the members of voluntary aid detachments who undertake commissariat or kitchen duties, or who act as cooks. It consists for the most part of selected recipes, but contains notes on the preparation of camp kitchens, on the care of camp stores, on water supply, and on emergency utensils, including appliances for so-called fireless cooking.

GERMAN CASUALTIES.

An official announcement of the German casualties, as reported in German official lists, puts the total German losses from the beginning of the war to the end of last month at 2,822,079. This number includes corrections. The enemy losses during April (exclusive of corrections) numbered 91,162. The details are as follows:

	April.	Total.
Killed and died of wounds	17,455	664,552
Died of sickness	2,395	41,325
Prisoners	1,221	137,798
Missing	6,217	197,094
Severely wounded	14,557	385,515
Wounded	4,001	254,627
Slightly wounded	39,679	1,023,212
Wounded remaining with units	5,537	117,956
	91,162	2,822,079

The above figures include all German nationalities—Prussians, Bavarians, Saxons, and Württembergers. They do not include naval casualties or casualties of colonial troops.

Information has been published in France to the effect that the total casualties among officers in the German army number 71,857, including:

Killed	22,636
Wounded	43,334
Missing	3,762

¹ Published for the British Red Cross Society by Cassell and Co., Ltd., London, New York, Toronto, and Melbourne. 1915. (1s. net.)

England and Wales.

HEALTH CONDITIONS IN LONDON.

THE rise in the price of milk in London is generally believed to be in excess of what the economic conditions require. The price used to be 4d. a quart; it was then advanced to 5d., and is now 6d. in many districts. It is alleged that there is no scarcity of milk, that the recent rise in price is not justified by the conditions of the industry, and that it has merely resulted in greatly increasing the profits of farmers and milk dealers, probably mainly the latter. There can be no doubt that the rise has aggravated the problem of the artificial feeding of infants among the children of the poor, but it is satisfactory to find that the Board of Trade is making inquiries, which, we hope, may result in early action, for with the recent plunge into summer weather the problem is becoming acute. Another matter affecting the health of persons of all ages is also to be the subject of official inquiry. It has been stated recently that several metropolitan borough councils propose to abandon street watering during the summer in the interests of economy. The President of the Local Government Board informed the House of Commons on May 22nd that his medical advisers do not endorse the proposed policy, although he thought they would probably agree that there were cases where the amount of watering done in ordinary times might be reduced without risk. This may be so, although the experience of dry summers does not seem to make it probable. It would have to be shown that the total economy was very considerable in order to justify the stoppage of watering, more especially along routes much frequented by motor omnibuses and lorries. Apart from the discomfort inflicted on individuals at all sensitive to dust, and the extra domestic work caused by the inrush of dust through every open window, there is good reason to believe that dust is often the carrier of pathogenic organisms, especially of those which produce catarrhs of the upper respiratory passages. There is, indeed, a suspicion that recent outbreaks of acute anterior poliomyelitis may have been due to infected dust, and the fact that the county councils seem to be abandoning the tarring of the surface of many of the main thoroughfares out of London increases the importance of the whole matter. In reply to another question in the House of Commons Mr. Long said that the number of infant deaths in London and the large towns was this year below the average of the five preceding years and the infantile death-rate for London itself for the first quarter of 1916 was lower than that of the corresponding quarter during each of the last ten years; it has, however, to be remembered that the first quarter of this year was abnormally cold and wet. Mr. Long added that the Local Government Board was taking active steps, and with much success, to induce local authorities to adopt and carry out comprehensive schemes for maternity and child welfare, and that such schemes were already at work in nearly all the large towns and throughout a number of the counties. This general statement, however, does not meet the particular cases of the increase in the price of milk in London and the probable increase in the amount of dust in the air should the watering of streets and roads or their adequate tarring be suspended.

THE SYPHILIS DEPARTMENT OF THE LONDON HOSPITAL.

We published in December, 1913, a fairly full account of the scheme for the establishment at the London Hospital of a special department for the treatment of syphilis, and in February, 1914, we were able to announce that the Grocers' Company had generously promised to provide the necessary indoor accommodation at the cost of £7,000 to £10,000. It was then determined to add another floor to the existing isolation block, the cost of which, owing to structural difficulties, amounted to £10,000. The building was delayed on account of the war but was completed by the end of 1915. Owing to financial stringency it was at first proposed to postpone opening the department until the end of the war; but, in view of the great increase in the number of patients presenting themselves for treatment, the House Committee determined to open it on March 1st, 1916. It provides eight beds for men and eight for women in separate rooms, with

bath-rooms and accommodation for sister and nurses, as well as a well-equipped laboratory for clinical investigations. It is worked in connexion with the skin department of the hospital, and is intended specially for the treatment of syphilis in the acutely infective stage. The President of the Local Government Board has taken a great interest in the work, and recently paid a visit to the department, which fulfils in all respects the recommendations of the Royal Commission on Venereal Diseases.

MEMORIAL TO THE LATE DR. FREDERICK LAWRENCE OF HAMMERSMITH.

On Sunday afternoon, May 21st, the Bishop of London, at a service in St. Peter's Church, Hammersmith, dedicated a chime of bells and unveiled a marble tablet which had been subscribed for by friends and patients of the late Dr. Frederick Lawrence, who died in his 85th year on May 1st, 1915. A medallion portrait of him is carved upon the tablet, and beneath it is an inscription referring to his attendance at the church for over fifty years, to his services as churchwarden since 1906 until his death, and to his practising in the neighbourhood for over half a century. After the bells had been blessed a short peal rang out from them, and the tablet was unveiled. The bishop, in an eloquent address, spoke of the supporting influence of the Christian faith to the community at home as well as at the front, and the purging effect of the war. In the course of it he several times referred to "our dear old friend." Besides the clergy engaged, Sir William Bull, M.P., the Mayor and Corporation of Hammersmith, and many friends and patients of the late Dr. Lawrence were present at the service. There were among them soldiers, in hospital dress back from the front, some in khaki, and a guard of honour formed by the St. Peter's Company of the Church Lads' Brigade.

TREATMENT OF SCHOOL CHILDREN IN LIVERPOOL.

The city council has finally decided to take measures to secure efficient treatment of school children suffering from adenoids and tonsillar affections. There was some slight opposition to the recommendation of the Education Committee on the ground apparently that it was thought that such treatment did not come within the purview of a committee whose object was solely educational. There also was not absent a feeling that parents might have a conscientious objection to such treatment as being an infringement on their rights. The recommendation was, however, approved and a clinic will shortly be established, and one more step towards medical treatment as a natural corollary to medical inspection under municipal control has been taken. At present nothing has been done for the treatment of diseases of the skin in school children, and that, it is considered, should be the next step.

LIVERPOOL ROLL OF HONOUR WEEK.

During the week May 7th-13th the Lord Mayor of Liverpool made an appeal to all classes of the community with the object of establishing a fund for the widows, orphans, and dependants of Liverpool men who fall in the war. The medical profession, through the Liverpool Medical Institution, has contributed £600, free from any deduction connected with collection. This sum is regarded as most satisfactory when it is considered that many medical men are away on active service. Mr. William Jones, the resident librarian, was untiring in his efforts for the fund, and his services deserve to be placed on record. Down to May 22nd the city's Roll of Honour Fund amounted to £52,586 5s. 4d.

Scotland.

THE plans for the Royal (Dick) Veterinary College, Edinburgh, have been completed by the architect, Mr. D. M'Arthy. The front portion of the building will provide for the teaching and administration, and will contain laboratories, lecture theatres, and a hall to seat three hundred persons, as well as a museum, photographic rooms, students' reading and smoking rooms, and rooms for the professors. The clinical department, which will be in the rear part of the building, has been designed for the treatment of all kinds of animals, there being special

accommodation for horses, cows, and sheep, wards for dogs and cats with enclosed runs, and operating theatres for large and small animals respectively. X-ray and photographic rooms will be provided for both departments.

It was announced in the JOURNAL of April 1st, p. 503, that an assistant county medical officer and tuberculosis officer had applied to the tribunal for the Lorn district for exemption from military obligations on the ground that he believed war to be morally wrong and indefensible, and that he was unwilling even to serve in the R.A.M.C. The tribunal refused the application, and an appeal to the Argyllshire Appeal Tribunal has been dismissed.

HOSPITAL FOR MAIMED SOLDIERS AND SAILORS.

Good progress is being made with the establishment of the Princess Louise Scottish Hospital for Soldiers and Sailors. A house was placed at the disposal of the committee for the period of the war and twelve months afterwards by Mr. Thomas Aikman, with the option of purchasing the house and certain land about it on moderate terms. The committee did not consider it advisable to spend any part of the money subscribed by the public in acquiring land, but a citizen of Glasgow (who remains anonymous) has arranged to purchase the house and about 350 acres of land and to present it to the committee. The offer was gratefully accepted on May 16th. It was made through Mr. William Guy, one of the honorary secretaries, 146, Buchanan Street, Glasgow.

MATERNITY AND INFANT WELFARE SCHEME FOR DUNDEE.

The Public Health Committee of the Dundee Town Council at its meeting on May 18th adopted a scheme for maternity and child welfare centres. The convener, Mr. Simon Fraser, said that the record of infant mortality in Dundee during the last twenty years put the city in a most unenviable position. It was the worst in Scotland, and last year had been particularly disastrous. The scheme provides for the extension of the system of visiting mothers by the appointment of additional health visitors, who would also visit homes from which measles and whooping-cough were reported, and advise the mothers as to the measures necessary for the prevention of the spread of these diseases and of their complications. The M.O.H. is empowered to engage trained nurses temporarily for the work of visiting all infected homes whenever the necessity arises, and the Local Government Board for Scotland is to be asked to make the notification of measles and whooping-cough compulsory, as it is in England. The medical staff of the Royal Infirmary is to be asked to institute pre-natal clinics in connexion with the Maternity Hospital. It is intended to co-operate with the Infant Welfare Committee of the Social Union in attending to the health of expectant and nursing mothers and providing baby clinics and baby hospitals. A central institution for maternity and child welfare will be established where the inspector of midwives and the lady health visitors will reside. In addition there will be three baby clinics in different parts of the city. Dr. Templeman, M.O.H., said that it was desirable to place at the head of the work a medical woman who would be required to devote her whole time to it. She would get into touch with the cases reported by the health visitors, so that there would be continuity of treatment. The estimated cost of the scheme for the first year is about £1,000.

Canada.

THE INTERNATIONAL JOINT COMMISSION.

A MEETING of the International Joint Commission on Boundary Waters was held at Washington, D.C., on March 8th and 9th, to consider the final report on the engineering investigations which have been made during the past year. The Commission consists of three members from Canada and three from the United States, and is a permanent tribunal for the adjustment of boundary matters between the two countries under the terms of the treaty between Great Britain and the United States of January 11th, 1909, which states that "the waters therein defined as boundary waters and the waters flowing across the boundary shall

not be polluted on either side to the injury of health or property on the other." In 1913, as the result of complaints that the terms of this treaty were being violated, the Commission was asked to determine whether or not this was so, and, if it was, to what extent, at what points, and by what causes; and, secondly, to report on the remedies considered advisable. In January, 1914, a progress report was published, which stated that the boundary waters were grossly polluted to the detriment of the public health; in the Great Lakes, however, the pollution was found to be confined to the shore fronts. This part of the inquiry was conducted under the direction of Dr. Allan J. McLaughlin, of the United States Public Health Service, with whom were associated Dr. J. W. S. McCullough, Dr. J. A. Amyot, and F. Dallyn, of the Provincial Board of Health of Ontario. The second part of the inquiry is in the hands of Professor Earle B. Phelps, consulting sanitary engineer, who has just completed his report.

THE CANADIAN RED CROSS SOCIETY.

At the annual meeting of the Canadian Red Cross Society in the Convocation Hall of the University of Toronto, when the Duke and Duchess of Connaught and the Princess Patricia were present, as well as the Lieutenant-Governor of the Province and Lady Hendrie, the chair was taken by the President of the society, Surgeon-General G. Sterling Ryerson, who expressed to Her Royal Highness the Duchess of Connaught the desire of the members that she should become its president. This she graciously agreed to do. Favourable comment on the work of the society was made by His Royal Highness, who also expressed his satisfaction with the harmonious relations existing between that body and the St. John Ambulance Association and Brigade. The society is to be congratulated upon having as its president the Duchess of Connaught, who ever since the commencement of the war has shown the greatest interest in its work. General regret, however, is felt upon the retirement from the presidential chair of Surgeon-General Sterling Ryerson, to whom the society owes its inception. The Canadian branch of the British National Society for Aid to the Sick and Wounded in War was founded in 1896, and was incorporated under its present name in 1909. Its success has been due in large measure to the active support and unflinching energy of such men as Surgeon-General Ryerson and the late Lieutenant-Colonel Jeffrey Hale Burland. As a mark of appreciation of the services rendered to the society by Surgeon-General Ryerson during his two years' occupancy of the presidential chair, the following resolution was passed unanimously at a meeting of the Central Council on February 1st:

That on the retirement of Surgeon-General George Sterling Ryerson from the office of president of the Canadian Red Cross Society in order that the society may be honoured by H.R.H. the Duchess of Connaught graciously accepting that position, the Council desire to place on record an expression of appreciation of the long and active service of General Ryerson in connexion with Red Cross affairs and administration in this country. As the original promoter of the foundation of the society in Canada, as chairman of the Executive Committee, as the Special Commissioner to South Africa representing the Canadian Red Cross Society during the Boer war, and as the president of the society for the last two years, he has all through been a leader in Red Cross work, and has evinced great enthusiasm as well as ability in serving the society. The Council further expresses the hope that Surgeon-General Ryerson's close connexion with the society and the administration of Red Cross work will long continue, so that we may have the benefit of his great experience and familiarity with Red Cross matters generally.

It will be remembered that Mrs. Ryerson lost her life in the *Lusitania* disaster. Miss Laura Ryerson, who also was on board, has been made Lady of Grace of St. John of Jerusalem, in recognition of her "courage, fortitude, and unselfish devotion in the *Lusitania* disaster." Miss Ryerson was thrown into the water from one of the boats. She swam about for three hours, during which time she went down twice. Finally she succeeded in reaching a raft on which one member of the crew was standing. He pulled her out of the water. Subsequently they caught a lifeboat, which was drifting past, and with it saved the lives of many of the women who were clinging to preservers. All of the women, with the exception of Miss Ryerson, collapsed when they were taken from the life-

boat by the destroyer. Miss Ryerson undressed the women, wrapped them in blankets, and took care of them.

Correspondence.

IN MEMORY OF THE THREE BRAVE DOCTORS WHO DIED AT WITTENBERG.

SIR,—Many of us must feel deeply that some memorial should be put to the memory of the three brave doctors who died at Wittenberg camp of typhus fever while doing their utmost to alleviate the terrible suffering and misery of which we have all read with a thrill of horror from the reports of Major Priestley, R.A.M.C., and Captains Vidal and Lauder.

His Majesty has voiced all our wishes by the honours he has graciously bestowed on these gallant men who mercifully survived, and we now feel that the names of those who died—Major W. B. Fry and Captains A. A. Sutcliffe and S. Field—should be remembered in the years to come. I think all will agree that if possible the memorial should take the form of helping to alleviate suffering and do some permanent good, but that must necessarily depend on the amount received. I will gladly receive and acknowledge the smallest sums, as I feel all men and women will wish to join in honouring the memory of such men.—I am, etc.,

CONSTANCE PARKER OF WADDINGTON.

Aldworth, Haslemere, May 20th.

HOW MEDICAL WRITINGS MAY BE GIVEN A MARKED DEVELOPMENT.

SIR,—Dr. Mercier has gone to considerable trouble and taken up valuable space in abusing medical writers in general merely on account of a passage in which the word "marked" is used so frequently and at such short intervals as to render the passage as unnecessarily tautological as such repetition is ridiculous. Dr. Mercier, however, seems totally unaware of the fact that the verb "to mark" and its adjective, "marked," are perhaps as capable of as many shades of meaning as any words in the language. A few minutes' study of any good dictionary should convince him of this. Dr. Mercier has therefore no right to take upon himself the attempt to limit either adverb or adjective to their most primitive meaning—that is, to mark as with a line or dot, a fact which he plainly infers in the following sentence: "If he wishes to say that a rash is copious let him say that it is copious and not that it is marked, which it is not." The word "copious" is only adequate in the case of a rash when the rash is diffuse or distributed widely over the surface. It does not convey the same meaning as to intensity as the word marked does. We can say slightly marked, deeply marked, well marked. The word copious, on the other hand, has no such flexibility, being too closely bound to the superlative degree to be capable of modification by adjectives or adverbs to the extent which may be required, and hence is totally inadequate as a substitute.

If Dr. Mercier will go to the trouble to look up the word "development" in the *Imperial Dictionary*, vol. ii, he will find the following definition: "The exhibition of new features; a gradual growth or advancement through progressive changes." Surely Dr. Mercier must admit that there could be no better justification than this definition for the use which the majority of the best medical writers make of this word, and its verb and its adjective, whether in connexion with pneumonia or cancer or any other pathological change. Dr. Mercier should have remembered that the verb "develop" has both a transitive and an intransitive meaning, and that the transitive meaning is of far wider application than its mere connexion with a certain process in photography, and that it was used in a transitive sense long before photography was ever thought of or heard of.

I would like also to point out that the expression "he was given a pill," whatever its faults may be, is far less offensive to an educated intellect than the somewhat vulgar and meaningless combination "sloppy English." Had the costermonger's adjective been substituted for the word "sloppy" the expression would have conveyed neither more nor less meaning. Such an expression, to

adopt the phraseology which Dr. Mercier considers more elegant or intelligible than "markedly worse," is "a thundering sight worse" than anything we have been accustomed to see in the *BRITISH MEDICAL JOURNAL*.—I am, etc.,

Liverpool, May 21st.

WILLIAM BRAMWELL.

SIR,—I think Dr. Mercier errs in attributing to Tennyson the words, "Evil is wrought by want of thought as well as want of heart." They certainly occur in the *Lady's Dream*, by Hood, and I cannot remember them in any of Tennyson's writings. I am glad of the opportunity of saying that gratitude is due from us to Dr. Mercier for his plea on behalf of greater clearness in medical writings, and for clearness of thought in general. Slipshod speech and slang expressions are constantly being thrust upon the better educated by the less educated class, and it is to be feared that the tendency of many educational reformers will not be in favour of purity of speech and writing. All the more honour to Dr. Mercier!—I am, etc.,

May 22nd.

M.D.

THE MEDICAL OFFICERS MERCANTILE MARINE.

SIR,—1. In my opinion no shipping master in any British port should enter the name of any medical officer on a ship's articles without a certificate from the medical officer of the local port sanitary authority that he has verified the status of the medical officer and communicated the name to the Registrar of the General Medical Council in London for entry on a temporary list of medical men employed in the mercantile marine—to be kept by the General Medical Council.

2. When a mercantile company discharges a medical man from its employment it should send in his name to the medical officer of the port sanitary authority, so that this official may inform the Registrar, General Medical Council, of the occurrence.

3. When a medical man has served six months at sea he should be permitted to go through a course of instruction in naval hygiene at the Royal Naval classes for medical officers, R.N., at Greenwich, and, if successful, get a commission in the Royal Naval Reserve, as do the ordinary deck officers of the mercantile marine. The only way that I can see to give protection and defined status to the medical officers, mercantile marine, is by following some such lines as these. The cost to the State would not be greater in proportion than is the cost of training the ordinary Royal Naval Reserve deck officers, and in a similar way a war reserve would be developed for the Royal Navy.

4. The cry of the ship surgeon class for just conditions cannot be longer ignored.—I am, etc.,

GEORGE J. H. EVATT, M.D.,

London, S.W., May 19th.

Surgeon-General.

THE INDIAN MEDICAL DEGREES BILL.

SIR,—In the report of the annual meeting of the Bombay Medical Union that appeared in your issue of April 29th (p. 632), I was very pleased to notice that the members of that union held an open mind as regards the Government recognition of the Yunani (Muselman) and Ayurvedic (Hindu) systems of medicine. While in India about two years ago I was much impressed with the good work carried on by many Ayurvedic physicians, some of whom are qualified men with medical diplomas from the Indian universities. The Ayurvedic colleges in India are training men in anatomy, physiology, pharmacy, and medicine, and are doing research work by translating Sanskrit medical works and reinterpreting them in the light of modern medical science. When I drew the attention of Lord Pentland, the Governor of Madras, to the scientific work carried on by the Ayurvedic colleges in Madras, His Excellency showed his sympathy by his visit to the college. Any indigenous attempt to bring together the European and Indian medicine ought to be welcomed by all well wishers of India. For it is only by this way that the great mass of the Indian people will take kindly to Western medicine and a lasting union between England and India will be made. It is therefore I plead that the work of the Ayurvedic colleges should be encouraged and should find recognition in the Medical Degrees Bill now before the Indian Government.—I am, etc.,

Wells, May 7th.

G. MUTHU.

TREATMENT OF CHLORINE GAS POISONING.

SIR,—I have not noticed that it has occurred to any of the R.A.M.C. men at the front to try the effect of venesection in acute poisoning by chlorine gas. It appears to me, seeing that the fatal effects are due to obstruction in the pulmonary circulation and oedema of the lung tissue, that copious blood-letting is the only remedy which could be expected to produce any immediate effect. It is at any rate worth trying, if it can be applied soon enough.—I am, etc.,

Edinburgh, May 24th.

E. A. SCHÄFER.

THE SPELLING OF "NEURON" AND "AXONE."

SIR,—I have to apologize for an error of confusion in my review of Gaskell's *Involuntary Nervous System* in last week's issue of this JOURNAL. While the "o" in "axone" is clearly long (ἄξων) that in νεύρον is, of course, short. It is only, therefore, for the sake of uniformity if the final "e" is added to "neurone." On the whole, perhaps, as Professor Sherrington has suggested to me, it would be better if neurologists agree to spell "axone" with the "e" and "neuron" without it. The latter word should, of course, be pronounced as if ending in the preposition "on."—I am, etc.,

University College, W.C., May 22nd.

W. M. BAYLISS.

Universities and Colleges.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

AN ordinary Council was held on May 11th, when Sir Watson Cheyne, President, was in the chair.

Diplomas.

Diplomas were given to ninety-nine candidates found qualified for the Membership of the College at the recent examinations.

The Cartwright Prize.

The subject for this prize for the period ending December 31st, 1920, is, "The treatment of injuries of the jaws, and the restoration by mechanical means of parts of the jaws lost as a result of injury, or removed on account of disease." The prize consists of a bronze medal and an honorarium of £85, and is open to persons engaged in the study or practice of dental surgery, and possessing qualifications capable of registration under the Medical Acts of the United Kingdom. (A diploma or licence in dental surgery, without a medical or surgical diploma or degree, will not be a sufficient qualification.)

In reference to a letter from a correspondent published last week criticizing the present arrangements for the election of the Council of the Royal College of Surgeons, we are informed that the President and Council are not empowered to arrange for any temporary modification of the rules, and that the alteration of a by-law is a lengthy and complicated procedure.

ROYAL COLLEGE OF SURGEONS OF EDINBURGH.

THE following have been admitted Fellows: Dines Chandra Chakravati, W. W. Hoare, G. R. Livingston, A. C. Sandstrom, N. F. Sinclair, H. M. L. Staley, Muhammed Abdul Wajid.

The Bathgate Memorial Prize in materia medica, consisting of bronze medal and microscope, has been awarded to Miss Marguerite R. Sterling.

The Ivison Macadam Memorial Prize in chemistry, consisting of bronze medal and set of books, has been gained by Miss Janet Grant.

SOCIETY OF APOTHECARIES OF LONDON.

The following candidates have been approved in the subjects indicated:

SURGERY.—H. H. Bailey, *A. Glen, *H. M. Hobson, *E. G. D. Murray.
 MEDICINE.—*H. H. Bailey, *P. C. C. Fenwick, *R. F. Jarrett, *E. G. D. Murray, *H. F. Pain, *M. B. M. Tweed.
 FORENSIC MEDICINE.—R. F. Jarrett, L. A. B. Moore, E. G. D. Murray, A. W. North, L. F. Pain.
 MIDWIFERY.—M. Dwyer, H. T. Lamb, E. A. Leak, A. W. North, S. L. Szpigner, M. B. M. Tweed, H. St. H. Vertue.
 * Section I. † Section II.

The diploma of the Society was granted to Messrs. M. Dwyer, A. Glen, A. W. North, and L. F. Pain.

THE United States Government's "safety first" train left Washington, D.C., on May 1st, on an educational tour through all parts of the United States. It carries hundreds of exhibits illustrative of the methods employed by the Federal Government for saving human life and property. It is believed that the number of deaths and injuries from accidents can be reduced by one-half through "safety first" methods.

Medico-Legal.

SENTENCE FOR PRETENDING TO BE A QUALIFIED PRACTITIONER.

ACCORDING to a report in the *Scotsman* for May 17th, a young man named George Bowie Farquhar was charged before the sheriff of Linlithgow on May 16th with having pretended to Dr. W. T. Lindsay, of Blackridge, that he was a duly qualified medical practitioner, and thus inducing Dr. Lindsay to engage him as locum-tenent, and to pay him £6 5s. a week for a period of six weeks and three days. The accused pleaded guilty. It was stated on his behalf that he had a knowledge of chemistry, had taken some preliminary examinations in medicine, and despite the want of qualification had given satisfaction. The sheriff said that he would not be doing justice in the public interest if he failed to impose the highest sentence in his power, which was imprisonment for three months.

The Services.

ROYAL NAVAL MEDICAL SERVICE.

Deputy Surgeon-General D. J. P. McNabb and Fleet Surgeon J. F. Hall have been appointed respectively Deputy Director-General and Assistant Director-General of the Medical Department of the Admiralty.

EXCHANGES.

LIEUTENANT R.A.M.C.T., with considerable surgical experience, is anxious to be transferred to a casualty clearing station, preferably in the Southern Command. Address, No. 2050, BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C.

M.O. to Divisional Train, Army Service Corps, probably at home for some time, desires immediate exchange with M.O. in 50th Division abroad—Apply No. 1950, BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C.

Obituary.

WE regret to announce the death, on May 12th, of Dr. JOHN HEPBURN LYELL of Perth. He had been in indifferent health for some months. He was a native of Newburgh, Perthshire, was educated at Perth Academy, studied medicine at St. Andrews and Glasgow Universities, and graduated M.B., C.M. in 1896 and M.D. in 1901. Dr. Lyell was closely identified with Perth and its institutions. He was for a period house-surgeon to the Royal Infirmary, and after he commenced practice was appointed one of the visiting physicians to that institution, acting also as medical electrician and radiologist. Dr. Lyell was assistant medical superintendent to Perth Prison. He took a keen interest in the affairs of the British Medical Association, and was secretary to the Perth Branch for some years; he was also joint secretary to the Local Medical and Panel Committees of Perth and Perthshire. A keen lover of science, he was identified with the Perthshire Medical Science Society, and contributed several papers on scientific subjects. Dr. Lyell is survived by a widow and three children, to whom the sympathy of a large circle of friends will be extended.

DR. JAMES BRUCE RONALDSON, who for many years practised in Haddington, died in retirement at his residence in Colinton, Midlothian, on May 17th, aged 65. He received his professional education at Queen's College, Belfast, Dublin, and Edinburgh, and took the diplomas of L.R.C.P. and L.R.C.S. Edin. and L.A.H. Dubl. in 1874. In 1884 he became F.R.C.S. Edin. and in 1890 D.P.H. He graduated M.D. St. Andrews in 1895. He was for a time M.O.H. for the Burgh of Dunbar, and for many years held the appointment of medical superintendent of Haddington District Asylum, besides conducting a large private practice. For upwards of thirty years he served in the 8th Battalion of the Royal Scots, attaining the rank of honorary surgeon-colonel, receiving the Volunteer Decoration for long service. Dr. Ronaldson contributed to the JOURNAL (vol. ii, 1907, p. 1826) a report of the death of a gamekeeper from a single pellet wound. The pellet had passed through the conjunctiva on the nasal side of the eyeball, splintered the orbital plate of the ethmoid, traversed the left cavernous sinus, divided the internal

carotid artery, run along the substance of the pons, and lodged between the lobes of the cerebellum. Dr. Ronaldson was held in high esteem alike among his friends and in professional circles. He leaves a widow and a son—a member of his father's profession, at present on war service.

DR. CHARLES CHAPMAN SKARDON died at his residence in Audley, North Staffs, on May 14th, aged 62. He was a native of Plymouth, and after studying at the medical schools of St. Bartholomew's and St. Mary's he took the diploma of L.S.A. in 1883. He settled in practice at Evershot, Dorset, and later in London. For the last six years he practised in Audley, Staffs, where he was highly esteemed by his patients.

DR. JAMES ANDERSON of Poulton-le-Fylde, Lancashire, died on April 9th, aged 64, of acute pneumonia. He was born in Johnston, Renfrewshire, and took the degree of M.B.Glasg. and the diploma of L.R.C.S.Edin. in 1877. After holding the appointment of resident surgeon to the Paisley Infirmary he went into practice in Poulton-le-Fylde, where he remained for thirty-eight years. In April, 1901, he was appointed a member of the Poulton Urban District Council, resigning his seat in 1902, when he was elected medical officer of health, an appointment which he held till his decease. He was also medical officer for the Poulton district of the Fylde Union.

DR. BARTHOLOMEW EDWIN MCKENZIE, of Toronto, who died on April 21st, was one of the first Canadian surgeons to devote himself to the study of orthopaedics. He was born at Oak Ridges, Ontario, in 1851, and was educated at the Cobourg Collegiate Institute. In 1877 he graduated at Victoria University and was awarded the silver medal for mathematics. He then entered the medical school of McGill University and received the degrees of M.D., C.M. in 1880. He subsequently did post-graduate work in London, Glasgow, Berlin, and Vienna. After engaging for a few years in general practice in Toronto, he specialized in orthopaedics. He was the founder of the Orthopaedic Hospital and was actively connected with its work almost up to the day of his death. In 1905 he was elected president of the American Orthopaedic Association. He was also associate professor of clinical surgery at the Medical College for Women, Toronto. Dr. McKenzie was a strong advocate for temperance and believed in advanced temperance legislation. He was the opponent of Dr. Pyne at the last provincial elections, but was defeated on the "banish-the-bar" issue.

COLONEL WILLIAM LITCHFIELD CHESTER, Army Medical Staff (retired), died at Coney Green, Upper Hatherley, Cheltenham, on May 5th, aged 65. He was born on February 17th, 1851, and educated at Trinity College, Dublin, where he graduated B.A. in 1872 and M.B. and M.Ch. in 1874. Entering the army as surgeon on March 31st, 1875, he became surgeon-major on March 31st, 1887, surgeon-lieutenant-colonel on March 31st, 1895, and full colonel on August 19th, 1903, retiring on February 17th, 1906. He served in South Africa in 1881 in the first Boer war, taking part in the campaign in the Transvaal, and in the Sudan in 1884-85, in the Nile campaign, receiving the medal with a clasp and also the Khedive's bronze star.

DEATHS IN THE PROFESSION ABROAD.—Among the members of the medical profession in foreign countries who have recently died are Dr. Henry L. Elsner, professor of medicine in the University of Syracuse, New York, aged 60; Dr. Giuseppe Magini, professor of histology and general physiology in the University of Rome, aged 64; Dr. R. H. Whitehead, professor of anatomy and dean of the medical department of the University of Virginia, Charlottesville, one of the leading anatomists in the United States, author of *The Anatomy of the Brain* and of many contributions to anatomical literature, aged 50; and Dr. Elphège Hamelin, sometime professor of therapeutics in the University of Montpellier, aged 75.

AN anonymous donor has offered the sum of £100,000 towards the establishment of a psychopathic hospital in New York.

Medical News.

THE Cavendish Lecture before the London Medico-Chirurgical Society will be delivered by Sir John Bland-Sutton, F.R.C.S., at the West London Hospital on Friday, June 23rd.

THE Royal Dental Hospital, Leicester Square, has received a donation of £400 from the trustees of Smith's (Kensington Estate) Charity and £100 from the executors of the late Mr. William Johnston.

DR. THOMAS LEWIS (London) requests us to state that he has retired from practice.

IN accordance with the will of Professor J. William White, of Philadelphia, an obituary notice of whom appeared in the BRITISH MEDICAL JOURNAL of May 20th, his brain has been placed in the Wistar Institute of Anatomy of the University of Pennsylvania, where it will be kept in the laboratory for scientific study.

THE London Committee of the French Red Cross (9, Knightsbridge, S.W.) has arranged for another course of first aid lectures in French at the French Hospital, Shaftesbury Avenue. It is thought that ladies who hope to work in France will be glad to take advantage of this opportunity.

THE Henry Saxon Snell prize of the Royal Sanitary Institute for 1915 has been awarded to Dr. William Hanna, assistant port medical officer, Liverpool, for his essay on improvements in the sanitary arrangements and appliances suitable on board ship for passengers and crew, and cattle and other live stock respectively. The prize consists of a purse of 50 guineas and the silver medal of the institute.

THE New York State Legislature has passed a bill providing for the training, registration, and licensing as dental hygienists of women who have gone through a course of study at a properly equipped dental dispensary. The new law has been made in view of the bad condition of the teeth of school children in New York, at least 90 per cent. of whom, it is said, need treatment. The dental hygienists may be employed by public institutions and school authorities, and may remove lime deposits, accretions, and stains, but they will not be allowed to perform any other operation on the teeth or tissues of the mouth. Similar enactments are already in force in Massachusetts and Connecticut.

THE President of the Royal Meteorological Society announces that, in accordance with the provisions of the Summer Time Act, Greenwich mean time will continue to be used for all meteorological observations and publications, so as to avoid discontinuity. In addition, however, to the work of regular observers, observations of many meteorological phenomena, often of much interest and importance, are recorded or reported by others. The society asks that any person making such reports will be careful to specify whether the time given is Greenwich mean time or summer time, as the omission of this information may render records valueless.

AT a meeting of the Paris Académie de Médecine, on May 9th, Dr. Taraskevitch presented a report on anti-typhoid vaccination in the Russian army. The union of zemstvos and cities, impressed by the results of this method in Great Britain and France, recommended its adoption, and millions of men have been inoculated. Down to February, 1916, more than 20,000 litres of vaccine had been used. Reports received since then from all parts of the front showed a considerable reduction in typhoid mortality. It has been decided to extend the use of the protective measure to paratyphoid affections and to cholera. About 500,000 soldiers have already been protected against the latter disease, although the method has not yet received official sanction.

THE eighth annual meeting of the Society for the Propagation of the Gospel Medical Missions was held at the Church House, Westminster, on May 10th, the chair was taken by Mrs. Scharlieb, M.D., M.S., who in some opening remarks said that only five per cent. of the population of India received proper medical attendance, and it would be a blot upon the fair fame of our country if means were not taken to relieve their suffering. Dr. Hugh Weir, late of Corea, now secretary of the S.P.G. Medical Missions, said that three doctors and six nursing sisters had taken service with H.M. Forces, and practically all the candidates who would naturally have been ready to sail were similarly occupied. In India the responsibility for the medical work connected with the Cambridge mission to Delhi had been transferred to the S.P.G., the Cambridge Committee contributing to the cost.

Letters, Notes, and Answers.

CORRESPONDENTS who wish notice to be taken of their communications should authenticate them with their names—of course not necessarily for publication.

CORRESPONDENTS not answered are requested to look at the Notices to Correspondents of the following week.

AUTHORS desiring reprints of their articles published in the *BRITISH MEDICAL JOURNAL* are requested to communicate with the Office, 429, Strand, W.C., on receipt of proof.

THE telegraphic addresses of the *BRITISH MEDICAL ASSOCIATION* and *JOURNAL* are: (1) **EDITOR** of the *BRITISH MEDICAL JOURNAL*, *Aitology*, *Westrand*, *London*; telephone, 2631, Gerrard. (2) **FINANCIAL SECRETARY** AND **BUSINESS MANAGER** (advertisements, etc.), *Articulate*, *Westrand*, *London*; telephone, 2630, Gerrard. (3) **MEDICAL SECRETARY**, *Medisecra*, *Westrand*, *London*; telephone, 2634, Gerrard. The address of the Irish office of the *British Medical Association* is 16, South Frederick Street, Dublin.

Queries, answers, and communications relating to subjects to which special departments of the BRITISH MEDICAL JOURNAL are devoted will be found under their respective headings.

QUERIES.

INCOME TAX.

TAXPAYER, a practitioner at A., started a practice at B. in 1912. In 1912 and 1913 this new branch showed a loss, in 1914 it just paid expenses, and in 1915 yielded a profit of £1,000. He has now sold the original practice, and is devoting his whole time to work at B. In the past his income tax returns have been prepared by amalgamating the results at B. with those for his original practice. How should the return be prepared for 1916-17?

On the average of the profits and losses at B. for the three years 1913, 1914, and 1915, as Taxpayer suggests; the average adheres to the business or practice rather than to the individual proprietor. In the same way, the purchaser of the practice at A. is liable on the average profit there, excluding any reference to the past losses at B., even though they were formerly properly included by our correspondent. We may perhaps add that the authorities may require Taxpayer to prepare his statement on the basis of the value of the total bookings at B., on the ground that as the practice there is in effect a new one, the cash receipts fall short of the full income accruing. It should also be borne in mind that any special expenses incurred in starting a branch—for example, cost of fittings, furniture, legal expenses in connexion with leasing new premises, etc.—are of a capital nature, and are therefore inadmissible as professional expenses for income tax purposes.

SIGNING CERTIFICATES.

F. K. wishes to know if other practitioners have had a like experience to his own in signing certificates for young working men who have met with an accident in their work and want compensation. Such certificates, he writes, often contain questions which, it is stated, these young men are to answer in writing themselves. Some of the questions are so simple that no one could fail to understand them, being mere inquiries as to name, residence, age, occupation, and so forth; yet when these certificates are presented to me to be signed I find that not one of the questions have been answered. If I point this out, one young man will say that if I don't write the answers for him he must get a clerk in an office to do this for him and another his father. These young men must have had an elementary school education somewhere. Surely, it must be, not because they cannot write, but because they won't write if they can find somebody more proficient in wielding a pen to write for them! Is this so?

LETTERS, NOTES, ETC.

DYSENTERIC ARTHRITIS.

DR. S. K. CHAUDHURI (Lovett Hospital, Ramnagar, Benares State) writes with reference to Captain Moorhead's note on dysenteric arthritis (April lat, p. 483): I have to record my personal experience. I had a virulent attack of dysentery in March, 1913. It was diagnosed as amoebic by Lieutenant-Colonel H. B. Melville, I.M.S., and Dr. B. N. Mukerje, honorary physician, King Edward VII. Hospital, Benares. This was confirmed by the fact that it was brought under control after nearly a dozen injections of emetine hydrochloride had been made, other remedies having failed. During my convalescence in the third week the metatarso-phalangeal joint of my right big toe became swollen and painful. The onset was quite sudden. I thought the condition to be an acute attack of gout, especially as it is in my family. A course of aspirin, hot fomentations and local antiphlogistic remedies, cleared it up in less than a week. Further injections of emetine hydrochloride were not made for the purpose. I

must mention that I have not had a similar trouble in my joint since then. It did not strike me as a sequel peculiar to dysentery. I cannot recollect coming across any such complication in hospital or private practice.

QUININE AND MALARIA.

DR. JAMES DUNBAR-BRUNTON (Cairo, Egypt) writes: Many times in the course of tropical practice I have been grievously disappointed with the results of quinine treatment administered orally. When the already enfeebled stomach of a sufferer from malaria is still further deranged by quinine in powder thrown into it, and is expected to put forth acid from its glands to dissolve the drug, this is surely to expect too much. A few grains may be absorbed, and the remainder passed through the pylorus interned in mucus and inert to fight. To enlarge the dose is equally unsound treatment. It is better to give frequently a small dose dissolved in weak acid. In 1891 I introduced the use of quinine in suppositories, finding an easy way via the rectal mucous membrane of giving a relatively large dose without upsetting the stomach. But undoubtedly the best way is by the intramuscular injection of quinine bichloride. I have read that it may produce abscesses. Such I have never seen in a long course of many injections. The essential part is to heat the ampoule of the solution over a flame till over blood heat. This is taken into a sterilized all-glass syringe with a long needle, also flame-sterilized. The skin is washed with ether. The injections are given deeply into the gluteal muscles, and no pain is felt afterwards, or alternatively under the shoulder blades between the muscles. The number of injections depends on the amount of malarial infection. With such administration of quinine cures will be effected, and in all cases it gives better results than by intravenous injection. Possibly in the veins the quinine is carried too rapidly to the portal circulation, and possibly made inert. Intramuscularly the absorption goes on more slowly.

HEREDITY.

MR. CASPER L. REDFIELD, of Chicago, has offered the American Genetic Association £200 for evidence as to the transmission of acquired characters. He will pay £40 for evidence that any one of the two or three thousand intellectual men or women of history is the product of an ancestry representing on the average four generations to a century; and £40 for evidence that any one of the two or three hundred intellectually very great men or women of history is the product of an ancestry representing on the average three generations to a century. He will pay £40 for a case "from live stock breeding where the parents made acquirements below the standard, in respect to performance and the offsprings surpassed the parents," and for a case in which "decline in powers of the offspring failed to follow acquirements, in the parents, which were clearly and distinctly below the standard of performance of the breed." He will pay £40 if it can be shown for any group of animals that the amount of improvement or decline in animal powers was not, as nearly as can be determined by actual measurements, exactly proportional to the amount of acquirement by ancestors above or below the normal or standard. Further information as to the method of procedure in these investigations may be obtained on application to the Editor of the *Journal of Heredity*, Washington, D.C., U.S.A.; or to Dr. Redfield, Monadnock Block, Chicago, Ill.

LIGHT BEERS.

LIEUTENANT-COLONEL RUSHTON PARKER, R.A.M.C.(T.) (Professor of Surgery in the University of Liverpool), writes: Ever since I first tasted French beer I have had agreeable recollections of the "bock," dating from a stay of two months in Paris in 1870. But at my last visit in 1914 it seemed to me that there was uniformity in the light, palatable, and cheap beer met with in Paris and at inns and wayside "cafés," as well as in private houses. This beer is to be procured in bottles, closed by a stopper of porcelain and rubber, clamped on with a stout wire grip, easily released or instantly closed again, exactly as we have in this country, each bottle costing a very few pence, and fit for use over and over again. No doubt this beer has resulted from the labours of Pasteur in standardizing the ferment so as to secure an invariable product, possibly controlled by the State. It is greatly to be desired that a similar light, palatable, and cheap beer of uniform quality should be procurable in this country, as it is in France, by all classes of the community whose condition permits the use of such refreshment to quench thirst. The stronger ales hardly quench thirst, but in fact rather tend to promote it.

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

	£	s.	d.
Seven lines and under	0 5 0
Each additional line	0 0 8
A whole column	3 10 0
A page	10 0 0

An average line contains six words.

All remittances by Post Office Orders must be made payable to the British Medical Association at the General Post Office, London. No responsibility will be accepted for any such remittance not so safeguarded.

Advertisements should be delivered, addressed to the Manager, 429, Strand, London, not later than the first post on Wednesday morning preceding publication, and, if not paid for at the time, should be accompanied by a reference.

NOTE.—It is against the rules of the Post Office to receive *postes restantes* letters addressed either in initials or numbers.

ON THE INFLUENCE OF ANTISEPTICS ON THE ACTIVITIES OF LEUCOCYTES AND ON THE HEALING OF WOUNDS.

By C. J. BOND, F.R.C.S., HON. COL. R.A.M.C.(T.),

HONORARY CONSULTING SURGEON TO MILITARY HOSPITALS IN THE NORTHERN COMMAND; MEMBER OF THE MEDICAL RESEARCH COMMITTEE; HONORARY CONSULTING SURGEON TO THE LEICESTER ROYAL INFIRMARY.

PART I.

IN the BRITISH MEDICAL JOURNAL, March 6th, 1915, I recorded some observations which seemed to show that the application of various antiseptics (even in a concentrated form) to the surfaces of aseptic wounds at the time of operation did not prevent primary healing. In the course of that inquiry certain effects on the blood were observed which suggested the desirability of a closer analysis of the problem.

In the first place, if any antiseptic in a concentrated form is applied to the tissues of a wound, efficient drainage of that wound is necessary, and it seemed important to devise some method of drainage which would not only carry off the blood and effused lymph but which would also serve as a trap to catch the emigrating leucocytes. In this way the cells could be recovered for microscopic examination at various intervals after operation, and the influence of various antiseptics could be observed on the behaviour of the leucocytes towards inert pigment particles, and albuminoid and other organic substances introduced into the wound.

A cotton thread of standard thickness and known number of fibres is boiled in water containing powdered indigo in suspension. By this means the thread is uniformly permeated with indigo granules, and can either be dried or kept in the indigo mixture and boiled before use on each occasion. A convenient length of this indigo thread is laid in the wound before suture and one end brought out at one angle of the wound. The usual sterile gauze dressing is applied.

If such an indigo thread drain be removed from an aseptic wound, say twenty hours after operation, and examined in warm normal saline, the fibres of the thread will be found glued together and covered by coagulated lymph containing in its meshes large numbers of living leucocytes, of which a certain percentage will have ingested the indigo granules. The percentage of such indigo-loaded cells will depend on (a) the time the thread has lain in the wound, and (b) the treatment of the wound by antiseptics or other reagents at the time of operation.

If a wound made for the radical cure of hernia or for the removal of varicose veins be so drained under aseptic conditions, and if the indigo thread drain be removed after an interval of twenty-four to forty-eight hours, the portion of the thread which lies in the cavity of the wound will be decolorized. The extent to which this decolorization has been effected affords an indication of the activities of the leucocytes in three directions: (a) Their capacity to leave the vessels and to enter the thread; (b) their capacity to ingest the pigment granules; (c) their capacity to leave the thread and carry the indigo particles with them.

The objection will, no doubt, be made that the decolorization of the thread is not due to phagocytosis, but to the washing out of the pigment granules by the flow of lymph from the wound. The following experiment, however, shows that this is not the case.

Two small beakers were filled, one with normal saline and one with human serum. One end of an indigo thread was placed in each solution, and the other end was allowed to hang over the glass in contact with white gauze; in

each case the fluid was drained out of the beaker into the gauze without washing the indigo out of the thread or depositing it on the gauze (Fig. 1). This shows that the decolorization of the thread drain while lying in the wound is not due to the flow of lymph or blood on to the surface of the wound, and further observations show that it is due to phagocytosis by leucocytes.

We may now ask what becomes of the leucocytes which have ingested the pigment granules. We know that in aseptic wounds the phagocytes do not leave the wound in the form of pus; they must, therefore, after entering the thread and ingesting the pigment, either (1) render the indigo granules unrecognizable by decolorization, or (2) eject the granules after temporary ingestion, or (3) transport the pigment from the thread back to the blood or lymph stream or the tissues. This question of the fate of leucocytes of different kinds, after emigration and phagocytosis, is a point of much interest about which it will be desirable to say more later; meanwhile, having shown that the decolorization of the thread is due to the vital activity of wandering cells, and is not merely a physical question of irrigation by fluids escaping from the wound, we are in a position to use this fact of decolorization and transportation of pigment as a means of testing the influence of various antiseptics on the activities of leucocytes while still living in the wound. The fact that the observations are carried out in the wound itself has considerable advantages. It serves to check observations made *in vitro*, and it is free from some of the fallacies inherent in experiments carried out under more abnormal conditions.

I have made a large number of observations on a considerable number of wounds under strict aseptic conditions in the human subject, and many antiseptics in different degrees of concentration have been tested by this method of the decolorization of the indigo thread. Further, the behaviour of leucocytes in relation to other substances such as egg albumin, serum albumin, starch albumin, glycogen, lecithin, has also been observed in wounds treated with and without antiseptics, though in this paper I propose to deal only with pigment particles. In some cases the wound itself has been washed out before closure with the antiseptic solution; in others the indigo thread alone

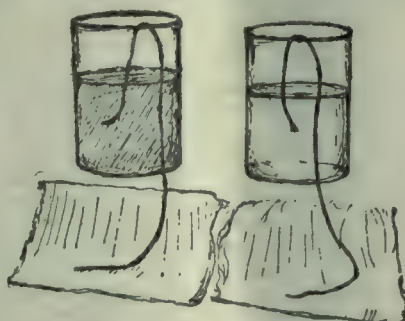


FIG. 1.—Drawing from a photograph showing non-decolorization of indigo thread by capillary flow of serum or saline fluid. 1, Serum; 2, saline.

has been saturated before introduction with various antiseptics in a concentrated form. By the first method the tissues from which the leucocytes emigrate are acted on by the reagent, and by the second method the pigment thread into which they pass.

The Effect of Antiseptics on the Decolorization of an Indigo Thread.

Without entering into the details of each case it may be stated in general terms that the application of a fairly strong antiseptic like mercury biniodide 1 in 1,000, or carbolic acid 1 in 20, to a wound such as that made for the radical cure of hernia, or for the removal of varicose veins, does delay to some slight extent the decolorization of an indigo thread placed in it as a drain.

In a wound to which no antiseptic solution has been applied an indigo thread of standard thickness will be almost decolorized in forty-eight hours, and will show very definite sign of partial decolorization twenty-four hours after insertion into the wound. If, on the other hand, the wound be treated before closure with any of the strong antiseptics, or if the thread itself be soaked in any of the same solutions, there will be only slight evidence of decolorization after twenty-four hours, and the thread will still show a blue tinge forty-eight hours after insertion.

The effect of salt solution, both in the 5 per cent. concentration and as normal saline, on decolorization, is about the same as in wounds in which no reagent at all has been used. This occurs when the wound is treated with the solution and when the thread is soaked with it before introduction.

Little difference could be detected (Figs. 2 and 3) in the effect on decolorization between the 5 per cent. salt solution and the 0.9 per cent. solution; and this, indeed, we should expect, because the stronger solution doubtless undergoes rapid dilution by the blood and lymph poured into the wound.

There is some evidence pointing to the fact that different individuals under similar conditions of wound treatment vary in the rapidity with which decolorization is effected; in other words, individual patients vary in the capacity of their leucocytes to (1) emigrate, (2) to ingest foreign particles, and (3) to transport the pigment granules so ingested under the stimulus of injury.

In its clinical aspect this fact is of course familiar to surgeons, and it is no doubt associated with the observed differences in the rapidity with which blood and other effusions are absorbed in persons of different ages and in different states of health. It is a problem of much interest, and will, I hope, be the subject of further inquiry.



FIG. 2.—Drawing from a photograph showing indigo thread after forty-eight hours in wounds treated—1, without antiseptic; 2, with carbolic acid 1 in 20; 3, with salt solution 5 per cent.

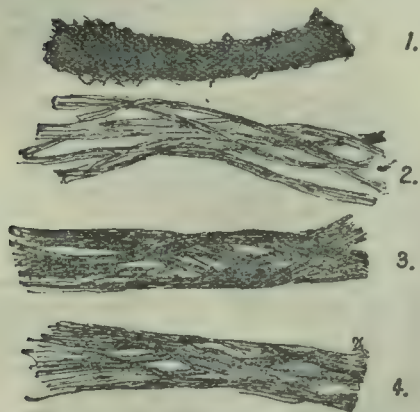


FIG. 3.—Drawing from a photograph showing the decolorization of indigo threads soaked in different solutions after forty-eight hours' exposure in the same wound. 1, Thread before introduction; 2, thread without any antiseptic; 3, thread with carbolic acid 1 in 20; 4, thread with salt solution 5 per cent.

pigment is the work of the leucocytes, and is independent of the blood stream and body fluids. In delayed decolorization the delay may be the result of

- (1) Deficient emigration of leucocytes; or
- (2) Impaired ingestion of pigment particles; or
- (3) Failure on the part of the leucocytes to return to the tissues with their loads of pigment.

Before attempting to answer this problem we must first ascertain whether the indigo or other pigment has any injurious effect *per se* on the leucocytes. If an indigo thread drain, removed from a wound which has not been treated with any antiseptic, be teased in warm normal saline and the entrapped leucocytes be watched on the warm stage, the cells which contain pigment granules will be seen to throw out pseudopodia freely, though perhaps not quite so freely as unloaded cells.

The vitality and activity of these loaded phagocytes has been tested in various ways under different conditions. Thus indigo-containing cells were incubated in a saline fluid containing 0.005 per cent. calcium chloride to which carbon particles has also been added as recommended by Hamburger.¹ Although a considerable number of empty cells take up the carbon under these conditions, it is not usual to find many cells which already contain indigo taking up the carbon particles in addition. This point was also tested in the actual wound. Two pieces of gauze, one permeated with indigo and one with carmine, were placed one above the other on a healthy granulating

surface, and the whole covered with protective. The entangled phagocytes were examined in warm saline twenty-four hours later. A large number of cells were found loaded with indigo and others with carmine particles, but only a few cells were seen which contained both kinds of pigment granules.

A composite cotton-thread drain, containing both indigo and carmine particles, was introduced into an aseptic wound and the same result obtained. I am inclined to think that this apparent disinclination on the part of leucocytes to ingest different kinds of pigment granules at the same time in wounds is not due to any injurious effect exercised by the indigo (or the carmine) on the cell, but that it is really the outcome of inertia on the part of the loaded cell, since all inert particles seem to have the same effect in this respect. I say inert particles, because it is necessary to distinguish between such bodies as carbon or other pigment particles around which no digestive vacuole is formed, and assimilable substances like albumin and starch, around which, when ingested, digestive vacuoles are formed.

Indigo-containing leucocytes recovered from an aseptic wound were also incubated in saline fluid containing neutral red in solution as used by Ehrlich, and as recommended by Achard of Paris as a test for living leucocytes. The cytoplasm of the indigo-containing cells takes up the neutral red freely while the nucleus remains unstained. Examined also on Ross's auxetic agar jelly to which atropine sulphate has been added, the indigo-containing cells show active movements.

From these and other observations, both *in vivo* and *in vitro*, we must, I think, conclude that the indigo granules, which are insoluble in the body fluids (except the bile), do not exercise any marked injurious effect on the white blood corpuscles.

Any delay that takes place in the removal of the indigo from the cavity of a wound which has been treated with an antiseptic may be regarded, therefore, as due to the action of that antiseptic solution, and not to any deleterious influence exercised by the indigo on the phagocytes.

We have already seen that in the process of decolorization of the indigo thread three different factors are involved, and the question now arises which of these three factors—Emigration, Ingestion, or Transportation—is responsible for the delay in the removal of the pigment.

Direct observation shows that a thread that has lain in a wound which has been treated by a strong antiseptic solution like carbolic acid 1 in 20 contains apparently about as many leucocytes as a thread which has lain in a wound to which no antiseptic has been applied. Of course, if the raw surface has been cauterized by an escharotic, then the coagulation of the tissue cells and the closure of the blood vessels will prevent the emigration of leucocytes into the cavity of the wound. This, however, does not occur when antiseptics are used in ordinary concentrations under surgical conditions in a recent wound. In several cases of septic wounds, complicated with extensive bone injury, which were being treated by daily irrigation and soaks of chloramine, tampons of indigo gauze were laid in the wound for twenty-four hours. These tampons were found on removal to be covered with pus cells and phagocytes, of which large numbers had ingested indigo granules.

In a case of operation for the radical cure of hydrocele in a young adult, after turning back the tunica vaginalis, the surface of the testis was freely rubbed with pure carbolic acid, with a view to the destruction of the secreting endothelial cells, a rubber tube was inserted down to the testis, and through this rubber tube an indigo thread drain was placed in contact with the cauterized tissues. On examining this thread after removal forty-eight hours later large numbers of leucocytes loaded with indigo granules were found amongst its fibres. Owing to the isolated position of the thread in the rubber tube, the phagocytes which had been carried into it by the flow of lymph had remained in the thread and had been unable to return to the tissues. In this case, although little or no decolorization had taken place, the result was not due to lack of emigration. Quinine has been for long supposed to have a special influence in preventing the emigration of white blood cells. An indigo thread soaked in a 1 per cent. solution of quinine hydrochloride placed in an

aseptic wound was largely decolorized in thirty-six hours; thus, whatever may be the case outside the body, quinine does not seem to prevent phagocytosis of pigment granules in a wound.

These facts all suggest that antiseptic solutions, surgically applied to aseptic and to infected wounds, do not tend to prevent the emigration of leucocytes from the injured tissues; in fact, as we shall see when dealing with organic substances, many antiseptic solutions in moderate concentration stimulate the flow of wandering cells. Neither does the evidence suggest that leucocytes which escape into wounds so treated are unable to ingest indigo or other pigment granules present in the wound.

What does seem to happen is that leucocytes which have so escaped and which have ingested pigment granules are less active in transporting their pigment loads back to the walls of the wound when antiseptics in a concentrated form have been previously applied to that wound.

The Return Immigration of Leucocytes in Wounds.

Metchnikoff showed that leucocytes which had emigrated into the peritoneal cavity to repel bacterial invasion returned in large numbers to the general circulation. Macallum later established the fact that white cells which had wandered into the lumen of the bowel during digestion returned to the portal and systemic circulation. The facts, however, are not so fully known in regard to cells which have emigrated in response to the stimulus of injury either of a mechanical or chemical kind. The problem of the return emigration of leucocytes from wounds has not yet been fully worked out in different tissues, in different kinds of animals, in different varieties of wounds.

In considering this problem it is necessary to distinguish carefully between infected and non-infected wounds.

In infected wounds the throwing off of the dead leucocytes as pus cells is in itself, of course, evidence that large numbers of the white corpuscles which escape from the blood vessels under such conditions do not return to the lymphatic or general circulation. But even in heavily infected suppurating wounds a considerable number of phagocytes do return to the deeper layers of the granulation tissues which line the cavity of the wound.

Thus, if the granulating surface of an infected wound which is showing some attempt at repair, and in which, therefore, the contest between the defensive cells and the pathogenic organisms is not an entirely one-sided one, be dusted with powdered indigo or dressed with a layer of indigo gauze, and if after an interval of some twenty-four hours a small piece of the granulation tissue so treated be removed, sections cut at right angles to the surface will show a number of indigo-containing cells around the new capillaries in the deeper layers of the tissue. If the edge of the granulating area over which the new epithelium is spreading be carefully examined the indigo-containing cells may be sufficiently numerous in the underlying granulation tissue to give a blue appearance to the edge of the wound. Thus, while large numbers of the emigrating cells perish as pus cells, a considerable number survive and return to the tissues and the circulation. Moreover, there is a quantitative relationship between this "return immigration" of cells and the process of repair in the wound. This is seen clinically in the diminishing flow of pus which accompanies successful resistance to bacterial infection and the commencement of healing in a wound. The reduction of discharge is not wholly accounted for by diminished emigration.

The application of antiseptic solutions to granulating wounds, provided they do not cause death of the cells which compose the granulation tissue, does not seem to lessen the number of cells which contain pigment granules, though it does seem to exercise some influence on the number of cells which return to the tissues. A small wick of indigo gauze was laid in a heavily infected wound treated with compresses of eusol; large numbers of leucocytes loaded with indigo were found among the gauze fibres twenty-four hours later.

While this is the condition of things in the septic open wound, the picture presented by aseptic wounds in which suppuration is absent is quite different.

Here there is no throwing off of dead cells. All the cells which have reached the wound area must therefore either return to the circulation and the tissues or perish, and in their turn undergo removal by other phagocytes.

The Route followed by the Leucocytes in Return Immigration.

I have tried to detect the route by which the phagocytes regain the circulation by laying in the floor of an aseptic wound before suture a compound drain composed of a small indigo-bearing thread encased in or applied to one side of a larger thread of wool, as shown in Fig. 4.

On examining such a drain twenty-four or forty-eight hours later the indigo will have disappeared more or less completely from the indigo thread, and the leucocytes which have ingested it now occupy larger or smaller areas of the wool skein.

The degree of decolorization and the lines of retreat of the pigment-bearing cells seem to depend on certain accidental conditions, such as intimacy of contact between the indigo thread and the living tissues in the floor and sides of the wound. If the indigo thread lies, so to speak, free in the cavity of the wound imbedded in coagulated lymph, then the movements of the phagocytes are restricted, and they may only reach that portion of the wool skein which lies in direct contact with the indigo thread. Where the indigo thread is in direct touch with the living tissues the pigment-bearing phagocytes seem to return directly to the tissues in preference to entering the meshes of the wool fibres, though these are, of course, crowded with freshly emigrating cells which have not yet reached the indigo granules.

Further, the nature and vascularity of the tissues with which the pigment thread lies in contact also exercise an influence on the return flow. For instance, fatty tissues do not offer a favourable site for return immigration. The fibrous aponeurosis of the external oblique (in hernia wounds), if roughly handled and deprived of its feeble blood supply by gauze stripping, does not afford as favourable a clearing ground for rapid decolorization as the more vascular subcutaneous tissue.

This composite thread drain can also be used to test the effect of antiseptic solutions on this current of return immigration.

Fig. 5 shows cross sections of two such drains. In No. 1, from an untreated wound, the phagocytes have removed the indigo from the indigo thread and deposited it in the wool skein. In No. 2, from a wound washed out with mercury binioidide 1 in 1,000, the cotton fibre has undergone little or no decolorization and the wool skein is still white and contains only a few indigo-laden cells. In this case the delayed decolorization of the thread in the wound treated with the antiseptics is not due to failure in either emigration or ingestion because the indigo thread is crowded with loaded leucocytes (Fig. 6).

I also tried to test this problem of the route followed by the phagocytes in return immigration and the influence of different tissues upon it by laying an indigo thread in one angle of the wound and a white cotton thread of like size but free from pigment in the other angle. When examined twenty-four hours later, very few pigment-laden leucocytes were found in the white cotton thread. The phagocytes seem to take the shortest route to the tissues as far as the coagulated lymph and blood which occupies the cavity of the wound will allow, and the cells do not seem to make their way to other foreign substances in other parts of the same wound. This is in harmony with the previous observations that leucocytes which have



FIG. 4.—Diagram showing arrangement of compound thread. 1, Indigo thread; W, white wool skein.



FIG. 5.—Drawing from photograph of cross sections of composite indigo and wool drain after removal from wound (+ 5 diam.). 1, From untreated wound, shows decolorization of indigo thread and deposit in wool drain. 2, From wound treated with mercury binioidide 1 in 1,000, no decolorization of indigo thread, no deposit of pigment in wool drain.

already ingested one kind of pigment do not seem very active in ingesting a second variety. In view of the clinical phenomena associated with the spread of infection and the inflammatory reaction which accompanies infection, I also attempted to ascertain whether any extensive migration of pigment-laden cells occurs in the tissues which surround the wound, or, more accurately, whether, having emigrated and ingested foreign substances at the seat of injury, and having returned to the tissues, these pigment-laden phagocytes re-emigrate at the site of a neighbouring wound. To test this point an indigo-thread

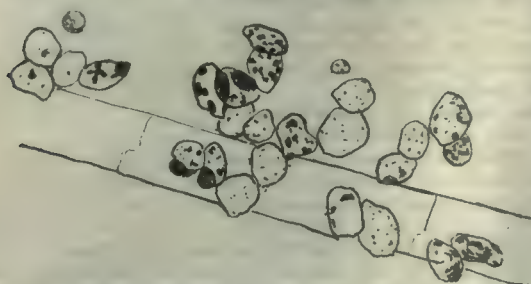


FIG. 6.—Drawing from a photomicrograph showing phagocytes containing indigo granules lying on and around a cotton fibre from the wound in Fig. 5, 2 ($\times 500$). It illustrates the fact that absence of decolorization is not due to failure in emigration or ingestion on the part of the leucocytes.

drain was placed in one incision in a case of operation for varicose veins, and a white cotton unpigmented thread was placed in a neighbouring incision a little above the first. When removed, twenty-four hours later, no indigo-bearing cells were recovered from this white thread in a neighbouring wound.

Mention has already been made of the fact that no extensive ingestion of both kinds of pigment by the same cells occurs in two superimposed pieces of indigo and carmine gauze placed on a granulating wound. The same is true of aseptic wounds. Thus, a compound pigment thread containing both carmine and indigo particles removed from such a wound contained both indigo and carmine-loaded cells, but few cells carrying both blue and red granules.

Further observations are needed, but it seems probable that the "return immigration" of phagocytes is not entirely a question of chance, but is subject to a chemotactic influence just like outward emigration. This does not, of course, mean that the element of chance does not play a large part in the movements of wandering cells in both the outward and the return journey.

Jennings and others have shown that the response of the amoeba and other protozoal organisms to attracting and repelling substances, and to physical stimuli, largely consists in movements of trial and error. The organism assumes various experimental positions along a line of least resistance, and this is probably true of the white blood corpuscles in man.

The Influence of Antiseptic Solutions on Return Immigration.

I have already spoken of the effect of a previously applied antiseptic on the process of decolorization of the indigo thread, and on the movements of the pigment-laden leucocytes in the composite cotton and wool thread. I have shown that the application of a strong reagent like pure carbolic acid to the surfaces of a wound made for the radical cure of hydrocele does not apparently reduce the numbers of wandering cells which crowd into the cavity of the wound, or the ingestion of the pigment by these cells. Evidently the effect of antiseptics used surgically does not check the emigration of leucocytes or their phagocytic activities as far as pigment is concerned—in fact, as we shall see later when dealing with organic substances, emigration is in some cases accelerated. It is, however, quite possible that emigration and phagocytosis may be going on freely, and yet the healing of such a wound may be prejudiced by the accumulation of the phagocytes in the cavity of the wound.

The delayed decolorization of the indigo thread which occurs in wounds which have been treated with certain reagents is probably partly due, therefore, to delayed return immigration.

Return Immigration in Suppurating Wounds.

The extent to which phagocytes which have flowed on to the surface of a suppurating wound can re-enter the tissues or the circulation depends upon, and is an indication of, the degree of injury which these wandering cells have sustained in their struggle with the pathogenic organisms established in the wound.

A certain amount of return immigration probably takes place on all granulating surfaces, as in all injured areas, with the exception perhaps of those wounds in which the infecting organisms have obtained complete mastery—a condition shown clinically by the cessation of discharge, together with signs of general toxæmia. Even in heavily infected granulating wounds, if a portion of the granulation tissue be excised after the surface has been dressed for two or three days with indigo, sections cut at right angles to the surface will reveal the presence of indigo-laden cells around the capillary loops in the newly-formed tissue. This occurs independently of the kind of antiseptic used provided that it is not strong enough to kill the cells.

I have attempted to investigate this question of the effect of antiseptic reagents on return-immigration in suppurating wounds experimentally in animals. Two small skin flaps were raised one on either side of the spine in the lumbar region in a guinea-pig. A piece of white gauze was laid in each wound so formed, and the flaps resutured over the gauze. Three days later (under an anaesthetic) the flaps were again raised, and indigo-saturated gauze was substituted for the plain gauze; on the right side no antiseptic was used, but on the left side the granulating surface was washed with carbolic acid 1 in 20, and the indigo gauze was soaked in the same solution before insertion in the wound, which was dressed later with the same lotion. The animal was killed two days later, and both wounds with the surrounding tissues excised and hardened in formalin. Sections embracing the entire thickness of the wounds show that indigo-laden phagocytes have wandered freely into the granulation tissue on both sides. In the wound to which the antiseptic had been applied the flow of pigment was less regular round the margins of the wound. It had not penetrated so far into the tissues except at one part along the aponeurosis between the subcutaneous and muscular tissues at the deep end of the wound, where possibly the antiseptic had not penetrated so freely.

Pus—Not Only Composed of Dead Cells.

Various samples of pus from heavily infected wounds have been tested from the point of view of the capacity of the pus cells to ingest foreign particles *in vitro*. Starting with the preconceived idea, which I think is still shared

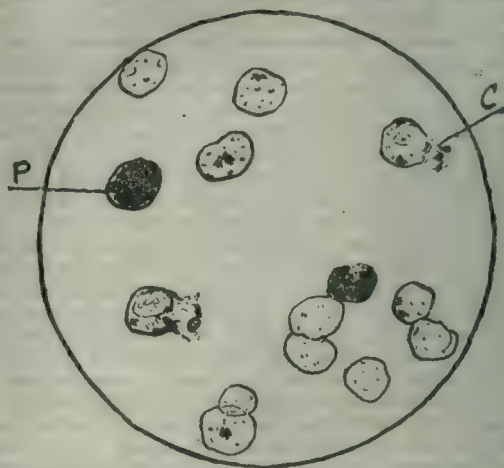


FIG. 7.—Drawing from a photomicrograph showing "pus" from a case of peritonitis incubated with indigo for eight hours. It contains a single field (one-twelfth water immersion and A ocular). Several "pus" cells are loaded with indigo granules and masses. P, Pus cell containing indigo; c, indigo escaped from ruptured cell.

by some surgeons, that pus is always composed of "dead" cells; I have been impressed with the fact that very few samples when incubated with pigment granules in normal saline have failed to give evidence of some capacity of ingestion on the part of a certain number of the cells of which the liquid is composed (Fig. 7).

If we regard capacity to flow round and ingest foreign particles as evidence of vitality then we must conclude that while most of the cells in pus from infected wounds are dead cells, yet a certain proportion are still living and capable under favourable conditions of active phagocytosis. This observation on the behaviour of pus cells *in vitro* is in harmony with the previously recorded activities of pus cells in the actual granulating wound. The proportion of living to dead cells bears some relation to the number and virulence of the infecting organisms and the digestive changes in the liquor puris.

In samples of pus taken from wounds infected with pyogenic organisms which show some attempt at successful reaction, the amount of carbolic acid in normal saline necessary to inhibit the ingestion of carmine particles by the pus cells when incubated for twenty-four hours is somewhere between 1 in 640 and 1 in 1,000.

This applies to pus removed from a wound and incubated with pigment *in vitro*. When, however, the pus cells are brought in contact with the indigo particles *in situ*, and are allowed to collect upon a layer of indigo-saturated gauze laid on a granulating surface and covered with protective, the incubation is carried out in the wound and a much larger number of indigo-containing cells can be recovered from the gauze. The proportion between living and dead cells, as judged by the test of ingestion, depends upon the healthiness of the wound. The strength of the acid carbolic solution necessary to inhibit the ingestion of pigment particles by the cells under these conditions must be judged by another standard. If indigo gauze soaked in normal saline be used as the control, then it will be found that ingestion of pigment goes on freely in gauze which has been soaked in acid carbolic solution, 1 in 60, before application to the wound. This method of testing the ingestive capacity of pus cells by incubating them with pigment granules in the wound itself affords a striking proof of the fact that many samples of pus contain considerable numbers of living leucocytes. It also affords a means of ascertaining the healthiness or unhealthiness of any wound, and of testing the effect of different antiseptic solutions on the life and activities of the leucocytes in the wound itself. Of the many factors which affect the vitality of leucocytes in a wound one of the most important (apart from the number and virulence of the infecting organisms) is the length of time which elapses after the cells have emigrated from the circulation and during which they have been exposed to the unnatural environment of an open wound. It is the recently emigrated cells which seem to retain the capacity to ingest foreign particles, and this fact bears on the very important problem of the efficient drainage of wounds. The object of drainage should be not only to provide for the escape of dead cells, but to further the emigration of living phagocytes.

We know that laudable pus (in other words, pus containing living phagocytes) indicates healthy activity in a granulating wound. It is possible that (in the absence of aseptic human leucocytes), if some means could be found to kill the ingested organisms without injuring the phagocytes, and to wash the cells so treated free from contaminating liquor puris, such revitalized pus would form a useful dressing for suppurating wounds.

The Difference between Suppurating and Non-suppurating Wounds.

Apart from the all-important factor of the presence or absence of infecting organisms, the differences between a suppurating and a non-suppurating wound are chiefly differences of degree and not of kind. We know that the tissues and the spaces between the tissues in the primarily healing aseptic wound are crowded with living phagocytes capable of ingesting both foreign particles and dead cells. We have also seen that a considerable number of the cells which compose the purulent discharge from a suppurating wound are also living cells capable of ingesting foreign material and acting as phagocytes. Emigration and capacity for ingestion are therefore factors common to both kinds of wound. The main difference between them lies in the fact that, while the proportion of phagocytes which find their way back to the tissues or the circulation is large in the primarily healing wound, it is relatively small in the suppurating wound. The degree of return immigration constitutes, in fact, the main distinction between the aseptic and the suppurating wound.

SUMMARY AND CONCLUSIONS.

I am fully conscious of the incomplete character of these observations. No attempt has been made to differentiate between the different varieties of phagocytes. Although this point has not been entirely lost sight of, the overwhelming numerical superiority and the greater importance of the polynuclear leucocytes in wound reactions has led me to limit my remarks at present to this group.

Further, the different ways in which different tissues and different organs respond both to different kinds of infecting organisms and to different kinds of antiseptic solutions is a wide and important subject. The work required to elucidate the method of such a comparatively simple reaction as the deportation of foreign pigment in the brain, liver, and other organs is very considerable, and must form the subject of further inquiry.

It will no doubt appear to many that the all-important factor of the infecting organism has not received adequate attention. The problem of wound reaction and wound treatment is, however, so enormous that some subdivision of the subject is absolutely necessary, and in this paper I have tried to deal only with the effect of various antiseptic reagents on emigration, phagocytosis (or ingestion), and return immigration of leucocytes when carrying pigment granules.

The outcome of the inquiry seems to be that antiseptic solutions in moderate degrees of concentration exercise less influence over emigration and phagocytosis than many surgeons have supposed. There are, however, reasons for concluding that antiseptics do exert a considerable inhibitive effect on the return immigration of living phagocytes. This aspect of the subject should, I think, be borne in mind in descriptions of the effect of different antiseptics in killing off pathogenic organisms in pus and other liquids *in vitro* and on the sterilization of wounds.

Provided efficient drainage is ensured, the surgical application of most antiseptic solutions does not apparently materially prejudice the defensive activity of the tissues in either infected or non-infected wounds. If it can be shown that the use of antiseptic reagents does at any stage diminish the numbers or inhibit the activities of pathogenic organisms, not merely *in vitro* but in the actual wound, then, although these reagents do undoubtedly cause the death of a certain number of body cells and prevent others from again reaching the tissues, this is a small matter if the invading organisms are at the same time materially diminished in numbers or in offensive capacity. It is the continuous and increasing effect of infection which is so inimical to healing. The occasional death of even large numbers of phagocytes is well borne if time be given to make up the loss. It is the strain of continued cell multiplication and the providing for the removal of organisms and cells that have perished in the struggle that tells.

The experimental introduction of pigment particles into a wound also throws a valuable sidelight on wound infection. In a general way the transportation of the pigment follows the same routes and the same lines of least resistance as those traversed by infecting organisms. The same peculiarities are apparent in the permeation of tissues and organs by the pigment granules. The liver, the spleen, the kidney, and the brain each presents its own special problem in emigration, phagocytosis, and return immigration.

Bearing in mind the fact that pigment particles are incapable of intrinsic movement, or multiplication, or growth, any transportation of pigment in so far as it is not due to currents in the lymph or other fluids bathing the wound, must be due to the action of living cells.

It is interesting to find that the route taken by the pigment in the tissues generally coincides with the route taken by the infecting organisms; thus infection and return immigration roughly coincide. Several side issues of considerable interest arise out of this problem of the return immigration of phagocytes. Unless the ingested cocci and bacteria which are carried into the tissues by the phagocytes on their return journey are killed, or sufficiently attenuated to render them incapable of further growth, they may start into renewed activity on the death and disintegration of the cells which contain them. It is possible that some cases of recrudescence local sepsis may owe their origin to this cause.

The extent to which intrinsic motility and capacity for continuous growth enable pathogenic organisms to establish themselves in the walls rather than in the cavity or on the surfaces of a wound, no doubt varies with different organisms and in different tissues. The fact, however, that phagocytes are constantly transporting organisms from the cavity or the surface to the tissues which form the walls of a wound means that any adverse influence acting on these loaded cells on their return journey calculated to interfere with their power of retaining and digesting these ingested organisms is a source of danger. It is possibly in this way that antiseptic solutions act prejudicially when used too continuously or in a too concentrated form.

In connexion with this investigation I wish to acknowledge valuable help received from Captain Clare, R.A.M.C., and Sergeant Crane at the Pathological Laboratory of the 1/5 Northern Hospital, and from the resident staff, and R. Bertram, laboratory assistant, at the Leicester Royal Infirmary.

REFERENCE.

¹ BRITISH MEDICAL JOURNAL, January 16th, 1915.

Notes on Military Orthopaedics.

III. THE SOLDIER'S FOOT AND THE TREATMENT OF COMMON DEFORMITIES OF THE FOOT.

BY

LIEUTENANT-COLONEL ROBERT JONES, CH.M.,

F.R.C.S.I. (HON.),

INSPECTOR OF MILITARY ORTHOPAEDICS, ARMY MEDICAL SERVICE.

(Continued from page 753.)

PART III.

HAMMER-TOE.

HAMMER-TOE is a deformity which usually affects the second toe, though it is common to find slighter degrees of the condition in other toes. It consists of flexion of the proximal interphalangeal joint and dorsiflexion of the metatarso-phalangeal joint (Fig. 1). The prominent knuckle of the proximal interphalangeal joint chafes on the upper of the boot, while the tip of the toe is pressed on the sole. Painful corns naturally develop at these points of pressure, making the man unfit to march.



FIG. 1.—Hammer-toe.

The causes are numerous: sometimes the deformity runs in families, but the commonest cause is the crowding of the toes in ill-fitting, badly designed boots. Hence it is common to find hammer-toe associated with hallux valgus.

Treatment.

In the adult operative procedure is indicated if we are to produce a quick and lasting recovery. Neither amputation of the toe nor an attempt at pseudo-arthritis of the proximal interphalangeal joint should ever be undertaken. Amputation should not be done, because the absence of the second toe increases the tendency to the production of hallux valgus, and often leads to a second disability more serious than the original hammer-toe (Fig. 2).



FIG. 2.—The disability produced by amputation of second toe.

Some surgeons, when operating to correct the deformity, leave the articular cartilage on one side of the joint in order to obtain a new joint. My experience is that this is followed by recurrence so frequently that the operation should be condemned as uncertain.

Operation.

The operation found most uniformly satisfactory is a wedge-shaped excision removing the articular cartilage on

both sides of the joint, so as definitely to ankylose the joint in extension. An oval piece of skin, including the corn, is excised over the prominent knuckle. A wedge, base upwards, including the joint, is then excised, of sufficient size to allow the toe to be straightened (Fig. 3). The flexor tendon is divided by tenotomy. The skin incision is then

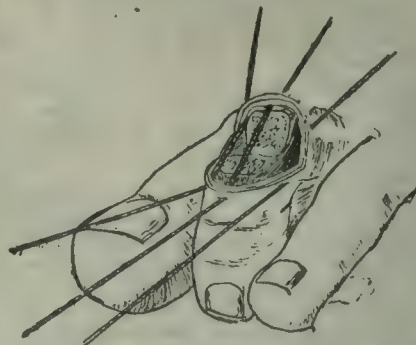


FIG. 3.—Wedge excision of joint for hammer-toe.

stitched so as to leave a transverse linear scar. The toe is fixed down to the toe-splint shown in Fig. 4, and the patient walks about, still wearing the splint inside his boots, for some weeks, to make sure that solid ankylosis occurs without any return of the deformity.

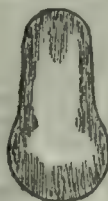


FIG. 4.—Splint for hammer-toe.

DISPLACEMENT OF THE LITTLE TOE.

A displacement of the little toe, similar in nature to hallux valgus, frequently occurs, usually as the result of wearing boots which are too tight and too pointed. Occasionally the condition is congenital. The toe is displaced inwards either over the dorsal or under the palmar aspect of the fourth toe. In either position it is subjected to undue pressure in any ordinary boot, and therefore becomes painful.

Treatment.

This condition is very troublesome, and when it occurs in a soldier an operation is essential. The treatment which may be applied successfully in children has no place here, as the structures have become so contracted, especially the skin, that tenotomies, excisions, or simple splintings are wholly inefficient. Amputation of the toe is simple and effective in most cases, especially if no callosities have formed under the metatarsal head. In amputating it is advisable to make an ample flap to obviate the result of subsequent contractures and to secure a lax fleshy covering for the bone. If a callosity has formed, no pressure should be allowed upon that area until by rest and treatment it has become soft and normal. If the head of the bone is arthritic and the condition is complicated by exostoses or irregularities, these should be pared away. Only in very exceptional circumstances should the head of the metatarsal be removed, for, as pointed out in a previous article, this forms one of the points of support in the foot on which a soldier's marching powers depend.

METATARSALGIA.

Metatarsalgia is a peculiarly painful disability of the foot associated with flattening of the transverse arch. The characteristic pain is usually felt in the fourth metatarso-phalangeal joint, frequently in the third, and less often in the second. The pain is variously described as a sharp stab, a burning pain, or as if the patient was "stepping on a red-hot pea." The pain may come on suddenly as the patient is walking in the street, and cripple him, so that he has to hobble into a shop and get his boot off. The device adopted by most patients to obtain relief is to grasp the metatarsals in the hands and squeeze them so as to restore the transverse arch. In more chronic cases the affected toe becomes glazed and shows signs of trophic disturbance, while in some cases there is complaint of severe pain shooting up the leg.

Morton in his original description attributed the pain to pinching of the digital nerves between the metatarsal heads. The fact that relief is obtained by squeezing the metatarsal heads casts doubt on the truth of this. I described the condition fully in 1897, and stated that,

as the result of the study of dissections and frozen sections, I had come to the conclusion that descent of the transverse arch and consequent pressure on the nerves in the sole was the real cause of the pain.

Diagnosis is easily made by the characteristic tenderness elicited by pressing the offending joint between the finger and the thumb. In addition, obvious flattening of the transverse arch is usually present, and the fatty pad under the heads of the metatarsals is absorbed by the pressure of the descended arch, so that the "ball of the foot" feels unnaturally thin, and there are corns in the sole under the unusual points of pressure. The condition is therefore to be regarded as directly connected with overstrain of the foot, and is consequently associated with flat-foot.

Treatment.

Immediate relief can nearly always be given by removing the pressure of the body weight off the heads of the metatarsal bones by a bar behind them (Fig. 5).



FIG. 5.—Treatment of metatarsalgia. Bar on sole of foot behind the heads of the metatarsal bones.

The effect of this is to carry the body weight on the necks of the metatarsals. The heel of the boot should also be raised one third of an inch on the inner side, as for ordinary flat-foot. A band of strapping round the bases of the metatarsals to prevent spreading also helps. These measures, combined with exercise of all the small muscles of the foot to restore the arch, and massage to relieve the pain and improve nutrition, will suffice to cure all early cases in the space of a few weeks.

The patient should then be warned against wearing narrow boots, which impede the free play of the fore part of the foot, and conduce to atrophy of the muscles of the foot from disuse.

In cases which have lasted for some time these measures do not suffice for a cure, though they give some relief.

Operation.

More drastic measures are required for the soldier's foot. Removal of the head of the offending metatarsal through a small dorsal incision completely relieves the condition in ninety per cent. of cases, even when the crippling effects have lasted a long time, and the patient is suffering so much that he asks for amputation of the foot. In the remaining cases it gives enough relief for the patient to be made comfortable with a bar across the sole of the boot.

After-Treatment.

The bar on the sole of the boot and crooked heel, already described, should be employed as an essential part of the after-treatment. The patient may then walk during the whole period of convalescence without injuring the site of operation, and so exciting new inflammatory changes.

PAINFUL CONDITIONS ABOUT THE HEEL.

The painful conditions about the heel most commonly met with may generally be traced to one of three causes:

1. Injuries or strain about the insertion of the tendo Achillis.
2. Spurs of bone and adventitious bursae under the os calcis.
3. Osteitis and periostitis from direct injury of the os calcis.

Injuries and strains about the insertion of the tendo Achillis are marked by pain about the back of the heel which is aggravated by walking and relieved by rest, but the pain recurs again if the patient is tempted to take exercise. The condition may be divided into three types:

1. *Tenosynovitis*, in which there is swelling due to effusion within the tendon sheath. This swelling extends some distance up the tendon, and is both palpable and visible.

The treatment is counter irritation, firm bandaging and rest. When the acute stage is passed the patient may be allowed to walk limited distances with the heel of the boot raised $\frac{1}{2}$ in., so as to relax the tendon and diminish the strain. If the condition tends to

become chronic, the actual cautery may be used with great benefit, especially in the form of the heated needle.

2. *Bursitis* of the bursa under the insertion of the tendon into the os calcis. This is diagnosed by localizing the tenderness at the site of the bursa and by detecting a small area of fluctuation.

Treatment.—Relax the tendon by raising the heel $\frac{1}{2}$ in. Apply a band of strapping round the leg above the malleoli to act like the wristlet worn by workmen who have strained a tendon at the wrist. The patient should be instructed to walk a little every day, but should not be allowed to do an indefinite amount of walking; this is one of the difficulties connected with letting soldiers out from hospital on pass.

3. *Periostitis* at the site of insertion of the tendon, due to strain of the insertion.

The diagnosis is made by localizing the tenderness on pressure a little lower down than in the case of bursitis, and by the absence of deep fluctuation in the bursa beneath the tendon. The treatment by rest is the same as for the preceding condition.

Both these last-mentioned conditions may be present simultaneously and become chronic. The best treatment then is first to puncture the bursa or the inflamed area of periosteum several times with a hot needle. The process is exactly that known to the farrier as "pin-firing." The effect of this is to excite an active vascularization of the part, after which repair takes place more rapidly if the rest treatment is carried out.

Further, cauterizing a patient's heel deters him from wearing a boot and going out for too long walks, and gives the deep lesion an opportunity to recover while the surface blister is healing.

Irregular fibrous masses are sometimes noted in the Achilles tendon. These are usually the result of partial ruptures, and if large and persistently painful they should be removed.

SPURS OF BONE UNDER THE OS CALCIS.

Spurs of bone running forward into the plantar fascia or

short muscles of the sole are frequently seen in skiagraphs (Fig. 6). They often cause no symptoms. On the other hand, if the patient accidentally jumps on to a stone and bruises the periosteum over one of these spurs, it may become enlarged, or an adventitious bursa may develop under it. After this, the patient feels pain every time he puts his heel on the ground, and in the course of a long march.



FIG. 6.—Spur of bone under os calcis.

Treatment.

Make an incision along the side of the foot and gouge away the spur and tissue round it to make sure of clearing out the bursa and any chronically inflamed periosteum. The incision should, of course, not be made in the sole, as a scar in these regions is often itself the cause of trouble.

Osteitis and Periostitis.

Osteitis and periostitis of the os calcis often arise from bruising of the bone by a jump or fall from a height, or by injury due to gunshot. There may be no gross fracture, only some crumpling of the lamellae, which may be seen in a good skiagraph. When a fracture occurs, the disability is, often due to bony irregularities on the under surface of the bone.

Treatment is often unsatisfactory, and if the bony masses are felt in the sole under the heel they should be freely removed. Palliative measures are of no use in the case of a soldier; and one may state as a general proposition that a soldier with a badly-fractured astragalus or os calcis will not again be fit for service.

THE City Council of Boston has issued an ordinance establishing zones of silence in the neighbourhood of hospitals with fifty or more beds. Foot passengers, drivers of vehicles and street cars, and operators of motors are warned not to make any unnecessary noise within these zones.

12. A most interesting case is that of certain railway engineers. These men lived together in a large room, changed and bathed every week, and had been at the front for three months. Not a single louse was found upon them.

It is suggested, by nature of the work among oil, that to this factor is partly attributed the freedom from the pest.

13. By reference to Graph No. 2 it will be seen that there is a break after 130. This produces the result that nearly 5 per cent. of men are what may be termed "maximum cases." These "horrible examples" showed the number of lice upon each man to be 168, 180, 190, 376, 400, 552, and 895. Another shirt held 1,355 lice and 4,260 eggs, while another showed 10,428 lice approximately and 10,253 eggs approximately. Reference has been made already to another extreme case.

"Lousing" in the Trenches.

The object of this inquiry was to ascertain from the witness of the men themselves what were the results of their self-searching for the pest. A certain division had served at two parts of the line, and the men from eleven different units were interrogated. Their average spell in the trenches had been about twelve days. The inquiry shows: (1) The average daily catch of the soldier was 8 at one sector and 9 at another; (2) the catch varied between 9 and 60; (3) that, from some source or sources, the man in the trenches is liable to a persistent daily visitation which insists on daily attention. The bag, as a general rule, is mixed, young and adults being obtained. Without encroaching on the section "Dissemination," it may be remarked that the main source of the young lice is undoubtedly the eggs on the clothing of the man himself. This accounts in part for the daily persistency of infestation. The difficulties of self-searching are great, and may be responsible for the overlooking of some of the large adults, but the constant recurrence seems to indicate that other sources, external, supply the large specimens.

It would be expected that soldiers living in the bare trench, where no dug-outs exist, would be more free from lice than soldiers living in dug-outs. The contrast is afforded in the example of the division under inquiry. At one time of the year the men were in bare trenches at one part of the line, and six months after they occupied dug-outs at another part. Men, however, were lousy to practically the same degree at each point. At the first place it was impossible to change clothing, and at the second they lived in close contact in dug-outs.

Lice and Dug-outs.

One of the most prevalent terms is "lousy dug-outs." Before conducting examinations in the first line of trenches, the impression obtained from conversation with soldiers—and others, too, of a more critical turn of mind—was that dug-outs were swarming with lice. The most comfortable form of dug-out is that which is completely boarded. More primitive types exist in which less wood is present and the floor is of earth. Five dug-outs of the boarded type were carefully searched. Included was a large one occupied by six machine gunners. Skilful assistance in this search was given by a stretcher-bearer, an ex-schoolmaster. The search in each dug-out usually lasted an hour, and was conducted in daylight with as much extra light as was possible to obtain from candles. In two cases the boards composing the floor were removed and carefully scrutinized, as were cracks and corners, with the fluff lurking there; kits, greatcoats, and sandbags were subjected to a like search. *In no case was a single live louse discovered.* Eight dug-outs with earth floors, at another part of the line, yielded a like result.

By reason of the military situation a most interesting experiment was terminated before culmination. The stretcher-bearer and the writer took measures to secure freedom from the pest. They slept with less clothing than worn by men in the line, but using two blankets, for two successive nights in a boarded dug-out newly vacated by three lousy soldiers. The conditions, therefore, were most favourable for picking up any lice present. After the first night an examination of the clothing and blankets gave a negative result. The night of that day the clothing and blankets were examined, as carefully as candle light permitted, and seemed clean, but the following morning the assistant's linings showed one louse and one flea.

From one point of view, if this typical dug-out had been really a "lousy dug-out," it is reasonable to conclude that more lice would have been found on the clothing. It is quite possible, too, that the one louse found may have been obtained during the daily duties among the men and overlooked at the night examination, owing to the bad light.

It is not denied that lice may be present in dug-outs, but these evidently play a minor part in the harbouring and disseminating of the parasite.

Lousiness of Material.

Blankets.—In this connexion only two typical cases out of ten examinations are cited. The blankets of twenty-four infantrymen were searched. Their regiment had an average lousiness per man of 31.4, and had spent twelve days of the early autumn in the trenches. The blankets had been used for five days. Many were found free from lice. The highest number found on a single blanket was 6 (alive), and the total number of lice found was only 20 (alive), the average, therefore, being 0.8 per blanket. In the second example twenty-five blankets were examined in the winter, after being away from the men for about four days. Ten were free from lice; the highest number alive on a single blanket was 2, and the highest number dead was 4. The total numbers were 5 alive and 21 dead, the average, therefore, being about 1.0, dead or alive. The degree of infestation of the unit is not known, but is certainly no less than at any other time of the year. In sporadic cases blankets have been found exceedingly verminous, holding 20, 60, and more lice. This condition was always correlated with the fact that the men using them were very unclean. Blankets, therefore, are of minor importance as harbours and centres of dissemination.

Straw.—Straw sufficient for three men was placed in a corner of a room, infested with 535 lice, and left for nearly four and a half days. At the end of this time three clean men slept for three successive nights upon it. After the first night the total number of lice from all the men was 18, the second night 4, and the third night 7. The experiment shows that infested straw may be sufficiently lousy at the end of seven days to infest men using it. A similar experiment, using 1,000 lice and leaving the straw five and a half days, showed 2 after one night's use, 2 after the second night's, and none after the third night's. Straw was placed as above, and infested with 500 lice. After three hours, to allow the insects to scatter and accommodate themselves, N.C.I. powder was dusted on the straw. After eight hours three clean men slept upon it. Next morning the total number of lice from all three men was 7 alive and 6 dead. The straw was retreated, and after the second night, with two men using it, no lice were picked up. The experiment demonstrates the efficiency of N.C.I. as a swift preventive of infestation from straw.

Paillasses.—Three paillasses, infested with 325, 500, and 500 lice respectively, were examined after eight days, and live lice were still found.

From the characteristic disinclination of the louse to leave clothing, it does not seem likely that straw will ever become very much infested.

DISSEMINATION OF THE PEST.

Three sources of infestation may be conveniently named: (1) Living places—dug-outs, billets, bivouacs; (2) material—blankets, straw, beds; (3) the soldier, with his clothing and kit.

Living Places.

Only the dug-out is discussed, but the same remarks apply to billets and bivouacs.

The main problem presents itself thus. Men state confidently that they go into the trenches clean, and in a few days find themselves infested. The general statement goes, "the dug-outs are lousy." It will be well to examine this critically.

If it may be assumed that a "lousy dug-out" was one which harboured twenty live lice, it is very unlikely that careful trained observation would not discover a single live specimen in thirteen dug-outs.

A man may have lice upon him all the time, and yet not feel any discomfort. Such men, it has been found, always

believe themselves to be clean, and generally declare it aggressively. Another unobtrusive but most important source of danger is the presence of eggs upon the clothing. There is the probability also of an unclean comrade.

The dug-outs with most unenviable reputation are those which are large and accommodate most men. Certain dug-outs—those of officers and senior non-commissioned officers—are frequently occupied by only one individual, and in these cases lousiness is not common. These living conditions, giving greater opportunities for change of clothing, for physical cleanliness, cleaner companionship, and often comparative isolation, are the converse of those of the men.

An important observation is the preference of the insect for remaining on warm material. This renders the probability of infestation from the soil very small, though, as has been pointed out, lice may endure surface soil conditions for seven days. In so doing it is quite possible for infestation to come from the ground. The chance of this, however, is very remote.

When a dug-out has been emptied of all kit, sandbags, etc.—such usually being the case when one unit makes way for its relief—most of the lice are removed also with that unit.

The weight of the evidence, therefore, goes to show that the dug-out itself is not an important factor in the harbouring and dissemination of the pest.

Material.

Previously mentioned facts show that, in exceptional cases, infested blankets may be centres of dissemination, but that, as a general rule, they are a minor source of dissemination.

From the preference of the louse for clothing worn next the skin or such clothing discarded, and the absence of lice upon blankets and empty sandbags used as bedding, it seems fair to deduce that straw and paillasses, which are colder habitats for the insect, will not be tempting places of sojourn for them.

The Infested Soldier.

Infestation from dug-outs and blankets being very slight, there remains the soldier himself. Concerning the conditions of the soldier, it will be well to recall to mind that 95 per cent. of soldiers who had seen six months' service were found lousy; that the average number of lice per man was twenty; that 5 per cent. (or 50 to a battalion of 1,000) were dangerous carriers, each bearing between 100 to 300 lice. Also, take the condition of a unit ready for the trenches after its few days' rest. During this time men are supposed to bathe and obtain a change of underclothing. Certain men have not bathed or changed owing to duty, or through shirking, and most have not had the outer clothing treated; that is, practically every man is still a carrier, while a certain few are likely to be in a worse condition.

Dissemination may possibly occur by three methods—accident, contact, and instinct on the part of the insect. In the first instance, the ordinary actions of everyday life, dressing or undressing, may dislodge the insects from the inner clothing to the outer, or from the outer directly to the clothing of a comrade, or indirectly via blankets or kit. In the case of contact, transference may be effected during close proximity for a short time, as in the case of doctor and patient, teacher and scholar. More favourable, and, to the mind of the writer, the principal conditions of transference are the long periods of proximity, engendering warmth and consequent movement of the lice, as when men are compelled to sleep closely together. The instincts of detecting and selecting the host seem at best too feeble to account for much dissemination.

The natural question is often asked, "How did the parasite first gain a footing in the army at the front?" In answer to this, the writer recalls the first day of mobilization, the pouring in of reservists to the barracks, among them many from the verminous slums, the mingling of mufti and khaki in the crowded rooms, and soon, with scant opportunity for obtaining anew the smartness and cleanliness of army life, the hurried dispatch to the seat of war. Once the louse was brought to the Expeditionary Force, the absence of facilities for washing and changing clothing, and the crowding together of troops, gave the parasite every condition favourable to lodging, feeding, multiplying and spreading.

METHODS OF PREVENTION AND DESTRUCTION.

Treatment of Cases Naturally Infested.

The condition of men was noted by the method already explained. The effects of various preparations were taken after one day, in most cases, and in a few cases for longer periods.

Treatment of Cases Artificially Infested.

Artificial infestation was carried on by taking a known number of lice from a newly-discarded shirt, and placing them on different parts of the body—that is, down the legs of the trousers, and inside the back and front of the shirt. After two to six hours—time sufficient for the insects to scatter, feed, and accommodate themselves to the new environment—the clothing and body were treated with preparations.

A large number of experiments with various insecticides was performed. The results, however, of both sets of experiments were unsatisfactory from the point of view of obtaining consistent and comparative figures. More experiments, impossible at present, are required. It may be that such exact figures cannot be obtained by the very nature of the experiments. It is quite possible that the preparations act with greatly varying results upon different men. When opportunity is afforded, other experiments will be conducted upon more cases, and for longer periods. Till the incorporation of such results, the figures available at present are withheld.

Insecticides act in two ways: (1) The effect upon the pest present, and (2) the deterrent effect on any of the insects present externally.

The vermicides used when the parasites were present produced either or both of the following effects—they killed or caused to evacuate. Use is made of certain convenient terms, as follows:

Killing efficiency is measured by the percentage of insects killed in a certain time by the insecticide.

General efficiency is measured by the sum of the percentage of insects killed, evacuated, and unaccounted for, in a certain time.

Deterrent efficiency is measured by the percentage of insects which the insecticide deters from reaching the body.

It is possible to give the following notes on certain insecticides.

N.C.I. (naphthalene 96 per cent., creosote 2 per cent., iodoform 2 per cent.).—This preparation is a speedy killing agent, and is the best all-round vermicide tested. The investigator himself prefers it to any other preparation. The following exacting test of its deterrent efficiency was made. Seven hundred lice were allowed to scatter in a sleeping bag improvised from a blanket. The writer used the preparation on the shirt, back and front, and on the riding breeches at the fork and as far down as the knees. The conditions were rendered as favourable as possible for the lice. Socks instead of putties were worn, the shirt neck was opened, and the sleeves rolled up as far as the elbows. Almost immediately after settling in the sleeping-bag lice were felt crawling in great numbers in the socks, on the arms, and a few at the neck—in fact, at those parts of the clothing and body not treated with the powder. Next morning, examination of the clothing and body gave the following results:

155 dead lice were shaken from the socks;
30 dead lice were found below the breeches' knees;
1 dead louse was found at the thigh;
No lice were found on the shirt.

The point of importance is that the powder was a complete deterrent. The duration of the deterrent efficiency of N.C.I. is illustrated in the instance where thirty men of a machine-gun section of infantry were supplied with the powder. The men since using have not been troubled. Most are of the opinion that the effect of one thorough application lasts five days. A few dusted the clothing every few days as a preventive measure.

Caution.—It is most important to remember that a too free use of N.C.I., particularly at the fork, causes severe smarting. For this reason it is recommended that an ointment insecticide be used in this region. However, used with ordinary care, N.C.I. has undoubtedly proved the best insecticide for general use on the clothing, material, and in living places.

Vermijelli.—This ointment is very effective. It is found that the best way to use it is to anoint the body from neck

to knees. Local application seems only to cause the lice to migrate to those parts of the body not treated.

Crude Oil Ointment.—The materials at hand permitted only a somewhat crude preparation: 2 lb. of soft paraffin was melted and 4 oz. of crude tar oil added. The mixture set like an ointment. Used like Vermijelli, it showed a very much higher killing efficiency than that preparation, and a slightly higher general efficiency. As a deterrent it was subjected to the same test mentioned under N.C.I. and gave a result of 97.7 per cent. efficiency.

N.C.I. and Vermijelli.—The ointment was smeared at the fork of the trousers and the seams, the N.C.I. being dusted down the shirt and trousers. The killing efficiency of N.C.I. was increased slightly, but the general efficiency was increased highly.

The report received from the medical officer of one infantry unit which used the preparations in the trenches is convincing. The preparations were efficient from three to seven days. After about the third day it was found that young lice appeared, obviously from eggs on the clothing. Periodic treatment is therefore necessary. There was a great demand for more.

N.C.I. and Crude Ointment.—Used as above, the results were very similar.

Mercury Ointment (variously termed blue unction, blue ointment, and navvies' butter).—To prevent undue absorption of mercury into the skin equal quantities of the ointment and soft paraffin were mixed. The killing and general efficiencies were both high when the ointment was used like Vermijelli. It is feared, however, that the nature of the preparation precludes that consistent use which present conditions demand. To verify its effect as a deterrent, a similar test as in N.C.I., but employing only 300 lice, was carried on in accordance with a well-known treatment. Strands of tape, well smeared with the ointment, were fastened round the ankles, knees, waist, arms, and neck. The precautions proved utterly useless. The lice simply swarmed over the body. After a somewhat unhappy two hours, and to secure rest, the body was smeared all over. Yet next morning 35 live lice were found on the body and clothing.

White Mercury Powder.—This preparation had very low killing and general efficiencies.

Sulphur.—Three experiments, one personal, were performed. In one case, an ointment, half flowers of sulphur and half soft paraffin, and in two cases a generous amount of flowers of sulphur, were used. They proved such complete failures that it is not proposed to pursue further experiments with these substances.

Treatment of Infested Underclothing.

The following notes are the result of many experiments carried on under the everyday working conditions at the divisional baths, treating clothing in quantity in large cauldrons, tubs, and disinfectors.

Thresh Disinfectors.—For the horse-drawn "Thresh" it was found best that not more than one hundred garments should be steamed at 215° F. for three-quarters of an hour. For the Foden lorry "Thresh" one hundred garments per chamber should be steamed at 220° F. and 5 lb. pressure for half an hour.

Boiling Water.—When shirts have been boiled five minutes in water, lice are killed, and the eggs become white and opaque, owing to the coagulation of the protoplasm. As a check, eggs at different parts of the shirts were incubated on the body for fourteen days. None hatched. Since writing the above it has been ascertained that Mr. Bacot, Entomologist to the Lister Institute, working on a small scale with small numbers of eggs and test tubes, found that boiling for one and a half minutes was sufficient to kill the eggs.

Cresol Solution, 1½ per cent. cold.—This solution is bactericidal strength. It was found, after thoroughly soaking infested shirts for one hour, that the lice were killed. Patches holding eggs were rinsed in cold water to get rid of the cresol and the eggs incubated on the body. After thirteen days no eggs hatched.

Chloride of Lime, 7 per cent. cold solution, used for twenty-four hours is effective, but alum, 10 per cent. cold solution, used for forty-eight hours, was a total failure.

Divisional Baths.

Apart from laundry work, the main object of the baths is to turn large numbers of infested men into

clean men as quickly as possible. The three processes are the bathing, the issue of clean underclothing, and the disinfection of the outer garments. The first two are easily carried out, but the last presents many difficulties. Without it the results of bathing and changing are of little value. Treatment by steam or gas disinfection takes too long, as it is usually necessary for men to pass through the baths in a quarter of an hour. Ironing with a hot iron is the most practicable scheme. This is a slow process, but one of cardinal importance, because it determines the rate of bathing. A bathing party being dealt with in a quarter of an hour, the time taken to iron the tunic, trousers, and cardigan jacket of each man being ten or twelve minutes, the number of ironers must equal the number of bathers per quarter of an hour. For example:

Strength of division ...	...	19,200
Rate of bathing ...	...	1 in 15 days.
Number of men passed through per day ...	...	1,280
Number of men passed through per hour (8 hours' bathing per day) ...	...	160
Number of men passed through per quarter of an hour ...	...	40
Number of ironers required ...	...	40

Other considerations that may arise are: This bathing procedure, carried on regularly, will in time reduce the degree of infestation so that the less ironing will be necessary; as local conditions at certain times cause the baths to lie idle, it will be necessary to have other activities to hand, such as laundry or mending work, for the ironers.

RECOMMENDATIONS.

The main object of this section is to suggest an outline for a plan of campaign against the pest.

Research Centre.

The scope of this subject and the virulence of the pest make it necessary that one centre of research be established under a specialist in each army. The apparatus required is really very simple and small in amount. Assistants are necessary for laboratory and outside work.

Advisory work could also be carried on as each unit is frequently a special case. Facilities for transport should also be afforded.

Instructional Work.

At these centres instruction could be pursued by three methods—

1. *Classes*, similar to those carried on for other military affairs, could be initiated for such N.C.O.'s and men (pioneer, sanitary, or R.A.M.C.) as units may specially set apart for dealing with lice.

2. *Lectures and demonstrations* to military units could be arranged, each unit being represented by officers, medical officers, N.C.O.'s, sanitary men, stretcher-bearers, and men in such numbers as may be convenient. A suitable time is when regiments are resting for a period longer than a week. The aims are the presentation of the true facts with regard to the pest, recommendations for dealing with it, and, most important, to foster the idea that it is not by any means impossible to bring the parasite under.

3. *Issue of Leaflet.*—A short leaflet embodying the following could be printed and distributed to all ranks—

Campaign against Lice.

It is not correct to think that lousiness cannot be reduced to a minimum. Experiments, in detail and on a large scale, carried on among soldiers in billets and trenches go to prove (1) that the soldier himself is the main source of infestation, (2) that the measures suggested below are of great benefit.

1. Whenever possible, and as regularly as possible, search the clothing thoroughly for both lice and the "nits" or eggs. If you have discovered that the removal of the white patch which binds the seams at the fork of the trousers does not interfere with comfort, it is well to remove the patch. Special care during searching for the lice and eggs should be paid to this region.

2. The great source of danger is the presence of eggs on the clothing. These hatch in about a week. It is necessary therefore that the trousers should be ironed and brushed at least once a week. While in the trenches it is often quite possible without undressing to use a piece of hot metal or a tinder lighter. This removes the source of danger upon yourself.

3. *Against the lice themselves*, whenever you find it necessary, use the remedies recommended. Powders, as a rule, should not be used at the fork, but down the shirt and trousers. Care should be taken to see that any powder which falls from the shirt to the fork should be small in amount, as too much is

liable to cause smarting. If your stock of ointment and powder is exhausted, apply to the man in your unit who is responsible for the distribution of these preparations.

4. Just previous to going to the trenches be careful to treat the clothing and body as directed.

5. Use the preparations about every four days. Experiments in the trenches have shown this to give the best results.

6. See that any material, blankets, empty sandbags, etc., which may be present to increase the comfort of the dug-out or billet, are treated with the powder preparation.

7. Take advantage of all the facilities offered at the baths.

Divisional Baths.

1. Each division should be provided with two baths, each capable of dealing with eighty bathers per hour, and two Foden lorry Thresh disinfectors.

2. Baths should be built, and not improvised (except in specially favourable circumstances) from permanent buildings. The design of the building should be such that contamination is impossible.

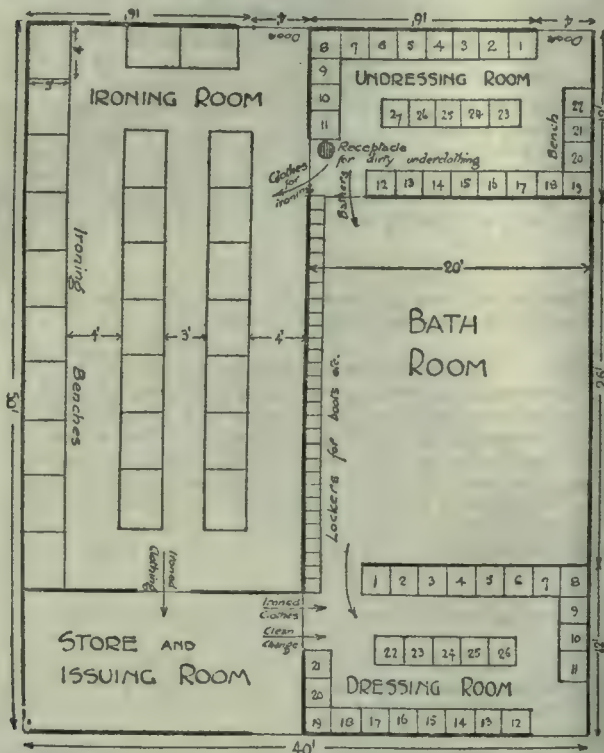


FIG. 10.—Suggestion for a Divisional Bath (from one now working at the front.)

3. *Procedure for Bathing.*—Man strips in undressing room, outer clothing handed in or collected for ironing; then enters bathroom, and bathes; enters dressing-room, and given clean change of underclothing, uses insecticide, receives ironed clothing, and dresses.

4. *Treatment of Underclothing.*—Laundry work may possibly be carried on with advantage at one centre, and not at each bath.

A. *Garments Disinfected in Thresh Apparatus.*—Three-quarters of an hour at 215° F., in horse-drawn type; half an hour at 220° F., and 5 lb. pressure in the Foden lorry type; washed; dried; folded; stored.

B. *Cresol Solution, Auxiliary Method, Suitable for Detached Units.*—Steep garments thoroughly for two hours or more in solution (1 pint of cresol to 8 gallons of cold water); rinse to rid of surplus cresol; wash, etc., in usual way.

C. *Boiling Water, Auxiliary Method, Suitable for Detached Units.*—Allow garments to soak thoroughly and remain in boiling soapy water for five minutes; remove, and wash, etc., in usual way.

5. *Treatment of Outer Clothing.*—Clothing collected (tunics, trousers, and cardigans), ironed with hot iron, particularly at seams and forks of trousers; brushed with a hard brush; distributed to men in dressing-room.

For the Trenches.

While a unit occupies a trench it should be the duty of a man set apart for the work to see that an adequate supply of insecticides is available for distribution to the

men, and for general use in the dug-outs. Company officers should see that their men take the necessary precautions against the pest.

For Billets.

This applies particularly to infantry in the rest areas and to isolated units, such as ammunition columns and infantry transport:

1. Men should be afforded set times for the express purpose of inspecting their clothes.

2. A general inspection by the company officer or medical officer is recommended at least once a week, but men of known unclean habits require special attention, if only for the sake of their comrades.

3. A keen look-out for cases acting as bad lice-carriers should be maintained and such men dealt with speedily.

4. In addition to existing methods for maintaining clean billets, all old clothing should be removed. Floors and skirting boards should be washed with soapy water to which has been added crude oil and cresol.

5. If bathing and changing facilities do not exist, the ironing of garments should still be attempted.

For Hospitals.

These remarks apply particularly to hospitals and rest stations carried on by field ambulances, where conditions are frequently difficult.

Even if patients are retained for one night some measures should be employed. When possible a patient should bathe, have a change of underclothing, and have the outer garments ironed.

None of these recommendations are difficult in themselves. The real difficulties are in the regular and persistent use of the methods during exceptional and trying circumstances. For troops living in billets and hospitals the work is feasible, but for infantrymen matters are more difficult. It is necessary, however, to emphasize that the most effective measures may be carried on while men are out of the trenches. In the trenches the work necessary is reduced to the regular distribution and use of insecticides.

To conclude, the matters of cardinal importance are, first, that a definite plan of campaign be formulated, and secondly, that the plan be followed up vigorously by the work of proficient men. It is not so much a problem of pure science as one of common sense management.

BIBLIOGRAPHY.

- Alcock, A.: *Entomology for Medical Officers* (Gurney and Jackson, London).
Cummings, B. F.: *The Louse and its Relation to Disease* (British Museum—Natural History, Economic Series No. 2).
Shupley, A. E.: *BRITISH MEDICAL JOURNAL*, September 19th, 1914, reprinted in *The Minor Horrors of War* (Smith, Elder, and Co., London).

NOTES ON

PEDICULUS HUMANUS (VESTIMENTI) AND PEDICULUS CAPITIS.*

By A. BACOT,

ENTOMOLOGIST TO THE LISTER INSTITUTE OF PREVENTIVE MEDICINE.

BODY LICE, *Pediculus humanus (vestimenti)*, and head lice, *P. capitis*. were reared and kept confined in small entomological glass-bottomed boxes, the lids being removed and fine silk gauze (cliffon) stretched across the open ends in their place. The insects fed readily through the gauze when this was placed against the skin. Boxes containing the lice were carried in waistcoat pockets during the day, and placed beneath a belt against the body during the night. The insects had therefore approximately from six to seven hours daily during which they could feed. In one experiment opportunities of feeding during the day were also afforded them, with the result that egg production was increased. The totals and averages of the eggs laid must be taken only as a comparative guide to fertility; in nature, or under more favourable conditions, the numbers would probably be exceeded. It is probable that the conditions were better suited to the body than to the head louse.

Pediculus humanus is larger, more robust, and less active than *P. capitis*; the females having a relatively

* Abstract of a paper in course of publication in the *Journal of Hygiene*.

greater egg-carrying capacity than those of the head louse. The eggs are slightly larger and the number laid was greater, while the habits associated with egg-laying differ, although by transposing the conditions suitable for other species a considerable degree of uniformity may be produced. It is probable that in nature their egg-laying habits are quite distinct.

Cross pairings between the insects are easily brought about and might, under exceptional circumstances, occur naturally. Hybrid strains resulting from pairings of *P. capitis* males with *P. humanus* females, and vice versa, were maintained without trouble until the F_3 generation, and there seemed no reason why such strains could not be continued indefinitely. Nevertheless, the marked disparity in the sexes of the F_1 generation of some crosses between *P. capitis* male and *P. humanus* female was suggestive of the specific rather than the racial rank of the two insects.

The mortality of females of *P. capitis* crossed with *P. humanus* males points in the same direction, but there was no such obvious disparity in the sexes of the first generation of hybrids from this cross, nor was there any marked disparity in the proportion of the sexes in the following hybrid generations.

In size the hybrid insects are approximately intermediate, but inclining in form, activity and habits towards *P. capitis*. Extreme disparity in the size of some individuals of either sex was noted in some of the broods of the F_3 generation; very large males and small females being observed.

Habits.

The body louse exhibits habits of gregariousness, especially during the moulting phases, and a preference for retiring to a particular spot to oviposit, which leads to the clustering of eggs; both of these habits are shown, though in a less marked degree, by *P. capitis*, and it is possible that they might be partly due to the conditions of captivity, though it seems more probable that the divergence in its habitat is accentuating both tendencies in *P. humanus*.

Pairing with both species took place at any hour, and was very frequently observed when the insects were examined after feeding; males with but little food in the alimentary tract were, however, often seen in coitus. The period during which the insects remained together was on several occasions noted to exceed an hour, but no limit of time was determined.

A male of *P. humanus* fertilized 18 out of 21 females placed with him in succession. Attempts with *P. capitis* were less successful; out of four trials one male fertilized 10 females, and might possibly have equalled the record of *P. humanus* but for the scarcity of virgin females while the experiment was in progress.

Eggs are laid by virgin females of both species on the second or third day following the final ecdysis, and continue to be freely laid so long as feeding continues and the body conditions of temperature prevail, but these unfertilized eggs do not hatch. The longest period for which a female *P. humanus* retained the power to lay fertilized eggs after the removal of the male was twenty days; more usually it would seem to be from sixteen to eighteen days. In the case of *P. capitis* the period was considerably shorter, twelve days being the longest ascertained period, while it was usually about seven to eleven days.

The greatest number of eggs laid by any one female of *P. humanus* was 295—an average of 6.4 per day; the daily average of a number of females being 5.1. Females of *P. capitis* showed a lower fecundity—the highest record being 141, with a daily average of 4 per day; the average of a number of females being 3.7 daily. Those figures would probably be exceeded under natural conditions. An experiment in which some females of *P. humanus* were given an opportunity to feed for two hours by day in addition to seven hours each night, showed unmistakably the extent to which egg production was dependent upon food—the average of these females rising to eight per day. The fertility of the eggs laid was unaffected by the increased feeding. The greatest number of fertilized eggs laid by a female *P. humanus* after the removal of the male was 115; with a female of *P. capitis* the parallel figure was 70.

Length of Life.

The life of the male *P. humanus* which fertilized 18 females was 32 days after reaching maturity, while the longest female life after maturity was 46 days—the average of a number of females being 34 days. With *P. capitis* the figures were: Male life 30 days; female life 38 days—the average of a number of females being 27 days. The lives of the hybrid insects were not noticeably shorter than those of *P. humanus* and the hybrids seemed to breed more freely than *P. capitis*.

Tests made with unfed *P. humanus* showed that the longest lives were at a medium temperature of 60° to 65° F.; many of the insects living from 3 to 4 days, while two lived 5, and one 7 days. At 76° F. all died within 5 days, and at 98° F. all died within 3 days.

Newly-hatched larvae, unless fed, lived less than 24 hours at 98° F., and if kept in a box in the vest pocket they lived but little more than a day, unless fed; none survived a second day.

Adults kept in a box in an outer pocket of a walking coat during March lived five days without food.

Of forty young lice which emerged from the egg on the same day the following record of the moulting periods was made:

First Moul.				Second Moul.			
3 per cent. on the 3rd day				15 per cent. on the 7th day			
42	"	"	4th "	72	"	"	8th "
55	"	"	5th "	13	"	"	9th "
Third Moul.							
5 per cent. on the 10th day				... .. mature			
3	"	"	11th " "			
55	"	"	12th " "			
32	"	"	13th " "			
5	"	"	14th " "			

Cold.

Active specimens of *P. humanus* survived two days at a temperature of 28° F. to 30° F., but none after exposure to these conditions for a week.

Hatching of Eggs.

Under humid conditions in an incubator kept at 87° F.—

3 per cent. of the 1,300 eggs tested hatched on the 7th day			
56	"	"	8th "
33	"	"	9th "
8	"	"	10th "
0.2	"	"	11th "

A test carried out with eggs taken from a stock box—date of laying uncertain, some having been laid possibly as many as three days previously—showed that none hatched at 60° to 65° F., while at 76° F. there was considerable mortality in the egg stage. The hatching period of those that survived was spread over a longer period than usual. At 98° F. the period of hatching only covered five days, while the mortality was not excessive.

To give some idea of the possible rate of multiplication of *P. humanus*, we may estimate the egg period as twelve days and a further twelve days to the maturity of the females. Allowing an average of eight eggs per day, spread over a fertility period of forty days, we find that during her life a single female may have 4,160 offspring.

AN INVESTIGATION OF THE BEST METHODS OF DESTROYING LICE AND OTHER BODY VERMIN.

By J. PARLANE KINLOCH, M.D.,

LECTURER IN PUBLIC HEALTH, UNIVERSITY OF ABERDEEN.

II.

In a preliminary communication¹ to the BRITISH MEDICAL JOURNAL I described some early experiments in breeding lice, which showed that the humidity of the atmosphere was of importance—a fact which I have since ascertained to have been previously discovered by Mr. Bacot, of the Lister Institute, with regard to the breeding of fleas.²

Up to the present I have been unable to determine the constant conditions that would enable lice to breed and live in the incubator, the lice being removed from the incubator only while feeding on the human body. On one occasion, out of some forty experiments with different samples of lice, it was found possible to keep the lice alive and to hatch out their eggs when they were suspended over water by means of a cotton-wool plug

inserted midway in a glass tube kept at body temperature in the incubator, but failure to repeat this result suggests that perhaps some other factor at present unknown is essential to secure the requisite constant conditions.

It has therefore been necessary for the purpose of insecticidal experiments with lice to take them from verminous clothing and expose them directly to the insecticidal agents. To this end a supply of verminous clothing was obtained about twice weekly from military barracks, and from lodging-houses, and the Poor Law institution.

The variation in resistance of lice as found in nature is very great, and it therefore seemed well in all the insecticidal experiments already reported to pass over experiments where death to the louse resulted, if in a similar experiment with another strain of lice an occasional louse appeared to survive. In some recent experiments undertaken for the purpose of testing earlier results I have not found any of the lice to show unquestionable evidence of life after exposure to boiling water even for five seconds. It would therefore appear that in my earlier series of experiments I had been misled in interpreting certain movements as a sign of life, the more that so competent an authority as Mr. Bacot³ has in a recent contribution on the subject stated that he invariably obtained a lethal result. Mr. Bacot, in his interesting and valuable paper, has described a method for breeding and rearing lice in contact with the human body. He found that lice thus reared never survived thirty seconds' immersion in boiling water, and that a temperature of 55° C. (131° F.) maintained for half an hour killed both active lice and their eggs.

Volatile Oils and Phenol Bodies.

I have made some additional tests with oil of cloves and oil of turpentine. I have also experimented with oil of bergamot. I have found that when immersed in oil of cloves for two minutes and then placed on a piece of blotting paper, the lice move freely over the paper. After similar immersion in oil of bergamot only an occasional louse moves, and the movements are feeble. After immersion for the same time in oil of turpentine all the lice are dead. But how far the movements noted are compatible with the ultimate survival of any of the lice has not been determined.

I have also made further tests with the phenol bodies, and in consonance with my former experiments I have repeatedly found a varying proportion of the lice survive half an hour's immersion in a 5 per cent. emulsion of cyllin in water at ordinary room temperature.

Insecticidal Powders.

During the past year I have received several letters from officers of the R.A.M.C., who have indicated that in endeavouring to keep soldiers free from vermin infection much trouble has been occasioned by the rapidity with which a unit once cleansed has been reinfected. It appears that a lice-free unit is generally infected from barns and trenches previously occupied by lice-infected units. In order, therefore, to secure immunity from lice infection, means are required for keeping the clothes and body constantly obnoxious to lice.

I have investigated several insecticidal powders in the hope that one might be found which, when applied to the clothing, would secure the desired result. I first tested the antiparasitic powder described by Mr. Langford Moore⁴; it has been largely used, and has gained a considerable reputation as an insecticide. It consists of

Ammoniated mercury	...	...	1 oz.
Zinc oxide	...	...	½ oz.
Magnesium silicate	...	...	½ oz.

Mr. Moore believes that the zinc oxide, by its astringent and dehydrating effect, inhibits absorption of the slowly ionized mercurial salt, and thus prevents toxic action. The magnesium silicate (or French chalk) is added to increase the diffusibility of the powder on application. I have repeatedly found that lice in contact with this powder at body temperature and humidity remain alive and apparently unaffected after twelve hours—the period of the experiments—and that if suspended over the powder they remain altogether unaffected. It may be that the powder is obnoxious to lice in an indirect manner or when ionization of the mercurial salt has proceeded

further, but I have failed to secure the suitable experimental conditions.

In a similar manner I have tested several powders of unknown composition sold as insecticidal powders for soldiers, and have failed to observe any marked insecticidal effect.

I have made some experiments with freshly ground Dalmatian insect powder (*Pyrethrum cinerariaefolium*). When used at once in the fresh condition it has a definite insecticidal action, commonly killing all lice immersed in it in a period of two hours. The insecticidal value of the powder becomes gradually diminished when it is exposed to the air; after two days' exposure it failed to kill lice even when left in contact with it for several hours.

Naphthalene.

The powder known as N.C.I. powder is being largely used in the army. I have learnt since my experiments with it were completed that it was originally prepared under the direction of a member of the staff of the Royal Army Medical College, Millbank, but I have ascertained from the college that no experiments have so far been published. This powder is being supplied by the South Metropolitan Gas Company, and the chemist of the company has informed me that the N.C.I. powder consists of

Naphthalene	...	...	93 per cent.
Creosote	...	...	2 "
Iodoform	...	...	2 "

I conducted test tube experiments with the powder in two series. In one lice were immersed in the powder, and all were killed within five minutes; usually two minutes were sufficient. In the second series the lice were separated from the powder by cotton-wool, and were exposed only to the vapour from the powder. Here the extreme length of time required for the killing of the lice was about thirty minutes, but in some of the tests the lice were killed in about fifteen minutes. To ascertain the effect of the powder when applied to the human body, pieces of cloth, such as is employed for underwear, were dusted with it and were used for loosely covering lice applied to a portion of the skin for varying periods of time. It was found that the lice were killed within one hour, but that many died within a quarter of an hour. The powder showed no irritant effect, even after application for a period of eight hours. Three series of experiments were made to test the values of naphthalene, creosote, and iodoform separately as insecticides, with the following result:

1. *Naphthalene*.—Specimens of pure naphthalene and of commercial naphthalene were used, and it was found that while lice in contact with freshly powdered pure naphthalene commonly died in one hour, lice in contact with freshly powdered commercial naphthalene usually died in half an hour. These experiments appear to show that the lethal power of naphthalene for lice is dependent in great part on the presence of hydrocarbons and coal-tar derivatives other than pure naphthalene.

2. *Creosote*.—It was found that immersion in fluid creosote for one minute commonly killed lice, but on a rare occasion a louse could be revived. So far it has not been possible to revive any louse after immersion for two minutes. Lice exposed to the vapour of creosote were usually killed in twenty minutes, and no louse was found to survive at body temperature for more than thirty minutes.

3. *Iodoform*.—It was found repeatedly that lice in contact with iodoform, even when buried in it, remained alive for eight hours, but were usually killed after twelve hours. Over the vapour of iodoform lice lived practically unaffected for several days.

It would appear, then, that of the three constituents of N.C.I. powder, naphthalene and creosote have each a strong and iodoform only a very feeble insecticidal action. But before iodoform could be regarded as a somewhat useless constituent of N.C.I. powder it was necessary to be certain that its presence did not markedly modify the action of the powder. To determine this, two powders were prepared, one being the ordinary N.C.I. powder, the other differing only in that it contained no iodoform. In a series of test tube experiments in which lice were suspended over the powders or placed in contact with them it was found that the lethal period was the same for both powders.

Experiments were now made with these powders on the human body, pieces of clothing being dusted with the powder and used for covering lice previously placed on the forearm. It was found that the N.C.I. powder adhered much better to the clothing than did the powder without

the iodoform, and that while the N.C.I. powder commonly killed the lice in half an hour, the N.C. powder required an hour.

In order to determine whether the superiority of the N.C.I. powder depended mainly on its greater adhesiveness for cloth and not on the presence of iodoform, a powder was prepared that differed from N.C.I. powder only in that insecticidally inert magnesium silicate was substituted for iodoform. A comparison of this powder with the N.C.I. powder showed that for practical purposes the action of the two powders was identical.

In a fairly large series of these experiments I have been left with the impression that the N.C.I. powder is very slightly more effective than the naphthalene, creosote, and magnesium silicate powder, and this was to be expected, since iodoform has a slight insecticidal action, while magnesium silicate has no such action. Both powders contain naphthalene and creosote, and, since the price of iodoform at the present time is 25s. 6d. per pound, and the price of magnesium silicate is 4s. 6d., it would appear that the efficiency of the N.C.I. powder would not suffer in any material degree if magnesium silicate were substituted for iodoform.

A solid substance capable of being powdered and of being applied without harm to the human body must be an essential basis of an insecticidal powder. Of all the solid substances I have examined naphthalene is the most actively insecticidal. It would have been of interest to have investigated the toxic effects on man and lice of the solid perchlorethane on account of the high insecticidal value of the chlorine derivatives of ethane. Perchlorethane is a crystalline body with a camphor-like odour, but, so far, I have been unable to obtain a supply of this substance. Theoretically, it is not essential that the solid basis of the powder should be actively insecticidal, provided that it is possible to incorporate actively insecticidal agents with it. In a series of experiments powders were prepared, with magnesium silicate as a basis, and containing various actively insecticidal liquids, such as trichlorethylene and creosote, and were compared with powders containing similar liquids, but with naphthalene as the basis. In every case the greater efficiency of naphthalene as a basis for the powders was substantiated.

Experiments were made for the purpose of ascertaining whether the creosote in the N.C.I. powder could be advantageously replaced by another insecticide. In my early experiments I had found that the liquid preparations most lethal to lice are certain chlorine derivatives of ethylene and ethane. Recently also I have investigated the insecticidal value of anisol (methyl phenyl ether), which appears to enjoy some reputation for this purpose. In a series of comparative experiments with these insecticides and with creosote I have ascertained that trichlorethylene commonly kills lice by immersion in a few seconds, and invariably kills them within thirty seconds. Immersion experiments with tetrachlorethane, pentachlorethane, anisol, and creosote showed that they usually kill lice in one minute, and that no louse survives immersion for two minutes. It is difficult to place these four substances in order of insecticidal activity, so nearly do they agree and so variable is the resistance of the occasional louse, but the experiments showed that tetrachlorethane was slightly more active than creosote, and there can be no doubt as to trichlorethylene being much more active.

The different insecticides were each separately incorporated with commercial naphthalene in the two proportions of 2 per cent. and of 5 per cent., which was found to be the limit within which naphthalene could conveniently hold the liquids without ceasing to be pulverulent. In a series of experiments with freshly-prepared powders the trichlorethylene powder easily maintained its advantage, commonly killing by contact all lice within a few seconds, while the tetrachlorethane, pentachlorethane, anisol, and creosote powders usually required two to three minutes. But when the powders had been exposed in the open air for some time the results were different. The trichlorethylene powder, when thus exposed for even a few minutes, rapidly deteriorated, and after fifteen minutes' exposure its action on lice corresponded to that of naphthalene alone. On the other hand, the other preparations, initially inferior to the trichlorethylene powder were found, even after exposure to air for a period of one to

three days, to have an insecticidal activity superior to that of naphthalene alone.

Paraffin Bodies.

In experiments with the volatile paraffin bodies, such as petrol and royal daylight oil, it was found that petrol ordinarily killed lice by immersion in one minute and invariably in two minutes, while the ordinary illuminant oils commonly killed in two minutes and invariably in five minutes. When these substances were severally incorporated with naphthalene in 2 and 5 per cent. proportions, as in the other experiments, it was found that even with the freshly prepared petrol powder no insecticidal action greater than that of naphthalene could be definitely determined, and that with the illuminant oil powders the insecticidal action of naphthalene was only slightly increased.

The explanation of these results appears to depend on the rate at which the incorporated liquid is volatilized. The enormous surface provided by the powdered naphthalene must greatly accelerate the evaporation of the added volatile fluid. The rate of evaporation of the several liquids was roughly tested.

Equal weights of each of the liquids were exposed to the air in wide-mouthed bottles of equal calibre for a period of sixteen hours at the body temperature, and the loss of weight noted. Petrol and trichlorethylene were found to evaporate much more rapidly than any of the other substances, and petrol more rapidly than trichlorethylene. Then next in order came tetrachlorethane, royal daylight oil, pentachlorethane, anisol, and, finally, creosote with the lowest vapour pressure of the series.

Creosote would therefore appear, when all conditions are taken into account, to be the most valuable of the actively insecticidal liquids for admixture with naphthalene in an insecticidal powder. When mixed with naphthalene the immediate lethal effect of creosote is less than that of the trichlorethylene powder, but the much longer period during which creosote continues to exert its action more than compensates for this initial disadvantage.

N.C.I. powder has been objected to on account of its moist condition. The chemist of the company supplying the powder has informed me that the use of liquid creosote renders the powder apt to clog in the perforated tins in which it is supplied, and that it has been suggested that the creosote might be replaced by pure phenol. I have not been able to satisfy myself that the substitution of phenol for creosote makes any practical difference to the dryness of the powder, and tests made with the phenol powder on various individuals show that the skin in not a few instances is distinctly irritated by the phenol.

I have made some experiments to determine if the N.C.I. powder could be made drier, and therefore more easily dusted, by some variation in its composition and yet retain its efficiency. In some experiments such efflorescent salts as disodium hydrogen phosphate, sodium sulphate and sodium carbonate were added in turn to the extent of 5 per cent. to N.C.I. powder; when these preparations were kept in sealed bottles the various efflorescent salts exerted no drying effect of practical importance, every preparation tending to cake and adhere to the bottle. In this condition the powders were found to retain their insecticidal activity unimpaired. When, however, the powders in these experiments were exposed to the open air drying occurred in from one to two days, and the powders became very suitable for application through perforated tins. But on testing the insecticidal properties of the dried powders, it was found that their values had greatly deteriorated, and that in a well-dried powder lice could live for hours apparently unaffected. It would appear that the coal-tar products on which the insecticidal effect mainly depends are volatilized. So far it seems impossible to dry a naphthalene-creosote powder and at the same time retain the efficient moist and volatile hydrocarbons and other coal-tar derivatives.

In perforated tins any naphthalene-creosote powder must gradually lose its insecticidal properties, and the moist nature of the powder precludes its being used successfully in these tins. It would therefore appear to be desirable that naphthalene-creosote powders, such as N.C.I. powder and naphthalene, creosote and magnesium silicate powder should be supplied in sealed tins of small size. I believe that the application of such powders twice weekly

to clothing would destroy any lice that might be present, and would practically keep the persons lice-free.

Gases.

Experiments have been made in which verminous clothing was exposed to chlorine, formaldehyde, and sulphur dioxide. In one series articles of clothing infested with lice were placed for one hour in air heavily charged with each of the gases. It was found that chlorine had least effect. Some of the lice on the surface of the clothing were killed, many of them were stupefied, but many remained active. Formaldehyde stupefied all the lice on the surface of the clothing, but many afterwards revived; lice protected by folds of clothing remained active. Sulphur dioxide killed all lice on the surface of the clothing, but only stupefied lice protected from the gas by folds of clothing. Many of such lice afterwards revived. In some experiments where articles of clothing infested with lice were placed in rooms and exposed for twelve hours to these gases as ordinarily employed for disinfecting purposes a somewhat similar result was obtained.

A few experiments similar to those described by Blacklock⁵ when investigating the resistance of the bed-bug to gases were made to determine directly the insecticidal action of sulphur dioxide. When lice were placed in a two-way glass tube through which sulphur dioxide was passed from a pressure bottle, they were killed in a few seconds, and no louse survived five seconds. In another experiment the gas was poured into a deep vessel and the lice dropped into it. Here also the lice were all dead within five seconds. Lice wrapped in cotton-wool and dropped into the jar were all dead after one minute, but when wrapped in pieces of clothing and dropped into the gas an occasional louse was found living after one minute, but none survived after two minutes.

Sulphur dioxide has, therefore, in these experiments maintained its reputation as the most efficient gaseous insecticide, but as ordinarily used for disinfecting purposes it cannot, owing to lack of power of penetration, be depended on to kill all lice in verminous clothing.

Emergency Cleansing of Clothing by means of Petrol.

In a letter to the BRITISH MEDICAL JOURNAL of June 26th, 1915, Dr. Davison, Monkseaton, Northumberland, indicated that in some cases it would be of value to medical officers responsible for the cleansing of soldiers if a safe and economical method for cleansing an occasional verminous kit by means of petrol might be devised without having recourse to the installation of an elaborate dry cleaning apparatus. It is obvious that any such method to be practical must be free from the general danger of fire and from possible damage to clothing as a result of excessive heat. It was necessary, then, to devise a method of vaporizing petrol without danger from fire so that it could be applied in emergency on active-service or for the occasional verminous kit at home. In experimenting with various substances, such as boiling water and red-hot iron, as sources of heat, I found that a stone heated in the fire to a dull red heat and then transferred directly into a basin of petrol is the best means of securing the evaporation of petrol with safety. I arranged a box roughly divided into a lower and upper compartment by means of a wire screen. The verminous garments were placed in the upper compartment and the box closed. A door at the side gave access to the lower compartment, containing a basin of petrol into which a hot stone was introduced. The evaporation of the petrol proceeded rapidly, but it was found that the petrol immediately condensed on the nearest cold surfaces. Thus the lower layer of clothing was moistened with petrol, and the lice there were killed, but no penetration occurred and many lice survived. To secure the insecticidal action of the vapour of petrol a regulated oven would have to be employed, and this is costly and not available for emergency purposes.

It would appear, then, that for the purposes indicated immersion of verminous clothing in petrol remains the most suitable method. Danger from fire would be diminished by using a petrol soak tank with a well-fitting lid, but the danger in wringing and removing the garments would remain. Such a tank could be placed in an open shed, apart from any building, and the petrol-treated clothing exposed to the outside air would dry within an

hour. Similarly, an enclosed rotary hand washing machine, costing about £4 4s., might be employed for the purpose, and this would also permit of the clothing being dry-cleaned.

Recently a further problem in the control of lice has arisen in towns where rest houses have been provided for soldiers delayed by train connexions or otherwise while travelling home on leave from France. In many cases the soldier remains in the town for too short a time to permit of efficient cleansing of himself and his kit, and until it is found convenient to cleanse all soldiers granted leave the use of an actively insecticidal powder in these houses is the best method.

Cleansing of Verminous Heads.

The superior value of the chlorine derivatives of ethylene and ethane as destroyers of lice, and their non-inflammable properties, as previously recorded, led me to suggest that these bodies might be employed with advantage in the cleansing of verminous heads, and I suggested that they might be employed as soap preparations and in vaseline pomades. Recent experience in hospital has indicated that nurses were averse to shampooing verminous heads, and has led to tests being made with these chlorine derivatives undiluted. The effect of trichlorethylene when applied freely to the scalp is variable. Little discomfort seems to be produced in some cases, but severe—though transient—pain results in others. In similar tests it was found that tetrachlorethane is usually free from severe irritant action. One consideration was the danger that these bodies when applied to the hair might accidentally reach and injure the eyes. It has been found in practice in hospital that the desired result is obtained when the hair is gone over carefully with pieces of cotton-wool moistened with either trichlorethylene or tetrachlorethane, and irritant effects to the scalp and eyes are obviated. In the great majority of cases one application has been sufficient to destroy all lice and nits, and rarely have more than two applications been required. Tetrachlorethane, although less powerful than trichlorethylene, is very actively insecticidal, and may be preferred to trichlorethylene on account of its less irritant properties, and this is of importance in dealing with verminous heads on which skin is broken.

Conclusions.

1. As Mr. Bacot has shown, and as my later experiments also demonstrate, lice do not survive immersion in boiling water.
2. Several insecticidal powders have been tested, and of these N.C.I. powder is the most destructive to lice.
3. Of the three constituents of N.C.I. powder, naphthalene and creosote have each a strong insecticidal action. The insecticidal action of iodoform is feeble.
4. Naphthalene appears, so far as my comparative tests have gone, to be the most suitable basis for use in the preparation of a powder destructive to lice. Commercial naphthalene is more actively insecticidal than pure naphthalene, and it appears that the lethal power of naphthalene for lice is dependent in great part on the presence of hydrocarbons and coal-tar derivatives other than pure naphthalene.
5. The immediate lethal effect of creosote when mixed with naphthalene is less than that of some other insecticidal liquids, but the longer period during which creosote continues to act more than compensates for the initial disadvantage.
6. In addition to its feeble insecticidal activity, iodoform greatly increases the adhesiveness of N.C.I. powder for cloth. The inclusion of iodoform in the powder is accordingly justified, although similar adhesiveness of the powder is obtainable at less cost by substituting the insecticidally inert but cheaper magnesium silicate for iodoform in the powder.
7. The insecticidal power of naphthalene-creosote powders gradually diminishes when they are exposed in the open air.
8. The moist nature of such powders precludes their being used successfully in perforated tins, and it has not been possible to dry the powders and at the same time retain the moist and volatile hydrocarbons and other coal-tar derivatives on which the insecticidal effect mainly depends.

9. It is desirable that naphthalene-cresote powders should be supplied in sealed tins of a uniformly small size, or of sizes suitable for the immediate requirements of a convenient number of persons proposed to be treated at one time.

10. In experiments with gases, sulphur dioxide has maintained its reputation as the most efficient gaseous insecticide, and all lice exposed to an atmosphere of the gas die within five seconds. As ordinarily used for disinfecting purposes and as a result of lack of penetration sulphur dioxide cannot be depended on to kill all lice in verminous clothing.

11. For the emergency cleansing of clothing by means of petrol, immersion of the verminous clothing in petrol remains the most suitable method. To secure the insecticidal action of the vapour of petrol a regulated oven would have to be employed.

12. The superior value of certain chlorine derivatives of ethylene and ethane as insecticides and their non-inflammable properties indicate their use in the cleansing of verminous heads. The desired result is obtained and irritant effect on the scalp is obviated when the hair is gone over carefully with pieces of cotton-wool moistened with either trichlorethylene or tetrachlorethane. Tetrachlorethane, although less powerful than trichlorethylene, is very actively insecticidal, and is to be preferred to trichlorethylene on account of its less irritant properties.

REFERENCES.

- ¹ Kinloch, BRITISH MEDICAL JOURNAL, June 19th, 1915, pp. 1038-1041.
² Bacon, *Journal of Hygiene*, Plague Supplement III, 1914, p. 447 et seq.
³ Ba et, BRITISH MEDICAL JOURNAL, January 9th, 1916, p. 167.
⁴ Moore, *Lancet*, March 5th, 1915. ⁵ Blacklock, *Annals of Tropical Medicine and Parasitology*, vol. vi, December, 1912, pp. 425-428.

MEMORANDUM ON

THE TREATMENT OF INFECTED WOUNDS
BY PHYSIOLOGICAL METHODS.

(*Drainage of Infected Tissues by Hypertonic Salt Solution, and Utilization of the Antibacterial Powers of the Blood Fluids and White Blood Corpuscles.*)

BY

COL. SIR ALMROTH E. WRIGHT, M.D., C.B., F.R.S.

1. INTRODUCTORY.

THE treatment of septic war wounds divides itself naturally into three therapeutic procedures:

(1) In the first we have a number of different aims to pursue concurrently, and have therefore to be ceaselessly on the watch. We have to promote the destruction of the microbes which have been carried into the deeper tissues. We have to re-establish normal conditions in those tissues, resolving the infiltration in the walls of the wound and getting rid of the infected sloughs, and we have to prevent "the corruption of the discharges," and inhibit microbic growth in the cavity of the wound.

Further, during the whole period occupied by these operations we have to be constantly on our guard to prevent active and passive movements which would propel bacteria along the lymphatics, and carry poisonous bacterial products into the blood.

(2) When the microbes in the deeper tissues have been exterminated and physiological conditions have been restored, and the wound has been rendered to naked eye inspection perfectly clean, the difficult portion of our task has been accomplished, and the time has come for dealing with the surface infection.

(3) As soon as this has been suppressed, or all but suppressed, all our thought ought to be given to promoting the processes of repair, bringing together the tissues, and covering over the denuded surfaces.

2. INADEQUACY OF THE TRADITIONAL METHOD OF TREATING WOUNDS BY ANTISEPTIC APPLICATIONS, INCISION, AND MECHANICAL DRAINAGE.

Inefficacy of Antiseptic Applications.—The ordinary antiseptic combines with every kind of albumin. It thereby loses its bactericidal and its penetrative power. Its bactericidal power is, of course, not finally abolished until the antiseptic has encountered and combined with its full complement of albumin. Its penetrative power—and penetrative power means capacity for diffusing outwards

through any medium in a chemically active condition—is, in the fluids of the wound, very rapidly abolished. For, when the medium which is to be penetrated contains even a trace of albumin, this will immediately quench the "antiseptic emanation"—meaning by this that fractional quantum of antiseptic which is carried out by diffusion into the surrounding fluids.

These general truths are firmly based upon experiment. It can be demonstrated that none of our ordinary antiseptics extirpate microbes enveloped in dead or living tissues, or in serous or purulent discharges; and that none diffuse into the walls or recesses of the wound. The sterilizing action of antiseptics applied in the wound will thus be strictly limited to the destruction of any microbes which may be lying bare; and sterilization will not extend beyond that portion of the wound surface to which the antiseptic is actually applied.

Inadequacy of Drainage as Usually Practised.—The theoretical requirements for a complete scheme of drainage are, first, that there shall be an outflow from the infected tissues to the external surface, or to the surface of a wound cavity; and, secondly, where a wound cavity exists, that there shall be drainage from that cavity to the exterior.

Drainage from the Tissues.—In the customary treatment of wounds, drainage from the tissues is not specially insisted upon—mere incision with or without fomentation being assumed to do in this respect what is necessary. In reality, however, in oedema only will sufficient drainage be given by this method. In tissues of normal density nothing like adequate effusion will be obtained, the lymph flow being here rapidly arrested by clotting and desiccation. And, where we are dealing with densely infiltrated tissues, incisions may fail to furnish even as much as a drop of exudation.

Drainage from the Cavity of the Wound.—Drainage tubes, of course, do not induce any outflow of lymph from the tissues. They drain only from the cavity of the wound—outflow ceasing as soon as ever the well head in the tissues dries up.

Summary of Criticisms on the Traditional Method of Treating Wounds.—It has appeared above (a) that antiseptics do not exert any effective action in the wound either in the direction of extinguishing the infection or keeping down bacterial growth; (b) that the usual procedure of incising and inserting drainage tubes provides, in place of that continuous weeing out from the lymph spaces to the exterior which we require, a drainage which rapidly stanches at the source; and (c) that in the ordinary treatment of wounds no steps are taken to disperse infiltration; or accelerate the separation of the sloughs; or bring antibacterial lymph or phagocytes to the seat of infection.

In short, the treatment of wounds by a combination of antiseptics, incision, and mechanical drainage, is a therapeutic method which constantly disappoints, because it fails to kill the infecting microbes and at the same time fails to give to the organism opportunity for ridding itself of the infection.

And lastly—and this point cannot be too much insisted upon—in the ordinary treatment of septic wounds not nearly enough care is taken to prevent those active and passive movements which lead to the mechanical impulsion of microbes along the lymphatics, and to auto-inoculations.

3. THE IDEAL OF PHYSIOLOGICAL TREATMENT IS TO GIVE INTELLIGENT AID TO THE ORGANISM IN COMBATING THE BACTERIAL INFECTION.

Saline dressings supply a means for evoking, in the infected wound, certain requisite physiological reactions: By their aid we can, while at the same time inhibiting bacterial growth, drain the tissues, resolve infiltration, and promote the separation of the sloughs—besides giving other assistance.

4. PHYSICAL AND PHYSIOLOGICAL ACTION OF CONCENTRATED SALT SOLUTIONS.

(1) A concentrated salt solution will attract water; and, except in the case where a membrane which is impermeable to albumin is interposed, the outflowing current of water will carry out with it the whole of the protein substances which it holds in solution. This means that

hypertonic salt solution applied to tissues lying bare in the wound (or to granulating surfaces) will operate as a *lymphagogue* drawing out from the infected tissues lymph which has spent all its antibacterial energy, and drawing into the tissues from the blood stream lymph inimical to microbial growth.

(2) Brought into direct application upon leucocytes a hypertonic solution (what is in view here is a solution containing 5 per cent. salt) will disintegrate leucocytes, setting free the tryptic ferment they contain.

Such a hypertonic salt solution will also exert a number of inhibitory actions.

(3) It will inhibit the action of the tryptic ferment set free in the wounds.

(4) It will inhibit coagulation and so prevent the sealing up of the orifices through which lymph pours into the wound.

(5) It will inhibit leucocytic emigration into and prevent phagocytosis in the cavity of the wound.

(6) It will inhibit microbial growth.

5. PHYSICAL AND PHYSIOLOGICAL EFFECTS OF NORMAL (0.85 PER CENT.) SODIUM CHLORIDE SOLUTION.

Normal solutions of sodium chloride exercise—as many other substances also do—a positive chemiotactic effect on white corpuscles. In other words, they will when applied to the surface of the wound bring leucocytes to the surface.

In moderately dilute solutions (solutions of 0.85 per cent. are here in view) salt does not interfere with the activity of trypsin, nor does it inhibit blood or lymph coagulation, phagocytosis, or microbial growth.

6. THERAPEUTIC EMPLOYMENT OF HYPERTONIC SALINE SOLUTION IN THE EARLY STAGES OF THE INFECTED WOUND.

By the time the patient reaches the *Casualty Clearing Station* his wound will generally have assumed the characters of a lymph bound, infiltrated, and sloughing wound; or it will be fast getting into this condition. And even though under care in hospital the wound may have been coming out from this condition, it will, on long journeys, when redressing is difficult, be very prone to fall back into it. (*Vide infra*, Subsect. 14.)

The first requirement when we have an infected, lymph-bound, infiltrated, and sloughing wound will be—to get rid of the coating of scab and fibrin adhering to the surface of the wound, and set the lymph-flow going, to resolve the infiltration, and to promote the separation of the sloughs.

This involves two successive operations. In the *first*, we make use of the hypertonic solution undiluted; in the *second*, we turn its dilution to profit.

Stage in which the Hypertonic Solution comes into Operation Undiluted.

The striking feature here will be the outpouring of lymph. But there will at the same time: (a) in the depth of the tissues, (b) on the surface, and (c) in the cavity of the wound, be evoked other reactions which cannot be directly followed by the eye.

(a) *In the depth of the tissues* there will be substituted for the spent lymph which has been extracted lymph freshly drawn from the blood stream. This means that there will be substituted for a lymph which is favourable to the growth of all microbes indiscriminately a lymph which will stop the growth of *saprophytic bacteria* and *imperfect aerophytes* (such as the gas-gangrene bacillus); and at the same time seriously impede the growth of *serophytic bacteria*, above all the growth of the streptococcus.

Further, the microbes in the tissues, which when immersed in the spent lymph were insusceptible, will, immersed in the fresh lymph, become susceptible to phagocytosis.

And in the induction of the phagocytosis in the interior of the tissues, the imbibed salt will, we may take it, play a contributory rôle. For we have seen that salt, appropriately diluted, stimulates leucocytic emigration.

* The inhibition of microbial growth obtained with the serum of the patient with a large or even moderate-sized wound is much greater than that obtained with a normal serum. This, as comparative experiments have shown, is connected with the fact that the antitryptic power of the wounded man mounts up with very steep ascent (that is, in the course of a couple of days), to a level 3 to 8 times higher than the normal.

(b) *In the more superficial regions of the walls of the wound and adhering sloughs*, the hypertonic salt solution will break down the leucocytes and set free tryptic ferment—ferment which will, as we saw, not come into action so long as the concentration of the salt is maintained.

The coagulation of the lymph on the face of the wound will also, as we saw, be inhibited by the hypertonic salt solution.

(c) *In the cavity of the wound*, microbial growth will at the outset be completely arrested by the hypertonic salt, and it will, after the lymph has begun to pour out, be inhibited to different degrees according to circumstances by the combination of salt and antitryptic exudation.

So long as the salt solution is maintained at full strength, both emigration into and phagocytosis in the cavity of the wound will be inhibited.

Sum Total of Clinical Effects Produced by the Undiluted Hypertonic Salt Solution.—There will have been established, in the depth of the tissues, conditions favourable to the extermination of the microbial infection; and in the cavity of the wound conditions which will restrain microbial growth.

Stage in which the Dilution of the Hypertonic Salt Solution is turned to Profit.

As soon as the hypertonic solution in the cavity of the wound has been sufficiently diluted by outflowing lymph, the salt diffuses out from the infiltrated walls of the wound and the sloughs; and with this the tryptic ferment previously set free in these comes into action, and goes about its work of *cleansing digestion*—resolving the products of inflammation in the infiltrated tissues, and severing the connecting strands by which the sloughs are bound to the face of the wound.

At the same time—and this, be it noted, serves as a signal to the eye that the dilution of the salt solution has reached the point where all its inhibitory effects are abolished—leucocytes emigrate into the wound, and the discharge begins to assume a purulent character.

Now, also, the bacteria begin to multiply in the cavity of the wound.

We cannot afford to let all this go on very long unchecked. For as more and more trypsin finds its way into the exudate, or is set free in it from leucocytes disintegrated by microbial poisons, the effusion comes to furnish a more and more congenial nutrient medium for microbes, and the check imposed by phagocytosis is more and more completely removed. Finally, the exudate becomes tryptic, and if the redressing of the wound is any longer delayed, ground will now be rapidly lost (*vide infra*, Subsect. 12—*Indications which call for the redressing of the wound*).

It will have to be remembered, in connexion with this description, that the conditions will in every wound be perpetually changing, and that these changes will not keep time in the different parts of a large wound.

7. UNDER CERTAIN SPECIAL CIRCUMSTANCES THE HYPERTONIC SALT SOLUTION SHOULD BE USED IN A DIFFERENT WAY.

Method in which Hypertonic Salt Solution should be used when Gas Gangrene, Streptococcal Cellulitis, or other Acute Tissue Infection supervenes, or where we are dealing with an Infection of a Joint.—Our whole concern here must be to draw out as rapidly and exhaustively as possible the corrupted lymph which occupies the tissue spaces, replacing this with uncorrupted lymph drawn from the capillaries. To achieve this we must, after freely incising the tissues, or opening the infected joint, apply hypertonic salt solution and maintain this in full strength until we have got the upper hand of the infection.

+ The presence of trypsin in the wound can be very easily demonstrated. We need only collect a sample of pus or slough on a small swab of cotton wool; introduce this into milk containing 2 per cent. of calcium chloride crystal, and then place this at a temperature of 50° to 55° C. (that is, in water just not too hot to hold one's hand in). If trypsin is present the milk will now rapidly clot. But it must be borne in mind in connexion with clotting obtained with a slough that since, under the conditions of the experiment, we dilute our material, our test will give a positive result even when we have in the wound sufficient salt to prevent the ferment being actually operative.

+ This lymph has ordinarily lost some, and in very severe infections it may have lost all, its antitryptic power. Further, in gas gangrene—and let me here interpolate that we have in gas gangrene, when fully developed, a profound acid intoxication—the lymph in the focus of infection often shows a much diminished alkalinity.

Method in which the Hypertonic Salt Solution should be used where we are threatened with Secondary Haemorrhage.—Our aim and object here must be to prevent any digestive action in the neighbourhood of the endangered artery. Translated into practice this means that we must apply hypertonic salt solution and maintain it at full strength so as to prevent any trypsin which may be liberated in the wound coming into action.

8. GENERAL INSTRUCTIONS FOR THE CARRYING OUT OF THE LINES OF TREATMENT INDICATED ABOVE.

Concentration in which the Hypertonic Salt Solution ought to be brought into Application.—For all ordinary purposes the best hypertonic solution to employ is a 5 per cent. solution of common salt. Where we require more vigorous lymphagogic effect we may resort to a 10 per cent. solution, or even to a stronger solution. But these are very painful when applied to skin edges and sensitive granulations; and salt applied in saturated or nearly saturated solutions will often cause sloughing of the superficial tissues (*vide Subsect. 10, Footnote*).

Most Convenient Form of Stock Solution to keep on Hand.—The most convenient stock solution to keep on hand is a saturated saline solution, made by shaking up water with an excess of salt and then allowing this to settle. Such a solution contains at ordinary temperature 35 per cent. of salt.

Diluted 1 part of the saturated solution with 6 parts of water it gives a 5 per cent. solution.

Diluted 2 parts of the saturated solution with 5 parts of water it gives a 10 per cent. solution.

Diluted 1 part of the saturated solution with 39 parts of water it gives a 0.85 per cent. (physiological solution).

N.B.—Hot water should be employed for making the dilutions required for saline dressings and irrigations. For the physiological reactions which are to be evoked, whether these be active hyperaemia and transudation, or tryptic digestion, or emigration and phagocytosis, are all impeded by cold and favoured by heat.

9. METHOD OF APPLYING HYPERTONIC SALT SOLUTION SO THAT IT MAY PRODUCE AN ADEQUATE LYMPHAGOGIC ACTION, AND AFTERWARDS PROVIDE OPPORTUNITY FOR DIGESTIVE CLEANSING OF THE WOUND.

This will be the proper way of employing hypertonic salt solution in the infiltrated and sloughing wound. The following are the points to be borne in mind:

(a) For the achievement of an adequate lymphagogic effect, we must use quite considerable quantities of hypertonic solution. The dressings ought to come directly out of the hot solution, and be applied dripping wet.

(b) In order that there may follow upon the lymphagogic action a cleansing digestion, the amount of salt employed must be kept within such limits as will allow of its being within a reasonable period diluted by the outflowing lymph. In other words, we must not use too much hypertonic salt solution, nor use too concentrated a solution; nor supplement with large packs of saturated salt solution or salt tabloids.*

In order to anticipate that pullulation of microbes which will supervene when the exudate becomes tryptic we ought to redress the wound as soon as the discharge begins to be purulent.

The procedure in carrying out these principles will, of course, vary according to the anatomical conditions of the wound. In point of fact, three different anatomical types of wound have to be considered:

(a) The wound which from the beginning lay fully open, or which has been opened up so as to render every portion of its surface fully accessible;

(b) The wound where, owing to folds, or blind passages, or a tunnelled way, portions of the surface are not fully accessible; and

(c) Tubular wounds which are throughout their whole course more or less difficult of access.

(a) In the first case we have only to pack the wound with gauze thoroughly wetted in hot 5 per cent. salt solution. We cover this in with any impermeable tissue, such as jaconet. When the time comes for redressing the wound all trace of pus ought, before reapplying the saline,

to be carefully removed. For pus treated with strong salt is converted into a sticky intractable substance which forms an impermeable coating on the walls of the wound.

(b) Where the wound is pocketed or tends to flap together the best procedure is to employ a bath of warm 5 per cent. saline. Should the position of the wound render immersion in a bath impracticable, it ought to be irrigated with warm 5 per cent. saline solution, the fluid being distributed over the whole surface of the wound by an arrangement of bandages.[†] The bath or irrigation ought to be discontinuous—intervals for digestive cleansing alternating with periods of lymphagogic and leucocytolytic action.

(c) Where we have a tubular wound it will, of course, be futile merely to insert a drainage tube, and cover its mouth with a piece of gauze wrung out of hypertonic salt solution. The rational procedure will here be to make windows in the tube, to cut it open longitudinally, and to lay into the hollow a folded strip of gauze, thoroughly wet with saturated salt solution. The tube thus arranged is to be introduced into the wound after this has been syringed with 5 per cent. saline.†

10. METHOD OF APPLYING HYPERTONIC SALT SOLUTION WHERE WE WANT TO MAINTAIN ITS STRENGTH UNDIMINISHED, SO AS TO OBTAIN ITS FULL LYMPHAGOGIC EFFECT AND SUPPRESS ALL DIGESTIVE ACTION.

It will be remembered that this is the way in which hypertonic salt solution should be used where we are threatened with secondary haemorrhage, or are dealing with an infected joint, or with gas gangrene infection, or streptococcal cellulitis (*vide supra, Subsect. 7*). Let us consider how, using the ordinary hypertonic solution and the stock of solution of saturated salt, to effect our object in the three types of wound already referred to—the completely accessible, the incompletely accessible, and the tunnel wound.

(1) In the first variety of wound we, as before, pack with gauze thoroughly wet with 5 per cent. salt, but now reinforce by a backing of gauze thoroughly wet with saturated salt solution, and, as before, cover with some impermeable material. Or, as an alternative, we at short intervals renew the hypertonic solution, feeding this in with a syringe through a drainage tube going down to the face of the wound.†

(2) In the case of the only partially accessible wound we resort as before to a bath of 5 per cent. saline or to irrigation with this solution, varying our procedure only in the respect that we make the bathing or irrigation continuous, or as nearly as possible continuous. When immersion in a bath and irrigation are both impracticable the wound ought to be dressed as in (1).

(3) In the case of the tunnel wound, we at short intervals renew the supply of salt; first withdrawing the old wick; then syringing out with 5 per cent. of salt; and then substituting for the old wick a new one taken fresh from saturated salt.

† This procedure might at first sight seem open to objection, (a) on the ground that saturated salt solution would here be brought into application upon the tissues; and (b) on the ground that to obstruct a drainage tube by gauze would be to render it useless. In connexion with the former objection, it will suffice to point out that direct contact of the saturated salt solution with the tissues is avoided by the interposition of the wall of the tube; and that the salt in the wick will come into operation only through the medium of the weaker salt solution with which the wound has been syringed out. In connexion with the latter objection, consider again what we have said in ordinary drainage *ex vacuo*; that is, it is only when we aim at keeping our wound cavity empty, and when we are dealing with a solid pus, and when unaided gravitation supplies in our scheme drainage our whole motive force, that it becomes incumbent to provide an unobstructed conduit to the exterior. In drainage *ex pleno* such as is here proposed we deal with a watery lymph effusion which wells over from the wound; and which only hermetical sealing could balk back.

Another method which has been extensively practised is that of packing the wound with tabloids of salt, holding these off from actual contact with the tissues by several folds of gauze. This would seem to give in different cases different results. In certain cases such as when an open knee-joint is packed with tabloids of salt, disposed throughout the gauze with close and regular inter-spacing—the interior of the wound remains perfectly dry. The explanation would seem to be that the salt here comes into application in the form of a saturated solution all over the surface of the wound, condensing the tissues until they become impermeable to lymph; and at the same time pickling them in such a way as, perhaps, to restrain all microbial growth in their interior. In other cases—for example, where a bagful of tabloids is introduced into the well of a large wound—there is obtained the ordinary lymphagogic effect. Here it would seem that the salt operates in form of a saturated solution upon the portion of the wound only lying nearest to the tabloids. And hereabouts the tissues look and feel exactly like pickled meat. In regions more remote from the tabloids the salt will naturally be much less concentrated. And it is presumably from these regions that the copious lymph outflow is derived.

* In this connexion it will be well to emphasize that to fill into the wound cavity large numbers of salt tabloids must be pronounced wrong practice in the case where we judge the wound to be one which stands in need of digestive cleansing.

11. NATURE OF THE EXTERNAL COVERING TO GO OVER THE WET SALT DRESSINGS.

The most usual practice is to place immediately outside the saline dressings a thick packing of dry cotton-wool, and again outside this a bandage. This seems to be dictated by the idea that the cotton-wool will soak up the discharges, and the notion that the capillarity of the cotton-wool, and evaporation from its outer surface will reinforce the drawing action of the salt. In point of fact, however, all the cotton-wool does is to suck out some of the salt solution from the dressings, and to evaporate this to dryness, putting in this way a certain quantum of salt out of action. Moreover, the notion that capillary action and evaporation would promote drainage from the tissues is in conflict with everyday experience, which shows that when we apply a dry dressing or let a wet dressing evaporate, the outflow of lymph from the wound ceases, and the dressing sticks to its surface.

The rational method of covering in saline dressings is to use, instead of cotton-wool, an impermeable covering.* Then, instead of the salt solution being carried outwards by capillarity and evaporation, it will, by diffusion, be carried in-ward.

The difficulty that with this form of dressing discharges will escape from under the impermeable covering can be met either by frequent redressing or by placing cotton-wool outside the jaconet.

In the case of wounds of the extremities perhaps the simplest method of all is to dispense with all coverings over the salt dressings, merely renewing the salt packs at frequent intervals. But here, if we want to clean off sloughs or resolve infiltration, we shall have to alternate with our dressings of hypertonic saline solution dressings of physiological saline solution.

12. INDICATIONS WHICH CALL FOR THE REDRESSING OF THE WOUND.

A septic wound requires to be redressed under two quite different conditions.

(a) It requires redressing as soon as tryptic ferment is set free in the cavity of the wound, such trypsin being set free from leucocytes broken down by microbic growth.

For here, as soon as the originally antitryptic exudation becomes tryptic, all manner of sero saprophytic microbes will multiply unrestricted; and bacterial poisons may be absorbed; and, at the same time, phagocytosis will be inhibited; while the young tissue elements, which are the agents of repair, will be subjected to destructive digestion.

(b) Again, every septic wound ought to be redressed as soon as it becomes lymph-bound.

For as soon as the exudation stanches and lymph fresh from the blood ceases to come into application, the microbes in the tissues, being now no longer inhibited by their growth or phagocytosed, find congenial conditions and multiply.

It requires to be emphasized in connexion with these two indications for redressing that in the case of the septic wound intervention is much less urgently called for, where we have retention of corrupted discharges, than where the wound becomes lymph-bound.

In the case of the former all we have to fear is a pullulation of microbes in the cavity of the wound, some absorption of septic products, and some injury of the tissues of repair.

In connexion with a lymph-bound wound we may at any moment have a wide extension of the tissue infection, taking the form of gas-gangrene or streptococcic cellulitis.

13. PRINCIPLE UPON WHICH CASES OUGHT TO BE CHOSEN FOR REDRESSING WHERE PREFERENCE MUST BE GIVEN TO THE MORE URGENT.

What has been said above on redressing ought to be specially kept in mind where it is impossible to inspect and redress every wound.

In such cases the surgeon has, as a rule, simply pursued the practice followed in ordinary aseptic operation wounds. That is, he has with a view to preventing the invasion of

microbes from without, redressed the cases where the discharge has soaked through, giving to these preference over those with unsoiled dressings.

In septic wounds—for here the microbes are in the citadel and not outside the walls—we ought to follow an exactly opposite policy. Where the outside dressings are wet with discharge, in other words, when presumably lymph is being actively poured out, we may be confident that the wound is not coming to any harm. We may accordingly, when other work presses, quite properly postpone redressing such cases. The contrary will hold of a gravely wounded man whose dressings are unsoiled. In such a case it is always possible that we may underneath quite clean dressings have a lymph-bound wound. We ought without delay to satisfy ourselves with respect to this.

14. PRECAUTIONS TO BE TAKEN IN HANDLING THE WOUND TO PREVENT AUTOINOCULATIONS AND A DISPERSAL OF SEPTIC INFECTION ALONG THE LYMPHATIC CHANNELS.

Like the acutely sick all the wounded are suffering from a bacterial infection. And the same general therapeutical principles apply. So long as microbes in large numbers are harboured in the tissues we have pyrexia. And the patient's condition will be aggravated by all dispersion of the infection and absorption of bacterial poisons into the blood. So that in every case the infected man will need to be kept at rest; and the really heavily infected will require to be kept at absolute rest.

This requirement is, of course, in the case of those suffering from infected compound fractures more or less perfectly complied with by the application of apparatus for fixing the limb.

But not only wounds complicated by fracture, but all wounds with the infected tissues in their neighbourhood, ought so far as possible to be immobilized. Moreover, this ought to be begun immediately after the wound has been inflicted, and to be continued so long as appreciable infection persists in the depth of the tissues.

In connexion with operative procedures it is, of course, impracticable to conform completely to this requirement. But none the less the requirement should never be lost sight of. It is scientifically reprehensible to cast loose, as is so often done under an anaesthetic, a fractured limb from all splints, deliver it over to an orderly for energetic washing and disinfection, and permit the foot or hand below the fracture to be used as a handle for raising or turning over the limb. All the necessary passive movements ought to be reduced to an absolute minimum. And the light hand of the skilful surgeon will, in operating on an infected case, be a very valuable asset.

In the same way, seeing that very efficient apparatus has now been devised, fractured limbs ought no longer to be put up in such a way as to allow of sagging or displacement during redressing.

Again, in changing the dressings on large flesh wounds on an arm or leg, great care ought to be taken not to manipulate, or flex or extend, or unnecessarily disturb the position of the limb.

It is difficult to doubt that when these precautions are neglected bacteria from the infected area will be propelled along the lymphatic channels in the direction of the heart. And measurements of the opsonic power of the blood and, indeed, simple inspection of the charts, establish that all readjustments of the position of a fractured limb, and probably all redressing of large wounds, are followed by elevations of temperature corresponding to very serious autoinoculations.

The same will, of course, apply to shocks and jolts received when the infected patient is being carried from the ward to the operation theatre, or is being transported by train or motor.

15. MANNER IN WHICH WOUNDS SHOULD BE DRESSED IN PREPARATION FOR LONG JOURNEYS DURING WHICH THEY CANNOT BE KEPT UNDER CLOSE OBSERVATION.

What has been said in the preceding subsections has an important bearing upon the procedure to safeguard the patient against that delay in redressing which is inevitable during the long hours which will be consumed in travelling from the front to the base, or from the base to England, and in settling down into a new hospital. The danger from microbic pullulation in the cavity of the wound and

* The prejudice against the use of impermeable coverings no doubt originates in the observation that discharges, when confined after they have become tryptic, will set to work and digest the surface of the wound. The proper remedy is not to discard the impermeable covering, but either to redress before the discharges become tryptic, or prevent them becoming tryptic.

tryptic digestion, and, on the other hand, the much graver danger of a tissue infection taking origin in a lymph-bound wound, have here to be provided against. This means that we have to arrange for a continuous outflow of lymph, and at the same time to arrange for the surface of the wound being kept thoroughly wet.

The proper course will be to dress the wound as indicated in *Subsects. 10 and 11, supra*, applying outside the impermeable covering dry cotton-wool. Thus treated the patient may arrive at his destination with soaked dressings, but he is not likely to arrive with corrupted pus, and we can be practically certain that he will not arrive with a tissue infection spreading from a lymph-bound wound.

16. METHOD OF CORRECTING CERTAIN UNDESIRABLE AFTER-EFFECTS WHICH MAY SUPERVENE UPON THE ILL-CONSIDERED, OR TOO LONG CONTINUED, USE OF HYPERTONIC SALT SOLUTIONS; AND INDICATIONS AS TO WHEN THE HYPERTONIC SALT SOLUTION OUGHT TO BE DISCARDED IN FAVOUR OF A WEAKER SOLUTION.

The rationale of the therapeutic employment of hypertonic solutions is, as we have seen, to be found in the fact that (1) they drain the tissues; (2) break down the leucocytes in sloughs and in the walls of the wound, and so give us, quite apart from any destruction of leucocytes by microbic agency, the trypsin we require for the digestive cleansing of the wound; (3) they produce active hyperaemia; (4) prevent clotting of the lymph in the walls of the wound; (5) suspend the action of the tryptic ferment set free from the leucocytes; and (6) inhibit bacterial growth—the inhibitory actions last in question being exerted only so long as the strength of the salt solution is maintained. In addition—but this counts of course as a disadvantage and not as a therapeutical asset—hypertonic solutions repel leucocytes and prevent phagocytosis.

If we want, in employing hypertonic salt solution, to turn its therapeutical qualities to best advantage, we must be continually on the watch to anticipate and correct any of the defects of its qualities.

(1) Where blood continues to ooze from an operation stump or wound which has been packed with hypertonic salt solution, this will be due to this anticoagulative agent having been applied before bleeding has stopped. The proper procedure will always be to postpone the use of hypertonic salt until all oozing of blood has ceased. Applied then, the salt will not resolve the blood clot; and where the hypertonic solution applied is a 5 per cent. solution, a very little dilution will bring it to the point when blood clotting will no longer be inhibited.

(2) When the face of the wound is found covered with a firmly adherent glutinous coating, this has been derived from leucocytes broken down by the direct application of strong salt.

The way of avoiding this obstacle—it is, as a matter of fact, a serious obstacle to effective draining and irrigation—is to clean out all pus from the wound before bringing the hypertonic salt solution into application.

(3) Where, as very rarely happens, the granulations become oedematous this will be due to the over-prolonged application of concentrated salt solutions.

It would seem that here the salt which is imbibed into the granulations is not sufficiently promptly carried off by the circulation, with the result that fluid is drawn into the salt-impregnated tissues, both from the underlying strata and also, when their salt content diminishes, from the discharges.

The remedy will be to discontinue the application of salt, and to apply hot fomentations in order to activate the circulation and promote absorption.

(4) Where the granulations assume a bright coral red colour and bleed at the least touch, it will be well to reduce the concentration of the salt solution—in the case where drainage of the tissues is still required to 2.5 per cent., and in the case where no further lymphagocic effect is required to 0.85 per cent.

(5) Quite apart from the development of any undesirable secondary effects, it will be well, as soon as every trace of induration has disappeared and all sloughs have been got rid of, to substitute for the hypertonic a physiological salt solution.

The rationale of this is that there will here still remain on the face of the wound, even though it looks to the

naked eye perfectly clean, serophytic microbes, which, though quite at home in the serum, can be killed by phagocytosis.

In order to kill these—and let us note that they are not killed but only inhibited in their growth by hypertonic salt solution—we must bring leucocytes to the surface of the wound.

17. THERAPEUTIC APPLICATION OF PHYSIOLOGICAL SALT SOLUTION.

What remains to be done is (a) to destroy the serophytic bacteria—streptococci and staphylococci—which still survive upon the face of the wound; and (b) to reduce the extent of surface lying open to infection, holding before ourselves always as an ideal the closure of the wound by secondary suture.

Destruction of the Serophytic Microbes remaining on the Face of the Wound.—A surface infection such as we have still to deal with can be effectively combated by keeping the wound wet with physiological salt solution, and redressing at short intervals. The application of physiological salt solution will, as we have seen, promote the emigration of phagocytes, the frequent redressing will prevent the setback that will occur every time that leucocytes die off and set free their trypsin in the wound; and the combination of the two will, in the case where the deeper tissues have been freed from infection, either exterminate the surface infection, or at any rate so nearly exterminate it as to make it safe to embark upon an operation for the closure of the wound.

18. FINAL STAGES IN THE TREATMENT OF THE WOUND.

Conditions under which Wounds may be Closed by Secondary Suture.—Secondary suture may be safely embarked upon when we have favourable bacteriological conditions in combination with favourable anatomical conditions.

The bacteriological conditions may be pronounced favourable when (a) microscopic examination of fluid from the depth drawn out by a "lymph leech"; or, failing this, clinical evidence points to the probability of our having got rid of all the deep infection, and when (b) stained impression preparations made from the wound surface show that we have there large numbers of perfectly well-conditioned polynuclear leucocytes, and a complete absence of microbes, or only here and there a stray microbe.

The anatomical conditions are favourable when we can, with or without undercutting, bring together the skin edges without putting too great a strain upon the sutures, or leaving underneath any hollow spaces. The operation of secondary suture may be undertaken either before the wound surfaces are covered in with granulations, or subsequent to this—the former of these dates being, from the bacteriological point of view, the more favourable, in the respect that there will be less risk of infection lurking below the surface.

It will, in every case, be advisable—for the conditions may change within the lapse of a few hours—to let the operation follow immediately upon the examination of the impression preparations.

In connexion with secondary suture, as in every other case where a wound is sewn up without adequate guarantee for its asepticity, it will always be imperative to keep the patient under the anxious observation of the operator for at least a week afterwards.

Procedure where the Wound cannot be Closed by Secondary Suture.

When the anatomical conditions do not allow of the wound being closed by secondary suture, we must fall back on the policy of persistently combating the surface infection, consolidating the granulations, and encouraging the covering in of these by epithelium. In the present state of our knowledge perhaps the best we can do will be to employ dressings of physiological salt, or, better, of Ringer's solution (for this contains a large assortment of physiological useful salts); redressing the wound frequently. Where we are dealing with a large defect of skin, grafting may usefully be resorted to.

REFERENCE.

¹ See the author's Memorandum on the Irrigation of Wounds, *BRITISH MEDICAL JOURNAL*, October 16th, 1915; and *Lancet*, October 16th, 1915.

British Medical Journal.

SATURDAY, JUNE 3RD, 1916.

THE POSITION OF MEDICAL MEN UNDER THE MILITARY SERVICE ACTS.

THE Central Medical War Committee, the Scottish Medical Service Emergency Committee, and, for certain special cases, the Committee of Reference formed by the Royal College of Physicians and the Royal College of Surgeons, are now recognized under the Regulations made under the Military Service Acts as the Professional Committees for all medical men who come within the provisions of those Acts. The effect of this recognition is that every medical man, married or single, under the age of 41 next birthday, and consequently liable for service in the army, will be subject to the decision of one or other of these three committees on the question whether it is his duty to take a commission in the R.A.M.C. or to continue to carry on his work as a civilian practitioner.

At the present time practitioners of military age in England and Wales may be divided into those who have enrolled and those who have not enrolled under the scheme of the Central Medical War Committee, the former being in the majority. A medical man under 41 who has enrolled will not be called up for service with his class by the recruiting authorities. He will continue in his present occupation, but be liable to be called upon to take a commission in the R.A.M.C. if and when the Central Medical War Committee decides that it is his duty to do so. If by inadvertence such an enrolled man receives a notice from the recruiting authorities calling him up, the production of his certificate of enrolment restores him at once to his proper position in accordance with Army Council Instruction 485 as follows:

(a) If a qualified medical practitioner who is attested under the Group System, or is in one of the classes under the Military Service Act, 1916, and who is enrolled under the scheme of the Central Medical War Committee or the Scottish War Emergency Committee, or has been provisionally accepted by the War Office, receives a notice paper calling him up, he should return it to the recruiting officer, together with his certificate of enrolment or War Office letter. The notice will then be cancelled, and the practitioner will remain in reserve until selected for a commission in the Royal Army Medical Corps.

In Scotland the same procedure applies with regard to those who are registered with the Scottish Medical Service Emergency Committee.

There is, however, one important modification in the position of the enrolled man under 41 which has resulted from the passing of the new Military Service Act. Hitherto medical men who have taken service since the beginning of the war, as doctors in the army, have done so on the system of a contract for one year or until their services are no longer required, whichever happens first. It is now announced authoritatively that every medical man under 41 is, in virtue of the new Acts, under an obligation to serve not only for twelve consecutive months, but for further periods of twelve months, with such intervals as may be determined, if the military authorities (acting on the advice of the Professional Committees) require him to do so.

In view of the obligation that now exists on all other classes of the community to serve for the duration of the war, the medical profession will not, it may be assumed, object to this new condition in the case of men under 41. While service with the forces remained voluntary, the Central Medical War Committee was fully aware that a medical man by enrolling undertook no more than an obligation for one year of service, if required of him. At the same time the Committee always contemplated the possibility that circumstances, such as the prolonged duration of the war, might necessitate a further call on men who had completed a year's service. For this reason each medical man, on the completion of his period of service in the R.A.M.C., was invited to renew his enrolment, thus placing himself again at the disposal of the army, should the Committee advise that his services were required at any subsequent date.

Under the new conditions every medical man under 41 who at the end of his period of commissioned service elects to return to civil life will come under the compulsory provisions of the Military Service Acts, and unless he at once enrolls again so as to obtain the privileges afforded by Army Council Instruction 485, he will be liable to be called up for ordinary service by the recruiting officer. He will, no doubt, consider it advisable to enrol, and he will therefore again come before the appropriate Professional Committee for commissioned service in the R.A.M.C. so soon as the Committee thinks it is his turn to be taken again. What interval should be allowed between the end of his first period and the beginning of his second period of service will be determined by the Professional Committee. It may be presumed that the Professional Committee will not select an enrolled doctor for a second period of service while other men equally eligible in other respects have not been taken for service. The enrolled medical officer, therefore, who is completing his year's service may reasonably hope that it will usually be found possible to arrange that the second period of service, if any, which he will be called upon to render will not be directly consecutive to the first period, but that there will be an interval, the exact duration of which it is not possible to state, inasmuch as it will depend upon the national requirements at the time; at the same time any medical officer who prefers that his service in the R.A.M.C. should be continuous may, as heretofore, re-engage at the end of his year.

With regard to the medical men under 41 who enrolled before the passing of the Act, the Central Medical War Committee cannot consider them to be morally bound to give more than one year's service on that enrolment. Among them are some who are now engaged in their first year's service in the R.A.M.C. and others who have not yet held a commission. In addition there are the men who have already done a year's service in the R.A.M.C. and have resigned their commissions. There is no doubt that the man under 41 who at the end of his year's service resigns his commission should enrol again under the new conditions, realizing, of course, that the obligation is now, in virtue of the new Act, not limited to one period of service of twelve months, but extended to such further period or periods as may be found necessary in his case by the War Office, acting on the advice of the Professional Committee. By enrolling he will be helping to retain for the medical profession certain privileges, for doctors will then continue to be able to fulfil their obligation for military service,

not in the ranks, but by becoming commissioned officers, as, if enrolled, they will not be called up by the recruiting authorities for military service under the compulsory provisions of the Military Service Acts, and their obligation to serve (qualified in these ways) is actually exacted from them only if and when it is deemed necessary and right by a committee of their own profession established for the purpose.

There remains the case of the medical man under 41 who does not enrol under the conditions created by the new Military Service Act. He will not have the advantages of Army Council Instruction 485, quoted above; he will be called up by the recruiting officer in his class, and if he does not desire to be taken for general service it will be necessary for him to apply to the local tribunal for exemption. Under Section 7 of the new Military Service Act,¹ which deals with medical men, the local tribunal will refer his case, unless his objection be conscientious, to the appropriate Professional Committee. This Committee will consider any facts brought before it, and will determine whether he is or is not needed in his locality, and will make a recommendation accordingly to the local tribunal. If the local tribunal is advised that he is not needed in the locality it will refuse him exemption, and the military authority will then call him up under the compulsory powers of the Military Service Acts, and the War Office, unless it considers him unsuited for the R.A.M.C., will presumably give him a commission in that corps.

The recommendation of the Professional Committee is binding on the tribunal. It will be seen, therefore, that whether a man has enrolled or not, his case will be decided by one and the same Professional Committee. But as the man who does not enrol will be under the compulsory provisions of the new Military Service Act, and as he has no privileges (not being enrolled) under Army Council Instruction 485, the War Office will make his commission in the R.A.M.C. for the whole period of the war and on the ordinary lines, without any of the special arrangements as to pay, or a twelve-month period of service, or otherwise, that have hitherto obtained in this war for medical men taken into the R.A.M.C.

The position of a medical man over 41 is not affected by the Military Service Acts. It is, however, open for him to enrol, for he is eligible to receive a commission for general service in the R.A.M.C. until he has attained the age of 45, and there can be no doubt that unless he enrolls and so places his services at the disposal of his country if and when required, the position with regard to certain areas will be very difficult, and the calling up of men for service in the R.A.M.C. will involve hardship to the community and to his fellow practitioners. It may be assumed that a sense of patriotism and the spirit of fairness will lead every man from 41 to 45 to enrol; in order that the necessary selection may be made from the widest field possible. Between these ages service is voluntary, and no man over 41 will be called upon, unless he so desires, to give more than one year's service under the undertaking given when he enrolls. The conditions in his case remain precisely as they were before the passing of the Military Service Acts.

The war must be won at any cost. An efficient medical service is an essential part of military organization. Unless a doctor is convinced that he knows how the war can be won without him, he must trust some one to tell him his duty as matters now stand. And the only body which can do this from wide knowledge and in an equitable manner is the Professional Committee of the country to which he belongs.

THE CAMPAIGN FOR CLEAN MILK.

So many valuable lives are being lost in the war that the importance of cutting down our infant mortality to the lowest possible figure is being realized more generally than ever before. Much good work is being done by the medical men in charge of clinics for infants, the managers of schools for mothers, the home visitors provided by municipalities, by the many various associations that exist to improve the welfare of the poor, and by other useful organizations designed to lessen this mortality, which is still notoriously unduly high. Many of the fatal diseases to which infants are prone are due directly to the consumption of impure milk. In the great majority of instances this impurity, or contamination with pathogenic bacteria, is avoidable; the infection of the milk occurs habitually on the dairy farm or in the course of transit from dairy farm to consumer. No medical man can doubt that the dangers to which infants and young children fed wholly or largely on cow's milk are exposed could be enormously reduced by legislative and administrative measures directed to procuring the general supply of uncontaminated milk to the public, and to preventing the supply of impure milk, or milk contaminated with bacteria of all sorts. These observations are, of course, platitudes. But they are worth restating in view of the great importance of the subject and the campaign for clean milk that has been organized by the National Clean Milk Society. This society has recently republished in pamphlet form¹ a series of articles that appeared week by week in the *Observer* at the end of last year and the beginning of this. They were written and published with the hope that they might be the means of stimulating interest in a subject which is of prime importance to the welfare of the country. The condition of our milk supply is bad, and cannot, it is maintained, be much improved until the public clearly understands the relative values of clean milk and dirty milk, and demands and is willing to pay a higher price for the clean milk. The society, which is incorporated, has been formed with the objects of raising the hygienic standards of milk and milk products, and of educating the public as to the importance of a clean and wholesome milk supply. The pamphlet gives an admirable account of what has to be done and how the necessary improvements are to be effected. Accounts are given in general terms of the reforms required in farm practice, in the conveyance of milk, in the licensing of milk dealers, and in other important details affecting the supply and the domestic consumption of milk. The pamphlet might be read with advantage by millions of milk-consumers in this country; it has been written for the layman, and in the form of a cheaper reprint, if that be possible, it should have a very extensive circulation. The problem of obtaining a supply of pure milk is naturally one that affects other countries as well as ours, and has received a great deal of attention in the United States of America during the last quarter of a century with, in many towns, most satisfactory results. In India also it is now being discussed. We have before us an excellent account of the milk problem in Indian cities, with special reference to Bombay,² discussed at length in its scientific, sanitary, economic, and legislative aspects. Much remains to be done in improving the breed of milch cattle in India; on the other hand, it is said that tuberculosis is extremely rare among cows in Bombay and has never been found in buffaloes, while tubercle bacilli have never yet been detected in Bombay milk, so that the elimination of tuberculous cows cannot in India be the difficult problem it has always shown itself in Great Britain. Dr. Joshi's book is full of important facts and

¹ *Campaign for Clean Milk*. A series of articles that have appeared in the *Observer*. London: Published by the St. Catherine Press for the National Clean Milk Society (Incorporated). 1916. (Demy 8vo, pp 51; illustrated. 1s. net.)

² *The Milk Problem in Indian Cities, with Special Reference to Bombay*. By I. L. Joshi, B.Sc., M.D., Municipal Analyst, Bombay. With a Foreword by J. A. Turner, C.I.B., M.D., D.P.H., Executive Health Officer, Bombay Municipality. Bombay: D. B. Taraporevala, Sons, and Co. 1916. (Demy 8vo, pp. 245.)

figures bearing on the whole subject, and should form a sound basis for the discussion of the practical reforms that are called for in the provision, collection, and distribution of pure milk in India. Here, as elsewhere, the co-operation of the milk-consuming public is essential for the success of any scheme put forward by the Government and municipal or other authorities that may interest themselves in the great milk question.

EPIDEMIC JAUNDICE DUE TO *B. PARATYPHOSUS B.*

PROFESSORS FRUGONI AND CANNATA have recently recorded¹ a small epidemic of catarrhal jaundice among Italian soldiers stationed in the valley of the river Judrio, a tributary of the Isonzo, on the eastern Austro-Italian border. In the course of two months about a hundred cases were seen in hospital. In some instances the jaundice was the only symptom or sign of disease, but in most cases there had been for from two to four weeks diarrhoea (perhaps with slight fever), loss of appetite, and a sense of heaviness or even pain in the epigastrium. This pain was noted in over half the patients, and was attributed to tension of Glisson's capsule of the liver. The jaundice followed on these disturbances after the lapse of various periods of time, and reached various degrees of intensity, as is commonly the case with ascending cholangitis secondary to gastro-enteritis. Mild fever was noted at the onset of the jaundice in a quarter of the patients; the stools were cretaceous in 54 per cent. early in the jaundice, later becoming normal in colour in the usual manner. The authors were not in a position to determine experimentally whether these cretaceous stools were alcoholic or merely fatty, and leave the point unsettled. But by the use of Einhorn's duodenal sound they were able to prove that the secretion of bile was "sufficiently deficient" in the first days of the jaundice, and was normal or even greater than normal during convalescence. Their use of the duodenal sound also showed them that a part, at any rate, of the biliary obstruction in these patients was due to the presence of little blocks of mucus in the thickened biliary secretion. By prolonging the stay of the sound in the duodenum they were able to obtain some bile from it in every instance, although sometimes in very small quantities. Bradycardia was observed in 52 per cent. of the cases, and in some was (*pace* Dr. Mercier) very marked. No tendency to haemorrhage was seen. The liver was enlarged in every case, but not in proportion to the jaundice; the gall bladder was palpable in a few patients, and painful in a few. The spleen was enlarged in 60 per cent. of the cases, and most so in the patients in whom the liver was most increased in size. The etiology of this jaundice was submitted to examination in 43 of the patients by the employment of Einhorn's duodenal sound, blood cultures, and tests for agglutinating power in the serum. The blood proved sterile in all cases. The bile gave cultures of *B. paratyphosus B* in 11 patients and of *B. typhosus* in 1; from the clinical point of view there was nothing to distinguish these 12 patients from the other 36 whose bile proved sterile on culture. The agglutination tests showed that the serum of 15 of the patients agglutinated *B. typhosus* when diluted 1:50, and one when diluted 1:100; all had received antityphoid inoculation. As regards *B. paratyphosus B*, one of the eleven infected patients gave a positive result at a dilution of 1:50, nine at a dilution of 1:100, and one at a dilution of 1:200; of the remaining 37 cases investigated, five gave a positive result at a dilution of 1:50, and one at a dilution of 1:100. None had received antiparatyphoid vaccination; nor did the serum of any of them agglutinate *B. paratyphosus A*. Examination of the faeces showed that in only three instances could *B. paratyphosus B* be recovered out of 43; but this method of

examination was taken up too late in the day for the results to be completely trustworthy. The authors remark that this epidemic of jaundice occurred at the end of an epidemic of "typhoid" fever; they conclude that the infecting bacilli had become attenuated and less virulent, and so produced jaundice rather than a "typhoid" fever. Paratyphoid B fever has been increasingly common in the Italian army; the authors add that abnormal types of typhoid and paratyphoid fevers have often been recorded during the present war, such as apyretic typhoid in Germany (Meyer), and infectious jaundice (Raymond and others) in the Vosges and Tripoli and the Dardanelles, as well as in Italy.

THE IMPERIAL COLLEGE OF SCIENCE.

A LARGE company of representatives of the scientific and technical press were received at the Imperial College of Science, South Kensington, on May 31st by the Right Hon. Arthur Dyke Acland, chairman of the executive committee of the governing body, and, with the professors and other members of the staff, took them round the institution. The college, of which Sir Alfred Keogh is rector, has now as many ramifications as a great tree has roots, but the departments of chemistry, electrical engineering, and metallurgy chiefly engaged the attention of the visitors. Professor H. B. Baker, who occupies the chair of chemistry, said that the scientific investigation carried on at the college had an industrial bias, and the great need at the present moment was for what he described as semi-laboratories, that is to say, places in which scientific research, having passed the initial stages, could be continued on a scale of operation and equipment approximating to that which obtains in industry. Among a score of subjects for investigation already in hand, or to be undertaken as soon as opportunity offers, were the disease-producing organisms of animals from a comparative point of view, economic plant physiology and pathology, and methods of destroying house-flies. Various types of respirators as a means of protection against poisonous gas had been evolved in the college, and also a practicable method of purifying water for the supply of troops. Much attention had been paid also to the manufacture of synthetic drugs; at a time of threatened shortage owing to the stopping of external supplies, the laboratories set to work, and within three weeks the supply of three essential drugs for hospital purposes was assured. Mr. Acland referred to the memorial which has just been presented to Lord Crewe by the professors of the college, urging the importance of securing that a larger proportion of young men in this country should be trained in scientific methods with a view to industrial research. The suggestion is that a grant of a quarter or half a million, in addition to the quarter of a million (as against Germany's million and a half) which the State annually grants to the universities might profitably be used to provide an adequate number of bursaries for secondary-school boys of 16 to 18 years of age, to be followed by the offer of Government scholarships tenable at a university.

CATGUT.

THE Académie de Médecine on May 16th, after discussing a report presented by M. Quénu on May 9th, adopted a series of resolutions as to the manufacture of catgut and as to its sterilization. The resolutions as to manufacture were: (1) That catgut for surgical use should be made only from fresh bowel, and that a clause to this effect should be introduced into all contracts; (2) that special precautions in the selection and treatment of intestine for this purpose should be enforced in slaughterhouses; and (3) that in the factories where gut is prepared, special rooms should be set apart for the preparation of catgut for surgical use, and that the apparatus in them and the training of the workpeople should be improved. The

¹ *Lo Sperimentale*, Florence, 1916, lxx, 25.

resolutions as to sterilization were to the effect that tubes of catgut sterilized by pharmacists should be subject to some outside control, and should bear a label stating the nature of this control and the place of origin of the catgut.

PRISONERS IN GERMAN CAMPS.

How is it that our Government is so ill informed as to the treatment of prisoners in German camps? On April 13th Sir Edward Grey admitted that neither he nor his colleagues had any suspicion of the horrors of Wittenberg, adding that they had no reason to suppose that the state of things was the same in other typhus-infected camps in Germany. Yet the truth might have been discovered from sources easily accessible. An account of the outbreak at Gardelegen by Major P. C. Davy and Captain A. J. Brown was published in our issue of November 20th, 1915, and a summary of Dr. Léonetti's experiences of similar epidemics at Cassel and Langensalza was given in the JOURNAL of March 18th, 1916. These accounts are confirmed by independent testimony quoted in the JOURNAL of May 6th.

If more evidence is wanted we may refer the Foreign Office to Dr. Ribadeau-Dumas's record of his own experience of German prison camps. He is a Paris hospital physician, and his testimony, which is published in *Paris Médical* of May 20th, therefore carries special weight. After a period of detention at Altengraben, he, with a number of other doctors, French and Russian, was sent on February 8th, 1915, to the camp at Stendal. There the prisoners were persecuted in all sorts of ways. The state of things was so bad that the higher authorities seem to have become alarmed, and an order was issued enjoining prudence on those in charge of camps, as "too severe treatment inflicted on the prisoners was likely to tarnish the good name of Germans among neutrals." In consequence, some of the officers strove to undo the evil effects of the previous reign of terror. A delightful example of Teuton tactfulness is given in a story of one of them offering the French prisoners cotton caps bearing the marks of French military hospitals! War is war, and the caps were loot like anything else. On the occasion of some popular festival in the town huge baskets were brought in with much ceremony, and bits of cloth stolen at Lodz were distributed among the prisoners, who were ordered to wear them as cravats in token of German liberality; but no useful thing, such as a shirt or a piece of linen, was ever given. Typhus broke out and the Germans fled, leaving the French and Russian doctors with the sick within a barbed wire enclosure, where the conditions were most unfavourable. Several of the medical men fell victims to the criminal want of forethought of those in charge of the camp. The Government was moved to take action only when the disease began to spread among its own people. Then isolation huts were built, disinfectors and baths set up, and, by way of throwing dust in the eyes of the public, antityphoid inoculations were carried out on a large scale. Ribadeau-Dumas speaks strongly about the food supplied to the prisoners; it was not only deficient in quantity, but extremely bad in quality. At Stendal the staple ration was what was called potato soup, a filthy decoction with herring heads floating in it, and smelling of rotten fish, which the very dogs howled at. Miserable as the food was, the prisoners fought for it. Parcels sent from home were opened and the contents stolen. Punishments in the form of blows, kicks, and short commons were showered on the prisoners; the doctors were placed under arrest without any reason assigned; some were confined to their rooms for months. The lazaretto was barely furnished; the beds were mere frames covered with mattresses of wood shavings and a coverlet. The medicines consisted of aspirin and quinine tablets, tincture of iodine, castor oil and potassium chlorate. There were only a few instruments—a worn-out tongue depressor, two crooked stylets, and a jagged bistoury. The German doctors were, as a rule, rough, sometimes brutal, in their manners; they physicked the patients at haphazard; some were grossly ignorant. Wounds were stitched up with a mattress needle and unaseptized thread; the surgeons did not wash their hands. This description of German surgery may be compared with that

given by Léonetti in his *Souvenirs de Captivité*. Ribadeau-Dumas complains bitterly of the utter neglect with which the sick prisoners were treated. Inspections were a farce. Once they saw a General, to whom they were allowed to speak, but after listening to the recital of their woes, he said that that kind of thing did not concern him, and walked away. At Altengraben, in reply to some complaint, another General merely called them "sagrésgôchons." These are the only occasions on which they had any relations with the higher German authorities. The neutral inspectors they never saw. One day the French prisoners refused the soup, which was unusually bad. They were made to stand motionless in two rows for a couple of hours; they were then placed in a barbed wire enclosure with some sixty prisoners from Wittenberg suspected of typhus. Of many of the worst things Ribadeau-Dumas says that he cannot bring himself to write.

With regard to food, Mr. Tennant stated, in reply to Major Wheeler, on May 3rd, in the House of Commons, that no stated ration was provided by the German Government for British prisoners of war in Germany, but that commandants were instructed, within limits, to make local purchases of food which should afford an average of 85.9 grams of protein, 43.7 grams of fat, and 484.5 grams of carbohydrates, equivalent to 2,762 calories a day. Taking an average of the foodstuffs which appeared to have been purchased, the allowance per day would be approximately 13.8 oz. of breadstuffs, 8.4 oz. of meat, fish, or cheese, and 35 oz. of vegetables. That, he said, was the scale; it was impossible to say that in all cases that was the amount of food given in Germany, but he was informed privately, not officially, that it was carried out very generously. Mr. Tennant has since seen cause to modify this optimistic statement. On May 24th he said that further information, derived from returned prisoners, showed that the German scale was in practice disregarded, with serious consequences to the prisoners, and that he was advised that if it had not been for the parcels of food sent to the men from this country, they would in very many instances have starved. On the same day, in reply to Mr. McNeill, Lord Robert Cecil said that, so far as the Foreign Office knew, all parcels, or almost all, reached the prisoners, but the matter was one which ought to be regarded with grave anxiety as to what might possibly happen in the future.

This is to some extent a reassuring statement, inasmuch as it shows that the Foreign Office, at least, is becoming awake to the facts, and we hope that it will vigorously pursue its inquiries into the state of things in the German prison camps. As a contribution towards them we may call attention to a paper on "The oedema disease of war-prison camps," published by Oberstabsarzt Professor Jürgens in the *Berliner klinische Wochenschrift* for February 28th, 1916. His remarks apply to several prisoners' camps, the names of which he withholds. He states that the clinical picture of oedema and general weakness among prisoners has become very common; its true cause has, he says, often been overlooked, either for want of adequate medical attendance or because the symptoms were misunderstood by the doctors, who had never seen anything like them before, and wrongly associated them with epidemics of typhus and other fevers. The symptoms began with slowly progressive weakness, depression, and distaste for any exercise, culminating in complete incapacity for work. The patient's dull expression, flabby, slightly-jaundiced skin, and pale mucous membranes, showed at a glance how poor his health was; when his face grew puffy and his legs swollen, it became impossible to overlook this condition, but the onset was so insidious that it was often overlooked in its early stages. How inadequate the medical attendance must sometimes have been among the prisoners is shown by Professor Jürgens's words: "It was usually the swelling and pain in the limbs which excited attention, but sometimes even this oedema disease remained unnoticed so long that still worse disturbances developed, which finally led to severe general oedema, to scorbutic conditions, and to the most severe intestinal disturbances, convincing even others than doctors of the presence of a severe disease." In one camp the prisoners were admitted in an emaciated and exhausted condition. Though they remained there a considerable time, and no epidemic broke out, they continued to look feeble and flabby. Early in January they were given work on the land, and after about two weeks

of this employment from 10 to 20 per cent. of them developed swelling of the legs and face and general weakness. Jürgens writes of these manifestations as being beri-beri-like. They more closely resemble those of land scurvy. As they suggested that the prisoners were getting a badly adjusted diet, or were being underfed, some improvements were made in the diet, with the result that no new cases developed; and the feeble and miserable-looking patients were spared further disorders of metabolism. In other camps these beri-beri-like symptoms were, undoubtedly, often associated with epidemics of typhus, dysentery, etc.; but Professor Jürgens is convinced that these epidemics acted simply like manual labour by exhausting the energy of the body, and thus precipitating serious symptoms at a time when the nutrition of the body was already imperfect.

The story, as it is so far known, of the treatment of their prisoners by the Germans throws a strange light on the working of the Teutonic mind. First, the charges relating to Wittenberg were denied, then various excuses were put forward. The latest of these is contained in a White Paper lately issued, which includes a report of a conversation which Mr. Jackson of the United States Embassy in Berlin had with the Inspector General at Magdeburg. The General said that typhus had been practically unknown in Germany before its introduction by the Russian prisoners; that the symptoms were not recognized, and that the German doctors had not known at first how to treat the cases which appeared. The isolation of the camp and the order forbidding the German guards to enter it had been absolutely necessary to prevent a spread of the disease to the city of Wittenberg, where most of the guards had their homes, and as a result of these precautions there had not been a single case among the civilian population. Evidently the philanthropic officer thinks it better that prisoners should die than that a single German should be exposed to infection. This remarkable confession of ignorance and incompetence, to say nothing of inhumanity, throws a fierce light on the boasted "Kultur" which is to bring a new gospel to a world sitting in darkness.

Medical Notes in Parliament.

The New Military Service Act.

THE Military Service Act, 1916 (Session 2) entitled "An Act to make further provision with respect to military service during the present war" received the Royal Assent on May 25th.

Section 1 extends and continues the operation of the Military Service Act, 1916. It enacts that "every male British subject who has at any time since August 14th 1915 been, or for the time being is, ordinarily resident in Great Britain, and who for the time being has attained the age of eighteen years and has not attained the age of forty-one years, shall, unless he either is for the time being within the exceptions set out in the first schedule to the Military Service Act, 1916 (in this Act referred to as the principal Act) as amended by this Act or any subsequent enactment, or has attained the age of forty-one years before the appointed date, be deemed as from the appointed date to have been duly enlisted in His Majesty's regular forces for general service with the colours or in the reserve for the period of the war, and to have been forthwith transferred to the reserve: Provided that steps shall be taken to prevent as far as possible the sending of men to serve abroad before they attain the age of nineteen."

The appointed date (the thirtieth day after the passing of the Act) is June 24th.

Section 2 prolongs expiring terms of service "in the case of men whose time for discharge occurs before the end of the present war not exceeding the duration of the war" except in the case of men who have served for twelve years or more and have attained the age of forty-one.

Section 7 contains the provisions as to exemption of medical practitioners, published last week, as follows:

7. *Provisions as to Exemption of Medical Practitioners.*—Regulations made under the second schedule to the principal Act shall provide for the establishment of professional committees to deal with claims for exemption made by duly qualified medical practitioners; and any application made by such a

medical practitioner on any other ground, other than that of conscientious objection, for a certificate of exemption shall be referred by the tribunal to whom it is made to such a committee in accordance with those regulations; and the recommendation of the committee on the application shall be binding on any tribunal constituted under the principal Act.

Section 12 is as follows:

12. *Transfer to Reserve under Special Circumstances.*—The Army Council may make arrangements, to take effect during the continuance of the present war, for the transfer to the reserve of any member of the regular forces or for the temporary demobilization of any member of the territorial force, notwithstanding anything in any Act or in the terms of his enlistment, in cases where the transfer or demobilization appears expedient in the general interests of the country and the Army Council are satisfied that it can be effected under conditions which will render the man transferred or demobilized immediately available for service in the case of military necessity. Provided that during such period of transfer or demobilization the man shall not be subject to military discipline.

Section 14 is as follows:

14. *Transfer of Officers and Men of the Territorial Force.*—(1) During the continuance of the present war, notwithstanding anything in section seven of the Territorial and Reserve Forces Act, 1907, the orders and regulations for the government and discipline of the territorial force made under that section—

(a) may authorize a man of the territorial force when belonging to one corps to be transferred without his consent to another corps, and may authorize a man of the territorial force to be posted without his consent to a battalion or other body of the regular forces included in the corps to which he belongs or is transferred; and

(b) in the case of an officer or man in the territorial force who is liable to service outside the United Kingdom may, for the purposes of such service, and notwithstanding anything in any instrument defining the conditions of such service, authorize the drafting of any such officer or man to any unit of the territorial force within the corps to which he belongs or to which he may be transferred;

and those orders and regulations shall also provide for the maintenance of the rate of pay of a man who is transferred without his consent to a different arm or branch of the service, except in cases in which it appears undesirable to the Army Council that the rate of pay should be so maintained.

(2) This section shall affect officers or men of the territorial force, notwithstanding that they were commissioned, enlisted, or re-engaged before the date of any order or regulation under this section.

Section 15 gives powers to form corps for more than one county.

Section 16 is as follows:

16. *Provision as to Liability of Territorials to Serve Outside the United Kingdom.*—Where an officer or man of the territorial force has, before or after the passing of this Act, accepted liability to serve in any place out of the United Kingdom, that liability shall continue, notwithstanding anything in the conditions of service, during the continuance of the present war, unless the competent military authority, as defined for the purposes of Part II of the Army Act, otherwise direct.

War.

Mesopotamia.—In reply to Colonel Yate, on May 30th, the Secretary of State for India said that the terms of reference to the Commission appointed to inquire into the medical arrangements of Mesopotamia required it to ascertain and assign the responsibility of individual officers for any inadequacy or failure of relief, or shortage of personnel, equipment, vehicles, or stores. Mr. Chamberlain added, in reply to a supplementary question, that the Government of India had appointed the Commission at his request because he thought it desirable that the facts should be ascertained. He did not consider it well that the Commission should publish an interim report, but that when it did report it should present the whole of the facts.

British Prisoners in Germany.—In reply to Mr. Malcolm, Sir Edward Grey stated on May 25th that the White Paper containing the American reports of British prisoner camps in Germany had been issued that day, and that the text of the agreement under which invalid German and British prisoners of war would be sent to Switzerland, and the categories of diseases that would qualify prisoners for this transfer, would, it was hoped, be laid before Parliament very shortly. The question of the inclusion of civilians in the arrangement between Great Britain and Germany for the internment in Switzerland of invalid prisoners of war not entitled to repatriation was under consideration. There was already an agreement with Germany for the repatriation of invalid civilians.

British Prisoners in Turkey.—In a written reply on May 25th Mr. Tennant said that an agreement had been

reached with the Turkish Government for the reciprocal repatriation of incapacitated prisoners of war under the same conditions as had been in operation for over a year between this country and Germany. It was hoped that the agreement might be put into effect shortly.

Air Raid Casualties in Great Britain.—The Home Secretary stated, on May 29th, that the total casualties caused by hostile attacks from the sea and from the air in Great Britain since the outbreak of war up to the present date were as follows: In the three attacks from the sea 141 persons were killed, including 61 men, 40 women, and 40 children, and 611 persons were injured. In the forty-four air raids 409 persons were killed, including 222 men, 114 women, and 73 children, and 1,005 persons were injured. These figures differed slightly from the totals of those published from time to time, owing to the fact that some persons reported as injured subsequently died, and a few additional cases of injury of a minor character not known to the police at the time were afterwards reported.

Steel Helmets.—Mr. Tennant on May 29th stated that the supply of steel helmets had very nearly reached the number asked for up to the present, and that it was believed that sufficient had been issued for the needs of all the British troops within the zone of shell fire in France. The percentage of head wounds to total wounds in British hospitals in France from February 13th to May 15th, 1916, was 12.35.

Civil Liabilities.—In a written reply to Mr. Hunt, on May 25th, Mr. Hayes Fisher said that the regulations as to a grant not exceeding £104 for relief of home obligations did not at present permit of the scheme being applied to officers.

THE WAR.

CASUALTIES IN THE MEDICAL SERVICES.

ARMY.

Killed in Action.

LIEUTENANT-COLONEL GEORGE OLIVER MOORHEAD, South African Imperial Force, Nyasaland Contingent, is reported to have been killed in action. He was the eldest son of the late Brigade Surgeon G. A. Moorhead, R.A.M.C., was born in Mauritius, and educated at Malines in Belgium and at Edinburgh University, where he graduated in medicine. He subsequently went out to South Africa, and was practising in the Transvaal when the Boer war began. He was commandeered by the Boers and placed in charge of a field ambulance. After a time he escaped, and, joining the British forces, was present at the battle of Colenso, served throughout the war, and received the Queen's and King's medals. When the present war began he left his practice, joined the Union Defence Force as a combatant, and served throughout the campaign in German South-West Africa, subsequently being appointed to the command of the Nyasaland contingent in East Africa. His younger brother, Brevet-Colonel A. H. Moorhead, I.M.S., was promoted for his service in France, invalided at the end of last year, and died on March 1st.

Captain D. Waterston, Canadian Army Medical Corps, attached to the Canadian Infantry, was reported as killed in action, in the casualty list published on May 29th.

Lieutenant James McC. Johnston, R.A.M.C., has been reported as killed in action. He was the elder son of Dr. Robert Johnston of Dundee, and was 32 years of age. After receiving his early education at the Dundee High School he studied at the universities of Edinburgh and St. Andrews, and graduated M.B., Ch.B. at the latter university in 1913. He held the office of house-surgeon at the Dundee Royal Infirmary for a year, and began practice in Perth. He received his commission in August, 1915.

Died of Wounds.

Quartermaster and honorary Lieutenant H. Maffey, R.A.M.C., was reported as having died of wounds, in the casualty list published on May 25th.

Wounded.

Captain J. H. Aikman, R.A.M.C., temporary.

Captain G. A. E. Argo, R.A.M.C., temporary.

DEATHS AMONG SONS OF MEDICAL MEN.

Grune, Gilbert Dennis, Lieutenant Royal Field Artillery, attached Royal Flying Corps, son of Captain Edward Grune, R.A.M.C., of the Hall, Southwick, Sussex, killed flying on March 13th, while on a reconnaissance as a pilot, aged 22. He was educated at South Lodge, Lowestoft, and at Steyning Grammar School, and had just finished his pupillage with Messrs. Vickers when the war began. The Territorial battery of artillery to which he belonged was then mobilized; he accompanied it to France in November, 1914, and was present with it in several engagements. In 1915 he joined the Royal Flying Corps, qualifying in September.

Howard, Cecil Cunningham, Second Lieutenant Loyal North Lancashire Regiment, only son of Dr. Howard of Upper Norwood, died of wounds on May 23rd, aged 19.

We regret to learn that Dr. Frederick Taylor, President of the Royal College of Physicians, and consulting physician to Guy's Hospital, has received official notification that his son, Lieutenant H. C. N. Taylor, 20th Battalion of the London Regiment, has been killed during the recent fighting in France.

NOTES.

MENTIONED IN DISPATCHES.

In a dispatch dated November 13th, 1915, Brigadier General N. W. Barnardiston, M.V.O., commanding the Tsingtau Expeditionary Force, gives an additional list of officers, non-commissioned officers, and men deserving of special notice, among them being the following medical officers: Major J. A. Hartigan, M.B., R.A.M.C., Senior Medical Officer; Captain G. H. Dive, R.A.M.C., attached to the 2nd Battalion, South Wales Borderers. The list also contains the names of four non-commissioned officers of the R.A.M.C.

England and Wales.

KING EDWARD'S HOSPITAL FUND FOR LONDON.

THE report presented to the annual meeting of the Governors and General Council of King Edward's Hospital Fund for London last week showed that the total receipts for the year 1915 amounted to £226,779 19s. 5d., of which £12,949 17s. 9d. were contributions to capital and £213,830 1s. 8d. receipts on general account. The income from investments amounted to £97,218 and was larger than ever before, owing primarily to the receipt of a full year's income from the first instalments of the Wernher legacy. The total loss to the income of the year through failure to pay interest or dividends since the war began amounted to less than £800, due to non-receipt of interest or dividends on certain securities acquired by the Fund as gifts or legacies from various donors. The Fund held on December 31st a large amount of war stock obtained partly by investment and partly by conversion of consols received from various executors in the past. The realized depreciation of £6,046 on trustee stocks due to this conversion was very nearly balanced by a realized appreciation on non-trustee investments, leaving a net realized depreciation of only £62. The Fund had already received £100,000 from the residue of the estate of the late Dowager Lady Wilton, and it was estimated that another £50,000 would accrue. The adoption of the accounts and of the annual report of council was moved by the Speaker of the House of Commons, who was in the chair, and carried. The total sums distributed among hospitals, convalescent homes, and consumption sanatoriums during the last ten years was £1,484,750, and since the foundation of the Fund £2,098,416. During 1915 the amount allocated was £133,500, of which £111,775 was granted in aid of general maintenance, £5,750 to the reduction of debts on maintenance account, and £15,975 towards schemes of buildings or improvements; the supplementary grants followed the same apportionment. The Fund had continued to encourage hospitals in the policy of postponing all schemes of capital expenditure not already in hand at the outbreak of war or exceptionally urgent. An increased grant to sanatoriums had made it possible to reserve 52 beds for the use of patients in London hospitals, as against 44 last year. The total amount spent on administration was at the rate of £1 8s. 3d. per cent. of the total amount received, as compared with 12s. per cent. in the previous year. The percentage for the whole period since the inauguration of the Fund was £1 4s. 7d. Sir William Church presented a report from the Distribution Committee on the expenses of the Bland-Sutton Institute of Pathology at the Middlesex Hospital. The negotiations with the hospital had, he said, been of the most friendly character, and the committee

recommended the acceptance of the scheme of apportionment between hospital and medical school for the year 1915 as satisfying the conditions attached to the grants made by the Fund. The report was seconded by Sir John Tweedy and carried unanimously. A report of the Convalescent Homes Committee, recommending that under certain circumstances a special application from the National Association's Sanatorium at Benenden for an emergency grant of a limited amount should be granted, was moved by Sir William H. Bennett, seconded by Sir W. Watson Cheyne, and carried.

In acknowledging a vote of thanks, moved by the Chief Rabbi and seconded by Viscount Mersey, the Speaker said that it must be expected that as the war continued the margin of any eleemosynary funds available for the general charities of the country must shrink to a considerable extent. Fortunately, the Fund had got through its difficulties extraordinarily well, but next autumn or a year hence a considerable shortage might be shown.

THE HOUSING OF A VIRILE RACE.

We called attention recently to two inquests held by the coroner for Southwark with regard to the death of a woman and a boy in the Tabard Street area. It appears that in February it was considered that circumstances arising out of the war justified the London County Council in not proceeding with the execution of the scheme, but the Local Government Board has now issued an order permitting a modification of the scheme so as to enable the Council to demolish some 268 buildings, in addition to those already demolished. The chairman of the Working Classes Committee has informed the Council that the total number of buildings demolished, or about to be demolished, is 420. The original scheme proposed the demolition of 503 premises, occupied by about 2,600 people. It was hoped that accommodation for 600 people would be found in September.

Correspondence.

THE HORRORS OF WITTENBERG CAMP.

SIR,—When you were good enough to publish, in your issue of April 22nd, a letter from me upon the above subject, my intention was to bring a resolution before the annual meeting of the Laryngological Section of the Royal Society of Medicine requesting the Council of the society to delete the names of all Corresponding members of German birth from the roll of the section as an outward expression of disgust with the treatment, or rather, lack of treatment, meted out to our helpless and fever-stricken prisoners of war at the hands of their professional *confrères*. A resolution to this effect was sent by me to the honorary secretary of the section, but on submission to the president of the society was held by him to be *ultra vires*. I accordingly modified the original, and sent up a fresh resolution to the secretary of the Otological Section for discussion at the annual meeting upon May 19th, couched in the following terms:

That the members of the Otological Section of the Royal Society of Medicine desire to place on record their sense of abhorrence and disgust at the conduct of Oberstabsarzt Dr. Aschenbach and his colleagues in their abandonment of British prisoners of war during the epidemic of typhus fever at the Wittenberg prisoners of war camp, and request the Council of the Royal Society of Medicine to take such steps as they in their judgement may think fit to emphasize the feelings of indignation shared by members of the British medical profession.

This resolution was accepted as in order by the President of the Section, Dr. Albert Gray, Glasgow; was proposed by myself, seconded by Mr. Richard Lake, and supported by Dr. Watson-Williams.

After a somewhat prolonged and pointless discussion the resolution was put to the meeting and lost—nine members voting in its favour, thirteen against.

The majority of the members present at the annual meeting of the Otological Section were therefore in favour of making no protest whatever against German barbarity to those typhus-stricken prisoners of war who in their day of health and vigour had done what lay in their power to defend our hearths and homes. *Hinc illae lacrymae*.—I am, etc.,

Manchester, May 28th.

WILLIAM MILLIGAN.

"THE SOLDIER'S HEART."

SIR,—In a letter published in the BRITISH MEDICAL JOURNAL of May 20th Sir James Barr refers, in a somewhat scathing manner, to Dr. Florence A. Stoney as "a lady of whose existence I have only been aware so recently as January 22nd, 1916," and he advises her to read "more extensively and accurately."

Without wishing to be discourteous to Sir James Barr, the same advice may be tendered to him.

Dr. Florence Stoney has an assured position among English radiologists, and read an important paper on the x-ray treatment of Graves's disease at a meeting of the British Medical Association held at Liverpool in 1912. Since that time she has been steadily working at the subject and is at present doing valuable work at a military hospital in London. In the face of these facts there seems to be no excuse for Sir James Barr's ignorance of Dr. Florence Stoney's existence prior to January 22nd, 1916. —I am, etc.,

London, W., May 23rd.

ROBERT KNOX.

HOW MEDICAL WRITINGS MAY BE GIVEN A MARKED DEVELOPMENT.

SIR,—It is gratifying to find Dr. Mercier's unjustified condemnation of the use of the words "marked" and "develop" in medical literature set at defiance by Dr. Bramwell.

Why is it incorrect to employ "marked" as an intensive to lend emphasis to a substantive or phrase, as Dr. Mercier would have us believe? Has it not been used in this sense by good English authors, and gained general acceptance? Surely Dr. Mercier's logic has run amuck when he contends that "marked" is used by writers as equivalent to slight or scanty!

The protagonist who is so jealous of the legitimate employment of words ought to have adduced some definite instances in which the much maligned adjective had been used with such an inverted meaning by a sane author.

Moreover, the scholarly "M.D." who sympathizes with Dr. Mercier in his plea for greater clearness in medical writings, and who deprecates slipshod speech, would be well advised to deliberate carefully before espousing the cause of a literary critic who, like Dr. Mercier, introduces weird and uncouth expressions in his correspondence.—I am, etc.,

Glasgow, May 30th.

I. H. LIPETZ, M.B., Ch.B.

THE MEDICAL OFFICERS, MERCANTILE MARINE.

SIR,—The suggestion made by Surgeon-General Evatt that ship's surgeons should be allowed to apply for commissions in the Royal Naval Reserve seems a good one.

He appears, however, to be somewhat "at sea" with regard to the functions of port sanitary medical officers. The duty of verification of the status and of approving the appointment of ship's surgeons lies not with the port sanitary authority, but with the Emigration or Shipping Department of the Board of Trade. As a matter of fact, all such appointments are approved at the port of clearance of passenger ships, except in very exceptional cases, when the surgeon has had to join the ship at the last moment, and then his credentials are examined by the Board of Trade emigration officer and submitted by him to the medical officer of the Board of Trade at the final port of call in Great Britain.—I am, etc.,

Plymouth, May 25th.

CHARLES J. COOKE, M.D., M.Ch.

The Services.

HONOURS.

COLONEL J. SMYTH, I.M.S., has been appointed an Honorary Physician to the King, vice Surgeon-General J. Pinkerton, deceased, February 12th, 1916; and Colonel J. Crimmin, V.C., C.B., C.I.E., I.M.S., vice Surgeon-General C. E. McVittie, deceased, February 18th, 1916.

EXCHANGES.

LIEUTENANT R.A.M.C., Regimental M.O. France, wishes to exchange appointment with officer in base hospital, casualty clearing station, ambulance train, or barge. C.C.S. preferred. Address, No. 2100, BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C.

M.O. to Divisional Train, Army Service Corps, probably at home for some time, desires immediate exchange with M.O. in 50th Division abroad.—Apply No. 1950, BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C.

Obituary.

SIR JAMES F. GOODHART, Bt., M.D., LL.D.,
CONSULTING PHYSICIAN TO GUY'S HOSPITAL.

THE announcement of the death on May 28th of Sir James F. Goodhart will be received with poignant regret by a very large number of friends and old pupils. Few men were more popular in medical London and in the school for which he worked so long, and few physicians of his day attained a wider and more solid success both among the profession and among the public. This success was due primarily, no doubt, to the manner in which he trained himself through pathology for clinical work, but it was largely due also to his broadmindedness, which was reflected in his open, friendly, genial manner. Emphatically he was a man not spoilt by success.

James Frederic Goodhart was the son of Alfred Harrington Goodhart, physician, of Camden Road, N.W., who married Elizabeth Wilkinson, daughter of Alexander Goudge, of Sutton Place, N.E. He was born in London on October 24th, 1845, and was educated at Epsom College. He entered Guy's Hospital medical school in 1864. He did well as a student, winning the gold medal for clinical medicine in 1867. In the following year he took the diplomas of M.R.C.S. and L.R.C.P., and in 1871 graduated M.B., C.M. with highest honours at the University of Aberdeen. In 1873 he took the degree of M.D. in the same university, which twenty-six years later gave him the honorary degree of LL.D. In 1872 Goodhart was appointed surgical registrar and in 1874 medical registrar. After his election in 1877 to be assistant physician to Guy's Hospital, he became demonstrator in morbid anatomy, and pathology occupied his interests very much. He worked in the *post-mortem* room for about thirteen years, and when he became physician to the hospital in 1886 he lectured on pathology in the medical school. He resigned the office of physician in 1898 and was appointed consulting physician in 1899.

In 1871 Sir William Flower, Conservator to the Museum of the College of Surgeons, reported that the single assistant in the museum had proved insufficient, owing to the great advances in the science of pathology, and recommended the College to secure the services of a pathologist who held some special appointment at a medical school, so that the wants of the pathological collection in the museum could be supplied from the material at hand in a general hospital. Goodhart of Guy's was just the man for the place; indeed, the council had him in mind when the new appointment was suggested. Accordingly, Mr. James Lidderdale being appointed as anatomical assistant, Goodhart was unanimously chosen pathological assistant in the museum. He held the post with great distinction for six years. In 1875 he was directed to prepare a new supplement to the pathological catalogue; but in 1877, mainly owing to his appointment as assistant physician to Guy's Hospital, he was compelled to discontinue his valuable assistance in the museum, but he undertook to complete the supplement, at which he had worked very hard all through the years during which he had held the appointment. This supplement was concluded in 1879, and the council thanked Goodhart for the great care he had taken in its preparation. As it was found that there was a multiplicity of supplements in the museum, it was, after mature deliberation, decided that the interests of those who studied the collection would be best consulted by the issue of an entirely new edition of the whole catalogue. This was so great an undertaking—the collection then containing upwards of 5,000 specimens—that even its commencement might have been delayed for an indefinite time but for the fortunate circumstance that Sir James Paget, the author, with Stanley, of the first edition (1846-49), was chairman of the Museum Committee, and undertook with the greatest enthusiasm the preparation of the new catalogue, with the co-operation of Goodhart and Mr. Alban Doran, his successor as pathological assistant in the museum. The latter gave place to Sir Frederic Eve, elected pathological curator in 1881. The new edition of the catalogue was completed in 1885. Goodhart, ever generous, wrote for the author of the *Life of Sir James Paget* a most graceful eulogium on the great surgeon's zeal in working hard, week after week, in

the museum, with his two assistants until the new issue was sent to the press.

Goodhart joined the staff of the Evelina Hospital for Children as house-surgeon when it was first opened in 1869; in January, 1875, he was appointed physician to out-patients, and from 1881 to 1888 held the post of full physician, being placed, after his retirement, on the consulting staff; he always maintained his interest in the diseases of children. His book entitled *The Student's Guide to the Diseases of Children*, first published in 1885, quickly attained success. In writing it his object was to treat of the diseases incidental to childhood or such aspects of disease as appeared to be so peculiar to or pronounced in children as to justify insistence on them—not to write one on general medicine. For instance, in dealing with pneumonia and bronchitis, he gave no minute description of physical signs; in heart disease no consecutive account of such general symptoms as are common to all ages of life. He took for granted that the student already possessed some knowledge of general medicine, and he dwelt on such points as belonged peculiarly to childhood.

A second edition was called for in 1886 and a third in 1888. This popularity has been maintained, and the tenth edition was issued in 1913. The book was translated into French, and an American edition was edited by Dr. Louis Starr. The book well merited success, for in its first edition it was the work of an accomplished pathologist who had had large clinical experience. This character has been maintained during the later editions, in the preparation of which Goodhart was assisted by Dr. G. F. Still, and there are few, if any, books published in any language which equal it as an introduction to the subject.

In 1891 Goodhart delivered the Harveian lectures before the Harveian Society of London on "Common neuroses, or the neurotic element in disease and its rational treatment." He printed them in a small volume in 1892, and a second edition was called for in 1894. The review of that volume in this JOURNAL said that the lectures were charming in this sense—that the lecturer took a broad and humane view of his subject, presented it in a winning style, and carried the reader captive by his helpfulness and enthusiasm, coming out of the sphere of abstraction, and taking men and women by the hand as he found them. Who wrote these words in 1894 we do not now know, but, whoever it was, he caught the characteristics of Goodhart both as a man and a physician, and happily expressed the nature of those qualities which won him so high a place in the hearts of his fellows and the esteem of his profession. The book is full of human interest, common sense, and practical advice. It shows its author as one who set to work to remove causes. There is no more difficult class of patient to treat successfully than those suffering from an excess of introspection, an attitude of mind constantly on the look-out for signs of disordered organs, which magnifies out of all reason any sign which it finds and is ever ready to imagine some which it cannot discover. Thirteen years' work in morbid anatomy and pathology gave Goodhart the right to say that there is and always will be a large amount of functional disease. He understood the neurotic type thoroughly, and his recommendation to treat the causes of the neuroses, and especially to give advice adapted to the abnormal mental condition present in so many of these cases, and not to give drugs designed to remove the bodily symptoms, is as sound to-day as ever it was. Very probably if he could have been persuaded within the last few years to undertake a new edition, the growth of his experience would have required him to re-diagnose some of the ailments described in 1894 as neuroses; but the book remains one well worth reading to-day.

Goodhart's official connexion with the British Medical Association began in 1883, when he was secretary at the annual meeting in Liverpool of the Section of Pathology and Bacteriology; he was vice-president of the same section at the annual meetings at Brighton in 1886 and in London in 1895. He was president of the Section of Diseases of Children at the annual meeting in Bourne-mouth in 1891, and in 1901 at the annual meeting at Cheltenham delivered the Address in Medicine. He preached in a specially entertaining form the lesson of individualism in treatment, contrasting this with the work

of State medicine, which was concerned with influences that act on large classes, whilst the practitioner's work required the most careful investigation of individual tendencies without which his practice could not really be successful.

Goodhart became a Member of the Royal College of Physicians of London in 1875, and was elected a Fellow in 1880. He acted as examiner in medicine for four years, and served as Councillor and Censor. In 1885 he gave the Bradshaw lecture. Mahomed, his senior colleague at Guy's Hospital, had been selected to deliver it, and had chosen as his subject "Morbid arterial tension." After Mahomed's untimely death Goodhart was called upon to take his place. He adhered to the subject chosen, but had he selected it himself he could not have given a more brilliant exposition of the state of knowledge and opinion at that day. Twenty-seven years later (in 1912) he was Harveian orator. There was something of pathetic interest in the subject he chose—the passing of morbid anatomy—for Goodhart's youth was given to morbid anatomy; but it was in no spirit of depression or regret that he spoke. On the contrary, he showed himself an enthusiastic exponent of new ideas and new methods. The outcome of his survey, he said, seemed clearly to be "experiment, and ever more experiment. We come, indeed, back to Harvey's teaching: to search out the secrets of Nature by such means. . . . The continuity of life itself becomes an experiment. . . . All powerful, even heroic attempts, to cure disease, what are they all in their use but experiments? . . . It is certain that the future triumphs over disease will only unfold themselves to an ever-widening horizon that embraces all the latest advances of physical science as they bear upon the function of living. Yet would the possibilities seem to be limitless."

Goodhart was an effective speaker; he possessed also the pen of a ready writer and contributed much to medical periodical literature. He published about thirty papers in the *Guy's Hospital Reports* on a great variety of subjects, wrote articles for the New Sydenham Society's *Atlas of Pathology*, and contributed an article on acute and chronic Bright's disease to Keating's *Cyclopaedia of Diseases of Children*, and articles on influenza and asthma in *Albutt's System of Medicine*.

Goodhart received his baronetcy in 1911 on the occasion of the coronation of King George V. He married in 1879 the daughter of Mr. William Bennett, J.P., of Ashgrove, Hereford. Lady Goodhart died in February of last year. He is succeeded by his elder son, a barrister; his second son is a member of the medical profession, who has followed in his father's footsteps by occupying the post of Douglas demonstrator of pathology at Guy's Hospital.

Dr. FREDERICK TAYLOR has been good enough to send us the following appreciation:

As a schoolfellow, fellow-student, and colleague of Sir James Goodhart, I should like to say a few words in appreciation of a very old friend.

At school he was always well to the front, and was very popular with his schoolfellows, cheerful, good-tempered, diligent, but not neglectful of the value of recreation. As a medical student he proved to be exceedingly keen in the pursuit of knowledge, and soon took a prominent position among his fellow-students. He had taken a prize at the entrance examination in school subjects, and in his second and third years he took prizes in the subjects of the year's study, including the Treasurer's gold medal for medicine. Soon after his qualification he was appointed house-physician, a post which had recently been created at Guy's Hospital, and involved the care of all the medical beds, corresponding indeed to the position of sole resident medical officer. After this he was appointed the first resident medical officer to the newly opened Evelina Hospital for Sick Children. To this successful career there was still one thing wanting—namely, a university degree, and Goodhart went to Aberdeen University and there graduated with highest honours and special honours for a thesis on artificial tuberculosis, which was published in the *Edinburgh Medical Journal*. He now returned to Guy's Hospital and his future was ensured by his appointment on the staff, first as surgical registrar, and later, in turn, as demonstrator of pathology, medical registrar, assistant physician, and physician.

Goodhart was eminently successful as pathologist and as clinical physician. He was for a time pathological assistant at the Royal College of Surgeons, and contributed numerous specimens to the Pathological Society. While waiting for an appointment as assistant physician at Guy's, he was elected to the active staff of the Evelina Hospital, and renewed there the opportunity for the study of children's diseases which he turned to such good purpose in later years.

I must leave it to his pupils to speak of his qualifications as a lecturer or clinical teacher; but I can say that he was eminently successful, and that his acuteness of observation, deep interest in any pathological detail, sympathetic insight, wealth of suggestion, and powers of illustration by simile and metaphor, must have made his lectures and clinical teaching as interesting and valuable to his student audiences as were his conversations and writings to those of more mature age.

His one book was his *Diseases of Children*, which, though small at first, exactly met the needs of the practitioner at that time, and has gradually increased in bulk as edition after edition has come out. But it is, perhaps, in his several articles, lectures, and essays that Goodhart's characteristics are best shown: they are full of evidence of close observation, of new points of view, of pathological speculation, of racy and humorous passages; and are frequently endowed with titles which themselves are full of promise of good and useful things to come. It is only within the last few weeks that two such papers have appeared in the pages of the medical press. But, after all, Goodhart's great success was in private practice. Comparatively young, behind a brass plate in Finsbury Square, he made in his first year a decided success; on his change to the West End, in Weymouth Street, and afterwards in Portland Place, his opinion was extensively sought, and he continued in active practice to within a few months of his end. He was extremely popular with patients and doctors. He was genial, friendly, sympathetic, without any of the formality or ceremonial that is apt to be associated in the mind of the public, whether rightly or wrongly, with the idea of the consulting physician; while his useful hints for treatment and capacity for seeing new features or new associations in what to others might be but ordinary cases would always be an attraction to the doctor with whom he was consulting.

He made many friends, and true friends; and few of those who have once known him can feel anything but the deepest sorrow that he has been taken from us now.

Mr. C. H. GOLDING-BIRD writes:

The unexpected end of an honoured and valued life has taken the profession by surprise, for six weeks ago Sir James Goodhart was at his usual work, but now his place will know him no more. To those who have been long intimate with him, the surprise perhaps is rather that he should have reached life's limit—three score years and ten. I well remember, at the beginning of his professional career, his saying to me that he would have to work very hard to provide for his wife and young family, since no life insurance office would even look at him, and that he must therefore depend entirely upon his own efforts, and get on quickly. This, too, was one incentive that concentrated his whole attention upon his profession, but it was by no means the only one; he had from the first a deep love for his profession, with a strong desire to advance its objects to the best of his ability, and to be of service to his fellow-man. He felt the responsibility of the life he had undertaken, and, conscientious man that he was, he never let anything turn him aside from the goal he set before himself. Not a strong man, physically speaking, Goodhart was a living proof that hard work of itself does not kill, and as a good man, in the highest sense of the word, he knew how to keep life's worries at a distance, and his happy disposition, of which his face was an index, was, I think, no small element in his success, both with his patients and his professional brethren.

Not unduly optimistic, he nevertheless always looked on the bright side of things, and his cheery manner has upheld the despondent spirits of many a patient.

Occupied hourly with his professional duties, he yet never complained of overwork, but surrendered himself ungrudgingly even to the most untoward professional call; he was absolutely indefatigable in the discharge of duty.

Though, perhaps, not so scientifically trained as some of his contemporaries, he was nevertheless a great investigator, caring to take nothing on trust that he could confirm for himself, and was continually trying to clear up doubtful points, especially in the matter of pathology, as his early writings show. To this end his personal comfort was, as a young man, laid under contribution, and I well remember, in the early years of the clinical thermometer, and when Goodhart was house-physician at Guy's, his remaining one cold morning, in the depth of winter, in his cold bath, to discover what effect would be produced upon his body-temperature, he watching the thermometer the while!

As a teacher in the hospital he was most successful, and his early retirement was a great educational loss. It was in the pathological department that he was particularly brilliant, where by his accurate method of observation of every minute particular he soon taught others to keep their eyes equally open, while his explanations of what the *post-mortem* room revealed were as sound as they were lucidly communicated; his class in this department was always fully attended. Of his methods in the wards his medical colleagues knew more than I, but I can speak to his untiring industry, his patient investigation of every case—slighting nothing; and his clinical class, whilst receiving the highest teaching, received it also in a very clear and assimilable manner. Goodhart made everything clear, and the most backward student could hardly fail to follow him.

The demands on his time made by an immense private practice prevented Goodhart—even if he had had the desire—from taking his share in the public duties that fall to the lot of many, but he fulfilled his own ideal in the vast amount of good he did professionally and unprofessionally to his fellow-man. He will always be remembered as one of our greatest and most successful consulting practitioners in medicine.

Dr. C. H. HARTT (Greenwich) writes:

It is just thirty-six years since I first met Sir James Goodhart at a *post-mortem* examination of some medico-legal interest, and I was much impressed by his power of imparting knowledge. In the sick-room by the bedside he was at his best; always cheerful and bright, he gave comfort to those with whom he came in contact. If anything, he erred by being too optimistic, but in the goodness of his heart he desired to give hope to the patient and relatives. He was a hard worker in the true sense of the word. In the old days, before the motor car, he would travel many miles by train and cab within the metropolitan area (often without a meal) to fulfil his numerous engagements, and, being susceptible to cold of an influenza type, laid the foundation of a certain delicacy, which attacked him in the months of winter and spring. He never spared himself, and would come down at any hour to see a member of the profession or one of his family, always with a cheerful spirit.

He loved a joke, and I shall always remember his merry laugh. He was a great lover of flowers and the beauty of the country. The loss of his wife quite overpowered him, and he was never the same man after her death. The last time I saw him was in March, and I found him much depressed at the loss this year of so many friends during the war. His name will remind us of one who was kind of heart and always tried to do good.

A former pupil and colleague writes:

The death of Sir James Goodhart will bring to a veritable host of professional friends a keen sense of personal loss. That so busy a practitioner, who throughout his life scarcely ever allowed himself any social relaxations, should have attracted and held such an army of devoted friends can only be explained by his strikingly sympathetic personality. Large numbers of medical practitioners who had for Goodhart the warmest affection had never seen him or spoken to him except in formal consultations. The personal magnetism which gave him such exceptional powers as a physician and brought to him so large a share of the consulting practice in this country attached his professional colleagues to him as firmly as his patients. One is almost tempted to believe that many consultations with Goodhart were arranged as much to afford the practitioner

the pleasure of the personal interview with the consultant as to secure for the patient the benefit of his professional advice. There was never any doubt, however, that the patient would be satisfied too. He would come away confident that the kindly physician had had a full understanding of the case and a proper sympathy with the sick man's own peculiar point of view. No wonder that so universally popular a physician should at one time have been the busiest medical consultant in London. It must not, however, be thought that, in laying such stress on Goodhart's personal charm of manner and sympathetic disposition, it is suggested that it was upon these alone that his professional success depended. At the moment when one is feeling acutely the pang of separation caused by death it is those features in our lost friend upon which we prefer to dwell. A busy general practitioner, with an intimate practical experience of most of the prominent consultants, said the other day, "What struck me most about Goodhart as a consultant was that he was always right." The present writer, who was in constant touch with him in his work in the wards of Guy's Hospital, can well believe this to be true. When every fatal case comes to examination in the *post-mortem* room, as is the custom in hospital practice, the physician's power of accurate diagnosis is put to a severe test. Goodhart, who in his younger days as demonstrator of morbid anatomy had a very great experience of *post-mortem* work, had later a high reputation amongst his hospital colleagues for accurately forecasting the pathological changes that would be found in the cases for which he had been responsible during life. In his Harveian Oration at the College of Physicians in 1912 Goodhart spoke regretfully of the "passing of morbid anatomy." There is no doubt that he laid the foundations of his own diagnostic skill by his industrious work in the dead-house. The *Transactions of the Pathological Society* from 1872 to 1886 give evidence by the numerous contributions they contain from his pen of the interest he took in this subject. It was in this work perhaps more than in purely clinical medicine that Goodhart made his mark as an original observer. The addresses and lectures on clinical subjects which he gave before numerous medical associations and societies in more recent years attracted the attention of the profession more on account of their sound common sense and the profound knowledge they displayed of human nature, than by reason of the original clinical observations they contained. Perhaps he, in clinical medicine, never quite saw the wood for the trees. In dealing with the individual patient nothing escaped his attention, and as a teacher his most valuable work was undoubtedly done in setting his pupils the example of thorough and painstaking investigation by inquiry as to every function and by physical examination of every accessible organ. Less experienced students, accustomed to the spoon-feeding which has, alas! become so prominent a feature of medical education, were bored by the prolonged investigations of which they often failed to grasp the point and missed the didactic methods whereby other teachers helped them to pass their examinations. For advanced students and for men already some time in practice a visit to the wards with Goodhart was always an experience full of interest and profit.

In tackling a troublesome patient Goodhart was no doubt at his best with a cross baby. His experience as physician to the Evelina Hospital for Sick Children provided him with his only temptation to become a specialist. For himself he hated the term "specialist," and used to warn his juniors of the danger he early recognized in accepting the position, when a mother told him how she had at first resisted her doctor's advice to call him to her baby because she understood he was a specialist for children between the ages of 6 and 7.

In his relations with his patients as with his friends Goodhart was a confirmed optimist, and managed to inspire nearly all whom he met with his own hope and cheerfulness of spirit. He worked right up to the end, and to the very last was busy brightening the lives of others. The death of his wife in February of last year was a very severe blow to him, and about the time of the first anniversary of the sad event the early and insidious symptoms were noticed of the fatal illness to which he succumbed early on Sunday morning, May 28th, at the age of 70.

Medical News.

SIR THOMAS BOOR CROSBY left estate of the value of £38,905, the net personalty being £18,155.

DR. ANICOT, professor of clinical ophthalmology in the medical school of Rennes, has been killed at his post near Verdun.

At the meeting of the Central Midwives Board on May 18th, when Sir Francis Champneys presided, certain amendments to the revised rules suggested by the Local Government Board were approved by the Board.

MRS. MARY SCHARLIEB, M.D., will give a course of three lectures on "Inherited disease in children" at 8 p.m. on Wednesdays, June 21st, June 28th, and July 5th in the Robert Barnes Hall, 1, Wimpole Street, by the kind permission of the Royal Society of Medicine. The lectures will be illustrated by the epidiascope; there is no charge for admission.

We are asked to state that the price of the Moseley grooved motor covers has been reduced approximately 10 per cent., and of Moseley tubes $7\frac{1}{2}$ per cent. The price of the steel-studded covers of the same firm has also been reduced. The tyres, we understand, are of British manufacture.

THE Royal Sanitary Institute offers a prize of £50 and its medal for the best thesis setting out a complete and practical scheme for maternity and child welfare work suitable for adoption by local authorities. The thesis must be delivered on or before September 1st, 1916, to the Secretary of the Institute, 90, Buckingham Palace Road, London, S.W., from whom further particulars can be obtained.

THE annual meeting of the School Medical Service Group of the Society of Medical Officers of Health will be held on Saturday, June 10th, at 3 p.m., at 1, Upper Montague Street, Russell Square, London, W.C. Although many school medical officers have already answered their country's call, and others are doing extra duties till their turn comes, the honorary secretary, Dr. Arnly Ashkeny (Sunnyside, Basingstoke), hopes that as many as possible will attend this annual meeting, where the relation of the group to the parent society and other bodies will be considered, reports received, and officers elected.

AN important sale of books at Sotheby's Rooms last week was that of Dr. G. W. Steeves, formerly of Liverpool and recently of Cavendish Square, London, of whom an obituary notice was published in our issue for December 18th, 1915. His choice and valuable library was the collection of a lifetime. It was strong in very rare and first editions of writers of the sixteenth, seventeenth, and eighteenth centuries, notably of the Elizabethan poets—Spenser being well represented, as also Beaumont and Fletcher, and Ben Jonson, as well as Herrick, George Herbert, Dr. Fuller, Dryden, Drayton, Dorne, and Davenant; Sir Thomas Browne was represented by four rare issues of the *Religio Medici*. A fine collection of works by or relating to Lord Bacon—about 100 volumes—was sold in one lot for £450 to Mr. G. D. Smith, bookseller of New York, who also became the possessor of many of the more valuable items, such as Shakespeare's Poems, original edition, 1640, at £190, and the Second Folio Shakespeare at £80. The sale realized £2,555.

THE annual meeting of the British Dental Association will be held in the hall of the Royal Society of Medicine, 1, Wimpole Street, W., on June 15th, 16th, and 17th, and will be almost entirely devoted to the subject of war injuries and gunshot fractures of the jaws. The co-operation of distinguished surgeons and dentists of our own and allied countries has been invited. The subjects for papers and discussions are: On Thursday, June 15th, at 2.30 p.m., "Early treatment of jaw injuries." On Friday, June 16th, at 10.30 a.m., "Appliances and splints" (openers: Mr. M. F. Hopson and Mr. J. E. Spiller); at 2.30 p.m., "Restoration of lost portions of the jaw by surgical means." On Saturday, June 17th, at 10.30 a.m., "Treatment of ununited fracture and malunion" (Mr. J. F. Colyer), and "Diet, massage, and dynamic exercises" (Captain Holt, R.A.M.C.). An introductory address will be given by the President (Mr. W. H. Dolamore) on Thursday afternoon. On Friday afternoon, June 16th, at 4.30 p.m., Lieutenant Derwent Wood, A.R.A., will demonstrate his methods of making and casting masks for facial wounds, as adopted by him at the Wandsworth War Hospital. Demonstrations will also be given by Mr. H. Baldwin and Mr. G. Brunton. An exhibition of appliances, splints, models, etc., has been arranged, and contributions are expected from war hospitals in this country and in the war zone.

Letters, Notes, and Answers.

THE telegraphic addresses of the BRITISH MEDICAL ASSOCIATION and JOURNAL are: (1) EDITOR of the BRITISH MEDICAL JOURNAL, *Atiology, Westrand, London*; telephone, 2651, Gerard. (2) FINANCIAL SECRETARY AND BUSINESS MANAGER (advertisements, etc.), *Atiology, Westrand, London*; telephone, 2650, Gerard. (3) MEDICAL SECRETARY, *Medisecra, Westrand, London*; telephone, 2654, Gerard. The address of the Irish office of the British Medical Association is 16, South Frederick Street, Dublin.

Queries, answers, and communications relating to subjects to which special departments of the BRITISH MEDICAL JOURNAL are devoted will be found under their respective headings.

ANSWERS.

TREATMENT OF TOXAEMIA IN MUCCOUS COLITIS.

MEXICAN replies to "Indican" (May 20th, p. 744) who asks suggestions for treating old toxæmia due to mucous colitis and chronic ischio-rectal abscesses: With suitable diet and rest a trial of yeast is suggested. Pressed yeast for baking may be used in 5 to 10 per cent. solution of cane sugar in tepid water. Clear out bowel and abscesses by warm enemata night and morning and then introduce and leave in 5 to 10 oz. of solution-carrying yeast the size of a bean in suspension. See that it gets well into the sinuses. Give by mouth oatmeal stout in wineglassful doses before meals. Get stout in screw-capped quart bottles, and after taking the first dose put into the bottle two teaspoonfuls of sugar, which in summer excites development of yeast residue. An actively fermenting liquor (in which no known pathogenic organism can live) is thus administered, and is usually laxative and cleansing to mouth, stomach, and bowels. The opening of the bottle for administration prevents excessive gas pressure. One or two peppermint lozenges can be sucked after each dose, and occasional use of a mixture of chalk and sod. bic. each 3iij, spt. menth. p. 5j, ag. chlorof. ad 3viij, relieves flatulence. A sedative at night is often required, and 5j syrup codeinae containing $\frac{1}{10}$ grain hyoscyne hydrobrom. is recommended for sleep, and for attacks of colic it may be given with the chalk mixture.

LETTERS, NOTES, ETC.

BROMIDES AND EPILEPSY.

DR. G. V. FIDDIAN (Place Mara, Rio Berbic, B.G.) writes: After reading the correspondence in your columns some months ago on the expediency of administering bromide to chronic epileptics I commenced the experiment of withholding the drug from certain groups of cases in the Public Lunatic Asylum. All went well until the advent of the rainy season, when these cases developed fits in increasing number. Our head warder, who has had thirty-five years' experience, assured me that with the rainy season the incidence of fits among our epileptics was always increased. May I put forward the following hypothesis? Muscular exercise has this in common with the action of bromides, that both cause certain changes to occur in the motor neuron end-plates. Since rainy weather can be foretold by a large percentage of sufferers from chronic rheumatism, I would deduce that those special terminations of sensory fibres in and near the articular surfaces of joints are the harbingers of moisture. I would even suggest that the existence of authenticated cases of "water divination" by means of rods are extreme cases of susceptibility, occurring, as I believe they do, in ancient rustics.

TREATMENT OF CHLORINE GAS POISONING.

DR. WILLIAM BRAMWELL (Liverpool) writes with reference to the letter from Sir E. A. Schäfer, published last week, to recall a note he published in the JOURNAL of September 18th, 1915, p. 460, in the course of which he said, "The ancient physicians who bled empirically and bled for everything would have bled for gas poisoning, and probably with beneficial effect, except in those cases which had already been bled from a wound." In the same letter he drew attention to Dr. Walter Broadbent's observation to the effect that a big linseed poultice placed over the whole back gave relief, but suggested that india-rubber hot-water bottles to the feet and other surfaces of the body, and particularly to the abdomen, would have a like beneficial effect, and would be cleaner, more convenient, and keep hot longer than the poultice.

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

	£	s.	d.
Seven lines and under	0 5 0
Each additional line	0 0 8
A whole column	3 10 0
A page	10 0 0

An average line contains six words.

All remittances by Post Office Orders must be made payable to the British Medical Association at the General Post Office, London. No responsibility will be accepted for any such remittance not so safeguarded.

Advertisements should be delivered, addressed to the Manager, 429, Strand, London, not later than the first post on Wednesday morning preceding publication, and, if not paid for at the time, should be accompanied by a reference.

NOTE.—It is against the rules of the Post Office to receive *postæ restantæ* letters addressed either in initials or numbers.

Notes on Military Orthopaedics.

IV. ON MALUNITED AND UNUNITED FRACTURES.

BY

LIEUTENANT-COLONEL ROBERT JONES, Ch.M.,
F.R.C.S.I. (HON.),

INSPECTOR OF MILITARY ORTHOPAEDICS, ARMY MEDICAL SERVICE.

The conditions to which the terms "delayed union" and "non-union" are applied may be difficult to distinguish, because often we find that, even after months, osteogenetic changes leading to consolidation will take place in a fracture considered to be permanently united. If we are to avoid disagreeable experiences, we must recognize that for various reasons, some of which we know and some of which are still unknown, a certain proportion of fractures take longer to unite than others. Some years ago I was called to a distance to operate upon a fractured femur. The accident had occurred three months previously. The length and alignment were good, but the patient had some sugar in the urine, and we decided, instead of operating, to place the limb, free from circular constriction, in a Thomas's bed splint (Fig. 1). Certain other procedures which I advise were not carried out, but in four weeks very firm consolidation had occurred. This case affords an example of a clinical type. There may be several weeks of apparent inactivity in callus formation, and then consolidation occurs quite rapidly. If a practitioner takes care to maintain a good length and accurate alignment, he should look forward cheerfully to a happy issue even if union is delayed. As a rule, this is exactly what he does not do. At the end of the fifth week he begins to feel nervous, he disturbs the bone ends, modifies his methods, and by degree transforms into a permanent disability a condition which merely demanded patience.

FIG. 1.—Thomas's bed splint

Delayed union is most common in the middle of the femur, in the humerus at the junction of the middle and upper third, and in the tibia and fibula at their lower third.

CAUSES OF DELAYED UNION.

In many cases there is an obvious reason for the delayed union. Very often it is not due to malposition; it is, indeed, quite remarkable how often in delayed and ununited fractures the bones are almost automatically opposed. I will not waste time by doing more than mention some of the academic causes assigned—such as tabes, syphilis, and acute diseases. I would prefer to focus attention on the more real and practical conditions which have a direct relation to the method of treatment.

Circular Compression.

An obvious and frequent cause is inefficient reduction, and later on, in dealing with malunion, I will refer to this in greater detail. I will, however, deal first with another cause of delayed union—circular compression of the limb by splint and bandage.

A fundamental principle in the treatment of fractures is to secure and maintain good length and good alignment, and in attaining these ends care should be taken that the

circulation of the limb shall be in no way hampered. The splint used should be so constructed that after the bandage is applied the fingers can be readily introduced between it and the lateral aspects of the limb. In looking back upon the ununited fractures I have seen, I generally recall an attenuated limb and a thick plaster case. When the casing is removed the blanched limb becomes red, and the blanched bone begins to take its fill of blood. It is because plaster generally fails to secure length and adequate blood supply that it is a prolific source of delayed union and ununited fracture. I would not condemn the use of plaster altogether, much as I dislike it, but it should be used with discrimination. It should be fixed in such a way that the limb remains in extension and in good alignment, and that the circulation of the limb is in no way hampered.

Duration of Period of Consolidation.

Textbooks have led us astray in regard to the period required for the consolidation of bone. Fractured adult bones are never firm after four or five weeks, as the books would lead us to infer.

For practical purposes, ignorance of this fact may make no difference in the case of the upper limb, but in the case of the lower limb, where the effect of body weight has to be considered, to underestimate the period of consolidation is to invite disaster.

TREATMENT.

If a case of delayed union is first seen in the seventh or eighth week we need do no more than make quite sure of good alignment, length, and circulation. Nature will do the rest.

Percussion and Damping.

If a long time has elapsed the need for action is more pressing, and we must endeavour to transform the indolent callus into an osteogenetic factory, so that bone may be generated. I know of no better means than that suggested by H. O. Thomas, and named by him "percussion and damping."

Femur.

As an example, I will take non-union of the femur with

shortening probably of two or three inches. Under an anaesthetic the soft fibrous callus is broken down and the fractured ends are turned towards the skin and beaten with a mallet; a pulley is then applied to the limb, and as much length as possible gained. A Thomas knee splint is then adjusted and the extension maintained. Two pieces of indiarubber tubing are tied around the limb,

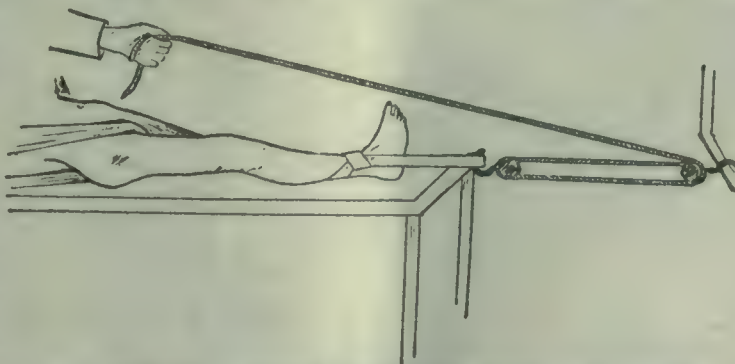


FIG. 3.—Pulley used in setting and operating upon fracture of tibia and fibula; counter-extension shown.

one three or four inches above the fracture, and the other at an equal distance below. They are kept on, to begin with, for about twenty minutes each day until they can be borne for several hours at a time. They should be kept tied sufficiently tightly to produce considerable swelling and stasis. Usually in two or three weeks callus is thrown out, and the osteoblasts begin actively to produce bone. Local congestion between two indiarubber tubes is much more effective than congestion by one proximal tube. I can recall many cases in which bones that had remained ununited for several months became firmly consolidated after use of this simple device (invented by Thomas and ascribed twenty years later to Bier) for stimulating osteogenesis. The method of applying the indiarubber tubes to produce congestion is shown, applied to the humerus, in Fig. 2.

Tibia and Fibula.

In old ununited fractures of the tibia and fibula complete extension is not so easily attained, and it may be necessary to remove bone. If this be done, the operation should be performed under pulley extension (Fig. 3), or by turning the ends of the bone out of the wound and engaging the fragments in shoe-horn fashion after the method of Lane. If the case be suitable and the surgeon possess the mechanical skill subsequently to keep a good alignment, it is best to avoid the introduction of plates or screws. The bones should be kept in absolutely good apposition, and where it can be easily accomplished they should be wrapped in transplanted fascia which will act as a binding membrane in the same way as periosteum.



FIG. 4.—Bone grafting. A, Lateral bone graft for fracture. B, Lateral bone graft for a case in which bone has been removed.

In another type of case in which the bone is eburnated with feeble callus production, it is well after sawing the ends to crenate the edges with bone nibblers, and to transplant bone from some other part of the body. The sides of the fractured ends should be prepared to receive the transplanted portion, which can be affixed laterally (Fig. 4A), or driven into each end of the medulla. The transplanted bones and the fractured ends are held in position with transplanted fascia wrapped around them.

Figures 5A and 5B illustrate a method of sliding a transplant to bridge over the fracture. Albee's twin saw is used to enable the operator to detach with mathematical correctness a strip of bone partly above and partly below the line of fracture. A chisel is used at either end to complete the detachment. The shorter detached piece (in the figure the lower) is removed and the larger piece is slid down (Fig. 5B.)

Autogenous transplantation of bone is far more effective than transplantation from another patient or from an animal. A bone graft without periosteum is sometimes as effective as one taken with its periosteum. This fact is important, for if bone is removed from some other part of the body subperiosteally, the removed bone is very rapidly replaced by new bone. Where convenient, however, the periosteum should be retained.

Non-union is very apt to occur where a wide gap exists between the bones. In the case of fracture of the tibia of long standing, where the growth of the fibula has progressed, I have operated with success by removing a large lateral slice from the upper end of the fractured tibia, and using it as a bridge to span the gap (Fig. 4B).

Compound Comminuted Fractures: Retention of Fragments.

This leads me to speak of compound comminuted fractures associated with loose pieces of bone. The removal of these pieces is very frequently the cause of non-union.

If loose pieces are felt, provided the wound is not suppurating, they should be scrupulously saved; the pieces, if quite loose, should be taken out of the wound and laid in alcohol, and then carefully replaced in position or round the site of fracture. In such cases I refrain from introducing any foreign bodies, such as nails, plates, or wires. If a drain be used at all, it should be for forty-eight hours only.

Weak Union: Exuberant Callus.

Malunion of the femur of six or seven weeks' duration can almost always be corrected by powerful manipulation. The same is true of all the long bones. At my clinic every week I am accustomed, by wrench or hand, to correct malunited fractures of several weeks' standing. The method is especially applicable to a Colles's or a Pott's fracture.

Weak union can be diagnosed almost with certainty even when ordinary manipulation fails to detect it. It is suggested by tenderness on pressure over the site of the old fracture, and confirmed by the additional sign of exuberant callus exudation. A malunited fracture of some months' duration, if accompanied by these two signs, can usually be corrected by forcible manipulation. This is a very important clinical fact to remember from the point of view of immediate or gradual correction.

Exuberant callus is sometimes so abundant as to be mistaken for malignant disease, and I have met with many instances in which the patient has narrowly escaped amputation. This error is more likely to occur in the femur than in any other of the long bones, especially when the force applied to produce it has been so slight as to suggest that the fracture was spontaneous.

MALUNION.

Malunion of a fracture can always be prevented, and should raise a strong presumption of inefficient treatment. Our duty, therefore, is to examine the cause of malunion, and to arm ourselves with a knowledge of the weak points in our method of treatment.

The causes of malunion may be found (1) in errors in the initial treatment or setting of the fracture, (2) in errors in the method of maintaining the fracture in position, or (3) in errors of after-treatment.

I. INEFFICIENT REDUCTION OF THE FRACTURE.

Malunion of a fractured bone is due to this cause more often than is commonly supposed. Sometimes it is due to want of knowledge, but more often to want of experience and confidence.

It is necessary, of course, to have a clear knowledge of the anatomical proportions of the limb and of the mechanics of its action; but it is still more important to know the



FIG. 5.—Bone grafting. A, Diagram showing incisions through tibia by twin saw and chisel, detaching a strip above and below the fracture. B, Second stage of operation. The lower fragment has been removed, and the upper has been pushed down so as to bridge the fracture (Albee).



FIG. 6.—End-to-end apposition of fractured femur. A, End-to-end apposition and perfect alignment; B, imperfect apposition but with good alignment; C, end-to-end apposition with faulty alignment.

nature of the impairment of function likely to occur after any particular fracture, so as to be ready to take means to anticipate and to prevent it.

Common causes of inefficient reduction are—

(a) Insufficient extension of the limb in fractures of long bones—such as the femur or humerus—so that the overriding of the fragments is not completely corrected.

(b) In Pott's fracture there is always an associated dislocation of the ankle outwards and backwards. If the backward dislocation is not fully corrected there is pain over the front of the ankle when the patient walks, and, in addition, inability to dorsiflex the ankle, which causes a serious impairment of function.

(c) In Colles's fracture the backward displacement of the lower fragment is very serious, and is not always corrected by the orthodox traditional "hand-shaking" method of reduction. The lower fragment carries with it the articular surface for the head of the ulna, and if this is out of line, the upper and lower articulations between the radius and ulna are thrown "out of truth" and the radius will not rotate properly. This leads to impairment of pronation and

of long bones lead to shortening. In fracture of the neck of the femur it modifies the angle between the neck and the shaft and so causes the flexion of the joint, with the result that body weight is not transmitted in the normal line. In consequence of this, crippling changes of an osteo-arthritic character subsequently occur in the joint. Faulty alignment of the bones may arise from inefficient fixation, even in a case in which the fracture was originally fully reduced and the bones brought into correct alignment (Fig. 6). The result is that the true line of the shaft of the bone is not maintained, and the joint at one end of the bone is thrown out of its proper relation to the joint at the other; in consequence, muscles do not act in their correct line, and the usefulness of the limb is impaired. Further, in the lower limb the line of transmission of body weight is altered, and this throws an improper strain on joints and ligaments, resulting in changes in the joints, in flat-foot, and in other disabling deformities. For instance, in fracture of the tibia and fibula a little shortening of the limb does not seriously impair its strength if the alignment is good. A slight bow-leg even is not serious (Fig. 7 A), for slight bow-leg is a harmless type. Many muscular and powerful men are, indeed, slightly bow-legged, but in a valgoid deformity the weight of the body is carried too far to the inner side of the foot, and this throws too much weight on the arch, and the result is a flat and everted foot (Fig. 7 B).

Any valgus deformity at the knee, in the leg, or at the ankle is a weakening deformity, and greatly reduces the usefulness of the limb. It is a good fault, therefore, to err on the side of producing a slight bow-leg, with its varoid accompaniment, if there is to be any error at all. In cases of malunion, when the callus is still tender, it is generally not difficult to readjust the limb by manipulation without having to perform an open operation. In the case of the femur, this can usually be done two, or even three, months after the original fracture. As a rule, the worse the position of the bones the longer will the callus take to consolidate.

The next point to which I would draw attention is that callus may yield in such a way as to throw the bone out of proper alignment. A good example of this is frequently afforded by cases of Pott's fracture which have been correctly reduced, and six weeks later are in good position and united. A month after this, however, the patient may complain of some pain at the site of the fracture, and also of symptoms of flat-foot.

Here the counter pressure of the ground on the foot forces the astragalus against the external malleolus, and so produces a lever action, straining the callus. To avoid this, every case of Pott's fracture should be set to walk with the inner side of the heel raised to keep the foot inverted, and if the patient is a heavy subject an outside brace also should be worn (Fig. 8 A and B). It is disconcerting and puzzling to see a perfectly good functional result replaced by a bad one; to avoid disappointment of this kind it is advisable, particularly in fractures of the lower limb, to apply some sort of guard to prevent straining of the callus.

Here the counter pressure of the ground on the foot forces the astragalus against the external malleolus, and so produces a lever action, straining the callus. To avoid this, every case of Pott's fracture should be set to walk with the inner side of the heel raised to keep the foot inverted, and if the patient is a heavy subject an outside brace also should be worn (Fig. 8 A and B). It is disconcerting and puzzling to see a perfectly good functional result replaced by a bad one; to avoid disappointment of this kind it is advisable, particularly in fractures of the lower limb, to apply some sort of guard to prevent straining of the callus.

THE FUNCTIONAL IMPAIRMENT ASSOCIATED WITH VARIOUS FRACTURES.

Before discussing the treatment to be adopted in particular cases, it is well to recognize the forms of impairment of functions commonly associated with each fracture.



FIG. 7.—Diagrams to illustrate effects of malunion of tibia. A, Malunited fracture of tibia producing bow-leg and throwing body weight on to outer side of foot. B, Malunited fracture of tibia in such a position that the weight of the body is carried to the inner side of the foot, producing flat-foot.

supination, and consequent very serious interference with function.

These are merely instances of how a want of sufficient determination in reducing the initial deformity may play an important part in causing subsequent loss of function. I have referred to them because they occur in common fractures, with the treatment of which everybody ought to be familiar, yet I see a large number of cases of serious impairment of function really due to these causes.

II. FIXATION AFTER SETTING OF FRACTURE.

If the fixation of the limb after the fracture has been reduced is in-

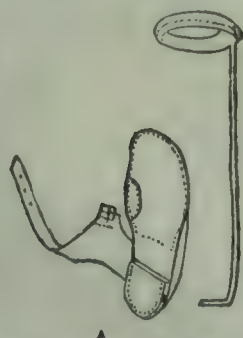


FIG. 8.—Boot and iron for use after Pott's fracture. A, Showing the boot with crooked and elongated heel and the outside iron; B, the same applied.

efficient so that material amount of movement can take place between the fragments, then every such movement causes pain, and produces a reflex contraction of the muscles. This reflex spasm may very readily cause overriding of the fragments, and in the case of the shafts

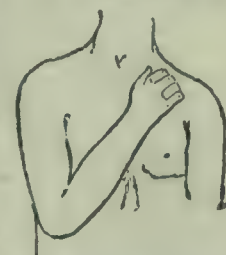


FIG. 9.—Position for fractures about elbow in the adult. The elbow is even more flexed in children.



FIG. 10.—To show the complete supination and extension of the arm necessary in fractures of radius and ulna.

Humerus.

Fractures of the humerus near the shoulder-joint (that is, those of the surgical neck and above the insertion of the deltoid) are commonly associated with inability to abduct the limb fully. The reason is that the upper fragment is often tilted outwards, and end-to-end union does not take place. In order to avoid this, the surgeon's object when setting the fracture should be to bring the fragments end to end if possible. He should pull the arm at right angles to the trunk, or even straight upwards until all overriding is completely overcome, and should then endeavour to engage the end of the lower fragment on the broken end of the upper fragment. By pressing the two together he can at once tell if they are engaged or are sliding past each other. If they are engaged, the arm can be gently brought down to the side and secured to the trunk by bandages. Once the fragments are engaged they are not likely to become disengaged again.



FIG. 11.—Dorsiflexion of wrist for fracture of carpus.

Elbow-joint.

In fractures about the elbow-joint, with the single exception of fracture of the olecranon process, the usual disability is limitation of flexion.

The limb should therefore be extended to push away any fragment likely to obstruct extension afterwards. The forearm should be supinated to make sure of clearing a right of way in that direction, and then the elbow should be fully flexed and bandaged (Fig. 9), care being taken not to produce tight circular constriction of the limb in any part. In this way we may make sure that there shall be no callus exudate in the bend of the elbow, and at the same time the tendon of the triceps acts as a posterior splint.

When a stiff elbow, after an injury, has to be dealt with, the same manoeuvres are gone through so as to force the recently formed callus out of the way until full flexion is secured. Usually this can be done on one occasion, but in some cases it may be necessary to flex the joint in two or three stages.

Radius and Ulna.

In fractures of the bones of the forearm the disability most to be feared is obstruction to supination; pronation is usually good. Therefore, in setting the fracture, or when breaking down callus and resetting the fracture, the surgeon should extend the forearm and supinate fully in order to make sure of a clear right of way for supination, and then set the fracture, taking great care that the ulna is perfectly straight, and that there is no lateral pressure anywhere on the shaft of the radius (Fig. 10). It must, however, be remembered that the radius is a curved bone

which rotates on the ulna like the handle of a bucket; if the arched shape of the radius is destroyed the joints at its ends will be out of their true line, and impairment of function will be the result.

Carpus.

Fractures of the carpus often result in a stiff wrist in a flexed position. Every schoolboy knows that the grasp of the hand is weakest when the wrist is flexed. Therefore, in every case of fracture or injury of the carpus, the wrist should be put up in a hyper-extended position (Fig. 11).

If the wrist has been allowed to get stiff in a flexed position, it should be dorsiflexed under an anaesthetic and fixed in that position. In rare instances a fragment of the scaphoid is displaced on to the dorsum and blocks extension; if this has occurred, it may be necessary to remove the fragment before the wrist can be hyper-extended.

Ankle-joint.

When we turn to fractures near the ankle-joint we find that many patients complain of both pain and stiffness

which lasts for months or years. A study of the causes brings to light two principal factors responsible for loss of function here. Eversion of the foot, for instance, is fairly well recognized as one of them (Fig. 12). If the patient is allowed to recover with the ankle in a valgus position, the body weight when he stands will fall too far to the inner side of the foot, and at once all the factors which make for the production of flat-foot are produced. It is, however, not sufficiently well recognized that these conditions may be at work in an ankle which has every appearance of being in good position when the patient is discharged from hospital. Straining of young callus by body weight is very common in fractures around the ankle-joint, owing to the patient being allowed to walk on the unprotected joint too early. I therefore always turn these patients out with a "crooked" heel and often with an outside brace as well, to ensure that the body weight shall fall on the outer side of the foot (Fig. 8A, 8B). The natural corollary of this is that if body weight will produce a valgus deformity by straining the callus, it will also correct it if we "crook" the boot well, and therefore when the callus is already strained in the valgus direction, and the patient comes with a stiff painful ankle and foot, all we need do in many of the milder cases is to crook the boot well on the inner side, and let the patient "walk out" his deformity. In older and more severe cases it is from the first necessary or advisable to wrench the foot into an inverted position under an anaesthetic, and then let him walk with his heel well crooked; this is made easier by the application of an outside brace (Fig. 8). If this after-treatment is not persisted in for some weeks the condition will most likely recur.

The second great disability, after injuries about the ankle-joint, is inability to dorsiflex the ankle. The patient, when walking, cannot get forward on to the toes and fore part of the toes without pain across the front of the ankle.

This is a very difficult condition to correct once the deformity has been allowed to become established. The proper thing is to prevent it when the injury is recent; to make sure of this the surgeon should dorsiflex the foot and so satisfy himself that he has commanded a complete and clear right of way for this movement in the future.

Both these disabilities are well illustrated by cases of Pott's fracture; this injury essentially consists of a fracture of the fibula about three or four inches above the external malleolus with a dislocation of the ankle outwards and backwards (Fig. 13). There may be minor complications, such as fracture of the tip of the internal malleolus or the less well recognized fracture of the edge of the articular surface of the tibia. These, however, do not alter the general nature of the disability.

The method of reduction I adopt is the following: The knee is flexed to relax the calf muscles. If these muscles give trouble, tenotomy of the Achilles tendon will put them out of action, but this is only necessary in exceptional cases, and strength returns but slowly after this apparently harmless operation. Grasping the foot by the heel in one hand and the dorsum in the other, the foot is pulled and everted to make sure of thoroughly disentangling the fractured ends. While still pulling, the foot is fully inverted and the ankle dorsiflexed. If the ankle cannot be dorsiflexed fully, it means that there is a definite posterior dislocation or that the anterior edge of the tibia is fractured. It is necessary then to push the tibia back and bring the foot well forward until the ankle can be well dorsiflexed. The foot is then fixed in splints in the fully inverted



FIG. 13.—Malunited Pott's fracture, showing dislocation backwards of the foot.



FIG. 12.—Malunited Pott's fracture, showing eversion of foot.

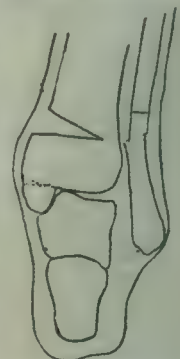


FIG. 14.—Operation for malunited Pott's fracture; wedge from tibia and osteotomy of fibula.

position and dorsiflexed a little beyond the right angle. If the surgeon maintains it in this position, he may wait with confidence for a good result. If he is content with a less thorough reposition, he is in great danger of getting a result with some stiffness, pain, or limitation of movement, which will seriously interfere with comfort in walking. Since the days of Percival Pott many splints have been devised. The shape and style of the splint does not matter a jot. The important element is the surgeon. If he knows his work, he will fix the foot in the position described and will be rewarded by a good result.

As we have seen, malunion and consequent functional disability depend on two factors: (a) eversion, (b) diminished dorsiflexion.

(a) Eversion often calls for operation. In comparatively simple cases all that is needed is to pass a chisel through the internal malleolus, and also through the site of the old fibular fracture. The foot should then be forcibly inverted, and treatment continued to maintain the inversion. In the more severe type of case an open operation is advisable. A wedge of bone is removed from the lower end and inner side of the tibia (Fig. 14). The wedge should only go a distance of four-fifths through the bone. An osteotomy of the fibula is next performed. The wounds are closed, and not dressed for twelve or fourteen days. The stitches are then removed, and, under gas, the limb is fractured by forcible inversion. This two stage operation eliminates the anxiety which must attend the treatment of a compound fracture, and this is an important matter when powerful manipulation is necessary. For many reasons, however, it may be advisable to complete the reduction at the time of operation.

(b) Dorsiflexion of the ankle may be blocked by callus exudate the result of fracture of the anterior articular edge of the tibia. Complete dorsiflexion of the ankle at the time of accident would save the patient from this deformity, for the fragment of bone would in this way be pushed to one side, but if this has not been done, and at a later date we find that dorsiflexion is prevented, an incision should be made and the offending prominence chiselled away. The space left by the removal of bone should be packed with fat removed from any convenient part. This prevents the new callus exudate from giving

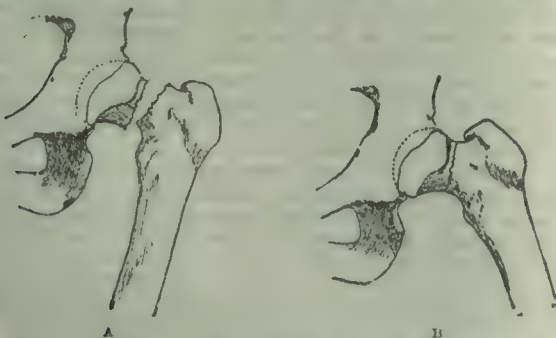


FIG. 15.—Fracture of neck of femur. A, Fractured neck, showing position in abduction. B, Fractured neck of femur correctly reduced in abduction.

rise to trouble. In all operations where bone is removed and pseudarthrosis is desired I find the generous employment of fat most helpful, and in order to reduce the callus exudation the exposed cancellous bone should be lightly hammered.

Tibia.

In fracture of the tibia faulty alignment may be brought about by posterior bowing; the weight of the body may

be thrown so far back that it passes at some distance behind the ankle, as shown in Fig. 15.

Fractures of the Femur.

Fractures of the neck of the femur, and all fractures about the small trochanter, should be treated in the



FIG. 17.—Fracture of upper third of femur. A, Adduction deformity. B, Abduction faulty, as the upper fragment does not participate.

abducted position to prevent deformity of the coxa vara type (Fig. 16 A and B). Stiffness of the hip associated with limitation of abduction, often accompanied by "osteo-arthritis" changes in the hip-joint, is the sequel of malunion in this region. To prevent this it is necessary to secure abduction and to maintain extension in the abducted position. If the fracture is of some weeks' standing and the area is still tender, the callus is certainly not consolidated; forcible abduction and extension in an abduction frame and rigid fixation in this position will then be followed by adaptation of the callus to the corrected position.

Fractures of the shaft of the femur, especially in the middle third, are frequently followed by gross forms of malunion, which will excellently serve to illustrate malunion in long bones.

The faults commonly found are:

1. *Shortening or overriding*, due to the fact that (a) reduction has been incomplete, the surgeon not having pulled until the fractured limb was at least as long as its fellow; (b) the method of fixation and extension used has been inefficient, and the muscles have caused overriding after the fracture was set; (c) the body weight has caused yielding of the callus after the patient has begun to walk.

2. *Angular deformity or erroneous alignment* is the result of inefficient methods of fixation, and more particularly of inefficient extension in the line of the limb. Erroneous alignment throws all the muscles of the part out of line, and, what is more important, puts the joints above and below out of their correct relations. A common fault in fractures at the junction of the lower and middle third is a posterior sagging (Fig. 18), which is best seen when the patient begins to walk. The body weight is thus thrown on the posterior part of the capsule. The deformity resembles a genu recurvatum.

3. *Rotation deformity* is far too common, and can only be the result of careless and inefficient treatment.

Diagnosis.

In a case of malunion of the shaft of the femur in which one or more of these elements are present the whole region



FIG. 18.—Diagram to illustrate posterior sagging in malunited fracture of femur in the middle third.

of the fracture is tender, and is also the seat of pain for weeks and months after consolidation ought to be complete. This means that consolidation is far from complete, and that the callus is the seat of active change. Nature, in fact, is struggling with the problem of buttressing up the malunited fragments so that they can meet the forces which are acting in them, hence the exuberant production of callus, which is attended by pain and tenderness.

Treatment.

In such cases it is not difficult to break down the callus by manipulation. Extension with block pulley and suitable tackle will then stretch the muscles and reduce the over-riding by $2\frac{1}{2}$ inches on a single occasion (Fig. 3). Rotation deformity is, of course, corrected at the same time.

If open operation is employed, the simplest form of osteotomy is an oblique one through the callus between the original fragments of the shaft. Once these are cut through the greatest part of the remaining difficulty is in fully restoring the length of the limb by extension. The big muscles of the thigh can only be fully overpowered by the use of block pulley and tackle (Fig. 3). When this has been accomplished the leg is fixed in a Thomas's knee splint, the tuber ischii rests on the padded ring, the extension straps are secured to the bottom of the splint. We are then sure that, whatever happens, the muscles cannot contract and cause farther overriding. The only thing the muscles can do is to give up the struggle, and, as a matter of experience, this is what always happens.



FIG. 19.—Fracture of upper third of femur. Diagram to illustrate osteotomy to correct common deformity.



FIG. 20.—Fracture of upper third of femur. Diagram showing removal of wedge of bone to correct adduction.

The surgeon finds on his next visit that he can get perhaps another half inch of lengthening by further extension on the straps. Further, in a Thomas's knee splint good general alignment of the limb can easily be secured—in fact, is obtained almost automatically. The only points to which the surgeon has really to attend are the position of the foot—to see that there is no outward rotation—and to keep up firm extension.

Locally, splints are applied to control lateral movement. In the first instance this is not difficult. When resetting a malunited fracture it is not so easy, for the callus already formed gets in the way.

In these malunited fractures of the femur of some weeks' standing with considerable overlapping, after refracturing the bone by force the pulleys should always be applied and a great effort made to secure both length and alignment. To render this less difficult, it may be wise to move the fractured ends freely in all directions to disturb and disengage the fibrous and bony exudate. The extension by pulley should be maintained for several minutes to lessen the resiliency of structure and to reduce the chance of telescoping. The limb is then maintained in extension by a Thomas's splint, and on two or three subsequent occasions the pulleys are applied. By these simple means overlapping of three or four inches can be overcome, and an open operation is avoided. The "damming" method already described is applied to assist osteogenesis, aided when necessary by percussion.

Whatever operation may subsequently be needed, I cannot too strongly urge the necessity of preliminary pulley traction in order to secure a better length, and in this way prevent the sacrifice of bone.

In cases in which union in the vicious position is so complete and firm as to render operative procedures neces-

sary, the procedure to be followed is influenced by the special type of union present. If it is a mere case of faulty alignment, with fair apposition, a small puncture and an osteotomy saw will do what is desired (Fig. 19). An x-ray photograph should be taken, and the section made through the angle. The

case is then treated as one of simple fracture. If there is overlapping of the fragments, with no excessive callus, the saw is introduced between the fragments and



FIG. 21.—Author's osteotomy saw with protected end.

the lateral fixation undone. Pulley extension will then diminish or obliterate the shortening, and the subsequent treatment will maintain both length and alignment. In other fractures higher up, with great thickening and lateral deflexion, a wedge is removed from the convex side of the bent bone, and a fracture at the point preferred may be produced some days later (Fig. 20). Extension and abduction of the limb should then be secured. In rarer instances, when unusual deformity and overlapping have occurred, it may be necessary to explore the fracture by a free exposure, to separate the fragments, to remove bone, and to plate.

CONCLUSION.

It may appear that in this paper I have dealt more with the treatment of fractures than with the treatment of malunited fractures, but a moment's reflection will satisfy us that there is only one problem before us—the restoration of function. Operation or manipulation to free the ends of the bones when union has occurred in a faulty position is only a preliminary step. In short, a malunited fracture cannot be cured by operation—all the operation can do is to reconstitute the fracture or make another fracture similar to the first.

If after this the subsequent treatment is not better than the treatment adopted in the first instance, an improvement in the result is not to be expected. This is probably why the statistics of late operations to correct malunion are often disappointing. The surgeon must not merely reduce the fracture, but must maintain the corrected alignment until consolidation of the bone is secured.

The fundamental principles applicable to simple fractures hold good in the case of compound fractures. The difficulties in carrying them out are obviously materially increased. Once, however, serious complications are past there will be ample time and opportunity to correct faulty alignment and to restore the best possible function to the fractured limb.

The fractures met with as a result of gunshot wounds are usually very serious, and I have witnessed with pride the splendid efforts made by the young surgeons in France to save these mangled limbs. Sometimes we hear criticisms at home, not always kindly, sometimes very unjust, because amputations are performed without flaps, and limbs still suppurating are not in the best position. If the whole truth were known, these mangled limbs and flapless amputations often represent surgical triumphs where every art and device has been concentrated upon the salvation of life and limb.

SURGEON-GENERAL GORGAS, with a party of medical men, is making an extended tour of South America to study methods of eradicating yellow fever. The expedition will visit Ecuador, Brazil, Colombia, and Venezuela. It is expected that the work will occupy four months.

In the *Deutsche medizinische Wochenschrift* for December 2nd, 1915, an account is given of negotiations conducted between the society of *Frauenbildung-Frauenstudium* of Mannheim on the one hand and the Medical Department of the German War Office on the other. To an inquiry why lady doctors were no longer required for military hospitals, the War Office replied that the lady doctors were discharged principally for general military disciplinary reasons, and that it was not to be assumed that this reflected on the medical capacity of the lady doctors. It was, however, the opinion of the War Office that the lady doctors were required rather for the civilian population (particularly for women and children) than for the army, which was already adequately supplied with medical aid.

OBSERVATIONS ON SPIROCHAETA EURYGYRATA, AS FOUND IN HUMAN FAECES.

By H. B. FANTHAM, M.A.CANTAB., D.Sc.LOND.,

LIVERPOOL SCHOOL OF TROPICAL MEDICINE; HONORARY
PARASITOLOGIST WESTERN COMMAND.

Introduction.

RECENTLY attention has been directed to the Protozoa and allied Protista occurring in the faeces of soldiers who had contracted various forms of dysentery or diarrhoea in Gallipoli or Flanders. A few papers recording the results of such observations have been published, but no mention has been made, so far as I am aware, of the occurrence of spirochaetes in the faeces of such patients, except by Fantham and Porter in 1915. Similar spirochaetes may occur in the motions of apparently healthy persons. Frequently the stools of dysenteric patients found to contain the organisms were fluid and rather foul-smelling. Apparently the pathogenicity of such spirochaetes is slight, but they seem able to flourish and multiply in dysenteric intestines.

Material and Methods.

The material, as already indicated, was chiefly obtained from the stools of dysenteric patients during 1915-16. The stools of a few normal persons were also examined. When dealing with large numbers of stools in a somewhat limited time, as has been necessary on many occasions, the organisms were observed in fresh preparations, between coverslip and slide, with the aid of $\frac{1}{8}$ in. or $\frac{1}{4}$ in. objective and Huyghenian ocular 3. Twenty-three cases of single infection with spirochaetes were detected by this means alone in three months. However, the spirochaetes are seen to be more numerous in a preparation, and to occur more frequently in stools, if dark-ground illumination is used. Also, if stained smears of stools are made, many more infections will be found, perhaps even as high as 50 per cent. of the cases examined.

The organisms may be fixed wet in osmic vapour, hardened in absolute alcohol, and stained with gentian violet, iron-haematein, haematoxylin, thionin, and the various modifications of the Romanowsky stain. Bouin's fluid and corrosive acetic alcohol may also be used as fixatives, while dry smears may quite well be used for rapid diagnosis.

Movements.

The spirochaetes observed in faeces move quickly, and their bodies exhibit great flexibility. As I have previously pointed out (1907, 1908), the movements may be divided into two components—an undulatory flexion of the body, mainly for progression, and a corkscrew or helicoid movement of the body as a whole, due to its coiling. The number of waves along the body of a spirochaete varies according to the rate of progression of the organism, and is an index of its rate of motion, being also slightly influenced by its thickness. The coil of the helix of a rapidly moving spirochaete is much closer than that of a slowly moving organism. In other words, the body of a rapidly moving spirochaete is thrown into many small waves, while slowly moving forms are thrown into fewer, larger waves, as I have shown in my work on *S. bronchialis*. If a single living specimen be watched for a sufficiently long time under the microscope to allow of its changing its rate of motion, the change in the character of the coils can be observed. Reversal of direction of movement is common. Either end of a spirochaete can be forwardly directed, and the organism can easily return on its path. Corkscrew, boring movements also have been observed, and Catherine-wheel-like motions have been seen.

Agglomeration of the gut spirochaetes is common, tufts or tangles being produced. In my experience, such agglomerations or tomenta are more common in fluid stools than in semi-formed ones or those of normal consistency. The individual members of a cluster can easily separate from or rejoin the group.

On some occasions when shed epithelial cells from the intestinal wall have been present, spirochaetes have been seen to penetrate the cells. After a relatively short time they usually became quiescent there, and sometimes produced their resting coccoid bodies. Occasionally the spirochaetes might be seen to emerge again from the cell.

While usually the movements of the spirochaetes are very graceful and are undulatory and corkscrew in character, very rarely jerky or boomerang movements have been observed. These latter are perhaps more obvious in some of the shorter spirochaetes.

Morphology.

The spirochaetes of faeces are best termed *S. eurygyrata*, as will be shown in a subsequent section. They have markedly flexible, sinuous bodies, and, when observed in numbers, present morphological variation. The bodies of the organisms show a series of curves or waves, the exact number of which depends chiefly on the rate of motion prevailing at the time the spirochaetes are fixed or observed. The number of curves or waves may be as small as two or as great as nine. Bowed and coiled forms may also be seen. The ends of the organism vary somewhat, according to the stage of growth or the recentness of division. Usually they are tapering. (See text figure.) Some may be rather more rounded, while others have quite pointed ends. A few spirochaetes with one end more pointed than the other have also been seen, the appearance resulting from the extending attenuation at a recent division. Similar morphological variation in *S. balbianii* was described and explained by me in 1909. Internally, a diffuse nucleus consisting of chromatin rodlets or granules can be observed in well-stained specimens from stools, or in living forms examined by the aid of the paraboloid condenser. In the latter case, the chromatin granules appear as minute refractile spots. However, it is not always easy to see the granules.

The cytoplasm of the spirochaetes is almost homogeneous and is non-vacuolated. The presence of the chromatin granules or rodlets at intervals down the body gives rise in clear specimens to the alveolar or chambered appearance mentioned by some workers in connexion with the larger spirochaetes found in molluscs.

In some spirochaetes the periplast is seen to be laterally extended in the form of a very slight sinuous membrane or crest, which is only observed with great difficulty, as it is often contracted against the body.

By measuring a number of spirochaetes obtained from various patients on different days, the variation in length was found to be from 3μ to 15μ , and the breadth was about 0.25μ or less. The breadth, however, is not easily determined, but some forms are clearly stouter than others. Multiplication by binary fission has been observed in the living organisms and forms undergoing similar division have been seen in stained preparations.

The formation of coccoid bodies or granules in the gut spirochaetes has been studied in fresh preparations by both ordinary illumination and sometimes by the use of the paraboloid condenser. The cytoplasm concentrates around the chromatin rodlets and the concentrations gradually become oval. The coccoid bodies thus formed are set at liberty, either by ruptures in or disintegration of the parental sheath. The elongation of coccoid bodies, their assumption of the spirochaetiform facies and their emergence from groups of such bodies have all been observed in life.

The spirochaetes as such may disappear from the stools of a patient and then after some days reappear again, and thus there is variation in numbers from day to day. The more fluid the stool the greater is the number of spirochaetes present as a rule. During the period when the spirochaetes as such are absent from the stools, it is probable that they have produced granules or coccoid bodies. Owing to the large amount of finely divided debris present in the intestinal contents, it is not yet considered practicable to differentiate spirochaetal granules from other minute particles in stools. In my opinion, granules cannot be considered, at present, to be definitely spirochaetal in origin unless their formation from and subsequent elongation and development into spirochaetes have been observed in the living organisms.

A large number of drawings of the spirochaetes found in human stools have been prepared, and it is hoped that



Spirochaeta eurygyrata,
morphological variation.
 $\times 1,400$.

it will be possible to publish them later, when the morphological variation exhibited by these organisms will be more fully shown than is possible in the text figure.

Earlier Observations.

There are a few vague references in the literature to spirochaetes, or spirilla, as they were often called, in human faeces. Thus, H. Kowalski (1893, 1894) recorded the presence of spirilla in cholera motions examined by him. Apparently no illustrations or dimensions of the organisms were published, and at first they were not named. The number of curves, "about one, two, or three, seldom four, five, or many," is noted. Kowalski's first observations, made on eleven cases, are recorded in an incomplete form in the report of a meeting of a medical society in Vienna in December, 1893. During the discussion thereon Paltauf stated that Escherich in 1884 had seen spirochaetes in normal human faeces. Escherich himself in 1894 referred to his previous work in 1884-86, and stated that he had found spirilla in diarrhoeic stools of babies and adults and in cats. He compared them with dental spirochaetes, but found them to be shorter. Abel (1894) and Aufrecht (1894) also recorded the finding of spirochaetes in the faeces of a few cholera patients, the latter worker comparing them with blood spirochaetes. Rechtsamer (1894) mentioned the finding of spirilla in the dejecta of cholera patients in Caucasia.

Lustig and de Giaksa, writing in 1894, refer to their earlier work in 1886 on the stools of four cholera cases in Trieste, in which the occurrence of spirilla was noted. In their earlier paper (1886) these authors give drawings of a few spirilla, but neither state the dimensions of the organisms nor name them. On examining their illustrations I find that the spirilla measure up to 13μ . As a result of a discussion of the work of Lustig and de Giaksa, Kowalski (1894) named his organisms *Spirillum hachaisae* or *S. hachaisicum*. However, as no dimensions and no detailed differential characters were given, either by Kowalski or the other earlier workers—most of whom called the organisms spirilla or spirochaetes indifferently, though the parasites are not stated to have had flagella, characteristic of spirilla—it is very doubtful whether Kowalski's names are valid.

"Spirillar" or spirochaetal dysentery has been briefly recorded by Le Dantec (1903). The patient, who came under observation in the neighbourhood of Bordeaux, had been known to the author for some time, and had been at Tonkin eighteen months before, when in the French Colonial Medical Service. It was stated that the patient developed dysentery in Bordeaux. Spirochaetes were found to be abundant in the mucus of the stools. Some of the organisms showed three curves, and were 6μ to 14μ long. Coiled-up and bowed forms were also seen. Some spirochaetes were observed to enter and emerge from intestinal cells.

Werner (1909) found spirochaetes in his own stools while apparently in good health, though he had suffered from diarrhoea when in German South-West Africa in 1905. A few other cases are also mentioned by him, among them the occurrence of spirochaetes in a case of sprue. Werner separated two species of spirochaetes, which he considered to be distinct. He named these *Spirochaeta eurygyrata*, "a wide wound form," varying in length from 4.6μ to 7.3μ ; and *S. stenogyrata*, "a narrow wound form," varying in length from 3.5μ to 6.1μ . Only six indistinct microphotographs illustrate the paper, and they hardly justify Werner's statements.

Werner differentiated partly on the character of the "windings." As I (1915) have previously pointed out, the number of windings or curves is not of specific value, but is chiefly an indication of the rate of movement. Further, the processes of growth and division will easily explain the so-called differences in morphology and size between Werner's species. Morphological and biological variations appear to have been overlooked in the desire for the creation of new species.

In 1914 J. G. and D. Thomson recorded the presence of spirochaetes in the stools of healthy individuals, of patients suffering from rheumatoid arthritis, of a case of profound anaemia, and of a case of amoebic dysentery. They also found what they considered to be Treponemata in human stools. Macfie (1915) found spirochaetes in the stools of a monkey suffering from amoebic dysentery in West Africa, and in those of diarrhoeic patients in Accra.

Nomenclature.

From the foregoing remarks it will be seen that the nomenclature of the spirochaetes found in human stools is in a very confused state, owing to lack of precision and detail in the incomplete descriptions published. As already indicated, the species *S. hachaisae* is insufficiently defined, and its name appears to be invalid.

It is probable that the earlier authors, and, indeed, all those mentioned in this paper, were dealing with the same spirochaete, which exhibited morphological variation due to the processes of growth and division. The first name proposed by Werner—namely, *S. eurygyrata*—will then be valid. It is therefore necessary to amend the definition of the organism as follows: *Spirochaeta eurygyrata* has tapering ends, measures up to 15μ long, and is about 0.25μ broad. It contains a diffuse nucleus consisting of chromatinic granules. The number of coils or waves is variable, depending on the rate of movement and thickness of the organism.

Conclusions.

Spirochaeta eurygyrata, Werner emend. Fantham, may occur in the stools of dysenteric and apparently healthy persons. The organism, which has pointed ends, measures from 3μ to 15μ in length by about 0.25μ in breadth.

The so-called spirilla, mentioned by some of the earlier workers as occurring occasionally in cholera motions, are included under the name *Spirochaeta eurygyrata*.

The number of coils in a spirochaete is not a specific character but is variable, and is primarily an index of its rate of motion, being also partly dependent on the thickness of the organism.

REFERENCES.

- Abel, R. (1894): Ueber das Vorkommen feiner Spirillen in Dejektion choleraer Kranken. *Centralbl. f. Bakt.*, xv, pp. 213-216.
 Aufrecht (1894): Ueber den Befund feiner Spirillen in den Dejektionen einer unter Cholerasymptomen gestorbenen Frau. *Centralbl. f. Bakt.*, xv, pp. 405-407.
 Escherich (1894): Notiz zu dem Vorkommen feiner Spirillen in diarrhoeischen Dejektionen. *Centralbl. f. Bakt.*, xv, pp. 408-409.
 Fantham, H. B. (1907): The Movements of Spirochaetes, as seen in *S. balbianii* and *S. anodontae*. *Brit. Assoc. Report*, 1907 (Leicester), pp. 554-555. [See also *Annals and Mag. Nat. Hist.*, ser. 7, vol. xix, pp. 493-501.]
 Fantham, H. B. (1908): *Spirochaeta (Trypanosoma) balbianii* (Certes) and *Spirochaeta anodontae* (Keysseltz): Their Movements, Structure, and Affinities. *Quart. Journ. Microsc. Sci.*, lli, pp. 1-73; 3 plates.
 Fantham, H. B. (1909): The Spirochaetes found in the Crystalline Style of *Tapes aureus*: A Study in Morphological Variation. *Parasitology*, ii, pp. 392-403; 1 plate.
 Fantham, H. B. (1911): Some Researches on the Life-cycle of Spirochaetes. *Annals Trop. Med. and Parasitol.*, v, pp. 479-496.
 Fantham, H. B. (1915): *Spirochaeta bronchialis*, Castellani, 1907, together with remarks on the Spirochaetes of the human mouth. *Annals Trop. Med. and Parasitol.*, ix, p. 391-412; 1 plate.
 Fantam, H. B., and Porter, A. (1915): Notes on Certain Protozoa which may be found in Cases of Dysentery from the Mediterranean War Zone. *Proc. Camb. Philosoph. Soc.*, xviii, pp. 184-188.
 Giaksa, V. de, and Lustig, A. (1886): Ueber die vier Cholerafälle in Triest. *Wien. med. Woch.*, xxxvi, No. 10, columns 341-344; No. 11, columns 383-386; No. 12, columns 423-425; 1 text figure.
 Kowalski, H. (1893): *Wien. klin. Woch.*, vi, pp. 888-889.
 Kowalski, H. (1894): Zur Note der Herren A. Lustig und V. de Giaksa, "Ueber das Vorkommen von feinen Spirillen in den Ausleerungen von Choleraerkranken." *Centralbl. f. Bakt.*, xvi, pp. 321-324.
 Le Dantec (1903): Dysentérie spirillaire. *C. R. Soc. Biol.*, lv, pp. 617-618.
 Lustig, A., and Giaksa, V. de (1894): Ueber das Vorkommen von feinen Spirillen in den Ausleerungen von Choleraerkranken. *Centralbl. f. Bakt.*, xv, pp. 721-722.
 Macfie, J. W. S. (1915): A Case of Dysentery in a Monkey, in which Amoebae and Spirochaetes were found. *Annals Trop. Med. and Parasitol.*, ix, pp. 507-512; 1 plate.
 Porter, A., and Fantham, H. B. (1916): Exhibit of Spirochaetes and of *Blasiotrypanis* found in stools of soldiers suffering from Dysentery. *Proc. Linn. Soc. of Lond.*, No. 319, April 6th, 1916.
 Rechtsamer, M. (1894): Ueber die feinen Spirillen in Dejektionen Choleraerkranker. *Centralbl. f. Bakt.*, xv, pp. 795-798.
 Thomson, J. G., and Thomson, D. (1914): 8 me Researches on Spirochaetes occurring in the alimentary tract of man and some of the lower animals. *Proc. Roy. Soc. of Med.*, vii, pp. 47-70, 2 plates.
 Werner, H. (1909): Ueber Befunde von Darmspirochaeten beim Menschen. *Centralbl. f. Bakt.*, Orig., 1 Abt., lli, pp. 241-243, 1 plate.

PERFORATING AND PENETRATING WOUNDS OF THE CHEST WITH SEVERE HAEMORRHAGE:

A SUGGESTION FOR TREATMENT.

BY

A. DON, F.R.C.S., MAJOR R.A.M.C.(T.).

I HAVE been impressed with the impotency of treatment for severe haemorrhage in these cases, and have recently had an opportunity of trying a method which I have not seen advocated elsewhere, and I offer it for consideration and trial by surgeons near the front. The severer cases

almost all die of haemorrhage within the first few hours, and so far there has been little success in attempts to check this mortality. The movements of respiration with its suction force, combined with the elasticity of the lung itself, tend rather to a continuance of haemorrhage than to natural arrest. Plugging the wounds in the chest wall, unless fortunately the bleeding vessel is an intercostal, and is by chance compressed against a rib, seems to do more harm than good, to hasten rather than retard the end. The method is extensively used, but if it is to arrest the bleeding from the lung itself, which is oftenest the cause of death, it must allow complete rest to the lung by collapse, and before this can take place the pleural cavity has to be full of blood. Slow collapse of the lung would not be nearly so effective in arresting severe haemorrhage as sudden collapse, and a pleural cavity filled with blood spells a bloodless and often moribund patient.

If one considers the mechanism and physics of respiration one finds that with each inspiration there is a lifting of the chest wall and depression of the diaphragm, which tends to produce a vacuum in the pleural space by a sucker-like effect. A wound of either pleura will have this suction applied to it, and every child knows how little effort is required to suck blood from a pinprick in the finger. The suction power of the mouth is feeble compared with that of the chest in the pleural space owing to the intervening column of air in the lungs, and the elastic lungs themselves.

The suction in the pleural cavity is exerted strongly from the commencement of the act of inspiration to that of expiration, and more feebly, though of the same kind, during the whole expiration. A bleeding point thus has a suction pump applied to its open rent, and a clot is prevented from forming, for even at the end of expiration the lung occupies a much greater space than it would occupy if the chest wall had an opening in it and the lung were completely collapsed. The same process of suction takes place also throughout the lung tissue, and there is added the elasticity of the lung itself, which pulls apart and keeps open any rent. Unless a very large vessel be torn there is not apt to be so much bleeding into the trachea as into the pleural cavity, though it may equally be continuous for days, for there is not so great suction force to the trachea side, and it is not so uniformly exerted during the whole respiratory act. The suction is positive during inspiration, the air pressure being negative and almost equal during expiration. But there is the cough to consider.

To overcome both the suction and the elastic forces and to allow the lung a complete rest till haemorrhage has been arrested, I thought of making a temporary opening into the pleural cavity, allowing the lung to contract quickly, and, if necessary, washing out the blood clot. In most of the cases of chest wounds, especially from shells, the haemothorax has later (reports from base hospitals) become septic and death from empyema has supervened. This infection of the blood clot is almost certain to happen, for it may be, and usually is, infected by the missile, or it may be, and sometimes is, infected from a septic pneumonia arising in the injured lung. There is then the difficulty of diagnosing this empyema. Fluid and dullness are already present from the haemothorax, and the rise of temperature may not be sudden, and may be due to the septic pneumonia. One could, of course, put in a needle daily, but the risk of infection from repeated punctures is as great as from the single stab of operation. Besides—and this is not unimportant—one hesitates to disturb and pain a serious chest case daily. It is against the rest treatment at present in vogue, as well as against one's feelings of sympathetic nursing.

The risk, then, of causing by operation an infection which would not otherwise occur is infinitesimal, and on all grounds my suggestion, wisely used in selected severe cases, seems a sound one, and I have convinced most of my colleagues with whom I have discussed the subject of its feasibility and utility. Very severe haemorrhage could be treated in advanced stations of field ambulances, less severe ones more comfortably in the small hospitals of the field ambulance and others, a diminishing number, in the casualty clearing stations.

In the only case in which I have done the operation great relief was experienced in breathing; there was a marked diminution of pain, and, though haemorrhage

could not be said to have been severe, it was still going on, and stopped quickly after the operation.

The operation may be done under a general or a local anaesthetic, and in any of the usual sites for empyema, preferably the mid-axillary line. Percussion localizes the haemothorax, and a stab is made with a scalpel through the intercostal space, close to the lower rib. The scalpel goes right into the pleural space. Even if the point of the knife wounds the lung, which is unlikely in most cases and impossible where there is much effusion, the consequence is negligible. The outer covering of one of the army tracheotomy tubes is slipped easily, owing to its central groove, one half along each side of the blade of the knife, and is pushed right home. The knife is then withdrawn and the centre piece of the tracheotomy tube put in. If air has not entered during the previous manipulations it will do so now, with a hissing noise, and the blood will be coughed out. The haemothorax may be aspirated through a soft catheter placed inside the tracheotomy tube, as was done in my case, but this would not be necessary in cases treated earlier, when clotting would not have taken place. The tube is now turned so that the inside end points up, and is fixed by straps and plaster or a suture to the chest wall. A pad of sterile gauze and wool completes the dressing. Mr. Lawrie, R.A.M.C., suggested that a trocar and cannula, such as is supplied in the pannier of the field ambulances and casualty clearing stations, would be sufficient to give relief and allow the patient to be transferred before more haemorrhage would take place. This is worth considering for advanced dressing station treatment. The cannula would, of course, not be left in.

When a tracheotomy tube is put in the whole operation does not occupy a minute, and the tube is removed after twenty-four or forty-eight hours, according to the amount of blood escaping. The wound closes immediately aseptically. Our patient went to the base on the third day quite fit.

The advantages of this treatment are—

1. The lung collapses quickly, and any wound in it immediately closes.
2. The lung gets complete rest for a time and will be better able to combat infection later, as it will contain very little blood effused into its tissues.
3. The suction force of respiration is immediately removed from the rents of the interthoracic vessels, and clotting and natural arrest is allowed to take place.
4. Plugging may be done for haemorrhage from the chest wall with a certainty of arresting it and of doing no harm, and there will be less movement—a comparative rest—on the collapsed side.

A SUCTION OR VACUUM BOUGIE FOR THE TREATMENT OF CHRONIC GONORRHOEA.

BY

CAPTAIN A. CAMBELL, R.A.M.C.(T.).

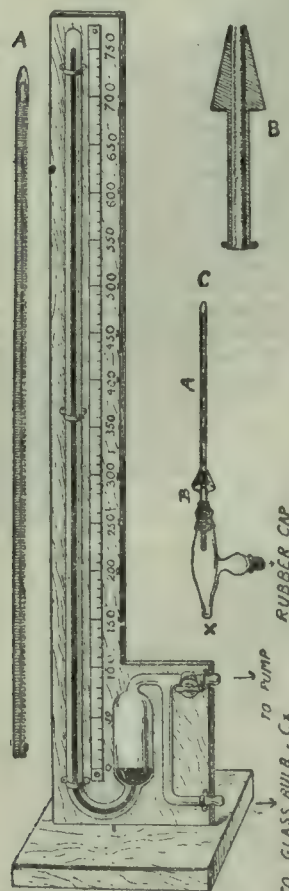
In chronic gonorrhoeal urethritis there are two conditions chiefly responsible for the failure, in many cases, of the usual methods of treatment. The one, is the gonococci are wholly or partially sealed up in the lacunae and glands, owing to the infiltration and thickening which has taken place round the walls. The other is, the great alteration in the vascularity of the mucosa by the infiltration resulting from the invasion of the gonococcus in the subepithelial tissue.

At this stage of the disease irrigations, injections, and other local applications are practically of no value, as they are unable to penetrate the glandular elements to wash out the lurking gonococci. Mechanical dilatation will not open the ducts or glands with infiltrated and thickened walls. The application of heat to the urethral mucosa by bougies fails to achieve its two objects, which are to kill the gonococci by the direct action of heat, and to induce an artificial hyperaemia, because the mucosa will not tolerate without injury the necessary temperature.

With the idea of inducing an effective hyperaemia in the subepithelial tissue, and promoting absorption, and also of emptying the lacunae and glands, I have designed a suction or vacuum bougie. I have used it in many

cases, and the results, I believe, justify further trial. It has been made for me by Messrs. Down Brothers. It consists of two parts—one, the bougie proper, A; and the other a tube or sheath-cone, B.

The bougie is a flexible tube made of wire wound spirally, the turns being in close contact. One end of the tube is closed by a metal tip, which is hollowed out for about $\frac{1}{4}$ in. from the end joining the wire. The wire is of such tension that although the bougie can be bent into a complete circle it readily returns to a straight line. The total length is 10 in., that of the tip being $\frac{1}{4}$ in. The sheath-cone is a metal tube about $2\frac{1}{2}$ in. long, enlarged at one end into a cone; the sketch shows the correct proportions. When the bougie is in the urethra the sheath-cone is slipped along it as far as the meatus, which it plugs automatically, preventing air from entering the urethra.



The manometer is a glass tube bent to form two limbs, and containing mercury. When at rest the column in the long limb registers the ordinary atmospheric pressure like a barometer. To the short limb is attached a glass T piece, the horizontal portion of which is fitted with a glass tap connected by tubing to an exhaust pump. The vertical portion descends to the base of the manometer, where it is bent at a right angle. To it is attached india-rubber tubing,

which leads to the glass and bulb C. The bulb is intended to catch urine, anaesthetic, etc., without removing the bougie. The glass tube is joined up to the sheath-cone by a short length of india-rubber tubing, so that the ends are in contact, the bore of the glass tube being large enough to admit the bougie. This is necessary in cases where the length of the bougie projecting from the meatus is more than 2 in., and also when it is used in the anterior urethra only. The india-rubber tubing used is $\frac{1}{4}$ in. thick with an internal diameter of about $\frac{3}{8}$ in.

Method of Employment.

The patient lies on a couch or table. If he has a small meatus, or has not previously had a bougie in the urethra, I syringe into the urethra a local anaesthetic (alypin 2 per cent.), and keep it in for five minutes. A No. 1 Lister's sound is now passed into the bougie as a stylet, the wire tube accommodating itself to the shape of the sound, the end of which fits in the hollow tip. I then lubricate the whole surface liberally with carbolyzed vaseline. It can now be passed into the urethra in the usual manner, just stopping short of the bladder. After withdrawing the sound, the sheath cone is fitted on to the bougie and pushed up to the meatus. The tap of the manometer being open, a few strokes of the pump will lower the atmospheric pressure in the urethra and suck the cone well into the meatus.

When the required pressure is reached by further use of the pump, the tap is closed. If all the joints are airtight, the mercury will only rise about 5 to 10 mm. in fifteen minutes. The pressure in the urethra is raised by disconnecting the pump and opening the tap slightly to admit more air.

I have obtained the best results with a height of about

100 to 200 mm. of mercury, maintained for fifteen to twenty minutes. If too low a pressure is used, it may cause bleeding. The bougie is withdrawn after disconnecting the pump and opening the manometer tap, and admitting air very slowly into the urethra. When the mercury is at rest, the sheath-cone is taken off, and the bougie withdrawn very carefully after giving it one or two twists. The patient then irrigates with 1 in 8,000 potassium permanganate, or protargol 1 in 4,000.

There is no pain or discomfort; if no anaesthetic is used the patient may be conscious of a slight sucking or drawing sensation.

The bougies are made in two sizes corresponding to No. 12 and No. 9 English. If the urethra will admit it the larger size produces a better result than the smaller.

On the bougie after removal may be seen small plugs of material which are found to consist of pus and epithelial cells, and very frequently gonococci. In some cases they are extremely numerous along the whole length of the instrument. They are caught in between the turns, and are more easily seen if the bougie is plunged into boiling water for a second. I regard them as a sign of successful action.

They have not always been obtained in cases which I expected would produce them. I believe now that it was due to the turns becoming clogged with vaseline, exudate, etc., and preventing suction.

It is essential that the bougie be kept scrupulously clean. Boiling is not sufficient. It must be soaked in petrol or syringed out, and occasionally a linen thread must be run between the turns.

To give one instance of its effect: a patient who contracted gonorrhoea three months previously had, on examination, only a slight muco purulent discharge. No gonococci were found in the discharge or urine. After one application of the bougie, numerous plugs were obtained in which were found gonococci. The discharge cleared up in a few days afterwards.

I hope shortly to be able to publish some further results.

I am much indebted to the friend who made the sketch for me, and to Lieutenant-Colonel L. W. Harrison, D.S.O., for affording me every facility for experiment with the bougies.

The manometer in the sketch was made by the Holborn Surgical Instrument Company.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

TRENCH FOOT.

THE importance of this condition leads me to record the fact that in all the cases which have come under my observation in a small relief hospital here the men confessed to being the subjects of sweating feet.

Other factors are doubtless involved, but it is easy to conceive that the accumulation of this sweat, under conditions of warfare, would soon swarm with bacteria and become highly irritating to the skin and subcutaneous tissues. It would be interesting to observe whether "trench foot" selects the subjects of hyperidrosis.

To prevent or mitigate this localized hyperidrosis I have found the following treatment useful, in addition to the daily foot bath and change of socks:

1. Painting the feet with a solution of formalin.
2. A dusting powder composed of French chalk and zinc oxide, rubbed down with a few drops of formaldehyde and applied to the feet and inside of the socks.
3. A generous diet containing plenty of nitrogen.

Portsmouth.

J. G. BLACKMAN.

NEPHRITIS AND ADRENALIN POISONING.

SEEING the proximity of the adrenal gland to the kidney, and therefore the likelihood of this organ sharing the congestion of the kidney in nephritis, and bearing in mind that adrenalin can produce arterio sclerosis, arterial degenerations, and vascular hypertension, I would venture to make the tentative suggestion that hypertension and

arterial disease in nephritis are due to adrenalin auto-poisoning. As far as I am concerned, this suggestion is original.

Sydney, Australia. G. S. THOMPSON, F.R.C.S. Australia.

British Medical Association.

CLINICAL AND SCIENTIFIC PROCEEDINGS.

STAFFORDSHIRE BRANCH.

At the third general meeting of the session, held at Wolverhampton on April 27th, the President, Dr. F. M. ROWLAND, was in the chair.

Splenectomy for Banti's Disease.

Mr. CHOLMELEY showed two cases of splenectomy for Banti's disease:

CASE I.—Boy, aged 6 years; ailing for three years; very pale and languid, getting thinner; has pain in epigastrium, cough, and occasional haematuria. The spleen was fairly large, also the liver; the boy was very pale, skin rather yellow, slight icteric tinge of the conjunctiva. On January 19th a blood count was taken: red cells, 1,350,000; white, 6,500. On January 21st the spleen was removed; it was not exceptionally large; the liver was very much enlarged. The next day the colour of the skin had changed; there was a healthy pink tinge in the lips, ears, and cheeks. On February 7th the blood count was: red cells, 2,700,000; white, 11,000. The boy was discharged from the hospital on February 14th very much improved. The improvement had not been maintained; he still looked very pale and weak. Blood count on March 9th showed: red cells, 2,425,000; white, 15,600; haemoglobin 70 per cent.

CASE II.—Boy, aged 12 years. Illness started suddenly after a fright a week before he was seen. The boy was very pale; no icterus, no haematuria; complained of pain in abdomen, back, and head. Spleen very large. Blood count, February 14th: Red cells, 1,330,000; white, 5,000; haemoglobin, 35 per cent. The spleen was removed on March 4th; it weighed 2½ lb. A blood count taken on March 15th showed red cells, 2,900,000; white, 10,000; haemoglobin, 70 per cent. The boy was discharged on March 19th, very much improved. The improvement in this case was much more marked and better maintained, the blood count on April 26th being: red, 2,800,000; white, 53,000; haemoglobin, 60 per cent. The great difference in the after progress of the two cases was due most likely to the difference in the length of previous illness.

Insurance Act Developments and Problems.

After a brief reference to the various medical interests served by the British Medical Association and of the accusations levelled at it by discontented groups of practitioners, Dr. MACTIER took up the subject of the recent developments in National Insurance, and also gave a few examples of problems which had come under his notice. Dealing first with the subject of certification, he said that the profession in many cases had either failed to understand Memorandum 211/I.C. or had not read it; the approved societies were also to blame in that their agents, especially those of the collecting societies, had not been instructed in the rules, and the fact that they still insisted on certificates being given on certain days of the week led to trouble, and proved annoying to those practitioners who were conscientiously carrying out the rules. The question of certificates for patients at hospitals was next dealt with, and it was pointed out that any officer, not necessarily a medical officer, could give a certificate to the effect that so-and-so was an in-patient of the institution. But with regard to out-patients, the view was expressed that the practitioner on whose list the patient was was bound to furnish the necessary certificates, whereas there was no obligation to do so on the hospital staff. Practitioners were warned that certificates should be given with care and dated on the day on which the patient was examined, since failure to comply with this rule had given rise to more complaints for investigation by the Medical Service Subcommittee than any other cause. In discussing the drug tariff, he gave a short description of the work of the West Midland Pricing Bureau at Birmingham, which is responsible for the pricing of the prescriptions payable by eighteen Insurance Committees and employs a staff of some twenty persons. The insertion without notice in the 1916 agreements of the clause as to the use of "Rep. mist." and the use of indelible ink for certificates was mentioned; Dr. Mactier said the Bureau looked on "Rep. mist." with great favour, provided the original script was attached and it did not go outside the

calendar month. He concluded by stating a few problems which had come before him as Chairman of the Wolverhampton Insurance Committee, and agreed with an expression of opinion by the meeting that knowledge which was obtained as referee should not be used in the capacity of chairman when considering the question of adequate service being given by panel practitioners.

Coolidge Tube.

Dr. J. A. COOD described and demonstrated the "Coolidge tube," which, he said, he had had for about ten months, and found that for purposes of treatment it was far superior to the best type of ordinary tube. It was a machine of precision. If a result with a given series of factors was once obtained, it was possible to reproduce it by repeating the factors, which were completely under control. The main facts of construction and manipulation were then described. The factors of the working equation were: (1) Distance of diseased area from target, (2) hardness or penetration of tube, (3) current through heating circuit of cathode, (4) coil current through tube, (5) ohmic resistance in primary current, (6) filter, (7) time, (8) dosage shown by colouring pastille or other form of measurement. If (1) to (7) were reproduced, (8) would always be the same. A series of observations showing this was handed round. He pointed out that in (5) he mentioned "ohmic resistance in primary" instead of "current in primary," as the latter was no guide, because as less and less ohmic resistance was included the hardness of the tube increased and the resultant inductance in the primary increased so much as almost to neutralize the decreased ohmic resistance. Thus, in throwing off the resistance from the ninth stud to the fifteenth, decreasing the ohmic resistance from 86 ohms to zero, the primary current only increased from 6 to 6.5 amperes. So in factor (5) he used the expression "stud n," the ohmic resistance of which was known, and could be recorded in all publications, so as to compare with the work of other workers. His recent practice had been the following:—For deep structures: (1) 15 cm., (2) 19 cm spark-gap, (3) 4.2 ampères in heating circuit, (4) sixth stud (15.5 ohms), (5) 5 milliamperes, (6) 3 mm. Al, (7) 10 min.; this gave 14 Hampson at half distance, covered with filter. For superficial lesions, 0.2 mm. Al was used, and for ringworm no filter, and four minutes gave 14 Hampson, which was all that was needed for epilation, and no more should be given. Probably less was enough. The use of the Coolidge was very comforting in ringworm cases, as there was no dread of sudden variation in the tube and too rapid colouring of the pastille, as had happened in other tubes. By using the same dosage as in ordinary tungsten-target tubes, even though he had increased the filter from 2 to 3 mm. Al, he had had the misfortune to burn three of his cases. He did not think it safe to give more than 14 Hampson a week, and probably less frequently than this would be found to be necessary. For radiography he had not found his tube to be of much service, though for the screening of opaque meals it was useful. At first he found it self-rectifying, but recently had had to use valve tubes.

Diaphragmatic Hernia.

Mr. CHOLMELEY showed the left half of the diaphragm from an infant three hours old who died suddenly. The infant was a very healthy-looking baby and was left quite well by the midwife about two hours after birth. It died quite suddenly an hour later. At the *post-mortem* examination nearly all the small intestine, the spleen, and nearly the whole of the stomach were found in the left chest, having escaped from the abdomen through a congenital defect in the left half of the diaphragm. The opening was in the back of the diaphragm, oval in shape 2 in. in its long diameter.

ACCORDING to statistics recently published by Dr. Shibasahuro Kitasato, the death-rate from tuberculosis for the whole of Japan is 17 per 10,000. It is considerably higher in certain occupations, notably among school teachers. Among factory girls, of whom there are some 500,000 in the country, there is an average of 9,000 deaths a year, of which 6,300 are caused by tuberculosis. Most of the girls live in overcrowded and ill-ventilated dormitories. The prevalence of tuberculosis in Japan is ascribed to the number of houses in low areas into which the sunlight rarely penetrates and the traditional custom of tightly closing all windows during the night.

Reports of Societies.

THE RATIONALE AND PRACTICE OF CHEMOTHERAPY.

THE Dermatological Section of the Royal Society of Medicine on June 1st continued the discussion on Mr. J. E. R. McDonagh's communication,¹ which had been adjourned, special attention being paid at this meeting to the clinical side. Mr. McDonagh in his opening remarks extended and in part modified his previous statements. He pointed out that ferrivine was adapted for treating the acute stages of syphilis, and intramine for the chronic cases; these drugs surpassed salvarsan in general, but while in some cases of early syphilis ferrivine was better than salvarsan, in others it was less efficient. The behaviour of the early lesions in cases treated with ferrivine differed from what was observed with salvarsan; after ferrivine the chancre became swollen and did not heal so quickly, but there was an absence of induration, and lymphangitis and the swelling of the inguinal glands receded rapidly. It appeared that congenital syphilitic keratitis did not invariably respond to intramine. He emphasized his opinion that, although salvarsan removed the symptoms of syphilis, it did not cure the disease. The disadvantages attendant on the administration of ferrivine owing to the shock produced by the drug had now been overcome.

Dr. PRINGLE said that he had observed the action of ferrivine in two dozen cases treated in Mr. McDonagh's out-patient clinic at the Lock Hospital. Measuring the result of the remedy by its action on the primary sore, he regarded the effects as more striking and more immediate than after arsenical preparations. The subsidence of the induration of the chancre and of the lymphangitis and lymphadenitis was remarkably rapid. Intramine had been tested by himself in secondary and tertiary cases; and while it was not possible to form such a positive estimate of its effects, he, on the whole, endorsed its adjuvant action when administered in conjunction with arsenical products or ferrivine. In early cutaneous syphilis it accelerated the disappearance of hard nodular and follicular lesions. Intramine should not be given at too short an interval after an arsenical compound. In one case which he had observed, an injection of intramine administered within twenty-four hours after a moderate dose of galyol had apparently induced acute symptoms of galyol poisoning. Late superficial cutaneous syphilides often disappeared, at least temporarily, after an injection of intramine, but it was yet too early and the number of cases too limited to warrant conclusions regarding the permanence of the action. A serious disadvantage of intramine was the severe pain which it produced, although not invariably, and which incapacitated the patients for a week; in most cases they would not be persuaded to receive a further dose. Dr. Pringle commented on Mr. McDonagh's attitude in rejecting the Wassermann reaction. Personally, he had found it a valuable aid in diagnosis in doubtful cases and also as a guide in treatment.

Lieutenant-Colonel HARRISON described the effects of intramine and ferrivine as observed along with Mr. C. H. Mills. Ferrivine, as obtained from the manufacturers, was tested in three cases; two of these received intramine in addition. They were ordinary cases of early syphilis. In spite of the repeated doses of ferrivine, the cases behaved just as if no specific treatment of any kind had been received; spirochaetes continued to be found in the secondary lesions, and in one patient a mucous patch containing spirochaetes developed on the tonsil during the treatment with ferrivine. The immediate beneficial effect of a single dose of salvarsan administered later showed that a refractory infection was not being dealt with. As regards the side-effects of ferrivine, Colonel Harrison referred to the extremely serious nature of the symptoms; great collapse and respiratory distress, etc., occurred rapidly after the injection of the ordinary dose, and one case appeared on the point of death. The local effects of intramuscular injections of intramine, when administered by the most perfect technique, and without any addition of

urea or quinine, were "undiluted torture"; in eight cases which had received intramine the symptoms had been practically uniform, with local swelling and tenderness, which persisted for weeks. In one case an abscess formed which had now been discharging for twelve weeks; in others there was evidently necrosis, although no abscess had formed yet. Colonel Harrison regarded the use of intramine as impracticable on account of its local effects; as to its therapeutic action, he recalled the fact that tertiary lesions might be markedly benefited by a great variety of measures which could not be termed specific, such as hot applications.

Dr. SEQUEIRA was of opinion from his own experience that nothing approaching the therapeutic effect of salvarsan and its analogues was produced by ferrivine and intramine. In the secondary stage of syphilis these drugs could not be compared with the arsenical products. In a case in which he had administered a dose of not more than 1 gram of ferrivine obtained from the makers, toxic symptoms followed practically immediately, and the man appeared near to death. Vomiting occurred before there was time to take the needle out of the vein; Dr. Sequeira regarded ferrivine as the most rapid emetic he had yet seen. Intramine produced very severe pain and five to six weeks afterwards massive tender swellings were present just like those following the intramuscular administration of salvarsan.

Dr. SHILLITOE quoted results obtained with ferrivine and intramine at the Female Lock Hospital. Four out of nine cases showed very marked improvement; two reacted severely to ferrivine; intramine caused severe pain in six. He considered that ferrivine and intramine did exert an antisiphilitic action, which in some instances was as rapid as after salvarsan.

Dr. H. G. ADAMSON had tested intramine in lupus. Eight cases had received sixteen injections in all; the first two cases showed remarkable improvement with healing of the ulceration; but it was much too early yet to give an opinion on the effects.

Mr. C. H. MILLS reported further details of the cases treated with Colonel Harrison, and confirmed the points already mentioned. A case of indurated chancre of two months' duration, with mucous patches, received a full dose of ferrivine, which caused an immediate severe reaction; in spite of repeated treatment spirochaetes were still present in the mucous patch more than one week after the commencement of ferrivine administration. Then a dose of salvarsan was given, and eighteen hours later no spirochaetes could be found. The reaction following the intravenous injection of ferrivine was more severe than any observed during nine thousand injections of other preparations. With regard to the patients exhibited by Mr. McDonagh, Mr. Mills pointed out that one who had been under treatment for two months exhibited mucous patches and that in two cases intramine had become encysted.

Sir MALCOLM MORRIS urged on Mr. McDonagh, with regard to these new products, the same policy of watchful waiting which Mr. McDonagh himself had advocated in the case of salvarsan. Dr. C. H. BROWNING commented on the conflicting character of the evidence derived from the observation of cases treated by Mr. McDonagh when compared with the results of others who had themselves tested ferrivine. Dr. STOWERS, the President of the section, also emphasized the necessity for postponement of conclusions.

In reply, Mr. McDonagh complained that his researches had neither been proved nor disproved by his critics. He admitted that intramine and ferrivine were capable of improvement, and stated that improvements had already been effected. He doubted whether the chemical aid necessary for the perfecting of his work could be obtained in this country.

INJURIES OF PERIPHERAL NERVES.

At the meeting of the Section of Surgery of the Royal Academy of Medicine in Ireland on April 7th Major F. C. PURSER read a paper on injuries to peripheral nerves. He showed first what might be expected in a nerve which was wholly divided and then sutured under the most favourable conditions. Wounds caused in war seldom had so good an ending. They might be divided roughly into two classes—a numerically smaller class of total loss of function and a larger class where function was not wholly lost. A case in either class, but especially in the latter

¹ BRITISH MEDICAL JOURNAL, April 22nd, p. 591.

class, might be associated with pain or with hyperaesthesia. In the first class, with total loss of power and of sensation, the question to make sure of first was that the lesion was organic, of a nerve or nerves, and not functional. Having decided this, the exact outline of sensory loss and extent of motor loss should be recorded. If there were no improvement in six weeks or two months, exploration of the nerve was justified. Partial loss of function varied in severity of its symptoms from a loss almost total to a mere subjective sense of abnormality. Motor loss, as far as it could be compared with sensory loss, was often disproportionately great. Improvement in the condition of a case might, he said, best be gauged by an exact examination of sensory changes. Cases were described illustrating this point. Either total or partial loss of function might be due to anatomical section of nerve or to the inclusion of the nerve in scar or other compressing tissue. Recovery following secondary suture was far less satisfactory than that following the release of the nerve from scar tissue. Operation was called for when the disablement was very great and was not lessening under proper relaxation and massage treatment and when pain was severe. Often enough it made matters worse, and should not be undertaken without very careful repeated consideration of the case.

Mr. W. S. HAUGHTON followed with a paper on bullet injuries of nerves and other treatment. He dealt chiefly with the mechanical effects of high-velocity bullets striking the tissues, and described the different types of lesion that resulted in the nerves in the neighbourhood of wounds.

Reviews.

THE PATHOLOGY OF TUMOURS.

DR. E. H. KITTLE is to be congratulated on having produced a very useful volume on *The Pathology of Tumours*.¹ His aim has been to follow the generally accepted teaching, and this he has set forth clearly and succinctly, omitting all highly controversial theoretical matter and weighing carefully in the light of his own practical experience the *pros* and *cons* of those subjects on which there is still no general agreement. It is in the chapters on the endotheliomata and the hypernephromata, especially the latter, that the author's own views become more manifest. He does not side with those who regard the endotheliomata as tumours of general and frequent occurrence. The section on the hypernephromata is perhaps the best in the book. From a careful consideration of the histological features of these growths the author is forced to the conclusion that many of the so-called hypernephromata are really renal in origin.

The book is divided into three parts. The first deals with the general biology, the second with the general pathology, and the third with the special pathology of tumours. In the section on dissemination the author states (p. 22) that "an operation for the cure of cancer can only be successful when the whole of the growth is removed; if a single metastasis is overlooked, the proceedings are doomed to failure." Without any desire to appear captious, this statement seems unduly gloomy. It must have fallen to the author's lot to have met with cases in which a malignant nodule has disappeared spontaneously. Furthermore, on page 25 is the statement that the perilymphatic reaction may eventually "choke and kill" the cancer cells spreading along one of the larger lymphatic vessels. Provided that extension of growth from the distal end of such a plug does not occur—and this is an occurrence which, though common, is by no means inevitable—the nodule may die out. It must also be accepted that not every metastasis "takes" owing to unsuitability of environment.

It is refreshing to find a grave word of caution against the practice of the "rapid diagnosis" of tumours by means of frozen sections prepared whilst the patient is still under the anaesthetic, and the author's views will probably find acceptance with many pathologists who have had practical experience of this kind of work.

¹ *The Pathology of Tumours*. By E. H. Kittle, M.D., B.S. Lond. London: H. K. Lewis and Co., Ltd. 1916. (Demy 8vo, pp. 232; 126 figures. 10s. 6d. net.)

The one disappointing feature about the book is that it follows so rigidly the generally accepted teaching. The research worker and the advanced student will probably not find in it new stimuli. On the other hand, the busy general practitioner and the final-year student have been given just what they want to make them familiar with this most interesting and important branch of pathology.

A very special word of praise must be given to the illustrations. Of the 126 figures about 100 are of microscopical sections, and have been specially drawn for the book. They are admirably chosen and beautifully reproduced. The book is of convenient size and excellently printed.

AN OXFORD WAR PRIMER.

THE small pocket guide on *Injuries of the Eyes, Nose, Throat, and Ears*² is one of the Oxford War Primers of medicine and surgery published under the general editorship of Lieutenant-Colonel D'ARCY POWER. Dr. MAITLAND RAMSAY, in his introductory remarks to the section dealing with injuries of the eyes, writes: "In modern warfare eye injuries are of very frequent occurrence, but, whatever their cause . . . it may be taken that they differ merely in degree, and not in kind, from those met with in ordinary civil life. The principles that underlie treatment are, therefore, the same in both instances." After reading the book this remark appears to be applicable to the other sections. Apart from a series of illustrative cases appended to the section of injuries of the nose and throat there is little in the book that might not have been published had there been no great European war.

Out of 156 pages of text only ten are devoted to the injuries of the ears. The large number of men, not only from the trenches at the front but also from the training camps and barracks at home, suffering from injuries and diseases of the ears, show that the subject is of more importance than could have been anticipated, and deserving of more attention than the space accorded to it in this primer allows. In support of this opinion we may quote from Mr. West's concise contribution. Speaking of deafness ascribed to war causes he writes: "Mental obstructions by ceruminous plugs are not uncommon. It seems likely that some of these are truly 'explosion deafnesses' owing to the plug having been driven home by the sudden compression-wave. Such plugging of the meatus seems to give complete immunity from damage to the cochlea, and the case is cured by the syringe. These cases have, however, repeatedly been sent home from France for want of a simple diagnosis." The primer contains much teaching in a condensed form. To those who have grown out of touch with the special departments of practice with which it deals and find themselves on active service it will be a useful guide.

THE ORDER OF ST. JOHN OF JERUSALEM.

THE story of the Knights Hospitaller, the most ancient order of chivalry, and its revival in England, was told in the *BRITISH MEDICAL JOURNAL* of October 24th and 31st, 1914. The head quarters of the reconstituted body are in the old priory of the order at Clerkenwell, a description of which was written some years ago by the Rev. T. W. Wood and Mr. H. W. FINCHAM. More recent discoveries having made that *Guide* out of date, Mr. Fincham has embodied the results of fresh investigations in an interesting volume which has recently appeared.³ As the sphere of more important duties of the Order was in the Mediterranean, the Priory of England, he thinks, must have been used mainly for the princely hospitality which it dispensed, for the administration of its great estates, and for recruiting. He gives a full account of the old buildings as far as they can now be traced. Little now remains, but Stow and other old writers have said that they were stately and beautiful. The old priory suffered many vicissitudes. After the dissolution of the monasteries it was preserved as long as Henry VIII reigned, though degraded to base

² *Injuries of the Eyes, Nose, Throat, and Ears*. By A. M. Ramsay, M.D., F.R.C.S. (Glasg.), Major R.A.M.C.(T.F.); J. Dundas Grant, M.D., F.R.C.S. (Eng.), late Major R.A.M.C. (Post Office Volunteers); H. Lawson White, M.D. (Camb.), F.R.C.S. (Eng.), Captain R.A.M.C.(T.F.); and C. E. West, F.R.C.S. (Eng.), Captain R.A.M.C.(T.F.). Oxford War Primers. London: H. Frowde, Hodder and Stoughton. 1915. (Fcap. 8vo, pp. 160; 11 figures. 2s. 6d. net.)

³ *The Order of the Hospital of St. John of Jerusalem, and its Grand Priory of England*. By H. W. Fincham. Member of the Order of St. John. London: W. H. and L. Collingridge. (Cr. 4to, pp. 88, illustrated. 6s. net.)

uses, being made a storehouse for "the king's toils and tents for hunting." In the reign of Edward VI the church, with the great bell tower, "a most curious piece of workmanship, graven, gilt, and enamelled, to the great beautifying of the city," says Stow, was blown up with gunpowder. In Queen Elizabeth's time the priory was the head quarters of the drama, and from there Edmund Tynney, the Master of the Revels, licensed thirty of Shakespeare's plays. At the beginning of the eighteenth century the chapel had become a Presbyterian meeting house; then it was a private chapel for the use of the neighbourhood, and in 1723 it was reconsecrated as the parish church of St. John of Clerkenwell. In 1731 the Gate House was inhabited by Edward Cave, who there printed and issued the *Gentleman's Magazine*. There Samuel Johnson hid his shabbiness behind a screen when there was company at dinner. In 1845 the building had become so ruinous that the metropolitan building authorities ordered its thorough repair or demolition. Mr. W. P. Griffith, an architect resident in St. John's, raised a public subscription, and eventually restored the building to a safe condition. In 1874 the freehold of the Gate House was bought by Sir Edmund Lechmere, who later transferred it to the Order. Mr. Fincham gives a detailed description of St. John's Gate and of the church and crypt, with the heraldic shields and other decorations and the historic memorials which they contain. The crypt was the scene of the performances of the "Cock Lane Ghost," which in 1772 attracted royalty, nobility, members of Parliament, and leaders of fashion to hear the noises made by "Scratching Fanny."

Mr. Fincham has little to say about the hospital work of the knights in their early days. Although the Order became within no long time of its foundation more a fighting than a nursing body, it seems to have retained all through its history some traces of its original character. The revived English Order gives itself wholly to works of charity, and through its ambulance department the St. John Ambulance Association and the Brigade, which is an offshoot, it has done and is doing work of incalculable value in the present war. The account of that work given by Mr. W. R. Edwards, secretary of the Order, is a proof of the splendid enthusiasm of humanity that animates the hospitaliers of to-day.

Mr. Fincham's book should be read by all interested in the fascinating history of the soldier monks who through many centuries ministered to the sick and fought the infidel at Jerusalem, Acre, Cyprus, Rhodes, and Malta, by all students of the development of philanthropy, and by all lovers of old London. It is admirably and abundantly illustrated, and the plans of the church and other buildings enable one to follow the work of restoration to the present time, when, though much of the material glory has departed, the original spirit breathes in the workers who have taken up the heritage of the knights of old.

PATHOLOGICAL ENTOMOLOGY.

THE last five years have witnessed the publication of a comparatively large number of books on medical entomology; none of them are entirely satisfactory, partly because they are apt to be out of date shortly after publication, but much more because the subject is very composite, bearing as it does on clinical medicine, public health, the protozoa, the bacteria, and systematic and biological entomology. Probably we must recognize that the successful textbook on medical entomology will be the work of a number of authors each dealing with a section of the subject. Applied entomology is as yet very inadequately recognized by the medical profession. One wonders, for instance, how many students have ever seen the scabies mite, or have such a knowledge of the life-history of fleas as would enable them to rid a house of that pest. It is not, of course, suggested that the ordinary medical man should do more than make himself acquainted with the dozen insect parasites of man which are met with in this country, but we hope that in the future the medical entomologists will be recruited as often from the hospitals as from the schools of zoology.

Professor HERMS's *Medical and Veterinary Entomology*⁴

⁴ *Medical and Veterinary Entomology: A Textbook for Use in Schools and Colleges as well as a Handbook for the Use of Physicians, Veterinarians and Public Health Officials.* By W. B. Herms. New York: The Macmillan Co. 1915. (Roy. 8vo, pp. 405; 228 figures. 15s. net.)

is written primarily for the American student, and gives a very good account of the parasitic insects, especially those which spread disease among men and animals in America. The author shows much wisdom in omitting as far as possible systematic tables for separating the scores of known species of tick, or mosquito, or flea. Only a few of these species are of great pathogenic importance, and no one should attempt to identify an Anopheline, for instance, without a considerable training in the systematics of that group. Most parasitologies and handbooks of medical entomology do not recognize this, and we fear that the result will soon be seen in the publication of a large crop of mistaken identifications, based on the use of the "keys" of these books. The author's wisdom in saying so little about the internal anatomy of the more important parasites may be questioned, but he may have felt that Patton and Cragg's *Textbook of Medical Entomology* dealt with this aspect of the subject so fully that he was justified in omitting it from his smaller work. A great deal of modern work in tropical medicine turns on the dissection of parasitic arthropods; we refer, of course, to such work as Bacot's on the *Bacillus pestis* in the gut of the flea, Patton's search for *Leishmania* in the bed-bug, Fantham and Porter's investigations upon *Herpetomonas* in insects, or the fruitless search of many workers for *Piroplasma* in any or every organ of the infective tick. A good knowledge of the internal anatomy of pathogenic insects and of the readiest means of dissecting them is necessary to a comprehension of this work.

After some introductory chapters, Professor Herms describes the insects with which he is concerned, in systematic sequence. A great number of species of lice, both true lice and biting lice, infect man and the domestic animals; the majority of these are figured, most of them from photographs. Some of the photographs should never have been published; no good purpose is served, for instance, by figuring a *Trichodectes* without visible legs or abdominal segments; some of the photographs are excellent, as are also the line drawings. The Diptera (fleas and true flies) occupy more than half the book. The author has very wisely confined himself to the more important members of this vast order. The account of the house-fly and the anti-fly campaign is particularly good, as, indeed, it should be in a book published in America. Professor Herms has not provided a separate bibliography, but gives his references in footnotes. He ought to have found room for some reference to Dr. Graham-Smith's invaluable volume on *Non-biting Flies*.

The ticks and mites, though they are not actually insects, are conveniently included in any book on applied entomology. Ticks are of the greatest economic importance in America, and indeed in many other parts of the world, for they are responsible for the transmission of the *Piroplasma* group of protozoa, the organisms of "red-water" and kindred disorders in the domestic ungulates.

Professor Herms is not, apparently, a medical man, but he is by no means one of those entomologists who believe in the insect transmission of "every ailment, from a gumboil to a dislocated spine." He adopts the view, which we believe to be correct, that poliomyelitis is not normally transmitted by *Stomoxys*; on the other hand, he follows Sambon in the matter of the transmission of pellagra by *Simulium*.

The index is good, the figures are numerous, and some of them excellent. The volume is extremely heavy.

NOTES ON BOOKS.

THE seventh edition of GOULD's *Pocket Medical Dictionary*⁵ has recently appeared, and shows an advance on its predecessors. Thus, for example, the fourth edition, dated 1900, contained definitions of some 30,000 words, as compared with the 35,000 in the seventh edition, which also contains many more lists and tables than the edition of 1900. At the end of the book there is a posological table of the commoner drugs, and a veterinary dose table. The print and paper are satisfactory, and there is no doubt that the book contains a vast amount of information.

Mr. J. S. KELLETT SMITH has written a short and optimistic account of his experience with the Bergonié

⁵ *A Pocket Medical Dictionary.* By G. M. Gould, A.M., M.D. Seventh edition, revised. London: H. K. Lewis and Co., Ltd. 1915. (Pott 8vo, pp. 1003. 6s. net.)

electrical treatment of obesity and what he calls "obese heart."⁶ Details are supplied of the way in which the interrupted induced current is applied, and a few pages are given to the association of obesity with diminished functional activity of the thyroid gland. The author prescribes for patients receiving the electrical treatment a diet containing little fat or carbohydrate. He adds that obese people should reduce the total consumption of fluids to a low level, particularly at meals. A number of weight charts reproduced in the book show that satisfactory reductions of weight may be obtained by the methods advocated.

⁶ *The Cure of Obesity and Obese Heart.* By J. S. Kellett Smith, F.R.C.S. Eng. London: J. and A. Churchill. 1916. (Cr. 8vo, pp. 101; 12 figures. 3s. 6d. net.)

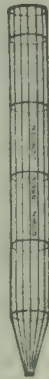
MEDICAL AND SURGICAL APPLIANCES.

Silver-wire Drainage Tube.

CAPTAIN VELLACOTT, R.A.M.C., has devised a silver-wire drainage tube which resembles a test tube in shape, for which the following advantages are claimed:

1. The tube allows air or oxygen to reach the tissues more freely than other tubes.
2. Irrigating lotions also reach the tissues in the same manner.
3. Discharges pass freely into the tube along its whole length.
4. The tube is non-compressible and unbreakable. It is especially useful in the septic wounds of war.

The tubes are made by Messrs. Down Bros. in various sizes from 2 inches to 8 inches in length.



SUPPLY OF PETROL.

THE Petrol Control Committee of the Board of Trade has issued a memorandum in the course of which it is stated that a subcommittee, consisting of representatives of the chief distributing organizations, has undertaken to regulate the supply of petrol according to the classification shown below.

Users of motor spirit have been placed in three classes:

Class "A" includes cars used by medical practitioners, veterinary surgeons, cars used by recognized organizations for the transfer of sick and wounded, for the transport of munitions of war, by the police and local government authorities, by lord lieutenants and high sheriffs, or for any service certified by a Government department.

Class "B" includes requirements for agricultural machinery, industrial processes, and the conveyance of goods, for air craft, for motor cabs, for motor cars used by commercial travellers, for boats and omnibuses used for other than pleasure services, for railway purposes, and for stationary engines, including lighting sets.

Class "C" comprises all other requirements, including private motor cars and motor cycles in ordinary use.

It is not anticipated that there need be any curtailment at present of reasonable demands in Classes "A" and "B."

The same memorandum calls attention to the regulations limiting the amount of motor spirits which may be stored without a licence, and states that it is the intention of the Committee shortly to take a census of all motor vehicles and of petrol consumption and requirements.

It is stated on what seems to be good authority that the military services now need nearly, if not quite, as much petrol as was consumed in the United Kingdom for all purposes before the war. At the same time the amount used by commercial vehicles is believed to have increased. If these statements be correct the Petrol Committee's expectation that it will be possible to keep up the supply for Classes "A" and "B" would seem to be, in part at least, founded on the reply made to a question in the House of Commons on May 31st by the Parliamentary Secretary to the Board of Trade, to the effect that a recommendation had been received from the Committee with regard to the release of certain tank steamers to facilitate the importation of additional supplies. It is said that at the present time, owing to lack of adequate storage on shore, tank steamers are kept in port, where they are gradually emptied to meet the demand.

The Automobile Association and Motor Union has produced evidence to the Petrol Control Committee on two points. One is that, from a special inquiry addressed to their members, it would appear that 58 per cent. of mileage is entirely for business or professional work, and 16 per cent. for voluntary work; the remaining 26 per cent. is for shopping, station work, and otherwise in the private interests of the owner; it is added that a recent census of traffic on main roads showed that the number of pleasure cars on the road was a negligible quantity. The other point is with regard to the ten million gallons of duty-free petrol delivered last year for industrial purposes. It is suggested that while petrol is a necessity for motor vehicles, it may not be indispensable in certain industries where a substitute or a heavier grade of spirit could be used. It is suggested that the Petrol Committee should obtain an independent technical opinion on the utilization of substitutes for industrial purposes, and it is pointed out that every gallon of petrol so released for private business would produce 6d. for the Treasury. The hope is also expressed that if the restriction of supply is imperative in the national interest, the Petrol Committee will take steps to protect private users against unreasonable increases in price.

The Medical Secretary of the British Medical Association has received a letter from the Petrol Control Committee, dated June 2nd, stating that the Committee has made arrangements with the principal petrol supply companies whereby the requirements of medical practitioners are to be met in priority to the requirements of the majority of other users, and that it is hoped that the full operation of this arrangement will remove the difficulties which have been experienced by medical men.

The following communication has been received by the Local Government Board (Ireland) from the Major-General in Charge of Administration, Irish Command, with regard to the regulations now in force as to the sale of motor spirit in Ireland:

DUBLIN CITY.—All restrictions regarding the sale of motor spirit have been removed.

OTHER PLACES IN IRELAND.—There are no restrictions excepting that persons can only obtain petrol through the local police authority; therefore, any difficulties experienced by would-be purchasers should be referred by them to the Inspector-General, Royal Irish Constabulary, as there is no limit to quantities which vendors may remove by authority from Dublin.

BIRTHDAY HONOURS.

THE list of honours published in the *London Gazette* in connexion with the King's birthday include the following civil members of the medical profession in addition to naval and military members, whose names are published at another page:

Dr. Addison, M.P., Parliamentary Secretary to the Ministry of Munitions, has been created a privy councillor.

The honour of knighthood has been conferred upon Mr. Francis Mark Farmer, dental surgeon to the London Hospital; Dr. M. Armand Ruffer, C.M.G., president of the International Quarantine Board, Egypt; and Professor Nestor Tirard, secretary of the Pharmaceutical Committee of the General Medical Council.

Dr. Frederick Montizambert, I.S.O., Director-General of Public Health, Canada, receives the distinction of C.M.G.

Dr. Noel Bardswell, medical superintendent, King Edward VII Sanatorium, Midhurst, and Dr. Frederick S. Hewett, Surgeon Apothecary to His Majesty the King, have been appointed members of the fourth class of the Royal Victorian Order.

The Kaisar-i-Hind gold medal is bestowed upon Mr. H. M. Newton, F.R.C.S., Church of Scotland Mission, Jalalpur Jatan; Dr. M. G. Robertson, chairman of the Municipal Committee of Ajmer; and the Rev. Peter Cullen, M.D., Brigade Surgeon, I.M.S. (retired).

AT Whitsuntide a new naval ambulance train, lately completed at the L. and N.W. Railway Works to the specification of the Admiralty, will be on view at Addison Road Railway Station, near Olympia. Cots can be shipped aboard it in such a manner that the seamen will be transferred undisturbed in them from the ship to the hospital. A charge of one shilling will be made for admission, and the proceeds will be handed over to the Dreadnought Hospital for Seamen, Greenwich.

British Medical Journal.

SATURDAY, JUNE 10TH, 1916.

UNDER FORTY-ONE AND UNENROLLED.

It is of the utmost importance that medical men under the age of 41 should understand at once the position in which they are placed by the Military Service Act (Session 2), which became law on May 25th last. The Regulations made under it by the Order in Council of June 1st are printed in full in the SUPPLEMENT.

Every male British subject, married or single, who has not attained the age of 41 before June 24th next, will (with certain exceptions, which do not concern the medical profession) be deemed, as from that date, "to have been enlisted in the regular forces for general service with the colours or in the reserve for the period of the war, and to have been forthwith transferred to the reserve."

Application for exemption from the provisions of the Acts may be made by a medical man to the Local Tribunals, but such application is only necessary in the case of the unenrolled man. The enrolled man, if called up, need only produce his certificate of enrolment and refer the recruiting authorities to Army Council Instruction 485. The applications of medical men will be referred to the Professional Committees appointed under the Regulations. Application for exemption must be made to the Local Tribunal before the "appointed date," that is, before June 24th, 1916. The Professional Committees are the Central Medical War Committee for England and Wales, the Scottish Medical Service Emergency Committee for Scotland, and, in certain special cases, the Committee of Reference appointed by the Royal College of Physicians and the Royal College of Surgeons. A Central Professional Committee has power to recommend exemption—absolute, conditional, or temporary—in cases in which, after considering the evidence, it thinks a certificate of exemption ought to be granted, and the recommendation of the Professional Committee concerned will be binding on the Local Tribunal.

In England and Wales medical men of military age may be divided into those who enrol with the Central Medical War Committee and those who do not enrol. It is with the latter class that we are concerned at present.

The medical man who is under the age of 41 on June 24th next, who is unenrolled and does not intend to enrol with the Central Medical War Committee before that date, may do one of two things. Either he may wait until his class is called up by the military authorities, in which case he will be taken for general service, and if found suitable is not unlikely to be offered a commission in the R.A.M.C., or he may apply to a Local Tribunal for exemption provided he does so before June 24th. If he waits to be called up, he will be taken for the duration of the war just like any other citizen, and his pay will be at the ordinary rate for the kind of service into which he is taken. If he is given a commission his pay will be the ordinary pay of a lieutenant in the R.A.M.C.

Presumably, however, the unenrolled man will usually apply for exemption. In this case his application will be forwarded by the Local Tribunal to the Central Professional Committee; if he is attached to a metropolitan hospital, the application will be transmitted to the Committee of Reference. The recommendation made by these Committees will be returned to the Local Tribunal and will be binding on the Tribunal. If the application is not granted, the man's position will be the same as that described above in the case of him who decides to "wait and see"; if exemption is granted it will mean that the Professional Committee considers that the man's services are urgently required by the community in which he practises, or that his circumstances are such as to lead to excessive hardship to him or his dependants. It must be remembered that the exemption may in any case be absolute, conditional, or temporary.

Thus the man who is unenrolled on June 24th puts himself, the Local Tribunal, and the Professional Committees to much trouble; he runs the risk of being taken for combatant service; if taken, he will serve for the duration of the war; and, if given a commission in the R.A.M.C., he will be paid at a lower rate than the present temporary lieutenant. Whereas the enrolled man will have his case decided by the same Committee with just the same amount of care and consideration; he will have the same right of appearing before the Committee; if selected for service, his term of service may be for one year only unless the need for a subsequent term arises, and his scale of pay will be the same as that of the temporary lieutenant under the voluntary system. Under these conditions, it would hardly seem worth while for any medical man of military age to remain unenrolled after June 24th next.

SCOTTISH AND ENGLISH SKULLS.

THE more we dig into the physical characters of the English, Scottish, Welsh, and Irish peoples, the more do anthropologists become convinced that all four nationalities are compounded out of exactly the same racial stocks of mankind. No more convincing proof of the truth of this statement has come to hand than the lengthy, elaborate, and somewhat severely mathematical monograph recently published by Dr. Matthew Young, Senior Demonstrator of Anatomy in the University of Glasgow.¹

For the first time Dr. Young has given us an accurate picture of the head-form of the million people who live on the banks of the Clyde. He had an ample supply of material, some 700 skulls, derived from a disused Glasgow graveyard. We have knowledge of only one other extensive series of British skulls, that found in a disused cemetery in the East End of London, which was investigated and described by Dr. W. R. Macdonell some twelve years ago.² A Glasgow man does not expect to discover that the Whitechapel man is his cousin, and probably no one was more surprised than the Scottish demonstrator of anatomy to discover that his "Scottish skulls presented an exceedingly close resemblance in their general form to the series of skulls described by Macdonell and known as the Whitechapel English crania, which the latter regards as the typical skull of the Londoner of 200 years ago." We have only to compare

¹ A Contribution to the Study of the Scottish Skull. *Trans. Roy. Soc. Edin.* 1916. Vol. II, Part II, pp. 347-544; 3 plates, with numerous tables of statistics. (Price 14s. 6d.)

² *Biometrika*, 1904, vol. III, p. 191.

the chief measurements to see how close the resemblance is. The mean length of the Glasgow man's skull is 187.5 mm.; the Whitechapel skull is 1.5 mm. longer; the Glasgow width, 139.5 mm.; the Whitechapel, 1.1 mm. more; the proportion of width to length (cephalic index) is exactly the same in both—namely, 74.3; the height of the Glasgow skull, 132.7 mm.; the Whitechapel has slightly a lower roof—namely, 0.7 mm. less. We are rather surprised to find the brain capacity rather smaller in the Glasgow than in the Whitechapel man—1,459.4 c.cm. in the first, against 1,476 c.cm. in the second. On the other hand, Dr. Young credits the Glasgow woman with a larger brain than her Whitechapel sister. There is reason to believe that Dr. Young has not done the brain capacity of his townsmen full justice. In the 700 skulls he found 405 which were probably male and only 100 which were probably female. We expect an equal representation of the two sexes in a burial ground. It is very likely that female skulls were included in the large male group, and seeing that, on the average, the brain capacity is about 170 c.cm. less in the woman than in the man, the inclusion of female skulls in the male group would lower the male average. When we take this circumstance into account, we may safely predict that the Glasgow-Whitechapel men have been endowed with almost the same size of brain.

The casual critic might seek to explain the resemblance between the head-form of the Glasgow and Whitechapel people on the grounds that both are living under the same conditions of town life, and that such conditions will tend to produce the same head-form. Dr. Young has convincing evidence to show that head-form is permanent under the most diverse conditions of British life. In the long barrows of England, and in the corresponding graves in Scotland, occur the remains of the people who lived in Britain some 4,000 to 5,000 years ago. In dimensions and in shape the Glasgow and Whitechapel men reproduce the head-form of these ancient British people to a surprising degree. Neolithic blood runs strong in modern people living on the banks of the Thames and Clyde. Sometime ago Professor Keith called attention in these pages to the close resemblance between the skull of Robert Burns and those of the Neolithic people which Professor Bryce had unearthed in the cairns of Arran.

But what of the Anglo-Saxon invasion and the coming of the Norseman? Dr. Young has grasped that problem too. The Scandinavian and Anglo-Saxon skulls are the same as the long barrow skull—the same type as the modern British skull; those invaders brought no new skull form to England; they were of the same stock as the ancient British. Unhappily, so we think, Dr. Young applies to those Scandinavian and West German people the name "Teutonic." In its modern usage, "Teutonic" means German, and the vast majority of modern Germans have a totally different head-form from the ancient and modern British, and the modern German is emphatically brachycephalic.

We are surprised to find that there was such a small proportion of round-headed or brachycephalic people in Dr. Young's Glasgow series. There is evidence that about 1700 years B.C. round-headed invaders, with a head-form of much the modern German type, began to land along our eastern coasts, from Caithness in the north to the Isle of Wight in the south. Their remains are found in the round barrows or in short cists in all of our eastern counties; they invaded Wales, and they reached Ireland in very considerable numbers. The late Sir

William Turner collected skulls from all parts of Scotland; out of a collection of 174 skulls, 35 (20 per cent.) were emphatically brachycephalic. There is very little trace of this brachycephalic element in either the Glasgow or the Whitechapel series of skulls.

The essential fact remains that, as regards race, the people of Whitechapel and of Glasgow are the same. There is every reason to suppose that when Dr. Young's colleagues in Cork, Dublin, Belfast, Cardiff, Bristol, Birmingham, Manchester, Liverpool, Newcastle, Edinburgh, and Aberdeen do for those cities what he has done for Glasgow the result will be approximately the same—a demonstration that we British are, as regards physical characters, a homogeneous race. We hope, however, that when these new investigations are undertaken the anatomist will remember he must be rather more than a mathematician. Dr. Young has treated the Glasgow skull as if it were a problem in Euclid. The skull is part of an elaborate machine; to be studied profitably it has to be viewed, not only with the eye of the mathematician, but also with that of the engineer, and, above all, by that of the medical man.

THE TRADE EDUCATION OF MAIMED SOLDIERS.

THE *Journal de Médecine de Bordeaux* in its May number gives an account of the School of Re-education and the various organizations for the assistance of mutilated soldiers established at Bordeaux. The work was started a year ago by the Mayor; the city gave 40,000 francs, the general council of the Gironde 20,000 francs, and the Chamber of Commerce 10,000 francs, and the State will ultimately take upon itself all the working expenses. The school is established in the extensive buildings of what was formerly the Grand Séminaire in the Rue du Hamel. There the maimed soldiers are lodged, and workshops have been arranged where masters teach them the trades they have selected. An orthopaedic hospital will be established in another building. The work is under the direction of foremen, some of whom are themselves maimed. The results are very satisfactory, but experience has shown that maimed men are seldom able to get employment in large workshops, where their inferiority in output shows up too acutely in comparison with that of their whole-limbed mates. A proposal has been made that, in view of the increasing number to be provided for, an attempt should be made to establish workshops in which only maimed men are employed. It has also been found necessary to classify the men, and for this purpose two other organizations have been created at Bordeaux, which supplement the work of the municipal school. One of these, the "Guide du Réformé," particularly occupies itself with men who have lost their lower limbs; they are placed with employers, and allowances of varying amount are given them during their apprenticeship. Allowances are also granted to some pensioners of the school, to be applied to the support of their families during their re-education. When the apprenticeship is finished the man seeks to settle in his native place or elsewhere; if he has no resources, as is often the case, L'oeuvre de l'Assistance aux mutilés pauvres, which has its head quarters in Paris, advances him the money necessary to buy tools and material up to £20. The Bordeaux school is chiefly intended for those who have lost the upper limb or the use of it. To determine the class of work for which each man is fitted a laboratory has been established in which, on admission, all men are examined; by an adaptation of Marcy's graphic method of registration on smoked cylinders the value of the stumps or paralysed limbs in regard to work is determined. By clinical examination

it is seen whether they are suited for work requiring strength or something less arduous, such as plastic arts or bookbinding. To this end pneumograms and cardiograms are taken in a state of rest and after work. By other experiments the number of calories used during work is ascertained and the degree of fatigue measured. By comparing their own tracings with those of the foremen the men can see the object aimed at. Progress is tested by weekly examinations. The director of the laboratory, Dr. Gourdon, sums up the functions of the laboratory as follows: A clinical study of the mutilated man from the working point of view, medical and scientific supervision during re-education, exact control of the work, minute research as to the best conditions of this work, adaptation of the prosthetic apparatus to the work the man is to do, and rational progressive training with the object of better utilization of stumps of paralysed limbs. The school is thus an institution for the scientific study of re-education and for the training of masters and instructors who will in turn train other maimed men and organize workshops.

THE MAKING AND FITTING OF ARTIFICIAL LIMBS.

Like the British soldier, the French soldier who has lost a limb in the war has a right to an artificial substitute. A central medical committee comprising some orthopaedic surgeons appointed some time ago by the Under Secretary of State to supervise the work, has settled on an appropriate type of apparatus for various amputations, and samples have been supplied to the manufacturers of each region, who are required strictly to adhere to the approved type in each instance. The materials to be used in the manufacture of an artificial limb must be sent to the central prosthetic laboratory at the Conservatoire des Arts et Métiers, where, under the direction of Professor Amar, they are thoroughly tested. When the apparatus is finished it is sent to the regional orthopaedic centre and is accepted definitively only when the members of a local committee have decided that it fits the man perfectly and fulfils the required conditions. The choice of apparatus is not hampered by questions of expense but is based entirely on the highest attainable standard of usefulness to the wounded men in view of the calling which they will pursue. Thus to an agricultural labourer there will be given an articulated stump solid enough to allow him to do rough work on the land, whilst to a worker in an office an artificial leg will be supplied. In not a few instances skilful and ingenious artificers have been found among the wounded themselves, but to complete the organization of the service specialist craftsmen have been brought back from the armies. In the Paris region the arrangements are now in full working order, and every Thursday 150 to 200 specimens of apparatus are examined at the hospital of the Maison Blanche by the competent committee and sent out to those for whom they are intended. In this country the arrangements differ in detail but work out to the same end; that is to say, a sailor or soldier who has lost an arm or a leg is supplied from public funds with an artificial limb made and adjusted under the supervision of surgeons specially skilled in such matters. As our readers are aware, the Queen Mary Auxiliary Hospital at Roehampton, which now has over 300 beds, has been carrying on this work for a year. Early this year a movement to establish a hospital on similar lines for Scottish soldiers was set on foot mainly through the exertions of Sir William Macewen, and the Committee is now in possession of a house and extensive grounds in the neighbourhood of Glasgow. At Brighton 500 beds have been provided in the Pavilion Military Hospital, where men who after amputation suffer from some condition of the stump which does not allow the proper fitting of an artificial limb can be treated by operation or otherwise. When ready to be fitted the man will be transferred to the hospital at Roehampton. The British and the Scottish

hospitals are independent of each other, but both have the approval and support of the Directors-General of the Royal Naval and of the Army Medical Services. It will be remembered that last March the War Office issued a *Memorandum on Amputations and Amputation Stumps*, founded on the experience gained at Roehampton, for the guidance of surgeons of military hospitals abroad and at home in the selection of the site of amputation, when choice is possible, and in the fashioning of stumps. It was reviewed in our columns on April 8th, p. 534.

THE RATIONALE AND PRACTICE OF CHEMIO-THERAPY.

THE addition of an efficient drug to the pharmacopoeia will always be an achievement of importance, and lately Mr. J. E. R. McDonagh claims to have discovered two such remedies in intramine and ferrivine.¹ From the formulae which are given the compounds appear to be orthodiaminophenyldisulphide and the iron salt of sulphanic acid respectively, both well-defined substances long known to the chemist. Mr. McDonagh claims that these compounds surpass salvarsan in value in the treatment of syphilis and have the merit of being non-toxic. Ferrivine is employed in the acute stages and intramine in chronic cases, but the best results appear to follow when they are used in conjunction. Such refractory conditions as degenerative encephalitis and interstitial keratitis are described as yielding to intramine; but from remarks made by Mr. McDonagh at the adjourned discussion in the Dermatological Section of the Royal Society of Medicine reported this week it seems that this effect is not always attained in keratitis, and the opinion has been expressed that, while in some cases of early syphilis ferrivine acts better than salvarsan, in others it is less efficient. Such is the broad outline of the practice. The *rationale* is based upon highly-involved considerations regarding oxidation and reduction processes in the living body and the effects of the size of lipid-globulin molecules and of their stereochemical configuration on adsorption and so on. The majority of experienced clinicians do not profess to be expert biochemists, and the executive of the section wisely invited the participation of scientific workers of acknowledged repute in those fields from which Mr. McDonagh has gathered his inspirations. In the consideration of the theoretical side of the subject the comments of Professor Bayliss must carry great weight, and from them—and he is not alone in his views—it seems clear that Mr. McDonagh's speculations are for the most part without experimental basis, and in certain instances mutually contradictory or actually contrary to observed facts, as when he attributes the phenomena of adsorption to active oxygen. Though Mr. McDonagh's arguments do not seem to commend themselves to authorities well versed in the nature of the problems under consideration, a discovery of practical value will atone for much inconclusive theory; it remains, therefore, to inquire what clinical evidence has been adduced. Independent observation has confirmed the occurrence of rapid improvement in the primary sore and related lymphangitis and lymphadenitis in a series of cases treated with ferrivine under Mr. McDonagh's own care, and very marked improvement was reported in about half of a series of cases treated with the remedies at the Female Lock Hospital. On the other hand, Lieutenant-Colonel Harrison and Mr. Mills, who themselves treated cases with ferrivine obtained from the makers, found that no clinical improvement followed, either when the drug was used by itself or in conjunction with intramine; the specific spirochaete also persisted in the secondary lesions for over a week after the commencement of treatment, although a single dose of salvarsan subsequently banished the parasites in eighteen hours. Dr. Sequeira's experience with ferrivine likewise led him to the conclusion

¹ BRITISH MEDICAL JOURNAL, April 22nd, p. 591.

that its effect on the secondary stage was not comparable with that of salvarsan. These speakers insisted on the very severe shock which may follow even moderate doses of ferrivine. As regards intramine, no independent evidence concerning its effect in interstitial keratitis and general paralysis appears to have been offered so far; there is practical unanimity, however, that intramuscular injections cause such severe pain as would prohibit its use in many cases, and frequently it appears to be very imperfectly absorbed. Having regard to the observed immediate effects in some cases it seems hazardous to speak of ferrivine and intramine as non-toxic. Mr. McDonagh, in closing the discussion, admitted that his drugs were capable of improvement, and claimed that he had already overcome certain disadvantages. It is evident, however, that an extended probationary period will be required for them. In the meantime we would once again utter a caution against exaggerated optimism; any reasonably safe therapeutic procedure will in this country secure an unbiased trial, especially if there is sound experimental evidence in its favour.

THE POISON APPARATUS OF THE STING RAY.

At a recent meeting of the Zoological Society of London Major H. M. Evans, M.D., R.A.M.C., read a paper on the poison organ of the sting ray (*Trygon pastinaca*). It had, he said, been observed for centuries that the wounds produced by the serrated spine growing from the base of the whip-like tail of the sting ray produced very severe injuries and pain and inflammation, which could not be accounted for by the laceration of the wounds alone. Dr. Antonio Porta, in 1905, described a gland in the groove lying medially to the rows of teeth on either side; he stated that it was similar to the gland found in *Scorpaena*. Major Evans's researches had not confirmed Porta's description in all particulars. The examination of a series of sections showed a gland of a different type from that found in the weevers, *Scorpaena*, etc. He emphasized the following points: (1) The origin of the gland from a special epithelial structure at the base of the spine; (2) the arrangement of follicles discharging their secretion by ducts or canals, communicating with the exterior by means of nipples or filaments; (3) the arrangement of these nipples at the base of the teeth; (4) the presence of muscular fibres surrounding the main canals which are instrumental in discharging the venom.

THE BATTLEFIELDS OF EAST PRUSSIA.

PROFESSOR KIRCHNER, who as a member of the Commission sent to East Prussia after the first, and again after the second Russian invasion, had exceptional opportunities for studying the effects of modern warfare, has published an account of his experiences. On August 20th, 1914, the population was notified that the province must be evacuated. Many thousands streamed away and were cared for by the war organizations. Between August 26th and 28th Hindenburg's victory temporarily eased the pressure of the Russian armies, and the civil medical administration was set the task of restoring order to the ravaged province. Professor Kirchner found the conditions less serious than he expected. Alarmist rumours had spread through the press to the effect that at the battle of Tannenberg thousands of Russians had perished in the Masurian lakes. It was feared that all the drowned men and horses would poison the province. But, as a matter of fact, the lakes are far from Tannenberg, and no foundation for these rumours could be discovered. On the whole, there was little disorganization from the sanitary point of view. The dead had been properly buried, and even on the battlefields there was little trace of the recent past. The wells were in good condition, and the land was again being ploughed. The sum of 20,000 marks was provided for the care of infants and the tuberculous; temporary hospitals were run up in place of those that had

been destroyed; 200 beds, with bedding, were supplied in a few days by the Red Cross; and the requisite number of doctors and chemists was also provided. But in October fresh Russian forces swept over the border, and the province had again to be evacuated. This time the Russians stayed longer, and devastated the country more thoroughly. When Professor Kirchner and his Commission returned to the province after the second Russian retreat, the country was ruined. It was estimated that 300 million marks would be required to restore the 36,000 houses which had been burnt. Russian prisoners were employed by the thousand in gangs of thirty to forty for three months. Trenches were filled up, wells were cleaned, and hospitals and other most necessary buildings were restored. The graves of the fallen were also attended to. By July, 1915, some 75 per cent. of the inhabitants had returned, but for lack of housing accommodation a considerable degree of overcrowding was unavoidable. Though great efforts were being made to restore the province, Professor Kirchner foresaw that the ravages of the war would take long to repair.

THE BELGIAN ATROCITIES.

WE may be permitted here to make reference to a Birthday honour not mentioned among those enumerated elsewhere. The editor of the *Field* went out of his own line of country to publish in February, 1915, a special supplement containing a report by Dr. Arthur Tacquin, one of the physicians-in-ordinary to the King of the Belgians. It was copiously illustrated; it did not show all the crimes against our common human nature committed by the Germans in Belgium. It would have needed a cinematograph and the result might not have been edifying, but it contained a sufficient number of photographs to prove the depth of the fuddleheadedness which caused them to destroy the whole machinery of communal life in many parts of what they then regarded and still profess to regard as a conquered province. The great merit of the publication was that it foresaw and answered by anticipation the excuses the Germans would make if they failed as they have failed, though they are not yet beaten. The nature of the excuses is illustrated by a letter received by Professor H. A. Lorentz, the eminent physicist of Haarlem, from Dr. Max Planck, professor of physics in the University of Berlin. Sir Oliver Lodge sent a translation to the *Times* of June 5th. It began by the statement that "The well-known appeal to the world of culture which was signed by 93 German scholars and artists, and published in August, 1914, has, owing to the terms in which it was drawn up, led to mistaken conceptions as to the attitude of the signatories." Professor Planck says that the "appeal, which reflects in its composition the patriotic excitement of the first weeks of war, was intended to signify and could signify nothing but an act of defence—above all, of protection of the German army against the bitter accusations brought against it." After stating the obvious fact that scholars and artists of Germany cannot be responsible for every single action of every German, he goes on to say that "we are not as yet in a position to pass a final judgement in any scientific sense of the term on the great questions of the history of the present day. Only a subsequent, many-sided, and objective examination can decide in which quarters will be finally fixed the primary responsibility for the failure of the efforts for peace and for all the human suffering which has been caused—an examination whose results we await with a quiet conscience." Dr. Planck, it will be seen, avoids any attempt to consider the evidence of the atrocious manner in which the German army wars upon civil populations. It has been set out in official publications which have not and cannot be gainsaid, and Sir Theodore Cook's particular service, in the two supplements of the *Field*—that to which we have already

referred and another published this year—has been to put some of the facts in an objective form before the large public which does not read official documents.

MILITARY HOSPITAL GAZETTES.

We have referred from time to time to periodicals issued by military hospitals in Great Britain. We have now received a copy of what we believe to be the first publication of this kind issued by a hospital with the British Expeditionary Force in France. It is entitled, *Behind the Lines*, and comes to us from the officer commanding the stationary hospital by which it is issued. The editor, in a preface, says that it is intended primarily to form a common bond of interest and information among the members of the unit, and at the same time "to brighten the lives of the patients within the walls of our historic building." The first article, by an officer who has been with the unit from the beginning, gives a sketch of its history from the evening of August 4th, 1914, when orders were received to mobilize. On August 7th the work of drawing the equipment (which weighed some 30 tons) and loading it on to a train was begun, and by August 9th the unit was ready to move. It actually left on August 14th, and disembarked in France on the following day. The first piece of work it was given was to organize rest stations along the line of evacuation, and its services in that capacity were very useful in the early days of the campaign when from necessity large numbers of the wounded had to be removed in improvised trains. In September the unit, through the courtesy of the French authorities, obtained possession of a very fine building as a hospital, and within a day or two was actually engaged in hospital work. A month later, however, it had to move again, and in its new home received a large number of wounded from the battle of Ypres. Where the hospital is now does not appear, but thanks are expressed to Captain Marescaux of the French Army Engineers for helping to get a rambling old building into order. The oldest of the home periodicals of this class, the *Craigleith Hospital Chronicle*, continues its cheerful way, but it has compressed its May and June numbers into one. We note in it an appeal from the Propaganda Bureau, 3, Rue François 1^{er}, Paris, established under the auspices of the Ministry for Foreign Affairs, for contributions to an exhibition which it is getting up of trench magazines. The original notion appears to have been to collect such magazines from the French army only, but the appeal continues, "now that the fellowship of the allied nations and of their armies is being asserted more firmly than ever, we think it would be useful to show that all the soldiers of the Entente are equally filled with that spirit of humour, fun, and cheerfulness which is so fitting an accompaniment to their display of heroism, and testifies to their unconquerable hopes." Editors of such periodicals may be asked to remember also that the library of the British Medical Association is forming a collection, and that Dr. W. W. Keen of Philadelphia is doing the same for the great library of the College of Physicians in that city. The *Gazette of the 3rd London General Hospital* has issued two numbers since we mentioned it last. It continues to be remarkable for the excellence of its caricatures. Two which will appeal to many are drawings of a dog in the hospital, one as seen by its fond mistress, and the other as seen by a jaundiced world. To the June number Mr. Nevinson contributes one of his admirable cubist drawings, "At the Concert," but to get the smile on the faces of the audience he is compelled to resort to curves. The *Norfolk War Hospital Magazine* has reached its third number; it also mixes grave with gay, and has some clever drawings, including some thumb-nail sketches of surgeons and nurses in an operating theatre. We have also seen a copy of the *Brigade Revue*, issued by the 2/1st South Wales Mounted Brigade, which seems to be almost

entirely frivolous. It is not medical, although we believe the medical officers have something to do with it. The best thing in it is a piece of advice: "Fear no man! Do right! Fear all women! Don't write."

IMPORTED SYNTHETIC DRUGS.

THE JOURNAL this week publishes an advertisement of somewhat unusual character, issued by the firm of W. Martindale, manufacturing chemists. It appeals to the medical profession to recognize the necessity of supporting British chemical industry. It is stated that even now a very large proportion of organic chemicals in demand are being imported instead of being made at home. The opinion is expressed that without assistance and incentive to the home trade from the Government and the medical profession, there will be a reversion at the end of the war to conditions very similar to those which existed before it broke out. The Council of the British Medical Association, in its annual report,¹ expressed the view that the country and the profession cannot afford again to be left at the mercy of a foreign supply of substances many of which are essential in medical and surgical treatment. The Council has accordingly asked the Government to consider the advisability of assisting British manufacturing chemists to produce the necessary drugs and chemicals heretofore imported from Germany. There can be no doubt that the medical profession can exercise great influence if it keeps the point constantly in mind. Not a few of the substances which have been exploited by German advertisements under fancy names are of known chemical constitution, and can be made by any competent manufacturing chemist, but the chemists say that they cannot be expected to lay down plant to manufacture drugs and chemicals unless they have some reasonable prospect of receiving sufficient support to ensure them against eventual loss. The amount of money which used to go out of the country to Germany for organic and synthetic chemicals, many of them of very questionable value, was very large, and the demand was in a great part due to the success with the medical profession of the German advertising propaganda.

BENEVOLENT FUND FOR THE R.A.M.C., TERRITORIAL, SPECIAL RESERVE, AND NEW ARMIES.

ABOUT 100 officers attended the meeting held at the R.A.M. College on June 1st to consider the advisability of establishing, for the benefit of officers, non-commissioned officers, and men, of the Territorial, Special Reserve, and new armies, some kind of benevolent organization similar to that which exists in the Regular Royal Army Medical Corps. The Director-General, Sir Alfred Keogh, who was in the chair, explained the various benevolent funds which exist in the R.A.M.C. (Regulars). After some discussion, during which Dr. West pointed out that the dangers of overlapping with the British Medical Benevolent Fund must be avoided, it was unanimously agreed that it would be of the greatest advantage to start a benevolent fund for the auxiliary branches of the R.A.M.C., and a provisional committee of eight officers representing each of the three branches was appointed. This committee was directed to inquire into the whole matter, and to report to a general meeting of officers to be held towards the end of June. Sir Alfred Keogh was warmly thanked for the interest he took in the welfare of the members of the medical services of the army, and a vote of thanks to him brought the meeting to a close.

With the current number of the *British Dental Journal* there is published a war supplement on the treatment in Germany of gunshot injuries of the face and jaws. In preparing this supplement Mr. Dolamore has read and extracted practically the whole German literature on the

¹ SUPPLEMENT TO THE BRITISH MEDICAL JOURNAL, May 6th, 1916, page 97.

subject since the Russo-Japanese and Balkan wars. Splinting and reparative apparatus in the main resemble those in general use. Of special interest are the notes on the use of sunlight and cupping glasses in promoting healing, the description of plastic and bone-implanting operations, and a summary of the histological and clinical laws of implantation. The supplement contains 80 well-written pages, with 88 excellent illustrations. It has been printed also as a separate pamphlet, which can be obtained at the British Dental Association Offices, 19, Hanover Square, at a cost to non-members of 5s.

By a recent decree of the Italian Government all medical practitioners up to the age of 46 have been called up for military service.

Medical Notes in Parliament.

Compulsory Military Service.

UNDER the new Military Service Act every British subject ordinarily resident in Great Britain who, for the time being, has attained the age of 18 and has not attained the age of 41 before the appointed date (June 24th, 1916) is liable for military service for the period of the war, but as far as possible men are not to be sent to serve abroad before they attain the age of 19. For the purpose of comparing the position in other countries with that which will exist in this country after June 24th, it will be interesting to reproduce information given by Mr. Tennant to Mr. W. Thorne on May 16th, in a written answer:

In Germany military service commences on the 17th birthday and terminates on the 45th. Active military service does not commence before the 20th birthday (in peace).

In Austria it begins on the 18th birthday and terminates on the 42nd birthday. Austrians are now being called up to the age of 55. Active military service commences from January 1st of the year in which the 21st birthday occurs.

In France military service commences in the year following the 19th birthday and terminates twenty-eight years from October 1st of the year following that in which the 19th birthday occurs.

In Belgium military service commences on the 18th birthday, and terminates in peace time on the 33rd birthday. Those between 18 and 25 in addition to those serving on March 1st, 1915, must serve for the duration of the war.

In Italy military service begins on the 20th birthday, and terminates on the 39th birthday.

In Russia military service begins in the October following the year in which the 20th birthday has occurred, and ends on the 43rd birthday.

In Serbia and Montenegro military service commences on the 18th birthday, and terminates on the 50th and 62nd birthdays respectively.

In Turkey military service commences on March 1st following the 20th birthday and terminates twenty-five years subsequently.

In Japan military service commences on the 17th birthday, and ends on the 39th birthday. The men are not called up for actual service till 20 years of age, but may enlist between the ages of 17 and 20.

No claim for discharge holds good in war time in the cases of Germany, Russia, Austria, and France, even if the age limits specified for those countries have been reached. In war time Austrian and German conscripts are called on for active service at any time after their 17th birthday.

War.

Dardanelles and Mesopotamia.—On May 31st Mr. Shirley Benn asked the name of the chief medical officer with the Expeditionary Force at the Dardanelles, and also the name of the medical officer who had the responsibility in regard to medical provision for the expedition to Mesopotamia. Mr. Tennant replied as follows: "The Director of Medical Services of the Expeditionary Force at the Dardanelles was, first, Surgeon-General Birrell, and, later, Surgeon-General Bedford. The arrangements for the Mesopotamian expedition were made by the Government of India, and Surgeon-General Hathaway was the Director of Medical Services of the Force. Surgeon-General Sir W. Babbie was Director of Medical Services in India at the time."

Inoculation.—On June 1st Major Guinness asked whether, when inoculating troops against typhoid and cholera, certain officers R.A.M.C. did not sterilize their

hypodermic needles between individual inoculations, relying solely on the sterilization of the skin. Mr. Tennant said that he was not aware that this happened. Instructions had been, and were now, issued with all consignments of antityphoid vaccine emphasizing the importance of sterilizing the needle after each injection, and this was understood to be the routine practice with all injections. If evidence were produced that these instructions were in some instances not being followed, all commands would be informed.

Artificial Limbs.—In reply to a question by Mr. Barnes, who appeared to be under the impression that sailors and soldiers who had lost a limb or limbs were dependent upon charity for the supply of artificial limbs, the Financial Secretary to the Admiralty said, on May 31st, that all artificial limbs for sailors and soldiers rendered necessary by injuries received on service were supplied in the first place, and subsequently repairs carried out or replacement when necessary made, at the expense of Admiralty, War Office, or Greenwich Hospital funds. The particular class of limb fitted was decided on by skilled orthopaedic surgeons, bearing in mind the man's probable future employment. No sailors or soldiers were dependent on charity for such appliances.

Food Parcels to Germany.—Mr. Tennant stated on June 1st that there was reason to believe that the supply of parcels to prisoners of war in Germany would be more efficiently carried out if the efforts of the numerous organizations which have taken up this work were properly co-ordinated; steps had already been taken to effect this. In a written reply, on the same day, Mr. Tennant said that he believed that the great majority of parcels properly packed and addressed reached British prisoners in Germany, but it was impossible to state any percentage.

Small-pox and Vaccination.—In a written reply, on June 1st, Mr. Tennant said that orders curtailing soldiers' leave on account of small-pox outbreaks in the counties of Lancashire, Northumberland, Durham, Glamorgan, and Monmouth, had been in force, but had now been withdrawn, except in the case of three towns where cases of small-pox had recently occurred. The restrictions would not be enforced in regard to men who had been recently successfully vaccinated.

Motor-car Duties.—Mr. Wason asked the Chancellor of the Exchequer on May 31st whether he proposed to differentiate between low-priced cars practically only used for trade purposes and cars built and used privately for pleasure; and whether, in view of the ever increasing scarcity of petrol, the time had not arrived when no one should be allowed to use a private motor without a permit from the Government. Mr. McKenna replied that cars used for trade purposes were, under existing law, more favourably treated than pleasure cars, provided they were constructed and adapted for trade purposes. He did not think it would be possible in practice to make the concession depend solely upon use apart from construction, as the opportunities for evasion would obviously be very great. In a written reply, on the same day, Mr. McKenna said that he was considering whether exemption from duty could not be granted for cars used exclusively by officers of the Volunteer Training Corps in the execution of their military duties while called up in protection companies on the lines of communication in England, but he did not think it would be practicable to make any concession in respect of cars used partly for such purposes and partly for other purposes.

Milk Supply of London.—The Parliamentary Secretary to the Board of Trade has stated, in reply to various questions, that at a conference he had had with representatives of the London milk trade, they alleged that the prices the London purveyors were paying were from 5d. to 6d. a gallon more than pre-war prices. The rise was partly due to increased cost of distribution, but mainly to the high price of all agricultural produce, and particularly of meat and cheese. If farmers could not obtain anything like a proportionate price for milk there was a tendency to sell cows and heifers to the butcher, and this was accentuated by the withdrawal of milkers for military purposes. If, owing to disproportion of price, the production of milk were reduced, a shortage of milk would follow, which would have more serious consequences than the rise in price. There was no evidence of any shortage of supply at present. It was not easy to compel men to carry on business which did not bring in a reasonable profit, and he believed that in the long run the best way of keeping up the milk supply was to pay a price which would yield to the producer a fair return for the increased cost of labour, feeding stuffs, and cows, and not less remunerative conditions than other branches of agriculture. The increase in the contract price as compared with the rates prior to the outbreak of war represented the larger part of the increase in the retail price in London.

THE WAR.

MEDICAL ADVISORY BOARD IN FRANCE.

THE British Force in France has been steadily growing, and as the medical department has not been unaffected certain primary and secondary results are worth attention here. Among primary results are an increase both in the number of medical units and the total medical personnel; apart from additional battalion medical officers, new field ambulances have arrived, new casualty clearing stations have had to be created, more motor ambulance convoys and hospital trains provided, fresh convalescent camps started, new mobile laboratories set to work, further sanitary sections formed, extra advanced medical dépôts opened, and the number of hospital beds increased either by the extension of existing stationary and general hospitals, or the addition of new corresponding units.

Among the secondary results has been an increase in the number of civilian medical men of distinction appointed to act as consultants to the British forces in France. In the first stage of the war, when the British army was represented in France solely by the original Expeditionary Force, there were only two consultants. By the end of 1914 the two had grown to half a dozen, and there are now about fifteen or sixteen, if all those who do work of a consultant order be included in the count. Of the total number, one is attached to each of the field armies, his primary duty being to supervise the professional work of the casualty-clearing stations in his area; two are attached to general head quarters; and the rest fulfil the needs of the various hospital bases.

A further interesting development is the result less of the growth of the army as a whole than of the great increase in the area that it now covers.

Very soon after he arrived in France to take personal charge of the medical affairs of the army, Sir Arthur Sloggett converted his principal officers and such consultants as had then been appointed into a kind of council, and this council, which grew with the number of consultants, he has ever since periodically summoned to meet for the discussion of current questions. But when the first extension of the British army zone took place, it became more difficult to bring together those who would naturally be present, and now that the area has been still further extended, the distances that have to be covered are so considerable that the occasions upon which all members will be able to leave their ordinary work for the time being to attend the meeting are likely to be increasingly rare.

In consequence of this the Director-General has recently supplemented his advisory board by a kind of inner council consisting of members on whose presence he can always depend. Its constitution is as follows:

Chairman: The Director-General, Surgeon-General Sir A. T. Sloggett, K.C.B., C.M.G., K.H.S.

Vice-Chairman: Surgeon-General T. B. Woodhouse, C.B.

Members:

Surgeon-General Sir G. H. Makins, K.C.M.G., C.B., F.R.C.S.

Surgeon-General Sir A. A. Bowlby, K.C.M.G., K.C.V.O., F.R.C.S.

Colonel Sir Wilmot Herringham, C.B., M.D., F.R.C.P.

Colonel Sir J. R. Bradford, K.C.M.G., C.B., F.R.S., M.D., F.R.C.P.

Colonel Sir W. B. Leishman, C.B., F.R.S., M.B., F.R.C.P., K.H.P.

Lieutenant-Colonel W. W. O. Beveridge, C.B., D.S.O., M.B.

If this list be analysed, it will be found that the permanent and temporary medical officers of the army—or, in other words, the military and civilian elements of the present medical service—are represented in exactly equal proportions. The first two and last two are permanent officers, the middle four civilian consultants holding temporary rank.

It will also be found that the same equality of representation appertains to the four great divisions of medicine in the field—Administrative medicine by Sir Arthur Sloggett and General Woodhouse; surgery by Sir George Makins and Sir Anthony Bowlby; clinical medicine by Sir Wilmot Herringham and Sir John Rose Bradford; preventive medicine by Sir William Leishman and Lieutenant-Colonel Beveridge.

On still more minute analysis some other points of interest emerge. Thus, general administration and base administration may be taken to be represented by the chairman and General Woodhouse respectively, the latter being D.M.S. on the lines of communication; front line surgery, by Sir Anthony Bowlby, who has served with the field army ever since his arrival in France about September, 1914; base surgery, by Sir George Makins, who came out at the same time as Sir Anthony Bowlby, but took to base hospital work as soon as the Flanders front was formed; front line medicine by Sir Wilmot Herringham, who has been serving with the field armies for the past fifteen or sixteen months; base medicine, by Sir J. R. Bradford, who came out about the same time, but has been engaged throughout in base hospital areas; and the bacteriological and hygiene sides of preventive medicine are represented by Sir William Leishman and Colonel Beveridge respectively.

It is clear, therefore, that the constitution of this board must have been very carefully thought out, while its professional strength is very noteworthy.

NERVOUS AND MENTAL SHOCK.

We are indebted to Lieutenant-Colonel William Aldren Turner, M.D., R.A.M.C.(temp.), F.R.C.P., Physician to King's College Hospital and to the National Hospital for the Paralysed and Epileptic, London, for the following account of the arrangements for the care of cases of nervous and mental shock among soldiers coming from overseas:

Cases of nervous and mental breakdown due to shock, fatigue, exposure, and the other conditions incidental to a campaign, began to arrive in England in September, 1914, shortly after the commencement of hostilities. The cases showed a varied symptomatology, but could be classified into three main groups. One group was recognized whose symptoms were due to the bursting of high explosive shells in the immediate vicinity of the patient or to the secondary effects of the explosion, such as burial under earth and debris or the inhalation of noxious gases. The second group included cases of a general neurasthenic character (using this term in its widest sense) attributable to exhaustion of the nervous system resulting from physical and nervous strain, sleeplessness, fear, anxiety, and harassing sights and experiences. The third group included cases of mental breakdown—the milder as well as the more severe psychoses—mental confusion, mania, melancholia, and delusional and hallucinatory psychoses.

At the commencement of the war the cases of nervous shock and neurasthenia were transferred from overseas in company with medical and surgical cases, and were treated in the general wards of the hospitals at which they arrived, while the cases of mental disorder were transferred to D block, Netley, the established institution for the treatment of mental patients in the service of the army.

As cases of nervous breakdown of all kinds were coming over in considerable numbers in consequence of the severe fighting during October and November, 1914, and as it was deemed desirable that special provision should be made for their treatment, Sir Alfred Keogh commissioned a special medical officer to proceed to France to report upon the cases—their nature and numbers and the conditions under which their treatment should be carried out to the best advantage both during the preliminary stages in France and afterwards on their arrival in this country. The general purport of the report was to the effect that the cases of nervous shock and neurasthenia should be given treatment in hospitals for nervous diseases and in special institutions provided for the purpose, under the care of physicians with special neurological knowledge. In consequence, arrangements were made whereby cases of neurasthenia and nervous breakdown were labelled on their departure from the base hospitals by medical officers with special qualifications for this work, and were transferred directly to the special hospitals and institutions provided for their treatment at home. By these means cases of functional paralysis, neurasthenia, and the milder psychoses were separated as early as possible from cases of severe mental disorder.

The special institutions were the hospitals for nervous diseases and the Red Cross Military Hospital, Maghull. This institution, which was built to meet the requirements of the Mental Deficiency Act, was handed over to the War Office in December, 1914, as it was necessary to have a hospital suitable for those "borderline" cases which

required more special supervision than could be given in hospitals. It was desirable, also, to provide an institution to which mental cases might be sent from D block, in order to obviate their transference to public asylums—a policy which was adopted in view of the special circumstances attending the cause of the disorders. The Military Hospital, Maghull, being built upon the villa pattern, provided the requirements of these cases. To meet the increasing number of cases, further institutions were added at later dates to those just mentioned, namely, the Springfield War Hospital for severe and protracted cases of neurasthenia and "borderline" cases, and the Napsbury War Hospital for cases of acute mental disorder requiring asylum care and supervision.

CLEARING HOSPITALS.

In order that all cases should receive a short period of rest and treatment on their return from France before being transferred to the most suitable institution for final disposal and treatment, two "clearing" hospitals were established early in 1915. These were:

1. *The Neurological Section, 4th London Territorial General Hospital.*—All neurological cases, labelled as such at the British base hospitals overseas, were transferred to this section. There they received a short probationary course of treatment, with the result that a large number recovered rapidly and in due course were returned for light duty. A certain number, however, were of a more serious and protracted character. These were transferred eventually to one of the hospitals provided for the purpose—namely, the Maghull or the Springfield War Hospitals. In the event of a patient becoming insane, he was transferred to D block, Netley, or to the Napsbury War Hospital.

2. *D Block, Netley.*—All cases of acute mental disorder arising in soldiers overseas were transferred to this section. After a short period for observation and discriminatory sifting, the cases were transferred, on the one hand, to Napsbury War Hospital, should they be considered of a certifiable character and to require care and treatment under asylum conditions; on the other hand, to the Maghull or Springfield War Hospitals if of a non-certifiable character but requiring more care and supervision than could be obtained in a general hospital.

NEUROLOGICAL SECTIONS.

The foregoing is a brief review of the provision for the cases of nervous and mental breakdown up to May, 1915. For some time before this date it had been noticed that a considerable number of neurological cases were coming from overseas directly into central and auxiliary military hospitals scattered throughout the country. Partly to meet the needs of these cases and partly to provide additional accommodation for the increasing number of cases, the Director-General established Neurological Sections in all the Territorial General Hospitals throughout England, Scotland, and Wales (May 24th, 1915). These sections were officered where possible by physicians specially versed in nervous diseases. The primary object of these sections was to furnish the same probationary course of treatment to the cases on arrival at the Territorial General Hospitals as was given in the clearing hospitals, and to bring in all cases from the auxiliary hospitals in which suitable or sufficient treatment was not available. Moreover, cases of a serious or protracted nature, or cases requiring supervision of a special character, could be transferred from them to the Maghull or Springfield War Hospitals.

Scotland.—With the introduction of Neurological Sections into the Scottish General Territorial Hospitals it was considered advisable that a special hospital should be provided in Scotland. Through the assistance of the Scottish Branch of the Red Cross this was forthcoming in the Royal Victoria Hospital, Edinburgh, which has continued to provide accommodation for cases of a neurological character.

Netley.—At the same time a Neurological Section was formed in the main hospital building, Netley, the chief object of which was to permit of the removal from the convoys arriving at D block from overseas all cases which the medical officers there considered did not require supervision of a special kind, as some cases had so far recovered on arrival at Netley as to be deemed suitable for treatment in a neurological rather than in a mental section.

THE DISPOSAL OF PATIENTS.

In order to understand fully the arrangements existing at the present time for the care and treatment of unwounded soldiers suffering from nervous shock, neurasthenia, and mental disorder, let us follow from overseas two or three hypothetical patients to their final destination in this country.

On arrival at one of the British base hospitals abroad,

* The term "neurological" is used here to refer to unwounded cases suffering from neurasthenia, the functional paralyses, hysteria, and the milder psychoses.

the soldier's condition is investigated by a special medical officer. The patient then is sent to a section of a hospital according as his symptoms are of a neurological or a mental character. Should he be suffering from transitory mental symptoms which subside rapidly, he is transferred from the mental to the neurological section as soon as it is advisable to do so. In order to meet this class of case special accommodation is now being provided at the base hospitals overseas, so that the patient may be placed under the most suitable circumstances for rapid recovery. The patients are labelled for transference to one of the clearing hospitals at home—if neurological, to the 4th London Territorial General Hospital, or the Neurological Section, R.V.H., Netley; if mental, to D block, Netley.

Neurological Cases.

On arrival at one of the clearing hospitals just mentioned, or at a neurological section in any Territorial General Hospital, the patient is given treatment. If his symptoms are slight or transitory and disappear rapidly, he is sent on furlough and later is returned to light duty. On the other hand, should the course of the disorder be less favourable or should symptoms develop which require special supervision, or if it is the opinion of the medical officers that the case is likely to be protracted, or to require special treatment not available in the section, the patient may be transferred to one of the special hospitals for nervous diseases or to a special institution: (a) to the Military Hospital, Maghull, for the Northern and Western Commands; (b) to the Springfield War Hospital for the Eastern, Southern, and Aldershot Commands; (c) and to the Royal Victoria Hospital, Edinburgh, for the Scottish Command. If the patient is under treatment at one of the hospitals in the Irish Command, he may be transferred to the King George V Hospital, Dublin.

If for various reasons it has not been possible to send patients home through the clearing hospitals so that they arrive directly from overseas at central or auxiliary military hospitals in which there is no neurological section, or to which no medical officer with special experience is attached, a short period of treatment is given, but should recovery not take place within two or three weeks, the patient is transferred for treatment to the neurological section of the nearest Territorial General Hospital.

From the preceding account it is evident that every case of nervous shock and neurasthenia coming from overseas is given a short period of rest and treatment in the hospital at home at which he arrives. In many instances this period is sufficient to permit of recovery. In other cases sufficient opportunity is provided to study the symptoms with a view to the transference of the patient to one of the special institutions should this further step be necessary.

Mental Cases.

On arrival from overseas at D block, Netley, the patients are examined by the special medical officers attached to the hospital. All cases which are considered to be of a neurological character are removed for treatment to the Neurological Section in the main hospital building, Netley. All patients suffering from the severer psychoses of a certifiable type are given two or three weeks' probationary treatment in D block. If no recovery has taken place during this time, they are transferred to the Napsbury War Hospital, or to the Dykebar War Hospital, Paisley, if their domicile is in Scotland, or if they belong to Scottish regiments.

No mental cases are transferred directly to Ireland, but special arrangements have been made recently by which overseas cases of mental disorder arriving in Ireland may be treated in a villa attached to the Richmond District Asylum.

The number of cases which recover during their stay in D block and are returned to light duty is negligible, but a certain number recover sufficiently during their stay there to be no longer considered as of a certifiable character. These latter are transferred to the Red Cross Military Hospital, Maghull, or the Springfield War Hospital, for further observation and treatment.

A short account may be given of the institutions to which reference has been made, the general character of the cases retained for treatment, and the percentage of cases returned to light duty.

4th London Territorial General Hospital.

The Neurological Section of the 4th London General Hospital is the largest of the Neurological Sections, and in addition to receiving the majority of the neurological cases sent home directly from overseas, it accepts patients transferred from central and auxiliary military hospitals in the London district and adjoining counties. It contains 400 beds. An important

division of the section is the Maudsley Hospital, which is especially well adapted for the care and treatment of soldiers suffering from all forms of traumatic neurasthenia, hysteria, and the milder psychoses.

Netley.

The Neurological Section of the Royal Victoria Hospital, Netley, occupies several wards in the main hospital building, and consists of about 100 beds. It serves a most useful purpose in taking over for treatment cases which have been sent from overseas to D block, but which require no longer the special supervision provided there. Cases are sent also directly to the section from overseas.

The type of case observed and treated in these sections is similar. They are: Most forms of functional paralysis, especially paraplegia, disturbances of speech and articulation, amnesia or loss of memory, the effects of terrifying dreams, mutism, deafness, deaf-mutism, amblyopia, "bent-back," tremblings and motor agitations, tic-like movements, sleeplessness, nervous debility, indecision, loss of self-confidence and the milder forms of neurasthenia, simple mental confusion, the anxiety psycho-neuroses and simple mental depression.

The treatment adopted consists chiefly of rest and feeding; massage, and electrical applications in suitable cases, baths, when these seem indicated, and psychotherapy in the form of simple suggestion and occasional hypnosis.

In a general way the results of treatment at the 4th London General Hospital show 40 per cent. of cases returned to light duty, 20 per cent. invalided, and 20 per cent. transferred for further treatment to the special institutions.

The Special Institutions.

The Red Cross Military Hospital, Maghull, and the Springfield War Hospital are constructed on somewhat similar lines in that they are provided with single rooms and special accommodation for cases requiring isolation and supervision in addition to day rooms and dormitories.

The Maghull Military Hospital had not been used for the treatment of patients before it was taken over by the War Office, but the Springfield War Hospital had been employed as a hospital for defective children for about ten years.

The available accommodation in the two hospitals amounts to about 550 beds. No case is admitted directly from overseas to either of these institutions, as all cases have received a course of treatment at one of the military hospitals at home before transference. The patients most suitable for treatment in these institutions are cases of neurasthenia of a severe or protracted character, the milder psychoses, such as simple melancholia and the anxiety psychoses, psychoses with obsessions and fears, profound amnesia, epilepsy, high grade mental defectives, the milder types of primary dementia, and all cases of a functional character which do not lend themselves to treatment in a general hospital.

Treatment is conducted upon general lines—rest, feeding, indoor and outdoor recreation, and massage in suitable cases. At the Maghull Military Hospital a form of psycho-analysis has been used with benefit in selected cases. The results of treatment at Maghull show about 40 per cent. of cases returned to light duty.

The Mental Hospitals.

Napsbury War Hospital and Dykebar War Hospital, N.B., receive the majority of their patients from D block, Netley; but Napsbury admits mental cases also from military hospitals in the Southern Command and the Midland counties; Dykebar admits also from military hospitals in the Scottish Command and the Northern counties. The Napsbury War Hospital is the hospital section of the parent asylum; Dykebar is one of the most recent of the Scottish asylums, built upon the villa pattern. The available accommodation in the two hospitals is about 700 beds.

The patients transferred to these hospitals are of a certifiable type and include most of the severe forms of acute mental disorder—the confusional psychoses, mania, the graver melancholias, acute delusional and hallucinatory psychoses, dementia praecox, mental deficiency with confusion, general paralysis of the insane, and epilepsy with mental symptoms.

In accordance with accepted policy, none of the patients in these hospitals is certified as a person of unsound mind. Each patient is given a reasonable period of treatment with a view to recovery.

In consequence, however, of the accumulation of chronic and incurable cases which was observed a few months ago, it was decided to board and discharge to asylums all cases of general paralysis of the insane, of epilepsy with insanity, and all patients who had been in asylums prior to enlistment. A certain number of chronic cases also are boarded and discharged to asylums if no improvement is recorded after a fair and reasonable period of observation and treatment.

It is obvious from the nature of the disorders that the percentage of cases returned to light duty must be small, but the figures from the Napsbury War Hospital show from 10 to 15 per cent. of cases discharged to light duty.

CASUALTIES IN THE MEDICAL SERVICES.

ROYAL NAVY.

In the great naval battle fought off the coast of Jutland on May 31st and June 1st we have lost six large ships and eight destroyers; 335 officers were killed, and 25 wounded officers survived. From the *Queen Mary* four officers were saved, and from the *Invincible* two; the *Indefatigable*, *Defence*, and *Black Prince* went down with all their ships' complements, while on the *Warrior* only one officer was lost. The list of officers killed includes 23 medical officers.

Killed.

H.M.S. *Queen Mary*.

Fleet Surgeon Francis F. Lobb.

Surgeons Charles W. Lewis; Maurice H. de J. Harper, M.B.

Fleet Surgeon Lobb received his medical education at St. Mary's Hospital, and took the diplomas of M.R.C.S., L.R.C.P. in 1893. He received the South African medal for services on H.M.S. *Thrush* in the Delagoa Bay blockade and the landing at Mossel Bay and Lambert's Bay. In 1901 he served with the Gambia River expedition and organized a base hospital. In that and the following year he took part in the Aro River expedition, which was for fourteen days in boats up the Lower Niger; for these services he received the general African medal with Aro clasp. As staff surgeon on the *Pegasus* in 1908 he was awarded the French marine medal for services in connexion with the wreck of the barque *Le Président Félix Faure*. In 1909 he made a report on Pitcairn Island, for which he received the thanks of the Colonial Office. He was promoted Fleet Surgeon on May 23rd, 1914.

Surgeon Lewis, the son of Professor Lewis of Capetown, graduated M.B., Ch.B. Edin. in 1914, and received his commission as temporary Surgeon R.N. on March 13th, 1915.

Surgeon Harper graduated M.B., B.S. Durham in 1914, and received his commission as temporary surgeon R.N. on September 21st, 1914.

H.M.S. *Invincible*.

Fleet Surgeon Walter J. Bearblock.

Surgeons Cyril O. H. Jones; George Shorland.

Fleet Surgeon Bearblock was educated at Guy's Hospital, and took the diplomas of M.R.C.S., L.R.C.P. Lond. in 1887. He was at one time assistant house-surgeon at the Royal Albert Hospital, Devonport. He attained the rank of Fleet Surgeon on February 21st, 1915.

Surgeon Jones was educated at St. Thomas's Hospital, where he was house-physician. He took the diplomas of M.R.C.S. and L.R.C.P. Lond. in 1915, and entered the navy as temporary Surgeon on August 17th, 1915.

Surgeon Shorland was educated at Guy's Hospital, and took the M.R.C.S. and L.R.C.P. Lond. in 1901. He was medical officer of the Railway Clearing House, Euston Square, and honorary surgeon to the Railway Benevolent Institution till he took a temporary commission as Surgeon in the navy.

H.M.S. *Indefatigable*.

Fleet Surgeon Hugh L. Norris.

Surgeons Sidney Punch; Archibald A. Morison.

Fleet Surgeon Norris was educated at St. Thomas's Hospital, and took the diplomas of M.R.C.S., L.R.C.P. in 1898. He was promoted to Fleet Surgeon on November 8th, 1914.

Surgeon Punch was educated at University College, Cork, and took the diplomas of L.R.C.P. and S.Ire. in 1912. He entered the navy as Surgeon on October 4th, 1912.

Surgeon Morison, who was 29 years of age, was the sixth son of the late Dr. Donald Morison (Bengal), and was educated at the University of Edinburgh, where he graduated M.B., Ch.B. in 1912. He took the Beane prize in surgery and anatomy in 1910, had been resident surgeon at the Royal Maternity Hospital, Edinburgh, and was a fellow of the Edinburgh Obstetrical Society. He received a temporary commission as Surgeon R.N. on August 6th, 1914.

H.M.S. *Defence*.

Fleet Surgeon Frederick A. Capps.

Surgeons Frederick W. T. Clemens; G. M. Johnson, M.B.

Fleet Surgeon Capps received his medical education in Edinburgh, and took the triple Scottish qualification in 1890. He attained the rank of Fleet Surgeon on May 11th, 1903.

Surgeon Clemens was educated at the University of Bristol, and took the degrees of M.B., B.S. Lond. in 1913. He had been assistant house-surgeon to the Taunton and Somerset Hospital, and received his commission as temporary Surgeon R.N. on August 6th, 1914.

Surgeon Johnson was educated at Oxford and the London Hospital; he graduated M.B., B.Ch. Oxford in 1908, and was at one time house-surgeon and house-physician to the Radcliffe Infirmary. He received his temporary commission as Surgeon R.N. on September 28th, 1915.

H.M.S. Black Prince.

Fleet Surgeon Herbert L. Geoghegan, M.D.

Surgeons Thomas M. Wood-Robinson; John S. D. MacCormac.

Fleet Surgeon Geoghegan graduated M.A., M.B., B.Ch., B.A.O., Trinity College, Dublin, in 1896, and M.D. of the same university in 1898. He attained the rank of Fleet Surgeon on May 15th, 1915.

Surgeon Wood-Robinson was educated at the Middlesex Hospital, where he was house-physician; he took the diplomas of M.R.C.S. and L.R.C.P. in 1914. He received his commission as temporary Surgeon R.N. on March 18th, 1915.

Surgeon MacCormac, aged 44, was the elder son of Mr. William MacCormac, of Banbridge, co. Down. He took the 8 otish triple qualification in 1894. He practised at one time in Leicester, but removed to London, and was appointed anaesthetist to the Royal Dental Hospital, Leicester Square. On the outbreak of war he received a commission as surgeon, and was appointed to *H.M.S. Statesman*, being subsequently appointed to the *Black Prince*.

H.M.S. Ardent.

Surgeon-Probationer John E. McIntyre.

H.M.S. Nomad.

Surgeon-Probationer David J. T. Oswald, R.N.V.R.

H.M.S. Nestor.

Surgeon-Probationer Alexander Joe, R.N.V.R.

Mr. Joe was the son of Mr. and Mrs. John Joe of Brechin. He was in his last year at Edinburgh University when war broke out and at once volunteered for service.

H.M.S. Shark.

Surgeon-Probationer Robert Walker, R.N.V.R.

Surgeon George B. Moon, R.N.; and Surgeon-Probationers David H. Ferris, Hugh J. Dingle, and John Hislop of the R.N.V.R. were also killed on other ships.

Surgeon Moon was educated at Birmingham and Edinburgh, and took the triple Scottish qualification in 1909. He was at one time assistant medical officer to the Kent County Asylum, Barming Heath, and joined the navy with a temporary commission on November 27th, 1914.

Wounded.

Staff Surgeon Bertram R. Bickford.

ARMY.

Killed in Action.

Captain D. Waterston, Canadian Army Medical Corps, whose death was reported last week, was the son of Thomas Waterston, of Montreal, Canada, and was 26 years of age. He graduated in arts and medicine at McGill University, Montreal, and was appointed captain in No. 9 Canadian Field Ambulance in January last. He was killed while serving in a dressing station in the trenches on May 22nd.

Captain J. G. Mackenzie, Australian Army Medical Corps.

Died of Wounds.

Captain William Norman Watson has died of wounds. He was the second son of the late Rev. William Watson, Kiltearn, Ross-shire, and Mrs. Watson of Edinburgh, and was 27 years of age. He received his education at the University of Edinburgh, where he graduated M.B., Ch.B. in 1913. He joined the R.A.M.C. in December, 1914, and was attached to the King's Own Scottish Borderers. Captain Watson won the Military Cross at the battle of Loos, and was decorated by the King in April last, in which month at the request of the commanding officer he took a combatant commission. Last month he was wounded in the head, and he died in a casualty clearing station. His elder brother, Captain Allan Watson, R.A.M.C., is on active service, so also is his younger brother, Captain Stanley Watson, with the Cheshire Regiment.

Died on Service.

Lieutenant Harry John Sullings Kimbell, R.A.M.C., died in a nursing home in London on May 28th. He was educated at St. Bartholomew's and took the qualifications of M.R.C.S. and L.R.C.P. Lond. in 1907. After serving as house-physician of the West End Hospital for Nervous Diseases, house-physician of the Soho Women's Hospital, resident medical officer of the City of London Lying-in Hospital, and senior house-surgeon of Bedford County Hospital, he went into practice in Richmond Road, Dalston, London, N.E. He took a temporary commission in the R.A.M.C. last August, and was recently in charge of the Preston Hall Hospital at Maidstone.

Lieutenant Harry Rathbone Griffith, R.A.M.C., died at Press Heath Camp, Whitchurch, on May 21st, aged 50. He was the fourth son of the late Rev. Joseph Griffith, Rector of Pentreath, Anglesey, and was educated at Trinity College, Dublin, where he graduated as B.A., M.B., B.Ch., and B.A.O. in 1889, and as M.D. in 1893. He was in practice at Portmadoc, North Wales, where he was Admiralty Surgeon and Agent, and medical officer to the Post Office.

DEATHS AMONG SONS OF MEDICAL MEN.

Barnes, John Christopher Craven, Captain the Border Regiment, youngest son of Lieutenant-Colonel H. J. Barnes, R.A.M.C. (retired), of Greencroft, Colyton, Devon, killed in action on May 28th, aged 22. His commission as lieutenant was dated November 20th, 1914.

Paterson, Richard Eadson, Lieutenant R.N., younger son of Professor A. M. Paterson, of 21, Abercromby Square, Liverpool, killed in action on *H.M.S. Fortune*, in the great naval battle fought off the coast of Jutland on May 31st.

NOTES.

HONOURS.

THE names of the following members of the medical profession appear among those upon whom the King, on the occasion of his birthday, has bestowed distinctions in connexion with the military operations in the field:

C.B.

Surgeon-General J. J. Dennis, R.N.
Fleet Surgeon E. C. Lomas, D.S.O., R.N.
Surgeon-Generals W. G. A. Bedford, C.M.G., A.M.S., R. Porter, A.M.S., T. J. O'Donnell, D.S.O., A.M.S.
Colonels A. F. Blenkinsop, A.M.S., R. H. Luce (T.F.), O. R. A. Julian, C.M.G., A.M.S.
Lieutenant-Colonel C. C. Cumming, R.A.M.C.
Major P. S. Lelean, R.A.M.C.

K.C.M.G.

Colonel (honorary Surgeon-General) W. D. C. Williams, C.B., Australian A.M.C.

C.M.G.

Colonels C. E. Harrison, C.V.O. (T.F.), H. N. Thompson, D.S.O., A.M.S., T. B. Beach, A.M.S., C. W. R. Healey, A.M.S., J. B. Wilson, A.M.S., A. F. L. Bate, A.M.S., E. C. Freeman (T.F.), A. Fullerton, A.M.S.
Lieutenant-Colonels H. E. R. James, C.B., R.A.M.C., A. H. Lister (T.F.), O. L. Robinson, R.A.M.C., H. A. Bray, R.A.M.C., E. W. Slayter, R.A.M.C., T. P. Jones, R.A.M.C., G. S. Thom, R.A.M.C., J. V. Forrest, R.A.M.C., L. Humphry, R.A.M.C., W. H. Willcox, R.A.M.C., Sir J. R. A. Clark, Bt., C.B. (T.F.), B. J. Newmarsh, Australian A.M.C., J. T. Fotheringham, Canadian A.M.C., P. C. Fenwick, New Zealand A.M.C.
Surgeon-Major B. Pares, D.S.O., Royal Horse Guards.
Major G. Hall (T.F.).

C.I.E.

Lieutenant-Colonel James Jackson, M.B., I.M.S., Inspector-General of Prisons, Bombay.
Major Frederick N. White, M.D., I.M.S., Assistant Director I.M.S. (Sanitary).
Captain A. G. J. MacIlwaine, R.A.M.C., Embarkation Medical Officer, Bombay.

D.S.O.

Bagshawe, Major H. V.; Bartlett, Major B. S.; Bourke, Lieut.-Col. E. A.; Chiles-Evans, Capt. D. B. (T.F.); Cowie, Surgeon-Major R. M. (1st Life Guards); Crosland, Major G. W. K. (T.F.); Darling, Major J. M. (S.R.); Farrant, Major C. (T.F.); Fawcett, Major (temp. Lieut.-Col.) R. F. M.; Forrest, Lieut.-Col. T. H.; Fraser, Major A. N.; Gairdner, Capt. E. D. (T.F.); Gallie, Lieut.-Col. J. S.; Grech, Lieut.-Col. J.; Henderson, Major P. H.; Heron, Major G. W.; Heslop, Capt. A. H.; Husband, Capt. G. S. (I.M.S.); Osburn, Major (temp. Lieut.-Col.) A. C.; Sewell, Lieut.-Col. E. P.; Smales, Capt. W. C.; Sparkes, Major W. M. B.; Thomson, Major C. P.; Webb-Johnson, Capt. (temp. Major) A. E. (T.F.); McLean, Major J. B. (Aust. A.M.C.); Brown, Capt. T. F. (Aust. A.M.C.); Campbell, Capt. (temp. Major) R. D. (Aust. A.M.C.).

Military Cross.

Blandy, temp. Capt. G. S.; Brechin, Capt. W. A. (T.F.); Bremner, temp. Capt. A.; Bruce, Capt. L. C. (T.F.); Butler, temp. Capt. W. H.; Corkey, temp. Lieut. I. W.; Douglas, Capt. W. R. (T.F.); Drury, Capt. K. K.; Dudgeon, temp. Capt. C. R.; Dyas, Capt. G. E.; Edwards, temp. Capt. A. C.; Evans, Capt. T. J. C. (I.M.S.); Farrow, Capt. J. F. (T.F.); Fraser, Capt. A. D.; Galbraith, temp. Lieut. C. T.; Gilmour, Capt. J.; Gordon, Capt. S. (I.M.S.); Grant, Capt. G. R. (S.R.); Greville, temp. Capt. E. R. G.; Houston, Quartermaster and hon. Lieut. C. F.; Keep, temp. Capt. A. C.; Kendrew, temp. Capt. A. J.; Lovell, Capt. C.; Macdonald, temp. Capt. M. A.; McCallum, temp. Lieut. J. S.; McCammon, Capt. F. A.; MacCormack, Capt. J. D.; McGibbon, temp. Lieut. P.; Milne, Capt. H. S. (S.R.); O'Brien, temp. Lieut. J. W.; Orr-Ewing, temp. Capt. H. J.; Panton, Capt. H. F.; Power, Capt. D'Arcy (S.R.);

Robinson, Capt. G. E. J. A. (T.F.); Rowe, Surgeon-Capt. W. T. (South Notts Hussars, Yeomanry); Sampson, temp. Capt. H. H.; Shore, Capt. L. R.; Stocker, Lieut. C. J. (I.M.S.); Swan, temp. Capt. M. A.; Taylor, temp. Capt. D. C.; Whitton, temp. Lieut. N. S.; Wilkin, Capt. H. F. (T.F.); Clarke, Capt. and Quartermaster A. E. (Aust. A.M.C.); Boddam, Quartermaster and hon. Lieut. E. T. (Aust. A.M.C.); Kidd, Capt. G. E. (Canadian A.M.C.).

Major George Kilner Crosland, who has been awarded the D.S.O., is President of the Huddersfield Division of the British Medical Association. When war broke out the 5th Duke of Wellington West Riding Regiment, in which he held a combatant commission, was mobilized, and he accompanied the battalion as second in command; he served with it until the end of March, 1916, when he was allowed to return to medical duties in Huddersfield. He was gazetted major in August, 1914. He had served as civil surgeon with the South African Field Force for sixteen months during the South African war, and received the Queen's medal with three bars. Major Crosland served fourteen years as a combatant officer in the old 2nd Volunteer Battalion and 5th Territorial Battalion of the Duke of Wellington's West Riding Regiment.

To be Brevet Colonel.

Major (temporary Brigadier-General) A. C. Geddes, M.D., unattached list (T.F.).

The names of the following officers are included in the list of officers who have been awarded the Distinguished Service Order or the Military Cross in a special supplement to the *London Gazette* of May 30th:

D.S.O.

Temporary Captain Thomas Lewis Ingram, R.A.M.C. (attached 1st Battalion, Shropshire Light Infantry). For conspicuous gallantry and devotion to duty. He collected and attended to the wounded under very heavy fire, and set a splendid example. Since the commencement of the war he has been conspicuous on all occasions for his personal bravery.

Military Cross.

Captain James Couper Brash, M.B., 10th Field Ambulance, R.A.M.C. (Special Reserve). For conspicuous gallantry and devotion to duty. He went to an artillery dug-out which had received a direct hit, and, assisted by two men, extricated the wounded and administered first aid under heavy shell fire.

Captain Henry Percival Hart, M.B., R.A.M.C. For conspicuous gallantry and devotion to duty when, although himself wounded, he went out, dressed, and brought into safety the wounded under heavy shell fire.

Temporary Captain Philip Randal Woodhouse, M.B., R.A.M.C. (attached 1st Battalion Irish Guards). For conspicuous gallantry and devotion to duty. He tended the wounded under heavy shell fire, and, though himself wounded, continued his work. On another occasion he went across the open under shell fire to attend to the wounded.

Temporary Lieutenant William John Knight, M.D., 73rd Field Ambulance, R.A.M.C. For conspicuous gallantry and devotion to duty when in charge of an advanced dressing station under heavy shell fire. He continued to attend the wounded with great coolness.

MENTIONED IN DISPATCHES.

Dispatches reporting the reduction of the Germany colony of the Cameroons, in West Africa, from Major-Generals Sir Charles Dobell and Cunliffe, were published on June 1st. Among a considerable number of officers and non-commissioned officers mentioned in these dispatches for good service are the names of the following medical officers and men:

In Sir Charles Dobell's dispatch: Lieutenant-Colonel J. C. B. Statham, O.M.G., R.A.M.C.; Major E. B. Booth, D.S.O., R.A.M.C.; temporary Captain T. M. R. Leonard, West African Medical Staff, and Sergeant G. Price, R.A.M.C.

In General Cunliffe's dispatch: Drs. J. C. M. Bailey, W. S. Clark, W. E. S. Digby, W. H. Peacock, T. H. Saffern, C. E. S. Watson, and R. F. Williams, all of the West African Medical Staff; and Sergeant R. E. Harvey, R.A.M.C.

THE BRITISH RED CROSS.

The annexe of the Star and Garter Home at Richmond for incurably helpless soldiers and sailors is now full of cases, all of a serious character. The arrangements for massage and electricity are complete, a shelter for men who can go on to the Terrace is finished, and a marquee is being erected.

The six launches provided by the motor boat department which served through the Dardanelles expedition have been transferred to Egypt and have been working in the Suez Canal carrying stores; ten launches have been at work for some time on the Tigris; five more have been sent to Basra towards the end of May, and two small runabout launches are being sent to Basra, as well as four large and two small launches which were taken out by a Government transport on May 25th. The dimensions of the large launches are standardized; they are 40 ft. long and 9 ft. broad, with a draught of 2 ft. 4 in. Each provides for sixteen lying down cases, which can be carried either fore and aft or athwart the boat, and between fifty and sixty sitting up cases. In addition a hospital ship 150 ft. long by 30 ft. broad, with a draught of 3 ft., is being built for service on the Tigris. It will carry fifty or sixty cots, and will be equipped with ice-making plant capable of turning out two tons

of ice a day, which will be distributed between Amara and Basra, a distance of 130 miles; the boat provides also accommodation for doctors and orderlies.

The War Executive Committee, at its meeting on May 17th, received the report from Sir Arthur Lawley, who had paid a visit to Switzerland at the request of Mrs. Grant Duff, the wife of the British Minister at Berne, who is engaged in sending bread and other parcels to prisoners in Germany. The following resolution was unanimously adopted on a motion of H.R.H. Princess Christian, seconded by the Duchess of Devonshire:

That, having received the report of the British Section of the "Bureau de Secours aux Prisonniers de Guerre," British Legation, Berne, prepared by Sir Arthur Lawley, the Committee is sensible of the great work that is being done in connexion with British prisoners. The Committee realizes that the record achieved by Mrs. Grant Duff, together with her zealous helpers, is one which could only have been attained by a generous self sacrifice. The Committee desires to place on record its admiration of the work which is being done by the above for the comfort of the British prisoners.

BRITISH AND GERMAN PRISONERS IN SWITZERLAND.

The Swiss medical officers who have been in this country in connexion with the selection of German prisoners to be sent to Switzerland have completed their work. The arrangements were similar to those made between France and Germany, and prisoners were entitled to claim the right to be examined by the commission, which consisted of three British medical officers, one of whom acted as president, and two Swiss medical officers. The diseases, infirmities, and results of wounds considered as rendering prisoners of war eligible for internment in Switzerland are enumerated in a White Paper recently issued. The two first categories are tuberculosis of the respiratory organs, even in incipient stages, and tuberculosis of other organs; other diseases enumerated are chronic constitutional diseases, including poisoning by chlorine or carbonic oxide, chronic affections of the respiratory, circulatory, and digestive systems, and grave nervous conditions. Sir Edward Grey has called attention to the omission of malaria from the category of chronic constitutional diseases, which omission would seem to have been accidental.

The British Foreign Office, in suggesting to the American Ambassador in London that an agreement should be made for the internment of invalid prisoners of war in Switzerland, also suggested that the Swiss medical men deputed should inspect all places of internment and hospitals in which prisoners of war were under treatment in the United Kingdom. The Swiss medical officers have reported very favourably on the arrangements in this country.

The first train conveying British prisoners from Germany reached Zurich on May 29th; it contained 32 officers and 272 men, and another train, containing 150 men, arrived the following day. Both parties received a friendly welcome at Zurich and all along the route to Chateau d'Oex.

Sir Edward Grey has stated in a written answer that four additional members of the United States Embassy at Berlin had recently been appointed to inspect camps in Germany in which British prisoners of war were interned. The Embassy was showing great energy in the matter, and between May 9th and 23rd no fewer than thirty-four working camps near Berlin were inspected. Reports on a large number of camps in Germany have recently been published in a White Paper.

In reply to Mr. Dundas White on June 1st, Sir Edward Grey said that no steps had yet been taken to endeavour to arrange for the transfer to a neutral country of prisoners of war interned in Austria-Hungary, Turkey, or Bulgaria.

England and Wales.

LONDON COUNTY COUNCIL.

At its meeting on June 6th the London County Council agreed to a request of its Midwives Act Committee, supported by the Education Committee, that classes should be opened for the instruction of midwives. Two classes are to be opened accordingly, one for the north and the other for the south of the Thames, at a cost which is expected to be about £175 per annum.

The Council at the same meeting agreed to extend for a further twelve months the arrangement for supervising certain mental defectives by entrusting them upon agreed terms of payment to the London Association for the Care of the Mentally Defective. This plan was started a year ago, and the number of cases dealt with at present in this manner is upwards of 800. During the year 2,476 visits were paid to the homes of the defectives by the staff of the association, in addition to a great deal of help given by local workers. Quarterly visits are required as a minimum, and the supervision is said to be very satisfactory.

SANATORIUM TREATMENT IN LONDON.

At the meeting of the Insurance Committee on May 25th it was resolved to circulate a memorandum by the medical adviser (Dr. J. E. Squire) on the selection of cases for

admission to sanatoriums, to the medical officers of health in each metropolitan borough. The memorandum stated that cases in which institutional treatment was most likely to be economically remunerative were those of young adults in the early stages of the disease, and that as a general rule, in proportion as the age of the patient rose above 25 or 30 years, the probability of complete arrest diminished, while the length of time required to arrive at arrest of the disease (when this did occur) increased. The first requirement, therefore, was to utilize the beds chiefly for cases of early tuberculosis in young persons. It would not be desirable, however, to exclude all the older cases from sanatoriums, for many such patients were able to earn a livelihood with occasional breakdowns. Extra nourishment was only of value in treatment when it supplemented ordinary food, and might well be restricted to those who were waiting for admission to the institution; those recently discharged, whilst getting back to work; and to the more chronic cases, who, with such assistance, were able to keep at work of some kind. As to the length of stay in the sanatorium, a three months' recommendation represented an expectation of permanent benefit, and a two months' and one month's recommendation an expectation of temporary improvement, possibly up to working pitch. At the end of these periods a report should be furnished and extension granted at discretion. It was important that medical practitioners should point out to patients and their wives the value of hygienic home conditions in keeping up the improvement after discharge. In some cases the cause of breakdown leading to application for readmission was the inability or disinclination of the patient to find work, thereby confirming him in invalidism. After-care organizations would do well to give special attention to procuring suitable employment for discharged persons.

Ireland.

DR. STEEVENS'S HOSPITAL.

SIR ARTHUR CHANCE, F.R.C.S.I., has been appointed consulting surgeon to Dr. Steevens's Hospital, Dublin. During the early years of the hospital's existence the consulting surgeoncy was usually held by the Surgeon-General to the Forces in Ireland, who was, *ex officio*, a governor of the hospital. Among the surgeons-general were John Nichols (1730-67), William Ruxton (1767-83), Archibald Richardson (1784-87), George Stewart (1787-1814), Solomon Richards (1814-19), and Sir Phillip Cramp on, Bt. (1819-58). Among others who have held the position are Samuel Croker-King (the first President of the Royal College of Surgeons in Ireland), Ralph Smith Obre, Samuel Wilmot, James William Cusack, Robert Moore Peile, Christopher Flemming, Samuel George Wilmot, William Colles, Sir George Hornidge Porter, Bt., Edward Hallaran Bennett, and Sir Charles Bent Ball, Bt.

ULSTER MEDICAL SOCIETY.

The annual meeting was held in the Medical Institute, Belfast, on May 25th; the President, Dr. Gardner Robb, occupied the chair. The various annual reports were presented and passed, and the following officers were elected for the ensuing year:

President: Mr. Robert Campbell, M.B., F.R.C.S. Eng.
Vice-Presidents: Professor Symmers, M.B., C.M. Aberd., and Dr. Murphy (Lisburn).
Council: Mr. Howard Stevenson, B.A., M.B., F.R.C.S., Mr. R. J. Johnston, Dr. W. Burns, Dr. T. A. Davidson, Dr. Foster Coates, Dr. F. C. Smyth.
Honorary Treasurer: Dr. V. G. L. Fielden.
Honorary Librarian: Dr. W. L. Storey.
Honorary Secretary: S. T. Irwin.
Honorary Editorial Secretary: Dr. C. G. Lowry.

ROYAL MEDICAL BENEVOLENT FUND OF IRELAND.

The annual meeting of this society was held in the Medical Institute, Belfast, on May 30th, when the Vice-Chancellor of the Queen's University presided. Dr. V. G. L. Fielden read the annual report and the statement of accounts, which were received and adopted; and an appeal was made to all medical men in the neighbourhood

to join the fund, and so enable the committee to meet the local needs, and to be able to aid the poorer districts. Professor Symington was re-elected president, Dr. Fielden honorary secretary and treasurer, and a large committee representative of both country and town.

Scotland.

At a meeting of the Fife branch of the British Red Cross Society last week the interim county director (Dr. John Macdonald, Onpar), reported that on December 31st, 1915, there were thirty-one women's and fourteen men's Voluntary Aid Detachments in Fife, with a personnel of 955 women and 390 men.

At a meeting of the Fife and Kinross Education Committee on June 1st it was reported that the work of school medical inspection was practically at a standstill, as all the four assistant school medical officers were away. The Education Department had expressed a wish that the inspection should be continued, and the committee decided to advertise for a doctor—male or female—in order that the scheme might be continued in a curtailed form.

India.

THE LADY HARDINGE MEDICAL COLLEGE, DELHI.

It is announced that the funds raised or promised in Bombay for the Lady Hardinge Medical College, Delhi, will provide for the erection of three cottage wards, an administrative block, and a senior professor's bungalow, leaving a balance sufficient for the establishment in Bombay of a maternity home to be named the Lady Hardinge Memorial Home.

WAR FUNDS.

Generous gifts continue to be made in India to various war funds. The Maharajas of Panna and Datia have offered to establish and maintain at their joint cost a convalescent hospital at Datia for one hundred sick and wounded soldiers, and the Maharajah of Sirohi is maintaining a convalescent home for sick officers from Mesopotamia. The Rani of Dhar and Seth Kastur Chaud of Indore have given motor ambulances. The St. John Ambulance Association has recently been given a lakh of rupees by the Bettiah Raj and half a lakh by the Maharaja of Darbhanga. The Hooghly District Centre has given a fully-equipped laboratory launch for service in Mesopotamia, and a second is now under construction, being a gift from the same place through Lady Carmichael's Fund. The association has also received two large ambulance flats to take twenty-six cases, the cost of which has been mainly subscribed in Calcutta. Two motor launches, one the gift of the Central Provinces and the other of Mrs. McLeod of Bombay, are now nearing completion in Calcutta; all these boats are for service in Mesopotamia. Five motor ambulances have been given by the Birbhum District, Bengal, and several others are being prepared, including one from the Punjab Chiefs' Association and another from the Maharaja of Sirmur. The last-named chief has also lent a house at Dehra, and is endowing several beds in the war hospital there for a year. The Central Provinces, through Lady Robertson, have guaranteed 1,500 rupees a month towards the upkeep of the Indian Red Cross Dépôt at Basra.

DR. PUIG Y SALS has reported to a Barcelona medical society the results of a statistical study which has led him to the conclusion that at the present rate of increase the population of Catalonia would take more than two centuries to double itself. Such increase as there was, he said, was largely accounted for by immigration of foreigners and of natives of other parts of Spain. The physiological increase of population in Catalonia fell, between 1886 and 1905, from an annual rate of 5.1 to one of 2.5 per 1,000. More recently it was 3.9, whereas for the rest of Spain it was a little over 9. The rate of increase was lower in Catalonia than in any country in Europe except France. He attributed this to a low birth-rate combined with a high mortality.

Correspondence.

SCIENCE AND ANTISCIENCE.

SIR,—Nothing measures more clearly the intellectual condition to which Britain has fallen than the fact that, even during the course of a life-and-death struggle, when one would think that every person not quite an idiot would be employed in some way, the crank papers continue to be hawked about in the streets. These papers pursue their absurdities just as when Britain had reached its lowest point of intellectual development before the war. A recent note on the cause of malaria in the *Abolitionist* is a typical production. In the *Journal of the Royal Naval Medical Service* for January, 1916, Staff Surgeon Leslie M. Morris, R.N., wrote an interesting account of the occurrence of malaria in H.M. ships *Hermione* and *Bristol* at Tampico in Mexico during 1914. The place is an intensely malarious one, as it contains large marshes in which multitudes of Anophelines (malaria-carrying mosquitos) breed. *Hermione* arrived without any protection in the way of wire gauze on December 13th, 1913. She was anchored fifty yards from the river bank, and the crew were forthwith attacked by legions of mosquitos, so much so that "it was at once realized that it would be necessary to screen the ship without delay." Of course this ought to have been done before the ship was ever sent to such a place. As quite possibly one in four of the mosquitos that came on board were infected, it is obvious that a large proportion of the crew could easily have become infected even during the first night of their arrival; and, as was to be expected, cases began to occur on the twelfth day after arrival. Meantime the officers set to work with promptitude to screen the ship—this could certainly not be done in a day. Another outbreak occurred in May, when the breeding season of mosquitos again reaches high proportions. This outbreak occurred in spite of the precautions; but here again every one with the smallest knowledge of the subject knows that it is absolutely impossible by any known precautions to prevent malaria entirely in a place where large numbers of malaria-bearing mosquitos exist—just as it is impossible by means of sandbags and shelters to protect an army from all casualties when thousands of shells are falling upon them. Sailors are especially difficult to protect, because, in spite of warnings, they will expose themselves to mosquito bites—owing to the irksomeness of confinement within wire gauze in a hot climate.

The *Abolitionist* seizes upon this text to mislead its foolish readers; but the writer of the note uses an old argument so silly that it should be again exposed as an example of this kind of literature. "Malaria, as all our readers know," he says, "is said to be caused by the mosquito. The difficulty in accepting this theory lies in the fact that the mosquito can only produce malaria in a human subject after it has fed upon a human already suffering therefrom; it still remains, therefore, a puzzle as to how the first man got it!" In the numerous lectures which I have delivered on the subject this difficulty is often raised at the end of the lecture; and I can always detect the man who is going to raise it by the vacuous expression of his face. The classical method of answering is to ask another question—namely, if the chicken comes from the egg and the egg from chicken, which began first? The *Abolitionist* seems to think in its dull way that there is some logical meaning in such a question. It implies that, because we cannot frame theories to explain our observations of to-day by what happened millions of years ago, our observations of to-day are, therefore, incorrect! Hence, as we cannot state whether the chicken or the egg came first, therefore it is not true that chickens come from eggs or eggs from chickens at all! As a matter of fact many explanations have been given of the point raised by the *Abolitionist*; but we must reply as Dr. Johnson is reputed to have done: "Sir, I have furnished you with an explanation—I cannot furnish you with an understanding." Whether his particularly childish argument ever deceived the writer in the *Abolitionist* himself, or whether it is merely put forward with the knowledge that his subscribers were too foolish not to be taken in by it, I cannot say; but these crank papers largely subsist on the subscriptions of old ladies, who do not know what to do with their money, persons of the kind who

may see pulling about horrible little dogs to defile our streets and squares in London.

The writer of this precious passage in the *Abolitionist* continues: "In our opinion, the responsibility lay with the lagoons and marshes which exist on both sides of the river, and which send forth their poisonous atmosphere from the moist, decaying vegetable matter under the heat of a burning sun." The marshes certainly cause malaria, but by sending out the mosquitos, not by emitting a poisonous atmosphere. But note the lofty strain of the scientific genius who wrote this passage—"In our opinion." One wonders whether even the most feeble-minded reader of the *Abolitionist* believes that the editor and staff of that journal have the smallest right to any opinion upon such a technical subject, or indeed upon any scientific subject.

But there is not only false argument in the paragraph referred to, but also some suppression which can hardly be otherwise than deliberate, because the author, in order to enforce his suggestion that the protective measures failed entirely, omits to mention the fact that *Hermione* was not protected at all when she first arrived, and secondly, omits all reference to the summing-up by Staff Surgeon Morris, that, "as the result of experience gained in these two ships employed in a highly malarial district, I conclude that the measures taken to screen the ships effectually prevented a very extensive outbreak of malaria." And he adds, "only one officer of the two ships contracted malaria," the truth being, of course, that the partial measures partially prevented the disease, and that without them probably every person in the ship would not only have suffered from malaria, but that many of them would have died of it. In conclusion, the author of the paragraph talks about "the folly of Sir Ronald Ross's bird experiments and their proofless demonstrations." The "proofless demonstration" is a new kind of philosophic entity, and it is almost impossible to conceive how persons considering themselves to be sane can be taken in by such twaddle.—I am, etc.,

London, June 6th.

RONALD ROSS.

THE WAR OFFICE MEMORANDUM ON AMPUTATIONS AND AMPUTATION STUMPS.

SIR,—The War Office memorandum on amputations and amputation stumps is an excellent idea and should go a long way to obtain the best results for those members of our fighting forces unfortunate enough to lose their limbs. Two points in the memorandum, however, seem to me to call for criticism.

In the first place it leads the reader to suppose that in the case of a lower limb amputation it is desirable that the patient's weight should ultimately be borne on the end of the stump. This is a very common error, and since the war began I have several times seen men trying to walk on limbs so constructed that the weight had to be borne in this way, with the result that they were making very slow and painful progress. This is a most important point and cannot be too much emphasized. The end of an amputation stump, with the single exception of a Syme's amputation, should not, and cannot, bear the weight of the body. Attempts to make it do so are entirely wrong. In the case of an amputation above the knee the patient should bear all the weight on the top and sides of the stump—that is, should sit on the top of the limb. In an amputation below the knee the weight should be taken on the head of the tibia and fibula. It is never possible to take more than a very small amount of the weight on the end of the stump, and even this results in soreness. Sore stumps are the inevitable result of trying to take pressure on the end.

The other criticism has reference to the time after operation at which an artificial leg should be fitted. It is advised in the memorandum that four months at least should elapse. Why wait four months? The proper time to begin using an artificial limb is as soon as the wound is soundly healed. Shrinking of the stump always results from using an artificial leg owing to the unaccustomed pressure, and no amount of waiting will prevent this. On the other hand, it is of vital importance that the muscles which move the stump shall not be allowed to waste, as good use of the limb depends upon these muscles. The sooner, therefore, that the limb is fitted and the patient encouraged to attempt to walk, the sooner will he be able

to make good use of the limb, and he will not be handicapped by having to develop muscles which have been allowed to waste.—I am, etc.,

London, W., May 30th. P. LOCKHART-MUMMERY, F.R.C.S.

THE CONTROL OF VENEREAL DISEASES.

SIR,—As one who has studied Sanger's *History of Prostitution*, together with most of the modern books written in English on the subject, I should like to join issue with the view put forward by W. J. Young, of Cambridge, in your issue of May 20th. In regard to prostitution he apparently agrees with Thucydides that these things "always have occurred and always will occur so long as the nature of man remains the same." Surely this is a hopelessly unscientific attitude. The "nature of man" never does remain the same; it is capable of infinite variety in its manifestations.

Sanger wrote his book fifty-seven years ago, and, while it is a very interesting study of prostitution in many parts of the world and from the earliest times, it is somewhat superficial and not altogether reliable in view of more recent research. Two very important books have been written since Sanger published his book, and I think a careful study of Flexner's *Prostitution in Europe*, Chapters I, II, and III, and Havelock Ellis's *Studies in the Psychology of Sex*, vol. vi, will go far to prove that a great deal of prostitution has no relation at all to normal sex demand. Flexner rightly says:

The important point to remember, from the standpoint of practical policy, is this: Supply is to some extent artificially created, and demand is to some extent artificially forced; the artificial processes in question are in greater or less degree socially controllable and modifiable. . . . Human nature is indeed weak on the sexual side, but the mass of existing vice is out of all proportion to what would exist on that account alone.

It may be true that some forms of sexual irregularity will always be found in the world, but all modern investigation shows that its present volume is capable of enormous reduction. We have only just begun to give any serious thought to the problem of prostitution. In the past, as Sanger points out, the general method, applied by fits and starts in occasional bursts of virtue, was burning, flogging, or imprisoning the women. It is scarcely wonderful such treatment failed, especially when one considers that sexual irregularity has generally been expected in men and chastity in women. The two theories are mutually destructive.

With regard to the little effect which moral societies have upon vice, no body of people is more conscious of this fact than the members of such societies, but they know, too, that the greatest obstacle to their work is neither the prostitute nor her customer. The thing which makes all moral and social reform work so intensely difficult, which produces both the prostitute and her partner, is that great body of public opinion which tacitly upholds the double standard of morals, and when it sees the result of its doctrines murmurs meaningless platitudes about "human nature."—I am, etc.,

ALISON NEILANS,

Assistant Secretary, The Association for Moral and Social Hygiene, 19, Tottenham Street, Westminster, S.W.

May 23rd.

"THE SOLDIER'S HEART."

SIR,—Sir James Barr's recent paper on "The Soldier's Heart," in the *BRITISH MEDICAL JOURNAL* of April 15th, contained at least one remarkable sentence: "On causation he (Sir James Mackenzie) is not the only writer who flies to that resort for the destitute—microbes and their toxins—to explain all the ills to which flesh is heir."

Sir James Barr points out the association between "soldier's heart" and trouble in the ductless glands, and gives us a sketch of a vicious circle. He does not throw any light upon the factors which cause these glands to misbehave, though he approaches, somewhat inconsistently, the bacterial toxin theory in another sentence when he says, "In some febrile affections, such as diphtheria and pneumonia, the adrenalin function may be inadequate, and thus the controlling influence over the vasomotor system is lessened." Why must we draw the line rigidly at these two bacteria? Hundreds of other bacterial ferments have been described (Lehmann and Neumann's *Bakteriologie*) as primary or secondary causes of patho-

logical states. A rise of temperature is not always found in subacute processes of a septic nature. The endotoxins of the influenza bacillus, *B. diphtheriae*, the gonococcus, the staphylococcus, and the great family of streptococci possess a wide range of action from which no tissue of the body can be regarded as absolutely safe, not even the elements of the ductless glands.

Summing up the gentle discussion evoked by his paper, he says: "The many toxæmias to which he (Dr. Harry Campbell) refers can easily be eliminated in cases of soldier's heart." It would be interesting to know the precise laboratory methods which Sir James Barr recommends for this important eliminative process. The field of a one-twelfth inch lens is very small, and Sir James Barr is right to insist upon the wide survey, particularly in these days of excessive specialization. But can he justify his apparently contemptuous references to the students of microbiology who are seeking the truth about that little leaven which leaveneth the whole?—I am, etc.,

London, W., May 29th.

H. LYON SMITH.

LICE AND THE CLOTHES BRUSH.

SIR,—In the *JOURNAL* for April 29th, p. 630, is an account of the discussion on the means of lessening the incidence of infestation by lice. I note that one important adjuvant in the treatment of the clothing was not mentioned—brushing the seams of the clothes thoroughly. Personally, I rely very greatly on this treatment, especially for breeches. The men are made to turn the breeches inside out and thoroughly brush out the seams, any tacking threads being removed for this purpose. Paraffin, washing in cresol, and brushing, have in my unit taken the place of other methods in the destruction of lice.

I believe it was the late Field Marshal Viscount Wolseley who laid great stress on rubbing, shaking, and brushing the clothes when means of washing were not obtainable.—I am, etc.,

May 17th.

JOHN S. CLARKE,
Capt. R.A.M.C.

PARAFFIN FOR LOUSINESS.

SIR,—An effective and easily applied remedy for pediculosis I have found in paraffin oil swashed over the skin from neck to heels, avoiding the scrotum. The soldier strips, and dipping his hands into the bowl of oil slaps himself over his front and the orderly completes the business behind. There must be no rubbing or dermatitis would follow inevitably. The wetting being completed the man resumes his clothing at once.

I have employed this treatment in over a hundred cases, and with invariable success after one application only.—I am, etc.,

West Mersea, June 3rd.

B. HALL.

HOW MEDICAL WRITINGS MAY BE GIVEN A MARKED DEVELOPMENT.

SIR,—I think Dr. Mercier has earned the thanks of the profession in reminding us of some of the rules of English composition which were taught to us at school, one of which—namely, to avoid tautology—Dr. Bramwell breaks more than once in the first sentence of his reply. Another rule which might be more frequently observed is to use a monosyllable wherever possible; yet another—study your Bible.—I am, etc.,

West Bridgford, June 3rd.

H. E. BELCHER.

SIR,—Dr. Mercier is doing medical literature a distinct service by starting a crusade against the word "marked."

I first came across this word in full force in the medical department of a prominent American university. Since then it has spread through medical literature like a miasma.

In the meaning of "quite apparent" the word is permissible, but the word has run amok, and, as now used, is guilty of almost anything. It conveys to me about as much meaning as "damn," and other profanities. It may not be too much to ask medical writers to spare us the nauseating effect of the constant repetition of this word.—I am, etc.,

France, June 1st.

FRED. W. E. BURNHAM.

SIR,—Of course Dr. Bramwell knows best, and I must reconcile myself as best I may to the doctrine that "marked" is the only adjective, and "markedly" the

only adverb permissible in medical writings. I am very, that is to say markedly, grateful to him for his strenuous, I mean marked, attempt to put me right; but when I find a writer making eight rather bad, I should say markedly marked, blunders in English in the course of one short letter, I have a decided, of course I mean a marked, disinclination to accept him as a final, or as it were marked, authority on the English language.

Following his advice, I have consulted the dictionary, and in it I find that a slop is "liquid carelessly dropped or spilt about," and sloppy means "covered with slops, loose, slovenly." These are precisely the qualities that I intended to express when I used the term "sloppy English." I meant language carelessly dropped or spilt about, loose and slovenly language. No doubt I ought to have said marked English, but *pace* Dr. Bramwell, I do not consider "sloppy English" a meaningless expression, nor do I consider it "somewhat vulgar," but then I cannot claim to be as genteel as Dr. Bramwell.

"M.D." has me on the hip, I must confess. I was so confident that Tennyson was the author of the quotation that I neglected to verify the reference, and I have met with the deserved and inevitable fate of those who neglect to verify their references.

Dr. Lipetz misunderstands me. I do not say it is incorrect to employ the word "marked" as an intensive. For use in this capacity it will serve. It is not nearly as effective as blessed, or bally, or blooming, or some other word beginning with a "b"; but it will serve. I did not say that this use of the word is incorrect, and it is not incorrect. It is only stupid. What I intended to convey is that it is incorrect to use the adjective "marked" when we do not mean marked, but mean some other quality. If Dr. Bramwell and Dr. Lipetz like to use intensives, or if they prefer to use a wrong word instead of a right one, on their own heads be it; no man can be compelled to write good English if he prefers to write bad. Dr. Lipetz asks if the word "marked" has not been used as an intensive by good English writers. The answer, in classic phrase, is in the negative. He asks also if it has not gained general acceptance. I tried in my previous letter to point out that it has gained general acceptance among medical writers, and that it is high time it gained general rejection; but I founded my plea on the supposition that the indiscriminate use of the word was due to carelessness, or laziness, or want of consideration, or some other remediable cause. I must confess it did not occur to me that any one could be found to defend it as a justifiable practice. I should as soon have expected a defence of the practice of throwing orange peel into the street, or slopping tea on the tablecloth, if Dr. Lipetz will kindly excuse these weird and uncouth expressions.—I am, etc.,

Parkstone, Dorset, June 3rd.

CHAS. A. MERCIER.

FEES OF LOCUMTENENTS.

SIR,—I would like, through the medium of your paper, to call attention to the excessive fees demanded now by locumtenents. For the last two years I have paid £7 7s. a week and expenses, but now £9 9s. a week is demanded indoors, expenses, and fees for the day travelling. I am well aware of the fact that the greater the demand the greater must be the remuneration, but there ought to be a limit. A few years ago men were glad to get £4 4s. a week, and if £7 7s. is paid I think it ample, especially now, when general practitioners are harassed in many ways, and doing much gratuitous and philanthropic work. If a general practitioner desires to take a week or two's respite for his health sake, I think it a scandal that they should be "blood-sucked" by members of their own profession. I would advise that all practitioners should boycott all locumtenents demanding more than £7 7s. a week, and this, I am sure, would bring them to understand what is their duty.—I am, etc.,

May 27th.

M. W. B.

THE ROYAL COLLEGE OF SURGEONS OF ENGLAND.

SIR,—The time has come again for the election of Fellows into the Council of the College. The time has therefore come again to raise a protest against the exclusion of Members of the College from sitting on the Council.

If the war has taught us one principle more than

another it is to recognize the rights of minorities and the importance of championing at all costs those who are suffering from injustice.

No one who knows anything of the history of the Royal College of Surgeons but recognizes that the perpetuation of an oligarchy and the disenfranchisement of a democracy lies at the root of the stagnation of life which exists in the Council of the College to-day.

During the last few years the medical profession has been through stirring times and great crises. A Council worthy of the name should have taken up these social and political problems, and have proved itself a guide, a protector, and a tower of strength to the surgeons of England. The Council, alas! has been satisfied to let great opportunities slide, and the only cure for this sterility is the introduction of new blood and the extending of the franchise to every Member of the College.

I have listened year after year to the excuses made by the President of the College for the shelving of this important reformation, and have been surprised at the absence of logic and of administrative foresight in those who are considered sufficiently wise to be admitted as members of the Council of a great College.

Many great changes which hitherto have been considered impossible have been brought about during the last two years by short Acts of Parliament, and if no other method can be found to convince the Council of the Royal College of Surgeons that they are out of touch with the sentiments and aspirations of the surgeons of England it may be necessary in this case also to utilize the machinery of Parliament.—I am, etc.,

London, E.C., May 28th.

JOSIAH OLDFIELD.

THE ELECTION OF DIRECT REPRESENTATIVES ON THE GENERAL MEDICAL COUNCIL.

SIR,—In reply to yours of May 20th, I have no personal grievance, but I do protest against the policy adopted in 1906 and 1911, by which no one, unless he is a member of the British Medical Association and nominated by the Association, has the "ghost of a chance" of being elected as direct representative of the profession on the General Medical Council. At the election in 1911 Dr. Latimer had the lowest number of votes, and that was 7,173; the next was Mr. George Brown with 3,424. Mr. Brown's friends worked hard, but were powerless against an Association with Divisions extending from Land's End to Berwick-on-Tweed. The Association, with all their efforts, could not secure one-third of the electorate. If the Association would be satisfied to elect two out of the four for England, they would have all that their numbers warrant. Only about one-half of the doctors in England and Wales are members of the Association. I suggest that the four draw lots for two representatives for the 1916 election, and leave two for the medical profession who are not members of the Association to elect. The cost to do anything like justice to an election is considerable. It would be a wise thing to do, if possible, and to have four electoral areas, so that we could get into touch with our representatives. It is war time, and thousands are on active service. Still it should not be a walk over for the Association. Since my letter appeared I have been spoken to, but I see no hope of winning. If I consent, it will be as a strong protest to the Association's policy. "The grasp all" legally when "not morally entitled" is not worthy of the British Medical Association nor its traditions up to the recent past.—I am, etc.,

Blackpool, May 25th.

J. BROWN, M.D.

Medico-Legal.

A CASE OF LEPROSY.

A CASE of some interest occupied Mr. Justice Darling and a special jury on May 15th, 16th, 17th, and 18th. It appeared that a Mr. Miller and his daughter, both of whom had lived for some time in India, took lodgings in July, 1914, at the house of a Mr. E. P. Humphreys in Bayswater. Mr. Miller was then suffering from leprosy. The following month Mr. Miller and his daughter took up their residence with Mr. Humphreys, and from that time until Mr. Miller's death in the following December he was attended by Dr. Harbord. On the occasion of Dr. Harbord's first visit to Mr. Miller at Bayswater Mr. Humphreys's manageress asked whether the former was suffering from an infectious disease, and was told he was not. In these circumstances Mr. Humphreys asked for damages on the ground that

It was no longer possible for him to continue to let lodgings at his house, and he also claimed the value of the furniture in the rooms which Mr. Miller had occupied. He made Miss Miller, Mr. Miller's executor, and Dr. Harbord all defendants to his action, which he based on breach of warranty, fraudulent misrepresentation, and conspiracy.

In addition to the above Miss Miller stated that she had seen lepers in India, and had suspected that her father was suffering from leprosy although she had no definite knowledge on the point, and a body of evidence was called on either side as to the nature of the disease in question. For the plaintiff, on the one hand, Dr. George Pernet, who was formerly the English editor of *Leprosy*, stated that the general view was that leprosy was communicated from one person to another, but in what way was not known. Dr. H. P. G. Bayon, late bacteriologist at Robben Island to the Government of the Union of South Africa, said that he had studied the disease in many countries, and had examined about 2,000 cases, and that in his belief leprosy was contagious, though not highly so. For the defendants, Dr. Harbord said that the danger of infection or contagion from leprosy was practically nil, and that there was no risk whatever if the patient's effects were properly fumigated. Dr. Abrahams, consulting dermatologist to the West London Hospital, stated that the overwhelming body of opinion was that leprosy was only slightly contagious, and that some other condition must be present to make it so. Sir Malcolm Morris, a member of the International Leprosy Commission, said that he had never known a case of one person catching the disease from another.

The judge, after summing up the evidence, left eight questions for the jury to answer. The questions, with the jury's answers, were as follows:

1. Was Mr. Miller, when he took the rooms, liable to infect persons or the furniture with leprosy, and did Mr. Miller or Miss Miller know this?—Yes.
2. Is leprosy infectious or contagious so as to be, in England, communicable from the leper to another?—Yes.
3. Did Miss Miller and Dr. Harbord fraudulently misrepresent that Mr. Miller was a fit and proper person to occupy the plaintiff's rooms?—Yes.
4. Did Miss Miller and Dr. Harbord conceal from the plaintiff that Mr. Miller was a leper which made him unfit to occupy the lodgings?—Yes.
5. Did Dr. Harbord, acting as agent for Miss Miller and Mr. Miller, state to Mrs. Humphreys that Mr. Miller was not suffering from any infectious or contagious disease?—Yes.
6. Were these statements untrue to the knowledge of Mr. Miller, Miss Miller, and Dr. Harbord?—Yes.
7. Did Mr. Miller, Miss Miller, and Dr. Harbord conspire to conceal the state of Mr. Miller from the plaintiff, and make false statements to him for that purpose?—Yes.
8. Damages?—£250.

Upon these findings of fact Mr. McCall, K.C., who appeared for Dr. Harbord upon the instructions of the London and Counties Medical Protection Society, submitted that judgement should be entered for his client. He pointed out that the charges against him consisted of conspiracy and fraudulent representation; that with regard to the former charge there could be no actionable conspiracy unless it was a conspiracy to infringe a legal right of the plaintiff, and that there was no legal duty upon Dr. Harbord to disclose to the plaintiff the nature of the disease from which Mr. Miller was suffering or legal right vested in Mr. Humphreys to have such disclosure. With regard to the charge of fraud, counsel submitted that it must be shown that Dr. Harbord had made a statement without belief in its truth or recklessly as to whether it were true or false, and that there was no evidence that Dr. Harbord did not entertain the scientific belief which he had expressed—namely, that in this country leprosy was neither infectious or contagious. Mr. Gordon Hewart, K.C., for the other defendants, adopted the same argument.

Mr. Justice Darling, in giving judgement, said that there was no authority in law to support the proposition that there was a term implied in every contract to take furnished lodgings that the lodger was fit to occupy them, nor was there authority for saying that doctors who took patients to houses must make a full disclosure of the patient's state; such a rule would be difficult to enforce and difficult to define within reasonable limits. He held that there was no evidence to support the jury's finding that Miss Miller knew that her father was suffering from leprosy; that as regards Dr. Harbord's statement that Mr. Miller was not suffering from an infectious disease, the evidence was that he believed the risk to be "practically nil." In effect Dr. Harbord's opinion was that leprosy was not infectious in England. It could not therefore be said that Dr. Harbord's statement was fraudulent.

Upon these grounds judgement was entered for the defendants.

The Services.

EXCHANGES.

M.O. to R.F.A. Brigade attached to a naval division forming for service in France desires exchange with M.O. in 50th Division abroad.—Address No. 1950, BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C.

Captain R.A.M.C.(T), home service, wishes immediate exchange with officer in field ambulance, base hospital, or casualty clearing station.—Address 2200, BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C.

Universities and Colleges.

UNIVERSITY OF OXFORD.

The following degree has been conferred:

M.D.—John Howell Evans.

UNIVERSITY OF LONDON.

The following candidates have been approved at the examination indicated:

THIRD M.B., B.S.—*† L. G. Phillips, *† S. Ritson (University medal), E. A. Celestin, W. M. Crombie, C. I. do Silva, J. A. W. Edden, D. S. Graves, I. H. Pearse, L. D. Phillips, Emma C. Pithman, A. L. Punch, L. N. Reece, D. G. C. Tasker, J. W. T. Thomas, A. H. Turner, Sibyl I. Welsh, A. Wai-tak Woo.
* Honours. † Distinguished in Medicine and Surgery.
‡ Distinguished in Midwifery and Diseases of Women.

The following have passed in one of the two groups of subjects:

Group I: Grace M. Griffith, C. E. Petley, B. Sampson, A. G. Simmins, E. C. Spaar. Group II: A. W. Adams, F. V. Bevan-Brown, R. M. Dannatt, W. H. Lloyd, Violet I. Russell.

Obituary.

DR. RIVERS-WILLSON, of Oxford, died at his residence in that city on May 19th, aged 63. He began life as a dispenser to the Radcliffe Infirmary, where he was able to study medicine, and, after working at the London Hospital, he took the diploma of L.S.A. in 1889. He set up in practice in Oxford and held for many years the appointment of district surgeon to the Oxford Medical Dispensary and Lying-in Charity. In 1912 he took an active part in opposing the original Government terms of the Insurance Act. Dr. Rivers-Willson prepared several educational works for the use of students, the best known being *Materia Medica and Pharmacy*; *Chemical Physics* and *Chemistry* were also useful compilations. All three were avowedly published for the benefit of candidates for the qualifications of the Conjoint Boards and the other diploma-giving corporations in the United Kingdom. Dr. Rivers-Willson was a Ph.D., a member of the British Medical Association, and a Fellow of the Royal Society of Medicine. He was an active member of the Oxford City Insurance Committee, and his health failed mainly in consequence of his exertions two years ago; yet he recovered and was able to discharge his medical duties almost to the date of his death. He leaves a widow and one son. The funeral took place at Wolvercote cemetery on May 25th.

DR. ALFRED GRACE, an elder brother of Dr. William Gilbert Grace, who died on October 23rd last year, has survived him just seven months, dying last week at Chipping Sodbury, Gloucestershire. Dr. Alfred was the second son of Mr. Henry M. Grace of Downend, Gloucestershire, where he was born on May 17th, 1840, being over eight years older than Dr. William Grace. He received his medical education at Bristol, and took the diplomas of M.R.C.S. in 1863 and L.S.A. in 1864. He was a member of the British Medical Association and Surgeon Lieutenant-Colonel, Royal Gloucestershire Hussars Yeomanry Cavalry. Dr. Alfred Grace was the last of five brothers, three of whom—W. G., E. M., and Frederick Grace—were famous cricketers. Alfred did not attain so much renown, though he played the game fairly. He was better known as a hunting man, being a superb rider.

THE death took place, on May 29th, of Dr. LÉON BLANC, the well-known consultant, at Aix-les-Bains (Savoie). Dr. Blanc was 75 years of age, and was well known in medical circles in London, where he usually spent the winter. He was the author of numerous communications bearing on "arthritis," and his persuasive eloquence did much to popularize the Aix treatment. He was the regular medical attendant of the late Mr. Pierpoint Morgan, who presented the town with a magnificent hospital, known as the Léon Blanc Hospital, to perpetuate the memory of his friend and medical adviser. A Savoyard of the old school and a past mayor of Aix, he died universally respected and regretted. He was Officier de la Légion d'Honneur.

Medical News.

THE name of George Cowie Grant, M.B., C.M., Dufftown, appears in the list of new justices of the peace for Banffshire.

WE regret to see the announcement of the death on May 27th of Dr. C. E. Fitzgerald, the well-known ophthalmic surgeon of Dublin.

DR. ROBERT ROBERTSON, J.P., Honorary Physician and Chairman of the Visiting Committee of the Royal National Hospital for Consumption, Ventnor, has been unanimously elected vice-president of the institution.

One of the most touching features of the funeral procession of General Gallieni on June 1st was a group of representatives of "Aide et Protection," the National Society of Mutual Aid for Mutilated Soldiers, in whose welfare the deceased general had shown a very active interest. The society, which already has a large membership of wounded men, was established by Ministerial decree, and is under the patronage of the President of the Republic.

THE national munition factories number seventy-five, and canteens have been established in all except a few small establishments the workers in which live close by. It has been found possible to provide a dinner of meat, vegetables, and a sweet for 8d. or 9d. The number of controlled works is about 3,500, and the provision of canteens for them is making good progress; firms which erect suitable buildings may set off their cost against excess profits. As was mentioned some time ago, the Health of Munition Workers Committee has issued a memorandum containing plans for temporary buildings for canteens.

WE learn from the *Journal of the American Medical Association* that the National Association for the Study and Prevention of Tuberculosis has received £20,000 from the Metropolitan Life Insurance Company to carry out a community experiment for three years with the object of demonstrating that tuberculosis can be controlled like any other infectious disease if right methods are adopted and adequate resources are available. It is proposed to choose a town or city of about 5,000 inhabitants, probably in New York or Massachusetts, and to apply there all the knowledge as to the treatment of tuberculosis available.

THE annual meeting of the Asylum Workers' Association was held on May 17th at 11, Chandos Street, W., the chair being occupied by the president, Sir John Jardine, Bt., K.C.I.E., M.P., who moved the adoption of the report, which was presented by the honorary secretary, Dr. Farquharson Powell. He drew attention to the war services of asylum workers, a very large percentage of male officers and attendants having joined the colours, while numerous nurses held Red Cross posts, or were employed in military nursing in the dozen or more asylums which had been converted into war hospitals. All, indeed, whether still remaining in asylum service or not, had felt the strain of the war, for asylum staffs had been seriously depleted, while the wards had become overcrowded in consequence of transfers of patients from asylums vacated for War Office purposes. The Executive Committee had continued their efforts to safeguard the interests of those serving as regards superannuation, etc., and it was hoped that they would be rendered secure by the recently passed Local Government Emergency Act. Private legislation was for the time suspended, but desirable amendments to the Superannuation Act of 1903 would be proceeded with as soon as opportunity permitted. The adoption of the report was seconded by Lieutenant-Colonel D. G. Thomson, R.A.M.C., president of the Medico-Psychological Association, and supported by Mr. Alfred Goodrich, late chairman of the London County Council Asylums Committee. Sir James Crichton-Browne proposed, in an interesting speech (in which he criticized adversely asylum treatment in Germany), the re-election as president of Sir John Jardine; this was seconded by Dr. G. E. Shuttleworth, and carried by acclamation. The election of the vice-presidents, Executive Committee, and officers was proposed by Dr. R. Armstrong-Jones of Claybury, and seconded by Dr. W. J. Seward, formerly of Colney Hatch Asylum, and, after other speeches by Dr. Fletcher Beach and the Rev. John Peck, the proceedings terminated. The balance sheet, made up to December 31st, 1915, showed £152 10s. to the credit of the association, the depletion of funds owing to diminution in annual subscriptions consequent on the war and other causes having been compensated by many generous contributions.

Letters, Notes, and Answers.

THE telegraphic addresses of the BRITISH MEDICAL ASSOCIATION and JOURNAL are: (1) EDITOR of the BRITISH MEDICAL JOURNAL, Aitology, Westrand, London; telephone, 2631, Gerard. (2) FINANCIAL SECRETARY AND BUSINESS MANAGER (advertisements, etc.), Articulate, Westrand, London; telephone, 2630, Gerard. (3) MEDICAL SECRETARY, Medisecra, Westrand, London; telephone, 2634, Gerard. The address of the Irish office of the British Medical Association is 16, South Frederick Street, Dublin.

Queries, answers, and communications relating to subjects of which special departments of the BRITISH MEDICAL JOURNAL are devoted will be found under their respective headings.

QUERIES.

LOTHIAN desires to hear of a book giving hints as to exercises, games, and occupations suitable for use in neurasthenic cases.

ATTENDANCE ON SOLDIERS BY CIVIL MEDICAL PRACTITIONERS.

X. Y. Z. writes: During April I attended a private in a regiment. At the end of the month I sent in my account to the officer commanding on Army Form O. 1667. Up to date I have neither received the money due nor any acknowledgement of my letter. May I ask what experience other members have had in similar case?

LETTERS, NOTES, ETC.

COLD FEET AND STUFFY HEADS.

DR. E. LLOYD-OWEN (Criccieth) writes: I find that through omission on my part of three words in my letter (May 13th, p. 708) under the above heading some of my medical friends have been puzzled. The sentence should have read: "Is there not during sleep a certain amount of anaemia of the brain (in spite of the horizontal attitude) resulting from determination of blood to the feet, and indeed to every part of the body covered by the bedclothes?"

MEDICINE AND THE NATIONAL VOLUNTEERS.

DR. H. J. HILDIGE (Pinner, Middlesex) writes: Now that the Compulsion Act has passed and it has become probable that most doctors under 41 may have to go, I am anxious to know whether there is a corps that we doctors who are over the age limit could join to get instruction in ambulance work. If a certain number of men in each Division could be persuaded to join, instruction classes might be arranged in a central district and the ordinary duties of camp work imparted. I think before long the Government will be making more use of the volunteers and it would be as well if we men over 41 knew something of the duties of field work, of which I must plead ignorance.

VALUE OF TUBERCULIN TREATMENT.

MEDICUS writes: In an article on "Results of Sanatorium Treatment" in your issue of May 27th, p. 763, I see that tuberculin administration has been discontinued at the Midhurst Sanatorium. Is this the case generally?

My own experience may be interesting. Five years ago tubercle bacilli were found in my sputum (my age was 54). I went at once to one of the high altitude places in the Engadine, where tuberculin was given me for three months by an expert authority on the administration of tuberculin. At the end of that time my larynx was badly affected, and my voice had gone to a whisper; pain and dysphagia were marked. I returned to England and continued tuberculin for another four months with every precaution. Laryngeal symptoms continued and got steadily worse. On the advice of an eminent throat specialist, who had been through my trouble himself, I gave up tuberculin, kept absolute silence, and went to Madeira, never expecting to return. In six weeks my laryngeal symptoms were gone; at the end of four months I returned a different being. I have had no recurrence, thank God, up to date of laryngeal troubles; my voice, though not a Caruso one, has become audible once more, and my weight is normal.

Was the disappearance of laryngeal trouble due to the discontinuance of the tuberculin or to the silence treatment aided by the climate of Madeira? (after stopping the tuberculin I had three injections of antistreptococcus vaccine). My personal opinion is that if I had continued tuberculin I would not now be penning these lines.

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

	£	s.	d.
Seven lines and under	0 5 0
Each additional line	0 0 8
A whole column	3 10 0
A page	10 0 0

An average line contains six words.

All remittances by Post Office Orders must be made payable to the British Medical Association at the General Post Office, London. No responsibility will be accepted for any such remittance not so safeguarded.

Advertisements should be delivered, addressed to the Manager, 429, Strand, London, not later than the first post on Wednesday morning preceding publication, and, if not paid for at the time, should be accompanied by a reference.

NOTE.—It is against the rules of the Post Office to receive *postes restantes* letters addressed either in initials or numbers.

THE FASTING TREATMENT OF DIABETES.*

By E. I. SPRIGGS, M.D., F.R.C.P.,

DUFF HOUSE, BANFF, SCOTLAND.

I PROPOSE to give a brief account of our experience with the fasting method at Duff House. The treatment has not been in use long enough to justify anything like a statistical analysis. I shall therefore pick out those cases which are most instructive, both as regards the results obtained and the difficulties met with.

Fasting has been used in diabetes as a means of reducing the sugar in the urine ever since it was proposed by Naunyn. It has usually, however, been prescribed with much caution, in earlier days because it seemed unlikely that it would do good to deprive the subject of a wasting disease of food, and in later days with the idea, shown to be mistaken by various workers, that because abstinence from food causes a moderate acidosis in health, it would aggravate the more severe acidosis of diabetes. But in mild types, and especially in the obese, fasting has long been found useful. I may here relate one such case, which was under treatment before Dr. Allen's work was known to me.

CASE I.—Mild Glycosuria accompanying Hypoacidity, Ileal Stasis, and Obesity. (Case 277.)

The patient, a stout man of 41, sought relief for abdominal pain and distension of three years' standing, with nausea and giddiness for the last year. He was under treatment for ten weeks. On examination the gastric juice was very poor in both acid and pepsin, the ileum, caecum, and appendix were adherent, and there was marked ileal stasis. The blood pressure was 175 mm. Hg.

The urine was found to contain 6 to 12 grams a day of sugar, but no aceto-acetic acid or acetone. The blood contained 0.17 per cent. of sugar. On a diabetic diet, continued for six days, the sugar varied from 5 to 2 grams; aceto-acetic acid and acetone appeared in the urine. Such a diet was undesirable from the point of view of the gastro-intestinal symptoms, and was not well borne.

He was therefore advised to fast, with the object of getting rid of the sugar more quickly. After one day sugar was absent. For the next six days he took a diabetic diet of 1,600 calories. He was then tested with the following foods in turn—bread, potato, oatmeal, milk, pear, apple, banana, grapes, orange, and puddings made with flour, 40 grams a day of carbohydrate being given in each case. The urine remained free from sugar, but there was still aceto-acetic acid and acetone, though never enough to estimate. The diet was increased until he was taking 112 grams of carbohydrate a day, of which 46 was in bread, 46 in puddings, 15 in stewed fruit, and 5 in milk. With this the acid bodies disappeared from the urine, which remained sugar-free.

After reading Dr. Allen's writings and becoming convinced that not only glycosuria but also acidosis was benefited by longer periods of fasting we began to make trial of the method.

Outline of the Procedure.

Fasting is continued in bed until the urine has been sugar-free for twenty-four hours, unless there is some definite contraindication, such as nausea, vomiting, insomnia, or faintness. For the first two days of the fast nothing is given except a cup of tea with 10 c.cm. of 20 per cent. cream at breakfast and tea-time. After the first two days 150 c.cm. of clear meat broth is added at lunch and dinner-time. If acidosis is present after two days of fasting, alcohol may be allowed, 0.12 gram per kilogram of body weight being given in the form of whisky four times a day—at 11 a.m., 2 p.m., 5 p.m., and 8 p.m. In the cases described below no alcohol was used. When the urine has been sugar-free for twenty-four hours, 7.5 grams of carbohydrate is added in the form of vegetables which contain low percentages of carbohydrate. On the second day of feeding 30 c.cm. of cream is allowed with each cup of tea, and three eggs are added. On the third day of feeding, and on each alternate day subsequently, 5 grams of carbohydrate is added. Vegetables containing higher and higher percentages of carbohydrate are used, and finally porridge, oatcake, macaroni, bread, and fruit. The addition of carbohydrate is continued until sugar reappears or the tolerance reaches 3 grams of carbohydrate per kilogram. At the same time 15 grams of protein in

the form of meat and fish are added daily up to 1 gram per kilogram or, in certain cases, more. When the protein has reached the desired amount, fat is added at the rate of 25 grams daily until the patient stops losing weight, or is getting 40 calories per kilogram. If sugar at any time recurs in the urine, the patient is fasted again until the urine is sugar-free for twenty-four hours. The diet is then resumed at the point where it was left off, but only half the amount of carbohydrate is given until the urine has been sugar-free for two weeks, after which the carbohydrate is increased at the rate of 5 grams per week.

The fasting part of the method is simple enough. The gradual increase of the food afterwards is not so easy, at all events in the more severe cases. Accurate diet lists and close daily supervision are required. We found that the figures given by Dr. Joslin for the carbohydrate content of the foodstuffs did not agree with those obtained in our laboratories for foods as served at table. No doubt the methods of preparation differ in different countries. My colleague, Dr. Pickering, constructed graduated tables of diet, therefore, based mainly upon the analyses of our own cooked foods, and these tables we hope to publish, as I believe they would be of use to the profession.

I will now describe five of the cases we have treated by this method, selected as representing different ages and varying degrees of severity.

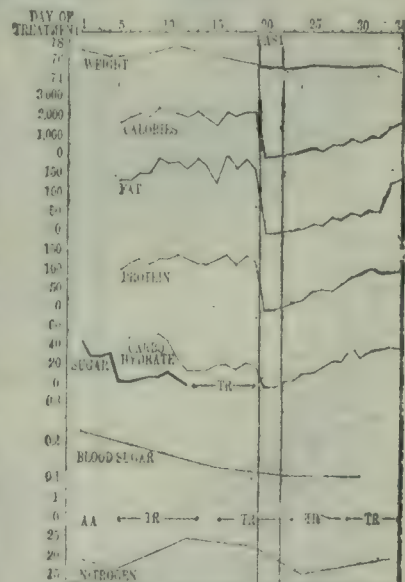
In all the sugar in the urine was estimated gravimetrically, and that in the blood by Bang's method as described by S. W. Cole. With Bang's method the normal blood sugar is about 0.11 to 0.14 per cent. For beta-oxybutyric acid Kennaway's method was used, and for acetoacetic acid and acetone the Scott-Wilson method. In some cases Hurlley's method was used for acetoacetic acid alone. Ammonia was determined by Malfatti's method.

CASE II.—Mild Diabetes. (Case 331.)

The patient, a man of 67, who had done much hard and responsible work in different parts of the globe, had not felt so well for the last eight years. Loss of flesh and polyuria was noticed six months, and glycosuria three months ago. He was under treatment for six and a half weeks. On admission he complained of feeling dizzy and squeamish, and of pains and stiffness in the thighs. The arteries were moderately thickened, the blood pressure 130 mm. Hg. Moist râles were heard at the base of each lung.

The urine contained 49 grams of sugar and a trace of aceto-acetic acid. The blood contained 0.24 per cent. of sugar. On a diet containing 64 grams of carbohydrate the sugar sank to 10 grams. With a further reduction of carbohydrate to 25 grams less than a gram of sugar persisted in the urine, and the blood sugar was now reduced to 0.14 per cent., that is, to within normal limits.

On fasting the urine became free from sugar at once. Feeding was begun after two days, the amount of carbohydrate, protein, and fat being gradually increased until a total of 3,304 calories, containing 88 grams of carbohydrate, 123 grams of protein, and 261 grams of



Case 331.—Analyses by A. B. Weir, B.Sc.

In all charts: TR, Trace; AA, aceto-acetic acid and acetone; o, beta-oxybutyric acid; NH, percentage of total nitrogen as ammonia; NH₃, ammonia in grams. The thickest line is the sugar, when present. The curve of the carbohydrate in the food, which sometimes crosses that of the sugar, is a thinner line. The urine remained sugar-free throughout except that a trace appeared when the carbohydrate exceeded the above quantity. Aceto-acetic acid and acetone were absent and the blood sugar remained normal. All the symptoms were gone except the stiffness of the thighs, which with suitable massage improved greatly. The weight fell nearly 3½ lb.

This patient would probably have done well without

* A contribution to the discussion at the Royal Society of Medicine on May 16th, 1916, opened by Dr. O. F. F. Leyton.

fasting, according to earlier standards, but whereas, formerly, if sugar appeared in the urine he would have had to remain on a strict diet for a considerable time, he will now fast a day, and will then be able very soon to take again a diet containing a fair quantity of carbohydrate. In other words, he will be able to keep sugar-free with greater precision and comfort.

CASE III.—Mild Diabetes in an Aged Man with Hypertrophied Heart and High Blood Pressure. (Case 289.)

The patient was 79 years old. He had lived a vigorous open-air life, but had not restricted himself in any way as regards alcohol and tobacco. Thirst came on rapidly thirteen years ago, followed soon by aching and cramps in the limbs, which have persisted. He was under treatment for six and a half weeks.

He was stout, with thick arteries and an enlarged heart. The blood pressure varied from 184 to 225 mm. Hg.

The urine contained albumin varying from 0.5 to 1.5 parts per 1,000. There were traces only of acetoacetic acid and acetone. The sugar ranged from 20 to 40 grams; in ten days, on a strict diet, it sank to 8 grams.

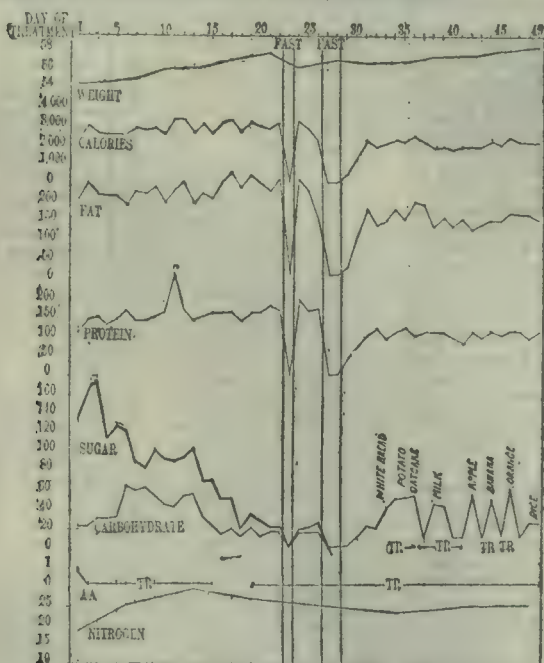
We hesitated at first to deprive this patient of food on account of his age, and, as a tentative measure, kept him in bed one day, and allowed him two eggs only. On this day the sugar fell to 2 grams. The next three days he took a strict diet, and passed 3 to 6 grams a day. He then fasted two days, on the first of which there was a trace of sugar, on the second none. He was now very hungry, and we gave him a diet of 1,600 calories—that is, more food than the routine prescribes—with the result that a trace of sugar was present on three of the next five days, and on the other two an estimable quantity.

He therefore fasted two more days, becoming sugar-free again, and remaining so while the diet was gradually increased to 1,800 calories, including 64 grams of carbohydrate, 40 of which was in the form of white bread. A trace of sugar then appeared, but after that the urine became sugar-free without further fasting, and remained so during tests with bread, potato, oatmeal, and milk. The albumin diminished, and for the last week of his stay was below five parts per 1,000.

CASE IV.—Diabetes in a Young Man. (Case 301.)

The patient, aged 25, was wounded by shrapnel on active service five months before admission. During convalescence a dry mouth and thirst came on rapidly and the urine was found to contain 10 per cent. of sugar. Weakness and aching of the legs followed. He was rather thin with a clear skin.

The urine contained 174 grams of sugar, 0.8 of acetoacetic acid, and 0.1 of acetone; 6 per cent. of the total nitrogen was in the form of ammonia; 2 drachms of sodium bicarbonate rendered the urine alkaline in twenty-four hours.



Case 301.—Analyses by A. B. Weir, B.Sc.

With gradual restriction of carbohydrate the sugar sank in three weeks to 20 grams a day, the acetoacetic acid increasing a little—namely, to 1.6 grams.

A fast of one day did not clear the urine, and after an interval he fasted three days, the urine becoming sugar-free on the second. The diet was then gradually increased, and the tolerance tested for measured quantities of bread, potato, oatmeal, rice, apple, banana. From these 98 to 100 per cent. of the carbohydrate was assimilated, the largest amount of carbo-

hydrate taken in one day being 71 grams. On several occasions, when the amount of carbohydrate given touched the limit of tolerance, a little sugar appeared in the urine, but was always abolished by reducing the amount in the food.

The patient went away sugar-free, the symptoms having vanished and the weight increased by 10½ lb. He and his medical adviser were provided with a scheme of diet based on the analytical results obtained.

The three preceding cases (II, III, and IV) are examples of different types. They include patients of ages ranging from 25 to 79. They show that fasting for three days, and underfeeding for several days after, did not give rise to any harmful or distressing symptoms, and led to much improvement in the feeling and condition of the patients. The urine became free from sugar and acid bodies without delay, and remained so on a mere liberal diet than that taken before treatment.

I may add that repeated fasts have been used, under my direction, in diabetes complicated by phthisis, with excellent results.

In the two following cases, more severe in type, the treatment, though well borne by the patients, did not give such good results.

CASE V.—Moderately Severe Diabetes. (Case 337.)

The patient, aged 33, had lived in India for several years. While on active service in the Mesopotamian campaign, thirst, polyuria, and blurred vision came on suddenly, and the weight soon fell away. On examination, three months later, he was moderately thin, the pulse 112; blood pressure 164 mm. Hg.

On a diet similar to that taken before admission, which included about 20 grams of carbohydrate, the urine contained 83 grams of sugar, 2.2 of beta-oxybutyric acid and 0.6 of acetoacetic acid and acetone; 5 per cent. of the urinary nitrogen was in the form of ammonia. The blood contained 0.19 per cent. of sugar. With reduction of carbohydrate to 30 grams a day (in greens and milk), the protein in the food being kept constant, the blood sugar fell to 0.14 per cent., and that in the urine to 14 grams a day, with 1 gram of oxybutyric acid and 0.5 gram of acetoacetic acid and acetone.

He then fasted two days. There was a trace of sugar on the first day, none on the second. The blood sugar sank to 0.10 per cent. The diet was gradually raised in nine days to 2,000 calories, including 70 grams carbohydrate, without glycosuria. The acid bodies almost disappeared also, the total of the three being only 0.2 gram.

On giving more food, however, sugar appeared. A day's fast got rid of it, but it was not found possible this time to increase the food to the same extent as before, for sugar appeared and rose steadily even when no carbohydrate was taken except that in greens. Thinking that we might be giving some unsuitable form of protein we gave all the protein one day as fish and another as eggs, but the sugar continued to rise.

Ten days after the last fast the patient fasted again, this time for three days, the urine being sugar-free for the last two of them. The blood sugar was 0.12 per cent. Food was gradually added until, nineteen days after the last fasting day, a trace of sugar was found. At this time 2,200 calories, with 33 grams carbohydrate, was being taken. The blood sugar was 0.13 per cent.—that is, within normal limits.

The urine was again cleared by a two days' fast, the blood sugar falling to 0.10 per cent. The weight had now fallen 10 lb. in eight weeks, and the patient was desirous that we should spare him the long period of undernutrition and increase the food more quickly. He was then treated on former lines—that is, on a diabetic diet of sufficient heat value. The weight rose 11 lb., and the patient's sense of wellbeing and his energy rose with it, but sugar was present.

The chart (p. 843) shows well how glycosuria was postponed by making the addition of food very gradual. After the third fast it is seen that the increase of all the food-stuffs was much slower, but in each period of increasing food an estimable quantity of sugar occurred when the heat value reached the neighbourhood of 3,000 calories, which was 48 calories per kilogram. With 2,000 calories, giving 32 calories per kilogram, glycosuria was absent. The caloric value of the food—that is, the amount of protein and fat—appeared to have more effect in causing glycosuria than the amount of carbohydrate.

With the reduction in carbohydrate before the fasting the blood sugar fell to within normal limits, and the subsequent appearances of sugar in the urine were not accompanied by any obvious increase of that in the blood. But with the rise of urinary sugar at the end of the chart the blood sugar also rose. Foster suggests that glycosuria may be more difficult to control in patients without marked hyperglycaemia.

As regards acidosis, the graph shows that the first fast temporarily increased the oxybutyric acid, acetoacetic acid, acetone, and ammonia, but this effect was less with each succeeding fast.

The fall of oxybutyric acid as carbohydrate food increased after the first fast is well shown, the amount dropping nearly to zero in about ten days.

On reviewing the treatment it is possible that this patient would have done better if after the first fast a weekly fast of a single day had been given to re-establish tolerance for food, or if less fat had been given. As regards the tolerance for carbohydrate, that appeared to be lower after the later fasts than at the beginning. It got worse and not better.

It is premature to draw any conclusions adverse to the treatment from this case, for in some respects Dr. Allen's instructions were not rigorously followed. I have related the case in some detail because it was carefully observed, and because it illustrates the advantage, the difficulty, and the disadvantage of the method in a moderately acute and resistant case of diabetes.

The advantage is immediate and obvious. The urine is cleared of sugar to the satisfaction of the physician and the patient. The difficulty lies in keeping the increase of protein and carbohydrate and fat a gradual one, and at the same time resisting the natural desire of the patient to get enough to eat. The disadvantage in this case was that when the patient was on a maximum diet of, say, 2,200 calories, his capacity for work and ordinary life was greatly diminished. He did not feel fit enough to drive his car even short distances for pleasure. On a fuller strict diet, although passing some sugar, he can drive, and works a couple of hours at a book he is writing with ease and enjoyment.

Experience may show that a man lives longer if he is kept sugar-free even at the expense of his general nutrition. But, until we have evidence on that point, I am inclined to think that in treating a chronic disease it is of importance to maintain the patient in such a state of nutrition that he can work and can enjoy himself.

Case VI.—Severe Diabetes. (Case 338.)

The patient, aged 24, was on active service in France when he caught a bad cold, followed by bronchopneumonia, and was invalided home. After a month he was better, but felt run down, and on examination the urine was found to contain 9 per cent. of sugar. Before coming to us he had been kept for a time on a strict diet, and then fasted four days. The urine had become sugar-free and the diet had been gradually enlarged.

On admission he was drowsy and the breath smelt strongly of acetone. On a strict diet of 3,000 calories the urine contained 176 grams of sugar, 9 of aceto-acetic acid and acetone, and 38 grams of nitrogen. The blood contained 0.21 per cent. of sugar.

The patient's condition appeared serious, and sodium bicarbonate was given in milk up to 35 grams (1½ oz.) a day; this made the urine alkaline. A week after admission the temperature rose, and signs of bronchopneumonia developed. The acidosis became still more severe, aceto-acetic acid and acetone reaching 20 grams in the day. The urine became acid again, but was made alkaline by increasing the bicarbonate to 42 grams (1½ oz.) a day. The pneumonic signs disappeared, and in a little over two weeks after admission he was feeling well; the

aceto-acetic acid and acetone had fallen to 5 grams a day. He was still taking 35 to 42 grams of sodium bicarbonate daily. The blood sugar was now 0.17 per cent.

A week later a fast was begun. It was not complete in that for the first five days 16 oz. a day of milk was drunk, as the bicarbonate was given in milk. The fast was continued for ten days, for the last five days of which no milk was taken, but at the end of that time the urine was not free from sugar. The chart (p. 844) shows the gradual fall from 137 to 14 grams a day. The blood sugar came down to 0.14 per cent.—that is, to within normal limits.

The diacetic acid and acetone were reduced from 15 grams to 5 grams a day. Corresponding with this the bicarbonate was cut down to 7 grams (½ oz.) a day, the urine remaining alkaline. The acidosis was so much lessened that at the end of the fast no bicarbonate was needed for a fortnight, and then only half the quantity which had been needed before.

During the latter days of the fast the patient was extremely hungry and dreamed of food, but felt nevertheless better and clearer than he had for a long time. On gradually increasing the food to normal—that is, 40 calories per kilogram, without any carbohydrate except that in greens, the blood sugar rose

again to 0.21 per cent.; the glycosuria also increased, though not to its former level. The acid bodies were in much smaller quantity than they had previously been on a strict diet. The patient was up. He felt weak but was cheerful.

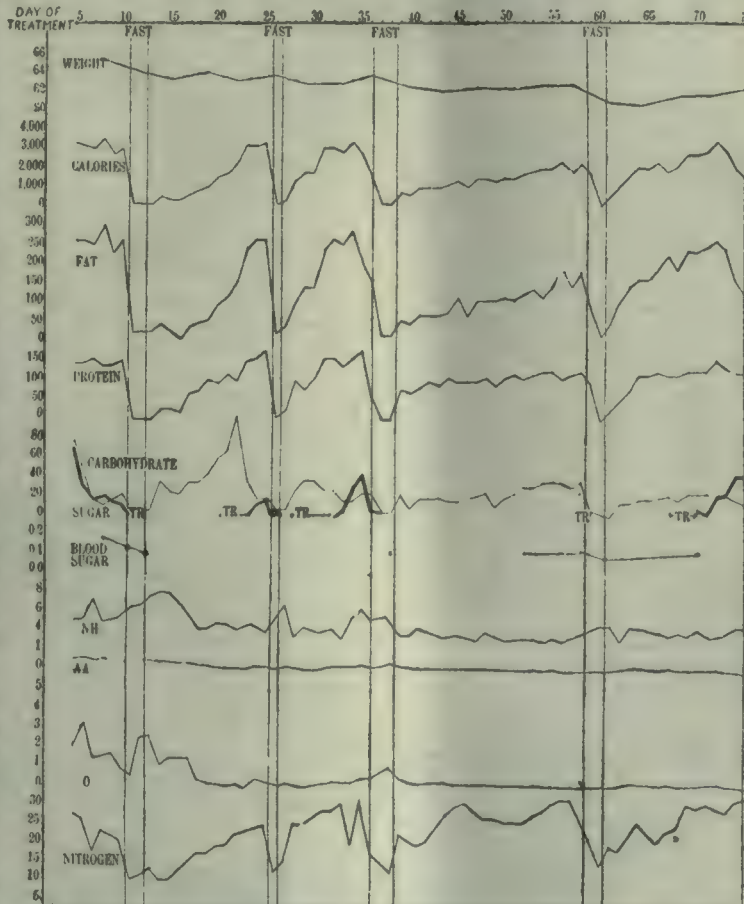
After an interval of nearly a month the patient undertook a second fast, which was continued for six days. This time the sugar sank to a low figure on the second day, and on the fifth there was none. A trace appeared on the sixth day, but the fast was, nevertheless, stopped, and sugar was absent on the succeeding days. Ten days after the fast he had reached 900 calories. The patient is still under treatment.

The graph shows that the percentage of blood sugar and the amount of ammonia in the urine both became normal. The oxybutyric acid, aceto-acetic acid, and acetone were also reduced rapidly to very small quantities.

I must not discuss the metabolic changes in detail to-day, but may point out that this patient was not only unable to use carbohydrate in the

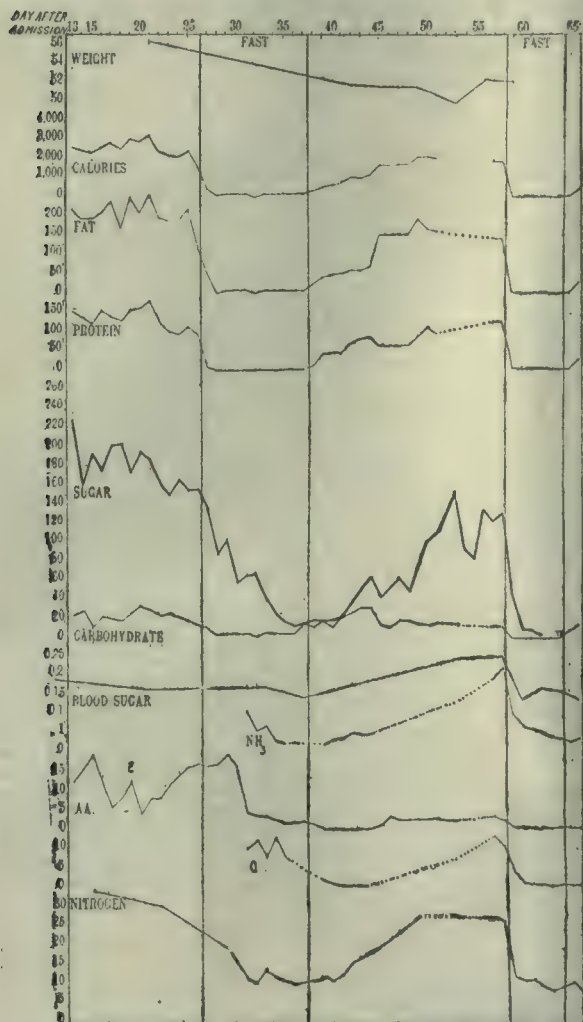
food but was excreting a large quantity of sugar formed from his tissues and from the protein, and perhaps the fat in the food. Fasting had the effect of enabling him for the time being to burn all, or nearly all, of the sugar produced from his tissues. Further, as less sugar was passed out after he was fed, it had improved his capacity for burning sugar made out of protein or fat in the food, and greatly reduced his acidosis. How far the benefit will reach remains to be seen. It is certain, however, that in a case of this severity such a good effect on the disordered metabolism cannot be attained by any other means at our disposal at the present time.

It is clear, therefore, that a fast offers the quickest means of restoring, to a greater or less degree, the power of assimilating the sugar which is made in the body from the protein, and possibly the fat, of the tissues or the food. It must not be forgotten, however, that the power to use sugar made in the body may be restored in all but the most severe cases, though much more slowly, by a strict adherence to a diabetic diet. This point is of such great



Case 337.—Analyses by A. B. Weir, B.Sc.

importance, especially to those who have to go on working, that I will venture to take up your time further by giving



Case 338.—Analyses by A. B. Weir, B.Sc. E. Estimated separately March 24th to April 10th, also 17th-19th and 25th to May 2nd.

two examples of it, both in marked cases of diabetes, one with but little acidosis, and one with acidosis well established.

CASE VII.—Diabetes with Mild Acidosis treated by a Modified Strict Diet. (Case 134.)

The patient, aged 44, gave a family history of diabetes and phthisis. He worked several years in a tropical climate and had had dysentery. Nine years ago he was near to death for some weeks with an abscess in or above the liver, either dysenteric or secondary to a gangrenous appendix. After a slow recovery he remained in this country. For the past two or three years he has done hard and responsible work. Two months before admission thirst and polyuria came on suddenly and glycosuria was found.

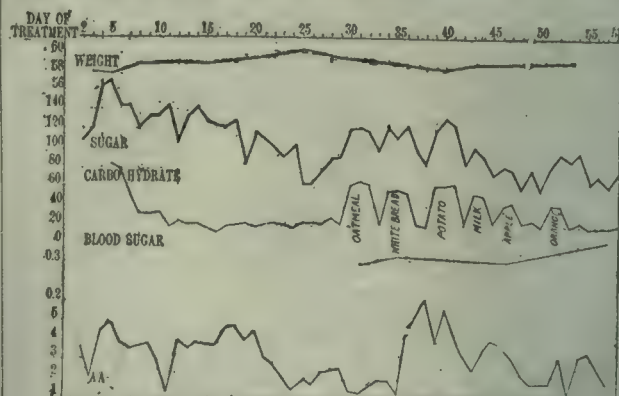
On admission the urine contained 137 grams of sugar, 0.3 of aceto-acetic acid and a little acetone. The blood contained 0.26 per cent. of sugar. In the course of three weeks the carbohydrate in the food was diminished, and after that a strict diet was taken for a week. By cutting off carbohydrate gradually an increase of the acidosis was successfully avoided. A few grams of sugar, however, still persisted in the urine. Tests were then made to find out what carbohydrates were assimilated best; these showed very poor assimilative power except for apples. He went away at the end of two months, with about 5 grams of sugar per day in the urine. The symptoms had disappeared. There was great gain of vigour and an increase of weight of 5½ lb. The blood sugar on departure was 0.22 per cent. He was advised to keep to a strict diet, with an apple three times a week and two vegetable days a week. He did this conscientiously, with the result that the urine became sugar-free two months later and remained so.

A year after his first admission he returned to be "chemically overhauled." In the interval he had been working continuously. The urine was free from sugar. Aceto-acetic acid and acetone were present, but not enough to estimate. The blood sugar had become normal, 0.11 per cent. On adding small quantities of starches no sugar appeared, and in the course of three weeks

the carbohydrate was increased until a diet containing 81 grams carbohydrate, 96 of protein and 180 of fat was taken, yielding 2,400 calories. On this there was no sugar or acetone, and only a trace of aceto-acetic acid.

CASE VIII.—Diabetes with Marked Acidosis treated by a Modified Strict Diet. (Case 151.)

A man of 57 had had cramps in the legs for eighteen months, had lost over a stone, and felt ill. Polyuria was noticed and sugar discovered. On admission the blood pressure was 180, the liver enlarged. The urine contained 172 grams of sugar, 5 grams of aceto acetic acid, and 0.2 gram of acetone. The blood contained 0.37 per cent. of sugar. The patient bore restriction of carbohydrate badly at first, but became accustomed to it later. The sugar did not fall, however, below 60 to 100 grams a day after three weeks on a strict diet. The aceto-acetic acid, though rising at first, settled to a level of about 2 grams a day. Tests with various carbohydrates showed that 76 per cent. of the sugar in milk was assimilated, rather less from apples, and



Case 151.—Analyses by A. J. Leigh, B.Sc.

very little from the other forms of starch and sugar tried. After two months the symptoms were almost gone, the general health much improved, and the weight heavier. There was still, however, 50 to 80 grams of sugar a day in the urine and 2 to 3 of aceto-acetic acid. The blood sugar varied from 0.30 to 0.35 per cent.

He was advised to keep three absolutely strict days a week and to take an allowance of a pint of milk and an apple on the other days.

After a year's work with careful adherence to the diet prescribed the urine is free from sugar, diacetic acid, and acetone, and the patient in good health. Small quantities of other carbohydrates are now being added to the diet.

Both these patients took food of adequate caloric value, were well nourished, and able to work steadily and efficiently, the evidence of the disease becoming less all the time. I bring them forward to show that cases which were in some respects intractable in a two months' observation did well as a result of keeping steadily to their diet, after an investigation had been made to find what food was suitable for them.

CONCLUSIONS.

Much time will be needed before a reasoned judgement on the fasting method can be given. At the present time I may summarize our observations as follows:

Fasting, up to several days, was well borne by cases of mild and severe diabetes of ages ranging from 24 to 79.

The urine was made free from sugar, the blood sugar was reduced, and acidosis greatly diminished.

All the patients felt better for the fast.

In most cases the food could be increased gradually, without glycosuria, until a more liberal diet was being taken than before treatment.

The rapid abolition of sugar had an excellent mental effect. It shortened tedious treatment, and enabled more time to be given to finding out what food should be taken and in what quantity.

The gradual increase of food after the fast calls for skilled dietetic arrangements and careful daily attention. It is not so easy as an ordinary strict diabetic diet. It is useless, however, except in the mildest cases, to increase the food quickly after the fast, as sugar returns at once.

During the gradual increase of food the patient is under-nourished. In severe cases courage and endurance are called for on his part, as it may be necessary to keep him so short of food that he is inefficient.

Regular estimation of the blood sugar should be made.

In some cases of diabetes as good an effect may be

attained, though much more slowly, without fasting and subnutrition, with its risk of depression and weakness, provided the patient is willing to keep permanently to the diet which has been found by careful testing to be suitable to his case.

At the present time the doctor, in order to decide as to the best treatment in severe cases, must judge of the temperament of the patient. To some it is purgatory to be continually having to think about tests and figures. These will do best with definite allowances in an otherwise rigid diet. In others the disadvantages of a half-starved condition must be balanced against the mental effect of the absence of sugar. We do not yet know whether the progress of the disease is arrested by this method in cases in which it would not be arrested by a permanent adherence to a rigid, though plentiful, diet.

For all milder cases, indeed for the majority of all cases, Dr. Allen's procedure offers great advantages. We have evidence enough that such patients, though not cured, may be freed from the signs and symptoms of their complaint. This beneficent result has been attained through the extraordinarily wide and painstaking researches of Dr. Allen on animals. None but those whose lot it has been to attempt to make researches and to describe them when made, can appreciate the perseverance and the labour which have gone to the making of Dr. Allen's book and subsequent writings. I am sure we rejoice with him that he has been the means of enabling a clear step forward to be made in the treatment of a distressing complaint.

REFERENCES.

F. M. Allen: *Amer. Journ. Med. Sci.*, 1915, cl. 480; *New York State Journ. of Med.*, 1915, September. Joslin: *Boston Med. and Surg. Journ.*, 1915, clxxii, 241.

A SIMPLE SYSTEM OF SKELETON SPLINTING.

By C. MAX PAGE, M.S., F.R.C.S.,
CAPTAIN R.A.M.C.(S.R.).

THE value of skeleton splinting in the treatment of gunshot fractures has been generally recognized during the present war. Lieutenant-Colonel Robert Jones¹ was responsible for the introduction of this type of splint, and for the extension of its use in our army medical service. I have previously described² how the aluminium stapled strips contained in the field fracture box may be used to make splints of this kind. These stapled strips, however, having been designed to form imitations of the classical solid splints, do not afford an ideal method of coupling lengths for the formation of skeleton frames. The joints effected by the method are not mechanically sound, and hinge formation is not possible. I propose here to describe a system of coupling which has not these defects, and, moreover, one in which the process can be easily and rapidly carried out.

MATERIAL AVAILABLE.

Aluminium strips, $\frac{1}{2}$ in. by $\frac{3}{4}$ in., form splints which are easily malleable by hand, and are sufficiently stable for field purposes. In the case of the larger splints for the lower extremity, however, the material is not always sufficiently rigid for prolonged treatment. Further, at the present time the supply of aluminium for surgical purposes is limited.

There are similar objections to the use of copper and zinc alloys; annealed mild steel appears to be the most satisfactory material available. Annealed steel, $\frac{1}{2}$ in. by $\frac{3}{4}$ in., has much greater vertical rigidity than aluminium, and though it has more lateral spring, it is sufficiently malleable for practical use.

I will therefore describe the system of coupling in relation to the use of annealed mild steel.

Specification of Material.

The stock material consists of five-foot lengths of annealed mild steel $\frac{1}{2}$ in. by $\frac{3}{4}$ in. This material is of standard type, and is sold by any iron merchant. The strips are drilled throughout their length at 1 in. intervals with holes of $\frac{1}{8}$ in. diameter. The holes must be accurately distanced throughout the strips.

Split steel rivets $\frac{1}{2}$ in. by $\frac{3}{4}$ in. are required to couple the

various lengths after they have been bent to form the splint required.

Tools Required.

A *cramp* of the new pattern supplied in the field fracture box; this serves to hold the strips while they are being bent in the direction of their vertical section.

A *screw wrench* with slots $\frac{1}{2}$ in. by $\frac{3}{4}$ in. cut in the jaws $\frac{1}{2}$ in. from the shaft (Fig. 1). This wrench holds the strips and supplies the leverage for bending them; it also serves as a hammer.

A *hacksaw* for cutting the material.

A *triangular file* for trimming the ends or for cutting the strips if the saw be not available.

A pair of "bell" pliers with a screwdriver end on one handle; the latter is used to spread the rivets, and the pliers to crush them after they are in place (Fig. 2).

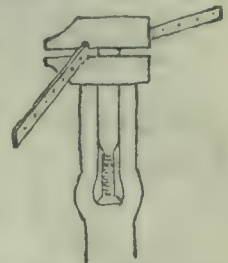


FIG. 1.—Screw wrench with $\frac{1}{2}$ in. by $\frac{3}{4}$ in. slots cut in jaws, holding a strip of splinting.

Method of Cutting Strips.

To divide the mild steel strips at the required level the material is cut half through with a hacksaw, and then snapped off by hand. In using the hacksaw, the tool should only bear by its own weight lest the blade be broken.

The triangular file can be used for the same purpose, but is not as neat or quick to work with.

Method of Bending Strips.

The strips can be moulded on the flat by hand; if a sharp angular bend is required, the screw wrench should be used.

To bend the material on edge, the strip is fitted into the cramp, the screw wrench is fitted home on the strip close to the cramp, and then used to lever the material to the desired angle (Fig. 1). A right angle is the sharpest bend which can be effected in this way, unless the material is previously heated, and even then there is a tendency for the strip to buckle; this tendency is overcome by removing the strip from the cramp in the course of the process and beating out the angle on an anvil. If the part of the strip to be bent is first heated in the flame of a Primus stove, the procedure is much facilitated.

Method of Coupling Strips.

Strips are united in their long axis by passing split rivets through opposed holes. The rivets are then spread with the screwdriver end of the pliers and finally crushed or hammered out (Fig. 2). Three rivets give a firm longitudinal junction.



FIG. 2.—Side view of two lengths of splinting, showing (1) rivet in place, (2) spread, (3) crushed down.

A hinge joint is formed by a single rivet.

A rigid joint at any angle is made by strutting such a hinge joint (see Fig. 3, d).

Completion of Splint for Application (Pads and Slings).

The only part of these splints which requires formal padding is the crutch in those of the modified Thomas's pattern (shown in Fig. 3 at A, in Figs. 6 and 11, and in Fig. 12 at c). This is best effected by winding tow evenly on to the part of the frame which forms the crutch; the tow is then fixed by bandaging firmly over it. For treating compound fractures in the early stage, it is desirable to cover the pad so formed with impermeable material. I have found a length of bicycle inner tube the most satisfactory; this should be rolled on to the splint in the same way as a rubber cricket bat handle is put on; it is then fixed at either extremity with a strip of adhesive plaster.

In splints for the upper extremity the crutch may often be sufficiently padded by passing a length of stout drainage tube on to that part of the frame.

In general, the splints are completed with slings. These are best made from some adaptable but inextensible material, such as old linen. In certain cases troughs of

perforated zinc sheeting may be substituted for the fabric slings. No padding is ever needed between a linen sling and the skin.

TYPE SPLINTS FOR THE LOWER EXTREMITY.

1. Modified Thomas's Knee Splint.

Two full lengths (5 ft. each) of splinting and one of about 20 in. are required (Fig. 3). The crutch, A, which should



FIG. 3.—Modified Thomas's knee splint. A, Crutch; B, notch in stirrup extremity; C, prop; D, strut fixing prop.

measure about 15 in., is bent in the central part of one full-length strip. This involves two right angle bends on edge. The crutch should not form simply the section of a circle; it should be moulded as shown in Fig. 4. The stirrup extremity, B, is readily moulded by hand in the form



FIG. 4.—Diagram of proper shape of a thigh crutch for the right side, seen from above.

shown in the figure from the remaining long strip. These two parts are then united by rivets to give a splint of the required length; for an average case there should be an overlap of 9 in. on the inner side and 7 in. on the outer (supposing the crutch to have been centrally placed); this gives the necessary obliquity to the crutch. Three rivets on each side give a firm junction. The prop, C, is then bent and attached to the splint by a rivet and strut, D, about 18 in. from its lower extremity; the base of the prop should measure at least 10 in. if the splint is to be used for transport.

An arch may be placed between the side limbs of this splint, about the level of the knee-joint if particular rigidity is required. A footpiece, as shown in Figs. 6 and 9, may be fitted when necessary. The splint may be flexed at the knee-joint in those cases in which straight extension does not produce good alignment of the fragments of the femur; under these circumstances it will be found necessary to bend the side members of each section separately before riveting them together.

This splint, completed with linen slings, is well suited for the treatment of many cases of fractured femur as well as injuries of the knee-joint and tibia. It should be slung in the ordinary way from four points (as shown in Fig. 7), the prop only coming into action during transport.

A strap passed across the front of the thigh keeps the crutch in place during movement; another one should be passed in front of the tibia just below the knee-joint; this should only be tightened when the patient is rolled on his side; it will be found that the flat surface of the side members of the splint adapts itself closely to the surface of the thigh, thus giving excellent lateral support to the limb in the circumstances.

The fixed extension obtained by means of this splint is effected by a canvas strap passed around the notch in the stirrup of the splint and the spreader.

2. Hodgen's Splint.

This type (Fig. 5) is made in the same way as the previous pattern, except that an arch, C, is substituted for a



FIG. 5.—Hodgen's splint. A, Anterior thigh arch; B, stirrup notch; C, knee arch.

prop, and the side members are slightly flexed at the level of the knee-joint.

3. Skeleton Double Incline Splint.

This splint (Fig. 6) is made from the same elements as the modified Thomas's knee splint. The side members of

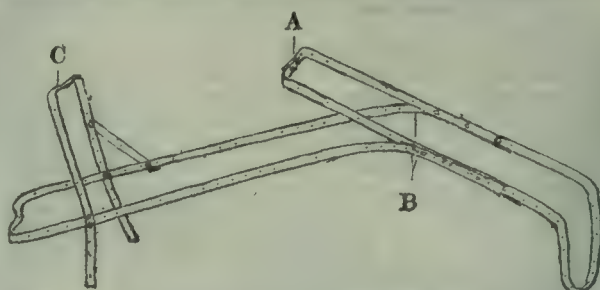


FIG. 6.—Skeleton double incline splint. A, Knee stirrup; B shows bend in lower side members of the splint; C, foot arch and props.

the crutch section are bent in and joined with two rivets to form a 4-in. stirrup, A. The side members of the stirrup section are bent to an angle of about 135 degrees at B, before being riveted to the upper part.

In the type illustrated in the figure (6) a combined foot-piece and prop C is bent from a length of about 24 in., and is riveted and strutted in the required position. If no control of the foot is required, a simple prop may be substituted.

This splint has been designed for use in cases in which both the tibia and femur are broken. It allows extension to be applied independently to each bone. The splint is shown in use in Fig. 7.

The extension appliance for the femur may be of the adhesive variety, or when insufficient whole skin is avail-

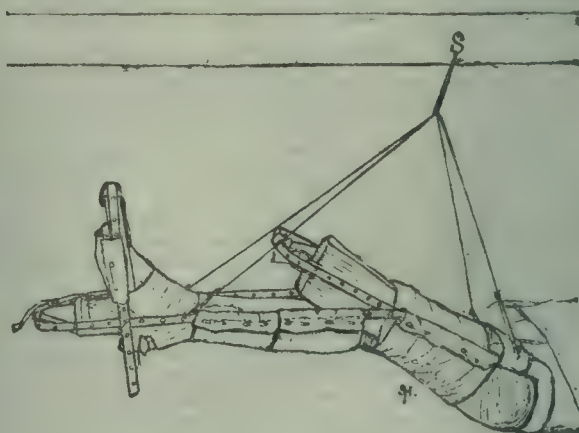


FIG. 7.—Skeleton double incline splint applied. The splint is suspended by four points from a beam. Linen slings support the limb, and fixed extension is applied separately to thigh and leg. The crutch has been padded as described in the text.

able for the purpose a collar of plaster-of-Paris may be moulded on to the condyles of the femur. A strap or elastic extension is passed from the transverse a round the spreader of the extension appliance (Fig. 7).

In general the method of application of the splint is the same as for a Thomas's knee splint; the strap in front of the thigh to keep the crutch to its work is essential. In cases where the tibia and fibula are broken the footpiece comes into use. This may be completed with fabric slings of zinc sheeting; when necessary the foot may be suspended as shown in Fig. 8.

In some cases suspension by a single strip of fabric stuck to the sole of the foot with glue (Heusner's) may be an advantage; this is especially the case when there is paralytic foot-drop. The footpiece should then be set rather higher up on the splint than the level of the sole of the foot in order to give the necessary control of the tendency of the foot to become plantar flexed.

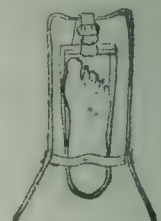


FIG. 8.—Diagram to show method of suspending the foot with an adhesive strap from the foot arch.

4. Knee Splint (Jones).

The backbone (Fig. 10) is made from two lengths of about 42 in. riveted together at a few points and bent to shape by hand. One thickness of the splinting is not sufficiently rigid. Thigh, calf, and foot pieces of suitable dimensions made from zinc sheeting are then riveted on to the backbone. The zinc sheeting can be reinforced, if necessary, by riveting stout cardboard, linoleum, or similar material on to it. To more closely copy the original pattern of the splint, the footpiece may be made from two short lengths of the splinting.



FIG. 9.—Tibia splint. A, Stirrup notch; B, foot arch hinged and strutted on to frame; C, thigh arch similarly attached.

two pieces of 24 in. and 20 in. respectively.

The main frame is bent from the full length with a notched stirrup A, and slight angles at the level of the knee-joint. The footpiece and prop B (24 in.) is made as for the double incline splint. The upper arch and props C are similarly riveted and strutted on. The splint is best completed by fabric slings.

For any case in which the fibula is intact no extension will be required. If both bones are broken and there is any tendency to overlap, fixed extension is effected as follows: A light collar of plaster-of-Paris is moulded round the leg at the level of the tubercle of the tibia; the side members of the splint are then fixed to this collar by another encircling plaster bandage, or else two side straps may be passed up from the collar and attached to the sides of the arch C. Counter fixation having been thus secured, traction is made through a strap passed around the notch in the stirrup at A and the spreader of the extension attachment.

6. A Stump Tractor (after Makins).

This (Fig. 11) is made in the same way as a modified Thomas's knee splint, but it will naturally be shorter.

An apparatus for thigh stumps is made from one full length of splinting; a prop of the type shown in the figure is added, it should be of such a height that while the hip-joint is not materially flexed the lower surface of the stump is kept clear of the bed.

Extension is made from an adhesive attachment to the skin through a circular or cross-shaped spreader. The adhesive should be applied to the greatest possible surface of skin.



FIG. 11.—Stump tractor.

application and use of these splints which may be referred to here.

In cases of fractured femur, in the absence of wounds in the leg, a simple adhesive extension (Buck's) is the most satisfactory.

The apparatus consists of two side straps of 2-in. adhesive plaster continuous below over the spreader. The spreader should be slightly wider than the measurement between the outer surfaces of the two malleoli. The side straps are lined with lint in their lower six inches.

After shaving the limb, the side straps are applied; they should adhere to the upper two-thirds of the leg and

5. Tibia Splint.

This (Fig. 9) is made from one full length of the splinting, and from



FIG. 10.—Jones's knee splint. The backbone is made from two lengths of splinting lightly riveted together; thigh, calf, and foot pieces are made from perforated zinc sheeting.

Application of Extension Apparatus.

There are certain practical considerations in relation to the general

to as much of the skin of the thigh as circumstances permit. The side straps are kept to their work by a carefully applied open wove bandage, extending from 3 in. above the level of the malleoli to the upper extremity of the plaster. Circumferential bands of adhesive plaster are never necessary, and their edges are always liable to cause pressure sores as the extension slips slightly in the course of treatment.

In the place of adhesive plaster strips of fine calico may be used, a soluble glue being employed as the adhesive medium. Heusner's glue is a satisfactory preparation of this kind, and is made of cheap ingredients; its composition is as follows:

Resin	...	...	...	...	50 grams.
Venice turpentine	...	...	...	...	5 grams.
Methylated spirits	...	...	...	...	50 c.cm.
Benzine	...	...	...	...	25 c.cm.

After the skin has been shaved the glue is painted on the required area and allowed to become "tacky"; the fabric is then pressed on to it and a bandage applied over the whole. No further application of the glue should be made. Extensions put on in this way hold very firmly for a few weeks; slight vesication sometimes occurs at the margins of the surfaces of application.

If multiple wounds prevent the use of an adhesive extension, the pull must be taken from a more limited area. In such circumstances plaster-of-Paris is the best medium. It can be applied as an ankle or knee-cap. An ankle is made by binding one or two muslin plaster bandages directly around the ankle and incorporating the tails of the extension in it. The skin is greased and if necessary shaved. The bandage should extend well down on the os calcis and forward on the instep to within an inch of the base of the toes. The ankle is moulded on to the prominent points about the ankle, and allowed to harden before any extension is applied.

The knee-cap takes its main purchase from the condyles of the femur, particularly the inner one. A plaster bandage is applied evenly to the knee-joint area, extending from one inch above the upper border of the patella to the level of the joint line. As it dries the plaster is laterally pressed and so moulded firmly on to and above the prominences of the two condyles of the femur; the grooves so formed should be held till the casing becomes firm.

These two procedures have the disadvantage that they fix the joints covered, but they allow very powerful extension to be made during the necessary period. In my experience most leather anklets if used under pressure cause sores in a few days, or even during the period of transport from clearing station to base.

Control of the Foot.

In many cases of fractured femur, when a limb has been put up on a Thomas's or similar splint, the patient is able to fully dorsiflex his foot voluntarily. If he is encouraged to do this regularly, no fixation of the foot need be practised.

In other cases, especially when there has been some injury to the external popliteal nerve, the position of foot-drop tends to become permanent. In these circumstances a foot arch should be attached to the splint as shown in Figs. 6 and 9, a bandage stretched tautly across the arch will then serve to keep the foot up. In some cases suspension from the heel with a strip of adhesive may be resorted to, as shown in Fig. 8. An alternative method is to apply a strip of fine calico to the surface of the sole of the foot with soluble glue, and to suspend from this.

Undue external rotation of the foot and leg in cases of fracture does not often occur in limbs which are put up properly extended.

The correct position of the foot is determined by comparison with the sound side, it being borne in mind that the foot rolls out naturally a little in the passive supine position.

Avoidance of Pressure Sores.

Pressure sores are, and should be, the great bugbears of the surgeon treating fractures of the lower extremity. In cases treated on splints of the above described types they may appear in the following situations:

(a) *Over the Area Exposed to the Pressure of the Crutch.*—Theoretically, a sore from crutch pressure should develop over the tuber ischii. Not infrequently,

however, the skin in the genito-crural area may be eroded, and sometimes that in the ischio-sacral angle. Such sores should not appear if the patient is rolled on his side daily and the skin under and around the crutch cleaned with spirit, gently massaged, and then powdered. If wound discharges gain access to the area, even more frequent attention is necessary.

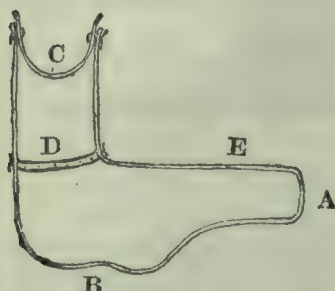


FIG. 12.—Bent arm splint. A, Hand arch which is used for a hand grip or for the attachment of an extension strap in cases of fracture of the forearm; B, notch for extension strap in cases of fractured humerus; C, axillary crutch hinged by single rivets on to main frame; D, reinforcing arch which may be omitted.

avoided by bending out the splint at the level implicated, and not by the insertion of a pad.

(c) *In Relation to Extension Attachments.*—Adhesive extensions applied as described above will not damage the skin; on the other hand, transverse bands of adhesive strapping at the level of the tubercle of the tibia and about the ankle are prolific sources of sores.

Plaster-of-Paris appliances gain a very positive hold of the limb, and if a very powerful extension is applied sores may result, but they are not frequent if the plaster casing is carefully moulded to the limb and allowed to harden properly before any pull is applied. Such extensions should be changed if the limb shrinks much in size from the subsidence of swelling or from muscle wasting.

TYPE SPLINTS FOR UPPER EXTREMITY.

Modified Straight Thomas's Arm Splint.

This splint is a small replica of the lower extremity



FIG. 13.—Bent arm splint diagrammatically applied for a case of fractured humerus. The axillary crutch is padded by a length of drainage tubing. F, Extension strap for a case of fractured humerus.

venient level in the elbow region in order to reinforce the splint as a whole. The crutch is padded with rubber tubing and internal slings applied to the frame to complete the splint for use.

For cases of fracture of the humerus when light extension may be required, the hand is fixed to a pad on the frame either at A or E. Extension is then made by a strap or a few turns of rubber bandage passing over the front of

the first few days after the application of a splint before the skin has adapted itself to the new situation. Great care should therefore be taken in sending patients from a clearing station to the base to minimize any necessary pressure.

(b) *Over Lateral Prominences of the Limb.*—The side members of the splint may press on the limb at the knee or the ankle; such a possibility should be

at the level implicated,

the forearm and around notch B. The splint is shown diagrammatically applied in Fig. 13. When the splint is used for fractures of the forearm, extension is obtained by fixing the upper arm to the posterior part of the frame and extending from A through an adhesive attachment to the wrist and hand. The pivoting of the crutch (C) allows of easy temporary or permanent abduction of the arm.

Hinged Elbow Splint.

The frame is made (Fig. 14) from two upper side pieces of about 7 in. length; the forearm and hand arch require a length of about 40 in. The single rivet hinge joint at the elbow is fixed at the required angle by one or two struts. The splint is completed with zinc troughs, as shown in figure.

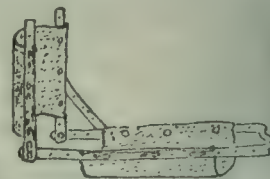


FIG. 14.—Hinged elbow splint strutted at a right angle.

Jones's Elbow Splint.

The backbone of this splint is made (Fig. 15) of two lengths of about 26 in., riveted together at a few points. Two troughs are added, as shown in the figure. This splint can be bent so as to be used as an anterior splint if necessary.

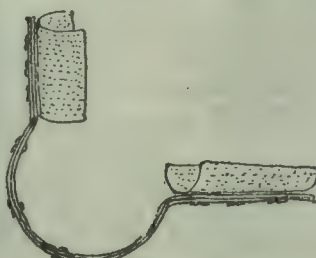


FIG. 15.—Jones's elbow splint.

Wrist Splint.

The forearm and hand frame (Fig. 16) is made for average cases from a length of 36 in. The upper arm arch and side pieces are bent from a length of about 12 in. The latter is hinged and strutted on to the main frame. If it is desired to put the hand up in extension the frame is bent at B, as shown.

Slings are arranged to hold the upper arm and forearm. The wrist can be held extended by a single narrow band across the palm, if it is desired to leave the fingers free.



FIG. 16.—Skeleton of forearm and wrist splint.

CONCLUDING NOTES.

It should be understood that the measurements and details given for all the above described splints are for average cases. Modifications in size and design will often be necessary, and are readily carried out.

If aluminium strips be used on the same system the ease with which angular bends can be carried out on edge with this material will make many of the above described single rivet and strut joints unnecessary.

The splints can always be reinforced, if exceptional rigidity is required, by the addition of arches or by riveting extra lengths on to the main frame.

REFERENCES.

- ¹ Robert Jones: The Mechanical Treatment of Gunshot Fractures, BRITISH MEDICAL JOURNAL, 1915, i, 101.
- ² Max Pogo: Aluminium Skeleton Splints, BRITISH MEDICAL JOURNAL, 1915, i, 839; and Notes on the Transport of Cases of Fractured Thigh, BRITISH MEDICAL JOURNAL, 1915, ii, 173.

MEDICAL inspection in Boston under the supervision of the School Board came into force on November 22nd, 1915. A report by Dr. W. H. Devine, Director of Medical Inspection, on the physical examination of children in the public schools from December 1st, 1915, to April 1st, 1916, states that 49,777 pupils were examined; of these, 34,792 were found to present defects. The conditions classed as "defects" included defective nasal breathing, hypertrophied tonsils, bad teeth, defective palate, cervical glands, pulmonary disease (24 tuberculous, 456 non-tuberculous), heart disease (organic 725, functional 888), nervous disease, chorea, joint and bone disease (tuberculous 49, non-tuberculous 877), skin disease, rickets, malnutrition, and mental deficiency (243). The number of cardiac cases, according to Dr. Devine, suggests that the prevention of heart disease offers a great field for research in prophylactic medicine.

A "CAGE" SPLINT FOR FRACTURES OF THE HUMERUS.

BY CAPTAIN E. M. COWELL, R.A.M.C.(S.R.).

The splints that experience has shown to be of value in the treatment of fractures of the humerus at a casualty clearing station are the following:

1. *Surgeon-General Sir Anthony Bowlby's splint*, shaped like the letter P lying on its side, and composed of a rubber-covered iron loop made to pass over the shoulder and attached to a wooden bar for the support of the forearm. This splint is useful for fractures of the upper part of the shaft, but is difficult to keep in position.

2. *Clarke's F-shaped splint* is made with a long horizontal bar supporting the forearm, and an additional piece of wood hinged on to the internal vertical part to give support posteriorly. This splint is extremely useful where there is great loss of tissue and the bone is severely comminuted. Irrigation can be readily performed, the wound can be easily inspected at frequent intervals without disturbing the patient, and where the onset of gas gangrene is expected the wounds, unless posterior, can be exposed to the air or sunlight if desired.

3. *Lieutenant-Colonel Robert Jones's Modified Thomas's Arm Splint*.—Neither the straight nor special bent form has been used owing to unsuitability for travelling.

4. *Captain Max Page's Aluminium Splint*.—This closely resembles Sir Anthony Bowlby's iron and wood splint, but is less rigid.

5. *Lieutenant-Colonel G. M. Giles's Metal Splint*.—This splint was recently described,¹ and presents one important feature also seen in the splint described below—namely, a firm metal loop passing over the acromion, fastened under the opposite axilla, and thus forming a fixed point from which extension is made. The splint, however, is made from materials not at hand in a clearing station, and takes "less than an hour" to manufacture.

The Cage Splint.

Having tested the above-mentioned splints by a considerable experience, I have for several months past used a splint of my own device, which, in addition to the advantages of the several splints mentioned above, presents many of its own. It is very light, and supports the upper limb completely, allowing ready access to the wounds. In most cases the patient can be evacuated as a sitting case, and moves about without pain or discomfort. The splint can be put together in a few minutes by an intelligent orderly from the aluminium splinting, abundance of which is always available. It is useful for all fractures of the humerus, more especially for those of the lower two-thirds of the shaft, also for severe fractures of the elbow-joint and extensive wounds of the upper part of the forearm.

The details of construction of the splint can be readily seen by reference to the figure. A bar of aluminium splinting, 3 feet long (12 "divisions") is bent with the fingers to follow the outer curve of the shoulder, arm, and elbow. In an average patient this will bring the eighth rivet (counting from above) immediately beneath the olecranon. From this point, using the groove provided on the top of the fracture box for the purpose, a rectangular bend is made to carry the rest of the bar forwards along the ulnar border of the forearm. This curve is made away from the middle line of the body, and therefore fits a right or left arm as required.

The splint is completed by two short pieces, 9 in. long, connected by transverse pieces of aluminium tape 12 in. long, which are passed between the third, fourth, and fifth rivets of the long bar, and thus form a cage which wraps round and encloses the arm. Similar pieces, 12 and 10 in.



Splint applied; dressings not shown.

¹ Described and figured in the *Memorandum on the Treatment of Injuries in War*, 1915.

respectively, are connected to the last foot of the bar, and form a cage for the forearm.

In the *Royal Army Medical Corps Journal* of March, 1916, there is a description of this splint as originally devised, without the forearm attachment or "cage." With this cage it is found that extension is easier to apply, and that there is greater rigidity and comfort to the patient.

Application.

The application of the splint is simple, and takes but a few minutes. In cases of compound fractures, the wounds having been carefully dealt with under an anaesthetic and drainage having been established, etc., the dressings are applied in such a way that a sufficient clean area is maintained, and at the same time the gauze in immediate contact with the wounds can be changed through the "windows" of the cage, with the minimum amount of disturbance.

The shoulder-piece is fixed over a sufficiently thick pad of wool, and kept in position by tapes passing under the opposite axilla. Next, the upper cage is fitted closely round the arm, and the whole bandaged. The forearm is finally put up in any desired position. If the musculo-spiral nerve is damaged, the hand and wrist may be maintained in a dorsiflexed position by suitable adjustment of the lower cage.

In simple fractures care must be taken to preserve sufficient extension at the elbow.

The question of the position of the forearm with relation to the trunk must be considered. The patient is undoubtedly more comfortable for his journey with the forearm supported across the front of the chest, but in the majority of cases the lower fragment is rotated at right angles to the upper. The best position must be decided for each case individually and controlled by skiagrams.

The splint is approved by Colonel Cuthbert Wallace, A.M.S., and is used extensively by my colleague Lieutenant A. C. Bryson.

Conclusion.

In conclusion, I should like to point out the importance of the system of aluminium splinting to those surgeons in hospital and private practice who are not yet acquainted with it. No hospital splint room will in future be completely equipped without a supply of the material, and, moreover, speaking from the experience of many of my friends and myself, few surgeons will in future care to be without the aluminium splinting material for their private work.

REFERENCE.

¹ BRITISH MEDICAL JOURNAL, December 4th, 1915.

THE INHIBITORY ACTION OF SALIVA ON GROWTH OF THE MENINGOCOCCUS.

BY

LIEUTENANT-COLONEL M. H. GORDON, R.A.M.C.

In March, 1915, when teaching some pupils to recognize colonies of the meningococcus in plate cultures made from material taken from the nasopharynx, it was thought that a simple method of demonstrating the first step in the identification of this micro-organism would be to mix a suspension of it with saliva, and to make a plate culture from the mixture.

This, accordingly, was done. It was found, however, that whereas numerous colonies of salivary bacteria, chiefly streptococci, developed, no colonies of the meningococcus appeared. A plate culture made at the same time from the meningococcus suspension yielded numerous colonies of this micro-organism. Clearly, then, in this instance, the saliva had inhibited growth of the meningococcus.

As Captain Colebrook of St. Mary's Hospital had recently shown me his discovery of the inhibiting power exercised upon the growth of the meningococcus by a Gram-positive coccus which he had found to replace the meningococcus in the nasopharynx of a carrier when the latter became "free," it occurred to me that possibly the present phenomenon might be an instance of a similar action. Equally, however, it might be due to some inhibitory

effect of the saliva itself, apart from any bacteria contained by it. The following experiments were made for the purpose of clearing the matter up.

EXPERIMENT I.

About one cubic centimetre of normal saliva was collected in a sterile test tube. This was then well mixed with a few drops of a broth suspension of meningococcus made by richly inoculating a broth tube from a twenty-four hours' nasagar culture. Droplets of this mixture were spread on two plates of nasagar and incubated. At the same time a control plate was inoculated from the broth suspension of the meningococcus.

Result.—Both plates from the mixture showed profuse growth of salivary bacteria, but no meningococcus colonies. As the control plate yielded a good crop of colonies of this micro-organism, it was plain that the saliva had inhibited growth of the meningococcus.

EXPERIMENT II.

Saliva was smeared across a plate of nasagar in a band about a centimetre in diameter. Meningococcus suspension was smeared across in a similar band at right angles to the first. On incubation it was found that meningococcus appeared in sections of its band where the saliva had not been spread, but where the bands crossed only salivary bacteria grew.

EXPERIMENT III.

Meningococcus suspension was smeared all over the surface of a nasagar plate. A drop of saliva was then smeared over half of it. Meningococcus colonies only came up on the half of the plate where saliva had not been smeared.

EXPERIMENT IV.

A single drop of saliva was distributed over three nasagar plates in gradually diminishing proportion. A loopful of meningococcus suspension was then distributed over each plate in turn, care being taken to sow the same amount on all. The result was as follows:



The fine dots represent colonies of salivary bacteria; the heavy dots represent colonies of meningococcus.

The first plate showed colonies of salivary bacteria only. The second plate showed the majority of the same and two colonies of the meningococcus. The third plate showed more colonies of the meningococcus and fewer colonies of the salivary bacteria. The colonies of the meningococcus, therefore, were in inverse proportion to those of the salivary bacteria.

EXPERIMENT V.

This experiment was made in order to ascertain in what dilution saliva loses the property of inhibiting growth of the meningococcus.

A cubic centimetre of saliva was submitted to a series of decimal dilutions. One-tenth of a cubic centimetre, first of saliva, then of each dilution in turn, was taken up in a series of capillary pipettes. An equal amount of meningococcus suspension was next drawn into each pipette and the contents well mixed, expelled on to a nasagar slope, and the latter incubated.

Result.

Amount of Saliva Sown on Tube.	Growth of Meningococcus.
0.1 c.cm.	<i>Nil.</i>
0.01 c.cm.	Two colonies.
0.001 c.cm.	Confluent over lower half of tube.
0.0001 c.cm.	Confluent.
Control of meningococcus suspension only	Confluent.

This experiment showed that the inhibition became diminished when the saliva was diluted one-hundredfold and over.

EXPERIMENT VI.—Saliva from "Carriers."

The preceding five experiments were made with saliva from normal individuals. The present test was made with saliva from "carriers." Through the courtesy of Captains Douglas and Colebrook, samples of saliva were obtained from six carriers who were at that time under treatment at St. Mary's Hospital. Although these six persons one and all harboured the meningococcus—or a micro-organism closely resembling it—in their nasopharynx; their saliva not only failed to show

the meningococcus, but was found to inhibit growth of this micro-organism in the same way as samples of saliva from normal persons had been found to do.

EXPERIMENT VII.

Nasal mucus was obtained from three normal persons and tested in the same way against meningococci, with the result that, in contrast to saliva, it was found to have no inhibitory action on the growth of the meningococcus. The specimens of nasal mucus tested grew colonies of staphylococcus and of *M. catarrhalis* which did not impede development of the meningococcus.

EXPERIMENT VIII.—Effect of Heating Saliva.

A sample of saliva was divided into two portions. One was heated to 55° C. for half an hour. Both were then tested with regard to their capacity of inhibiting growth of the meningococcus.

Result.—Whereas the unheated saliva inhibited growth of the meningococcus as in previous experiments, the heated saliva was found to be completely void of this property. The plates from this heated saliva showed a profuse and pure culture of the meningococcus.

Heating, therefore, destroys the antimeningococcal action of saliva. It also destroys the salivary bacteria.

SUMMARY.

The experiments made up to this point demonstrated the following facts: Normal human saliva inhibits growth of the meningococcus on a nasagar plate. Saliva from carriers has the same effect. Nasal mucus from normal people has no such action. The inhibitory effect of saliva corresponds with multiplication of the bacteria indigenous to it. This anti-meningococcal property of saliva is destroyed by heating the saliva to 55° C.; so are the salivary bacteria.

EXPERIMENT IX.—Effect of Centrifuging Saliva.

Five cubic centimetres of saliva were centrifuged for four hours on a water centrifuge. The top and bottom layers were then compared with the uncentrifuged saliva in regard to inhibitory action on growth of the meningococcus.

Result.—The uncentrifuged saliva showed as before well-marked antimeningococcal action and a good crop of colonies of salivary bacteria. The bottom layer of the centrifuged saliva showed complete inhibition of the meningococcus and a confluent growth of salivary bacteria. The top layer, on the other hand, had lost the majority of its bacteria, and also to a great extent its inhibitory action upon growth of the meningococcus.

This experiment was repeated and confirmed on three separate occasions, using a high velocity electric centrifuge. It was found also that if, in spite of being centrifuged, the saliva contained many salivary bacteria in its upper layer, this portion still exerted an inhibitory action on growth of the meningococcus.

EXPERIMENT X.—Comparison of Raw with Centrifuged Saliva.

A suspension of meningococcus was made in broth. A series of capillary pipettes were then calibrated to hold the same volume of fluid. In three of these pipettes in succession one volume of raw saliva was mixed with one volume, two volumes, and three volumes respectively of meningococcus suspension and plated.

This was then repeated with centrifuged saliva. The result was as follows:

	Growth of Meningococcus.
Raw saliva:	
1 vol. + 1 vol. meningococcus suspension ...	<i>Nil.</i>
1 vol. + 2 vols. " " ...	<i>Nil.</i>
1 vol. + 3 vols. " " ...	<i>Nil.</i>
Centrifuged saliva:	
1 vol. + 1 vol. meningococcus suspension ...	Excellent.
1 vol. + 2 vols. " " ...	Excellent.
1 vol. + 3 vols. " " ...	Excellent.

While one unit of raw saliva inhibited growth of three times its bulk of meningococcus suspension, the same volume of saliva, after being centrifuged, failed to inhibit growth in an equal volume of suspension. A culture showed that the number of living meningococci in one volume of the suspension used in this experiment was approximately five hundred:

EXPERIMENT XI.—Comparison of the Effect of Blood Serum, Saliva, and Centrifuged Saliva respectively from the Same Person.

In this experiment equal quantities of the three materials in question were brought in contact with diminishing amounts of a meningococcus suspension, and, after admixture, plated. The results were as follows:

Dilution of Meningococcus Suspension.	Blood Serum.	Raw Saliva.	Raw Saliva after being Centrifuged for 3½ hours.
Undiluted	+++	-	+++
1:10	++	-	+
1:100	++	-	(one colony)
1:1,000	+	-	-
1:10,000	+	-	-
1:100,000	+	-	-

+ = Growth of meningococcus.

The blood serum, as was to be expected, encouraged rather than inhibited growth of the meningococcus. The volume of suspension here used ($\frac{1}{50}$ c.cm.) contained approximately 24 million living meningococci—about 1,000 million per c.cm. The raw saliva completely inhibited an equal volume of this suspension. After being centrifuged, however, this inhibitory power of the saliva was reduced between 10 and 100 times—that is, a cubic centimetre of the saliva would now have inhibited between 10 and 100 million meningococci instead of over 1,000 million as before.

All of the cultures in the above experiment in which the meningococcus did not appear showed a good growth of salivary bacteria.

SUMMARY.

Up to this point, then, the investigation had shown that saliva inhibits growth of the meningococcus only so long as it contains in living condition its own natural flora. When the indigenous bacteria have been destroyed by heat, or removed by centrifuge, this inhibitory power is lost or diminished according as they are destroyed or greatly reduced in number.

Cultures made from Saliva.

In order to test this provisional conclusion and to take the matter a step further, the investigation was now continued with cultures made from saliva.

EXPERIMENT XII.

A flask containing 250 c.cm. of ordinary peptone broth was inoculated with two loopfuls of normal saliva and incubated at 37° C. In the course of twenty-four hours or so the broth became turbid from the growth of *Streptococcus salivarius* and other salivary cocci.

The contents of the flask were divided into four portions. These were treated as follows:

1. Was not interfered with.
2. Was heated to 55° C. for thirty minutes.
3. Was centrifuged for three hours.
4. Was passed through a Berkefeld filter.

A portion of each was mixed with an equal amount of suspension of meningococcus in a capillary tube, and then distributed over a plate of nasagar. The result given by these plates, after incubation, was as follows:

No.	Material.	Result of Test.
1	Broth culture from saliva; 24 hours' growth at 37° C.	No growth of meningococcus; profuse growth of salivary streptococci.
2	Ditto, after being heated to 55° C. for 30 minutes	Pure and copious growth of meningococcus.
3	Ditto, after been centrifuged for 3 hours	No growth of meningococcus; profuse growth of streptococci.
4	Ditto, after passage through Berkefeld filter	Pure and copious growth of meningococcus.

The broth culture from saliva, therefore, was found to inhibit growth of meningococcus in just the same way that saliva itself does. This action of the broth culture disappears when the bacteria contained by it are destroyed by heat, or when they are removed by a Berkefeld filter. The centrifuge failed to remove them in this experiment, with the result that the inhibitory action of the broth culture on the meningococci was retained.

EXPERIMENT XIII.

In the following experiment a sample of saliva that had stood for forty-eight hours at room temperature was compared with two broth cultures therefrom (of twenty-four and forty-eight

hours' growth respectively) as regards their capacity of inhibiting growth of the meningococcus.

This test was made quantitatively. Decimal dilutions from each of the materials tested were brought in contact with equal amounts of a suspension of meningococcus in capillary pipettes, and after thorough admixture the contents of each pipette were plated on nasagar.

The results, as regards growth of the meningococcus, were as follows:

Material.	Undiluted.	1:10.	1:100.	1:1,000.	1:10,000.
1. Saliva kept for 48 hours at room temperature	-	-	+	+	+
2. Broth culture therefrom of 48 hours' growth	-	-	+	+	+
3. Ditto of 24 hours' growth	-	-	-	+	+

+ = Growth of meningococcus.

From this it appears that the twenty-four hours old broth culture was more active in inhibiting the meningococcus than either of the other two materials tested.

EXPERIMENT XIV.

Three broth cultures, each from a single colony of the predominant micro-organisms present in the twenty-four hours old broth culture tested in the last experiment, were examined in the same way, with the following result. All of these cultures were of forty-eight hours' growth at 37° C.

Material.	Undiluted.	1:10.	1:100.	1:1,000.	1:10,000.
Colony 1: <i>Streptococcus brevis</i>	-	+	+	+	+
Colony 2: <i>Streptococcus longus</i>	-	+	+	+	+
Colony 3: <i>Staphylococcus</i>	+	+	+	+	+

+ = Growth of meningococcus.

From this it appears (1) that the staphylococcus had no inhibitory action on the meningococcus; (2) that both the streptococci held up growth of this micro-organism when undiluted, but lost this property when their broth culture underwent a tenfold dilution. These streptococci, therefore, were much less potent than the broth culture from which they had been isolated.

GENERAL SUMMARY.

1. Normal saliva inhibits growth of the meningococcus upon solid artificial culture medium (nasagar).

2. Saliva from carriers has a similar action.

3. Nasal mucus from normal persons has no such inhibitory effect on the growth of meningococcus.

4. A quantitative experiment showed that fresh saliva does not entirely lose this inhibitory influence when diluted a hundred-fold.

5. So pronounced is the antagonism of saliva to growth of the meningococcus in culture, that in a given experiment a volume of broth suspension containing living meningococci at the rate approximately of 1,000 million per c.cm. was prevented from growing by admixture with an equal volume of fresh saliva.

6. This antimeningococcal action of saliva is due to its living bacteria.

7. A young broth culture from saliva is at least as efficacious as fresh saliva in antimeningococcal action.

8. This effect is due to the living and multiplying bodies of the bacteria in the broth. When they have been separated off by a Berkefeld filter, or killed by heat, the broth has lost its antimeningococcal power.

9. The inhibitory action of saliva appears to be chiefly due to mixed salivary streptococci. Pure cultures of the predominant streptococci, when tested individually, were found to exert comparatively slight inhibitory influence on the growth of meningococcus.

10. These observations demonstrate the practical importance of avoiding contamination with saliva when swabbing the nasopharynx of suspected carriers of the meningococcus.

REFERENCE.

¹ Colebrook, L.: Bacterial Antagonism to the Meningococcus, *Lancet*, November 20th, 1915.

THE BEHAVIOUR OF HYPOCHLORITES ON INTRAVENOUS INJECTION AND THEIR ACTION ON BLOOD SERUM.*

BY

H. D. DAKIN, D.Sc.

HYPOCHLORITE solutions containing variable amounts of free hypochlorous acid have been employed fairly extensively for the local treatment of infected wounds. Recently one of these solutions, "eusol," introduced by Professor Lorrain Smith and his co-workers, has been administered by intravenous injection with apparently successful results in cases of septicaemia and toxæmia.¹ It was of interest, therefore, to endeavour to determine some of the factors conditioning the action of this solution and related substances.

The object of the following communication is to describe certain experiments which appear to prove that hypochlorite solutions when injected intravenously in quantities similar to those employed for therapeutic purposes cannot exert any appreciable direct germicidal action. It should be noted that, with the exception of certain experiments by Cordova,² in which eusol given intravenously was stated to be capable of protecting rabbits from lethal doses of staphylococci and *B. capsulatus*, no direct curative effects have been claimed in cases of septicaemia in which organisms were isolated from the blood. Lorrain Smith, Ritchie, and Rettie state that "the method of intravenous injection may give favourable results in cases of general septic infection in the field, gangrene, tetanus, and other kindred conditions characterized by toxæmia."

1. Quantitative Relations.

Eusol has been used for intravenous injection in man in doses ranging from 60 c.cm. to 100 c.cm. An average full dose may be taken to be 100 c.cm., corresponding to 0.27 gram of hypochlorous acid. This amount is at once diluted with four or five litres of blood, so that the possible concentration of hypochlorous acid, assuming that no decomposition of the drug by the blood occurs, is not more than 50 to 65 mg. of hypochlorous acid per litre. Even if this concentration persisted temporarily, which will shortly be shown not to be the case, it is much below the concentration of hypochlorite at which active direct action is observed, when tested against organisms such as *B. coli* or staphylococci suspended in blood, or even in serum.

Direct experiments in which *B. coli* or staphylococci were mixed with sterile rabbit serum or plasma, and then 70 mg. per litre of hypochlorous acid in the form of eusol added, showed no marked diminution in the number of organisms in the course of two hours when compared with a control experiment in which no hypochlorous acid was added. Precisely similar results were obtained when the hypochlorous acid solution was injected intravenously into rabbits, and the serum taken before and after the injection was tested against *B. coli* *in vitro*. The following are typical results. The concentration of hypochlorous acid added was 70 mg. per litre in all cases.

Mixture.	Organisms per drop, 15 c.cm., at end of two hours.
1. Normal serum + <i>B. coli</i>	780
" " + <i>B. coli</i> + HClO	640
2. Normal serum + <i>B. coli</i>	1120
" " + <i>B. coli</i> + HClO	1280
3. Normal serum + <i>B. coli</i>	1640
Serum after injection HClO + <i>B. coli</i>	1760

The changes are in no case significant. Miss Chick³ has already shown that normal rabbit serum has practically no action on *B. coli* during the first few hours of action. The above experiments followed the technique described in Miss Chick's paper.

2. Fate of Hypochlorites on Intravenous Injection. Hypochlorous acid or its salts exert their known anti-

* The work here referred to was done with the assistance of a grant from the Medical Research Committee. The experiments were made in the laboratories of the Committee's Department of Biochemistry and Pharmacology. I am indebted to Dr. H. H. Dale, F.R.S., for much helpful advice and for facilitating my work in every way possible.

septic action on account of the active chlorine contained in them. This active chlorine may occur in two forms: that present as unchanged hypochlorite, and chlorine loosely bound to amino compounds, including proteins. Chlorine in both of these forms is able to liberate iodine from an acidified solution of potassium iodide, and hence may be easily detected. The antiseptic value of the chlorine loosely bound to amino compounds, in "chloramine" form, probably varies as the ease with which it can be detached so as to permit of union with other substances, including bacterial protoplasm. But hypochlorites can combine with a variety of substances by reactions of a different kind from that just mentioned. Thus, for example, the chlorine may become attached to carbon atoms present in proteins and other substances, and then loses its power of liberating iodine from potassium iodide, and confers no germicidal properties on the product. Furthermore, it is probable that direct reduction of hypochlorites to chloride may occur in the body, for this is a common reaction *in vitro*. Thus it is seen that hypochlorites may be decomposed and lose their germicidal properties by a variety of reactions. Changes of this nature apparently occur with great rapidity when hypochlorous acid or its salts are injected intravenously, for a much greater quantity of "eusol" per kilo of body weight than is used therapeutically may be injected intravenously into animals without the appearance of a detectable trace of active chlorine in the plasma or serum.

The following is a typical experiment. Under ether anaesthesia cannulae were placed in the carotid artery and femoral vein of a rabbit weighing 1,820 grams. Eusol of about half-strength (1 c.cm. = 1.3 mg. hypochlorous acid) was injected into the vein, and almost immediately afterwards blood was drawn from the artery into citrate solution, rapidly centrifuged, and the plasma tested as promptly as possible for active chlorine by adding potassium iodide, acetic acid, and excess of dilute starch paste. Control experiments showed that the citrate did not interfere with the reaction; 7 c.cm. of the eusol were injected fairly rapidly, and then the first sample of blood was withdrawn. Further samples of blood were taken after each additional injection of 2 c.cm. of eusol. Although haemolysis was detectable in all samples of blood, and was very marked in the later ones, no trace of active chlorine was found in the plasma obtained after the injection of 19 c.cm. of the hypochlorite solution, and only a doubtful reaction was obtained after further additions which finally killed the animal.

The volume of blood in the rabbit used in this experiment may be taken as approximately 125 c.cm., so that it is calculated that at least 200 mg. of hypochlorous acid may be added to each litre of circulating blood before any detectable trace of active chlorine appears in the plasma. This amount is more than three times the therapeutic dose. It may be noted incidentally that the minimal addition of hypochlorous acid to blood serum that will produce a positive reaction for active chlorine confers no added germicidal properties.

It might be suggested that in the foregoing experiment active chlorine could not be detected in the blood plasma on account of its being taken up by the cells. But special experiments showed that blood serum from rabbits and sheep required the addition of from 35 to 80 mg. of hypochlorous acid per litre before any active chlorine persists. Finally, it may be noted that if circulating or drawn blood is mixed with an amount of hypochlorous acid just sufficient to yield a plasma or serum giving a definite positive reaction for active chlorine, the latter rapidly disappears in the course of a short space of time.

From the foregoing experiments it appears in the highest degree improbable that any direct germicidal effects can be ascribed to hypochlorous acid or its salts when injected intravenously in the prescribed therapeutic doses.

3. Other Effects of Hypochlorites when given Intravenously.

When hypochlorite solutions are injected intravenously into rabbits a certain amount of haemolysis is observed even with doses as low as 1.5 c.cm. of eusol = 4 mg. of hypochlorous acid per kilo of body weight. With larger doses the haemolysis becomes more intense and the

coagulability of the blood becomes diminished.* When lethal doses of hypochlorite preparations or chloramine-T are given intravenously a marked increase in the pericardial fluid and oedema of the lungs is commonly observed. It appears that in large doses the substances act as definite endothelial poisons.

Since the experiments already referred to appear to prove that hypochlorite preparations given intravenously can exert no appreciable direct germicidal action, it

appeared conceivable that the favourable clinical results stated to follow their employment might be due to an indirect action in stimulating the production of antibodies. Thus far I have only had the opportunity of investigating the effects of hypochlorites given intravenously on the antitrypsin of the blood. The results seem of interest since Wright and others have suggested that antitrypsin plays an important part in the normal antibacterial properties of blood. Whether eusol or other hypochlorite preparations act as a stimulus for the production of other non-specific antibacterial and antitoxic substances is a question that requires further investigation.

For the experiments on the effect of hypochlorite given intravenously on the antitryptic action of the blood I enjoyed the co-operation of Dr. G. S. Walpole (and his assistant). An exceptionally precise method devised by him was employed, the details of which will be published shortly. The method essentially consists in the estimation by means of the dipping refractometer of the products of tryptic digestion, resulting from the interaction of constant quantities of trypsin and casein in the presence of varying amounts of blood serum. I am much indebted to Dr. Walpole for permission to make use of his method and results.

It was found that when small amounts of hypochlorite, either in the form of eusol or neutral sodium hypochlorite, are injected intravenously into rabbits, a fall is observed in the antitryptic action of blood serum taken immediately after the injection. But if another sample is taken twenty-four hours after the injection, it is commonly found that recovery in antitryptic action has proceeded to a point significantly in excess of the original value before hypochlorite was given. A typical example is shown in Chart I, in which the actual inhibition of tryptic digestion due to antitrypsin, and expressed in scale units of the refractometer, is plotted against the varying amounts of

which, for uniformity, are reckoned in milligrams of total nitrogen. The curve marked I represents the initial antitryptic action of the blood serum; that marked II the antitryptic action of the blood serum taken immediately after the injection of 5 c.cm. of eusol (= 14 mg. of hypochlorous acid) into the ear vein of the rabbit, which weighed 1,940 grams; and that marked III, the antitryptic action of the blood serum taken twenty-four hours after the injection.

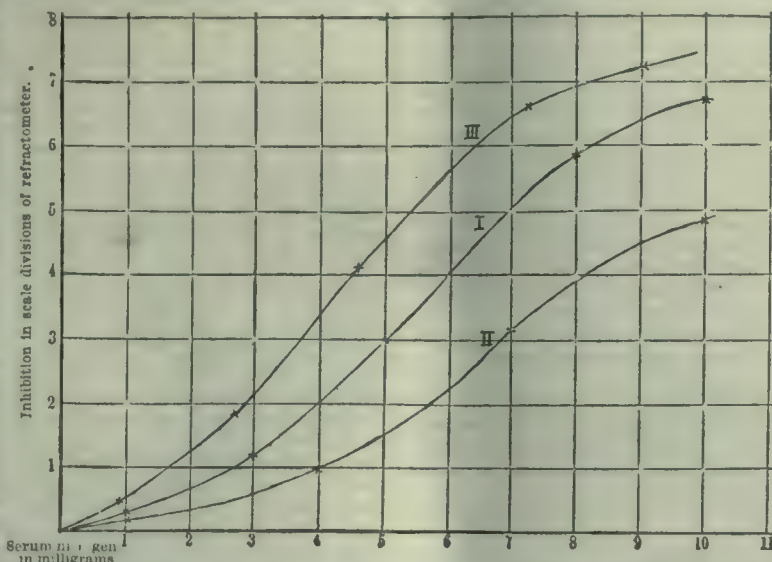


CHART 1.—Showing reduction in antitryptic action of blood after injection of eusol, followed by increase above normal. I, Before injection; II, immediately after; III, twenty-four hours after.

tion of the way in which the active mass of the antiseptic may become rapidly diminished. In the case of both eusol and neutral sodium hypochlorite a curious fact was observed—namely, that a small amount of serum may bring about the disappearance of more active chlorine in a given time than will larger amounts of the same serum. This somewhat paradoxical reaction, which was independently observed by Dr. Harden, is best illustrated in the form of a chart showing the disappearance of active chlorine

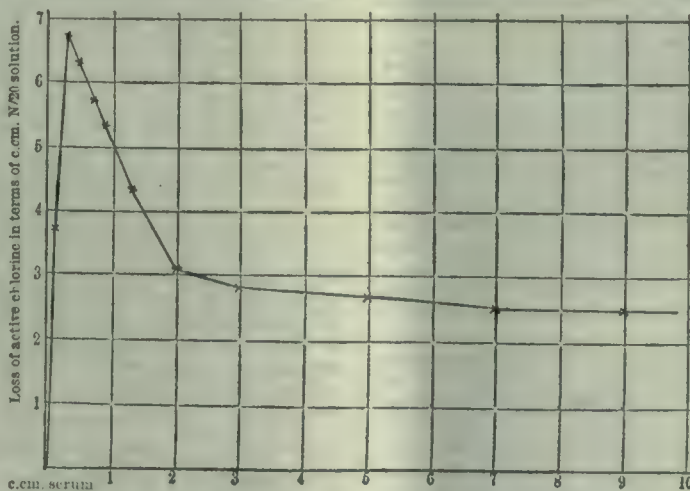


CHART 2.—Showing greater disappearance of active chlorine from hypochlorite solution when treated with small amounts of serum than with large.

Similar effects were found to follow the injection of comparable amounts of sodium hypochlorite. The action of hypochlorites in causing a primary fall in the antitryptic action of the blood serum, followed by a secondary increase, is shared by many other substances.

4. The Action of Hypochlorites and of Chloramine-T on Blood Serum.

The rate of decomposition of hypochlorites by blood serum is a question of some importance in connexion with the local treatment of infected wounds, since the results afford some indication

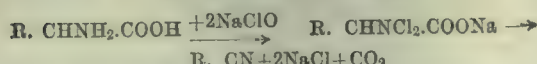
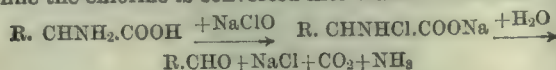
of the way in which the active mass of the antiseptic may become rapidly diminished. In the case of both eusol and neutral sodium hypochlorite a curious fact was observed—namely, that a small amount of serum may bring about the disappearance of more active chlorine in a given time than will larger amounts of the same serum. This somewhat paradoxical reaction, which was independently observed by Dr. Harden, is best illustrated in the form of a chart showing the disappearance of active chlorine titratable with potassium iodide and sodium thio-sulphate, when a constant volume of hypochlorite is mixed with varying amounts of serum, and allowed to stand for thirty minutes at 20°. Similar results were obtained when the reaction was allowed to continue for a longer period. The typical results shown in Chart 2 were obtained by mixing 5 c.cm. of neutral hypochlorite containing 12.6 mg. of hypochlorous acid with varying amounts of sheep serum.

The explanation of this curious action of small amounts of serum on hypochlorite is to be found, I believe, along

the following lines. When the mass of the protein in the blood serum is relatively small compared to that of the hypochlorite the amount of chlorine taken up per molecule of protein is large, and the product becomes unstable and is readily hydrolyzed. This hydrolysis has the effect of liberating from the protein more amino-acid complexes, which can react with additional hypochlorite. Now Langheld has shown that amino-acids react with hypochlorites to form the sodium salts of mono- and di-chloramino-acids, and it is now known that these

* It has been stated that only eusol can be injected with safety, and that sodium hypochlorite must not be used. I have been unable to detect any significant difference between the effects of eusol and sodium hypochlorite prepared according to the formula given in the BRITISH MEDICAL JOURNAL, August 28th, 1915.

substances decompose spontaneously to give aldehydes or nitriles respectively, with liberation of carbon dioxide, while the chlorine is converted into inactive chloride.



I have observed that when small amounts of serum are acted on by relatively large amounts of hypochlorite, both gas production and aldehyde formation are much more pronounced than when the relative mass of serum is large. The fact harmonizes with the suggested explanation of the reaction between hypochlorites and serum. When the mass of serum is large in relation to the hypochlorite, it appears that the smaller amount of chlorine taken up by the protein does not confer on the product such instability as is seen in the case of more highly chlorinated substance. Chloramine-T, when added to serum, does not react like hypochlorite, but is decomposed to a smaller extent, varying directly with the relative mass of serum.

The above experiments are of a preliminary character, and it is hoped that some of the practical questions arising from them may be more closely investigated.

REFERENCES.

- ¹J. Lorrain Smith, Ritchie, and Rennie, *BRITISH MEDICAL JOURNAL*, November 15th, 1915, p. 716. ²Cordova, *BRITISH MEDICAL JOURNAL*, May 6th, 1916, p. 651. It should be noted that the lethal doses of *B. capsulatus* and staphylococci recorded by Cordova in his control experiments are very much smaller than those generally observed. ³Miss Chick, *Journal of Hygiene*, 12, p. 414, 1913.

Revieluz.

LOCALIZATION BY X RAYS AND STEREOSCOPY.

*Localization by X Rays and Stereoscopy*¹ is the title of a book by Sir J. MACKENZIE DAVIDSON which is published at an opportune time, seeing that the exact localization of foreign bodies within the human body is of such vital importance when so many wounded have to be dealt with accurately and with rapidity. Many time-saving methods of localization have been devised during the past eighteen months, mostly based on Davidson's original cross-thread method; few, if any, of these are quite so accurate. The stereoscopic method, also a discovery of the author, has not been, and is not, used so extensively as it should be. The simplicity of technique in the taking of such radiographs, the theory, and the way to apply the results are all well set out in this work, which, after dealing with the x-ray tube and secondary radiations and protection, describes in detail the use of stereoscopic radiographs. The last chapter, and one to which the author directs especial attention, is on the precise localization of foreign bodies in the eye and the orbit. If anything was wanting in the previous chapters to convince the reader of the accuracy possible in localization, this last chapter would supply that want, for in dealing with foreign bodies in those situations Davidson's method may be said to stand alone, its simplicity and accuracy being little short of marvellous.

On p. 22 will be found a description of a new x-ray couch which for simplicity of design, for adaptability to war work at the front, for ease and cheapness of construction, and for efficiency in doing what it is meant to do, will be hard to beat. Accompanying this is a very ingenious screen instrument which, when used with this couch or others of similar design, will enable the operator to read off on a scale the depth of a foreign body under a marked skin spot. In advocating stereoscopy attention is drawn to "the misleading single picture." With a knowledge of what is going on at the present time, with much of the war work being done by unskilled and even untaught x-ray operators, and with surgeons inexperienced in radiography, greater stress might well have been laid on this point. If the author had suggested that for a surgeon to act on the showings of a single radiograph when searching for a bullet was almost criminal, he might not have been going too far. The illustrations are excellent and an

important feature. Many diagrams help materially in the understanding of the x-ray descriptions, and at the end are a number of very beautiful reduced stereoscopic radiograms which can be viewed with one of the small, cheap stereoscopes so much in vogue. Whilst the expert in radiography can learn much that is of value from this publication, it is nevertheless of even more value to the surgeon, and especially to those surgeons who at the present time are attached to the army.

MEDICAL ETHNOLOGY.

Medical Ethnology,² by Dr. WOODRUFF, will interest students of anthropology and possibly also those of tropical medicine. The work was begun, the author tells us in the preface, as a revision of the first edition of *The Effects of Tropical Light on White Men*, but it was necessary to change the title because so many other factors besides pigmentation have entered into the discussion of the reasons for the differences between the present races and sub-races of men.

The subjects discussed in the twenty chapters include the effects of light on man, the question of pigmentation, actino-therapy, the cause of the extinction of migrants, ethnic psychology, etc. One thing the work brings out very clearly is the slender basis on which rests the hope that the white man will ever be able to inhabit the tropics—that is to say, to live there for good, breeding and propagating his species, even when all the diseases have been eradicated from them. Dr. Woodruff gives a good example of the mania amongst some people to deny that climate can affect any one. "The most notorious case was that of Civil Service Commissioner Washburn, who stated that the climate was not harmful if one was moral and sober, and that if he did break down recovery was possible there. Within a few months he himself collapsed and had to go away to get well." Similar cases can easily be quoted from British colonies, one example that is often mentioned being the sad end of a man who was trying to get other people's leave cut down, but before he had progressed far in his endeavour was himself removed by death. The advocates of the white man for the tropics seem to forget all about neurasthenia, irritability of temper, and loss of memory, or evidently do not consider them as diseases. These are, however, the very things that finish off so many people and render them unfit for further efforts in a hot climate. Make the tropics healthy by all means, so that the constant stream of migrants to them may have a chance of returning home again fit and well, but do not delude white people into the belief that if disease is stamped out they can make a permanent home there. In writing his book Dr. Woodruff has quoted largely from the literature, and incidentally has perpetuated many of the mistakes to be found in it—for example, the part on heat exhaustion, on p. 136, is hopelessly involved, and even distinctly misleading. Again, we cannot agree with him in all he says as regards light as compared with heat in producing symptoms. Statements also, such as that cases of chronic malaria have been cured without quinine by a five-minute dose of x rays to the enlarged spleen, would have been better omitted. The question of why certain races are found in some parts of the world and not in others is, however, a fascinating one, and a perusal of Dr. Woodruff's book will give the reader plenty of food for thought.

NOTES ON BOOKS.

READERS of the *BRITISH MEDICAL JOURNAL* will have studied with profit and amusement the articles on the *Minor Horrors of War* written by the Master of Christ's College, Cambridge. The articles have been collected into two volumes, of which the first was reviewed in our issue of April 17th, 1915. The second series, entitled *More Minor Horrors*,³ contains fourteen chapters, of which ten have already appeared in this *JOURNAL*. The book gives very readable accounts of such pests as cockroaches, the bot-fly, the mosquito, the biscuit weevil (so familiar to readers of Clark Russell's nautical novels), the fig-moth, the stable-fly, rats, and the field-mouse. There are

¹*Medical Ethnology*. By O. E. Woodruff, A.M., M.D. London: W. Heinemann. 1916. (Med. 8vo, pp. 328. 10s. net.)

²*More Minor Horrors*. By A. E. Shipley, Sc.D., Hon. Sc.D., Princeton, F.R.S. London: Smith, Elder, and Co. 1916. (Cr. 8vo, pp. 177; 49 figures. (Paper, 1s. 6d. net; cloth, 2s. net.)

¹*Localization by X Rays and Stereoscopy*. By Sir J. Mackenzie Davidson, M.B., C.M.Aberd. London: H. K. Lewis and Co., Ltd. 1916. (Roy. 8vo, pp. 83; 26 plates, 61 figures. 7s. 6d. net.)

numerous excellent illustrations; the book is written in most attractive style, and should have a wide popularity and sale.

The second edition of Dr. BARCLAY'S short textbook on *Elementary Anatomy and Physiology*,⁴ is meant for junior students, nurses, and teachers. It contains short sketches of such subjects as biology, embryology, comparative anatomy, and haemolysis. It is written in conversational style, and from the popular point of view, and is full of facts and information, and also of the general deductions to be drawn therefrom. The brief table of contents given above shows that Dr. Barclay covers a vast amount of ground in the volume; as he says in the preface, he holds that "a good macroscopic view of a wide area is better than a microscopic knowledge of many disjointed points." How far the inexpert reader will be able to master some of the subjects reviewed, and admirably reviewed, in the newly-added chapters of this textbook is a matter that only experience can decide. The text is well written, and the illustrations have been generally well chosen.

As a globe-trotter Sir FREDERICK TREVES has few competitors. A dozen years ago he went round the world sight-seeing, and "did" the Mediterranean and Red Sea, India, Burma and Ceylon, China, Japan, and America. The impressions of this delightful journey he published in 1905 in a volume entitled *The Other Side of the Lantern*, which has now been republished in a cheap and popular form.⁵ There is a moderate amount of the guide-book about Sir Frederick's work, there are a few pages of history, a few purple patches of rhetoric. For the rest he shows himself an admirable guide and interpreter for the man in the street; his faithful pen always maintains the same level of interest, his eye is quick to seize the salient points of what it views, and the itinerary he followed was carefully chosen to include the best known sights in every continent. The volume is excellently got up and illustrated, a marvel of cheapness. It should command a wide audience of readers.

⁴ *Lectures on Elementary Anatomy and Physiology*. By H. Clifford Barclay, M.D., Ch., F.R.C.S.E., M.R.C.S., L.R.C.P., Major R.A.M.C. Second edition. London: Baillière, Tindall, and Cox. 1915. (Demy 8vo, pp. 290; 57 figures. 6s. net.)
⁵ *The Other Side of the Lantern*. By Sir F. Treves, Bt., G.C.V.O., C.R., LL.D. London, New York, Toronto, and Melbourne: Cassell and Co., Limited. 1916. (Demy 8vo, pp. 438; 8 illustrations. 2s. 6d. net.)

GOAT'S MILK.

We are interested to learn that the guardians of St. Marylebone have begun the establishment of a flock of goats to yield milk for the younger children in their schools. They have, it is stated, obtained six goats, and it may be presumed that if the experiment is successful the scheme will be extended; in this way something may be done towards increasing the popularity of goat's milk in this country, where at present it is very little used. The late Dr. Vivian Poore took a great interest in the use of goat's milk, and for some years before his death most of the milk consumed in his house at Andover was obtained from a few goats. To the objection that the milk often had a disagreeable flavour, he replied that this could be completely obviated if the he-goat was not allowed to run with the nannies during the time they were in milk.

Less than twenty-five years ago Professor Nocard, in speaking of the 130,000 goats and kids which at that time were brought into Paris every spring for slaughter in the shambles of La Vilette, said that amongst all these animals the meat inspectors had never found a single case of tuberculosis. In that statement lies the essence of the argument in favour of goat's milk as a substitute for cow's milk. Despite all the efforts of legislators, the danger of infection through the milk of diseased cows still exists; but goats, if not actually immune, are very refractory to the attacks of the tubercle bacillus. It is a curious fact, however, that in spite of its manifold advantages, goat's milk has never become really popular in these islands, although in many other countries it is a common article of diet, and in some parts of France and Switzerland the goat often takes the place of the wet nurse, to the satisfaction of all

concerned. In the memoirs of Madame Héritte-Viardet, niece of Manuel Garcia, the inventor of the laryngoscope, we find the author recording her indebtedness to a couple of goats which furnished milk for her little son during a voyage from England to the Cape, which in those days (1863) was no light undertaking, particularly for an infant. She writes:

My little boy had been born a short time before our departure, and we were obliged to make special arrangements for him during the voyage. At the last moment the wet-nurse refused to go, and, to the indignation of my relations, I decided to take a goat (or rather two goats in case one got ill) in her place. The French consul at Southampton, our place of embarkation, procured the animals for me and they were kept on deck in a railed-off place, and milked by the cook twice a day. One morning there was not a drop of milk. The sailors had milked the goats for their own benefit, and I was obliged to have a padlock put on the enclosure. For some days all went well; then suddenly one of the goats was taken ill and her milk left her. The other luckily continued to thrive. There was a young married woman on board with a baby and a wet-nurse. The latter lost her milk, and my goat had to feed both children. How thankful I felt that I had not listened to my family.

For some years past a movement has been on foot to popularize the milk of "the poor man's cow," and at least two societies—the National Goat Club and the British Goat Society—have been formed for the purpose of making it better known throughout the British Isles. At the Children's Welfare Exhibition, held at Olympia a couple of years ago, a model goat farm was exhibited by a lady who has made a special study of the subject. Her own experience had convinced Mrs. Lacy-Hulbert that goat's milk is not only superior to cow's, but is an excellent substitute for human milk, and that whilst the endowment of every man with "three acres and a cow" may be the dream of idealists there is no reason why even the poorest cottager should not possess a goat which would supply his family with pure whole milk, such as it might be impossible for him to buy in many country places, even if he had the money. Once the initial expense of purchase has been met, a goat, when circumstances are favourable, may cost very little to keep, as a considerable part of its food may consist of garden waste or of what the animal itself may find in its browsings along the roadside and hedges. Many goats thrive well when stall-fed, but this, of course, costs a good deal more money. The animal can be kept in health if it has a clean, dry, and well-ventilated shed to serve as a stable and a small yard or enclosure in which it can take occasional exercise. A goat, in fact, if it is hand-fed, does not require more space than a St. Bernard dog; and, if well-treated, may yield as much as 4 to 5 pints of milk a day, or even more. The milk is believed to be more easily digested than cow's milk, the curd being more soluble and the fat in finer emulsion. The goat will not touch dirty food and is far cleaner in its person and habits than a cow; its milk need not be boiled or pasteurized unless it has to be kept in hot weather. The characteristic odour sometimes emitted by goat's milk when it has been left standing may be avoided by scrupulous attention to cleanliness by the precaution already mentioned.

The most recent analysis of goat's milk we have been able to find is in Neumann's letters to a young practitioner on the treatment of children's diseases, edited by Oberwarth (*Ueber die Behandlung der Kinderkrankheiten*, 1913). The figures for human and cow's milk are quoted from Langstein and Meyer, but the source of those for goat's milk is not stated. We have added the figures for Alpine goats given by Crepin, who has laid stress on the variations in the composition of the milk of different breeds of goats.

		Proteins.	Fat.	Sugar.	Ash.
Human	... ..	1.2	4.0	6 to 7	0.18
Cow	... ..	3.4	3.4	3 to 4	0.75
Goat	German	3.67	4.3	3.6	0.8
	Alpine	2.3	3.1	4.1	0.7

In some varieties of wild goats the percentage of fat may be as high as 4.8 on the average, with an extreme upward limit of 8.7. Crepin is of opinion—and Losage, from his experience in Paris, appears to agree with him—

The British Goat Society issues a monthly circular (price 31), which can be obtained from Mr. H. S. Holmes Pegler, honorary secretary, Coombe Bury House, Kingston Hill, Surrey. The society is holding a goat show on July 11th in connexion with the Richmond dog show on the same day.

that the objection which has been raised to goat's milk that it is too rich does not apply to stall-fed goats.

The quantity of milk yielded by a goat varies very much, and is influenced by the breed and by other conditions. The yield seems to be usually greater after the second kidding than after the first. The estimates of the average yield are very far from consistent. Neumann speaks of 4 litres (about 7 pints), and considers that even with this high yield goat's milk is not cheaper than cow's milk if, as he would appear to mean, the animal is stall-fed. The advantages he recognizes are that if a goat is kept by the consumer it is possible always to have fresh milk, and that the risk of tuberculosis is small. Lesage concludes that the advantages of goat's milk are (1) that a goat eats about one-sixth of the quantity of food required by a milk cow; (ii) that for nine or ten months it yields 3 to 5 litres of milk, which can be taken uncooked; (iii) that goats are very seldom affected by tuberculosis, since of 3,000 killed at the Lyons slaughterhouse only 5 were tuberculous; and (iv) that the fat being in very fine emulsion is easily digested. On the other side of the account must be put the liability of the goat to carry the infection of undulant fever (Mediterranean fever). In Great Britain this risk is small and, save in very exceptional circumstances, may be neglected.

The period of gestation in the goat is said to be about five months (150 days), and the average period in milk about nine months. In this country the daily yield may be expected to be about three pints; five pints is considered a high yield. The small yield of British goats is attributed to degeneration of the stock due to excessive in-breeding. The Board of Agriculture will not grant quarantine licences for the importation of stock goats for breeding purposes, owing to the risk of the importation of goats infected with undulant fever. The danger undoubtedly exists, but it seems not unreasonable to ask that a few picked animals should be admitted under special licences given after full inquiry. Certain breeds of foreign goats yield not only a large daily quantity of milk for a longer period, but, what is almost equally important, breed at more than one season, so that the owner of even a small herd may reckon with certainty upon a continuous supply of milk throughout the year.

From what has gone before it appears that theoretically the keeping of goats might be expected to do something towards the solution of the milk question, especially in suburbs or the outskirts of small towns, and especially in country districts, where it is often particularly acute. The great merits of the goat from the medical point of view are, first, that it is very rarely affected by tuberculosis, and secondly, that if the animal is kept by the consumer himself the necessity for manipulating the milk in various ways, for storing it, and sending it long distances by train, as happens commonly with cow's milk, is obviated. On the other side is the liability of the goat to undulant fever, which in this country is not at present, at least, a serious risk, and the uncertainty of the yield and of maintaining a steady supply, unless several goats are kept.

If goat keeping is to do anything of importance towards solving the milk difficulty it is clear that a good deal of organization will be necessary. It does not seem that it would be prudent to expect a goat to be in profitable milking for more than one year out of eighteen months, or perhaps fifteen months out of two years, remembering the period of gestation and allowing a reasonable interval after the animal dries off. For a regular supply, therefore, two or more she-goats must be kept and a he-goat must be available. These considerations seem to lead to the conclusion that a system of co-operation in areas is essential if the goat movement is to be put on a practical basis and to have the important and far-reaching results, especially in regard to the health of infants and children, which its enthusiastic promoters believe it capable of achieving.

ACCORDING to the twenty-second annual report of the Craig Colony for Epileptics, New York, there are colonies for epileptics in thirteen States of the American Union. It is estimated that there are 200,000 epileptics in the States, and that only 3½ per cent. are properly cared for. Of 1,320 deaths in the Craig Colony, 513 were due to causes related to epilepsy. In 600 autopsies gross brain lesions were found in about 60 per cent., but in only a few was there any condition that could have been treated surgically.

BRITISH PRISONERS IN GERMANY.

Two White Papers relating to the treatment of British prisoners of war and interned civilians in Germany have recently been issued. One contains correspondence between the Foreign Office and the United States Ambassador in Berlin, which is a record of the action taken by Mr. Gerard at the request of Sir Edward Grey, from October 13th, 1915, to April 6th, 1916. The camps reported on by Mr. Jackson and other representatives of the Ambassador are Stendal, Schneidemühl, Wülzburg, Halle; Wittenberg, Castle Celle, Spreenhagen, Munich, Ingolstadt, Burg, Blankenburg, Quedlinburg, Dyrzetz, Merseburg, Königsmoor, Hakenmoor, Fürstenberg, Orefeld, Friedberg, Mainz, Cassel and Langensalza, Soltau, Gütersloh, Güstrow, Döberitz, Neisse, Gnadenfrei, Wildemann, Clausthal, Bischofswerda, Spandau, Hannover, Münden, Göttingen, Tegel, Limburg, Giessen, Darmstadt, Mannheim, Heidelberg, Cologne, Germersheim, Villingen, Stuttgart, Weilburg, Magdeburg, Bayreuth, Kronach, Nürnberg, Würzburg, Hammelburg, and Landau. It is outside our province, even were space available, to summarize the reports; we can only touch on the points which have a directly medical interest.

Mr. Lithgow Osborne states that on October 29th, 1915, he visited the camp at Wittenberg. Among the British prisoners it was generally admitted that the food was sufficient in quantity and that it had recently greatly improved in quality. He had tasted it in the kitchen, and what he heard from the men confirmed him in his opinion that, apart from the sameness, the rations provided conformed to the standard necessary for good health. There were no complaints as to sanitation, and Captains Priestley and Vidal stated that the general health of the camp had been excellent since the disappearance of the typhus. There were many complaints as to the treatment of the prisoners in the matter of clothing, the delivery of parcels, and other matters; these the commandant, who seemed to have an unfriendly feeling to the English, was indisposed to consider. Mr. Osborne says that at Wittenberg those in authority, instead of regarding their charges as honourable prisoners of war, looked upon them as criminals whom only a régime of fear would suffice to keep in obedience. "All evidence of kindly and humane feeling between the authorities and the prisoners was lacking." On November 8th, 1915, Mr. Gerard himself visited the camp, and the impression which he derived from a careful examination of the camp and from long conversations with the prisoners was even more unfavourable than he had been led to expect. On November 22nd an inspection was made, on the order of the United States Ambassador, by Dr. Karl Ohnesorg, surgeon U.S. Navy; he reports favourably on the lazaret, but says that "unfortunately much had taken place in the camp which was not in accordance with recognized rules for the treatment of prisoners of war." He adds that this, happily, was changed, and the two medical officers, as well as the soldiers with whom he talked, said that then they had no complaints to make. The camp was again visited by Dr. Ohnesorg and Mr. E. L. Dresel on March 10th, 1916; they noted a decided improvement since the previous reports. A new commandant, General von Studtitz, had been appointed and had made a number of changes for the better. The clothing was entirely satisfactory and the canteen arrangements seemed to be sufficient.

At Stendal there were complaints that the prisoners were ill supplied with clothing, and that the food was very unsatisfactory. The camp was visited by Mr. Osborne on November 4th, 1915; he reported that while the men said the food was "not what they were used to," and that they lived largely on the contents of parcels sent from home, they admitted that, if necessary, they could live on the camp rations and still keep in good health. Mr. Osborne again visited the camp with Mr. Dresel on March 2nd, 1916, and reported further improvements. These reports, however, should be compared with Dr. Ribadeau-Dumas's account of Stendal, a summary of which appeared in the BRITISH MEDICAL JOURNAL of June 3rd (p. 801).

The reports on the other camps are on the whole favourable. The chief complaint as to food was that it was monotonous and unpalatable. At Döberitz Mr. Jackson was told by some Englishmen who worked in the kitchen

that their countrymen lived entirely on what was sent from home. The sanitation of these camps is described as good, and the physical condition of the men as excellent. It is satisfactory to record that some prisoners bore testimony to kind treatment received from German medical officers. As far as it goes, the correspondence shows that there has been a considerable improvement in the German prison camps since last year. But in view of the statements made by men who have been repatriated and of accounts by Frenchmen and others of the way in which they have been treated, the evidence of the American inspectors, most praiseworthy as the efforts of Mr. Gerard and his colleagues have been, cannot be accepted altogether without reserve.

The Food Question at Ruhleben.

The other White Paper contains a report by Dr. A. E. Taylor on the conditions of diet and nutrition at the internment camp at Ruhleben; it is addressed to the United States Ambassador, and forwarded by Mr. Gerard to Sir Edward Grey. Writing on May 1st, 1916, Dr. Taylor states that he visited that camp during ten days, spending a number of hours there every day. He studied the diet for one week, qualitatively and quantitatively, witnessing the weighing of the food, and eating the midday meal himself. From the standpoint of their relation to the diet the men confined in Ruhleben may be divided into five groups: (a) The so-called pro-German group—men technically British subjects who have lived so long in Germany that they have become habituated to German tastes and sentiments. These men receive limited food supplies from German sources outside the camp. (b) A Jewish group which receives no supply from outside the camp. (c) A group which, for one reason or another, receives no supply from outside the camp; this group probably includes several hundred. (d) A group—far the largest—which receives a number of packages from relief societies, trades unions, etc., in Great Britain. (e) Men who receive supplies from their own families and friends in Great Britain. There is a relief fund in the camp available for those who choose to apply—the relief being regarded as a loan to be repaid at some future time. There are men who voluntarily subsist upon camp rations alone, and will not be beholden to, or ask for, aid.

The diet of the camp is fashioned after the monthly "Speiseplan" supplied by the authorities, and based upon the dietetic standards of Professor Backhaus. It provides for 80 to 85 grams of protein, containing the necessary amino-acids—30 grams of fat and 500 grams of carbohydrates—corresponding to about 2,700 calories.

The diet is arranged to include the minimal amount of fat, a sufficiency of protein, the necessary salts, vitamins, and enough raw or fresh-cooked food to maintain the health of a non-working man. Dr. Taylor observes that the men who took the camp ration actually got 99 grams protein, 25 grams fat, 525 grams carbohydrate, corresponding to 2,740 calories.

"It is clear that for the men who took the ration it was quantitatively adequate, except for the difference in fat, even if the men who took the ration had subsisted entirely upon it," and two-thirds of them did not.

If the whole 3,700 in the camp had lined up for the ration it would not have gone round, but Dr. Taylor is convinced that the food sent in from outside was equal to one-half to two-thirds of that supplied by the camp authorities. The men engaged in the kitchens had to prevent waste and estimate as near as they could the amount of camp rations which would be called for. On two days the supply of fresh fish gave out with 100, and with 250 men still in line. These were provided with tinned herrings. Five out of seventeen of these tins which Dr. Taylor saw opened were putrid, and many of the men naturally refused this food. Dr. Taylor writes:

I was not able to observe that the nutrition of the men who subsisted largely or entirely upon the camp ration was any lower than that of the men who subsisted partly or entirely upon supplies sent from abroad.

With one exception (the tinned herring), the different food-stuffs have been found to be of satisfactory quality. . . .

The cheese and cocoa were not of high grade, but were unspoiled. The margarine was not a high-grade product, but was sweet. Fresh fish was served during three days of this survey, and was of excellent quality. The potatoes were of good grade. The bread corresponded in quality, texture, and

appearance with the black bread served in the ordinary beer restaurant in Berlin. The Englishman dislikes this bread and, practically speaking, eats none of it.

The evidence of Dr. Taylor, then, is conclusive as to the physiological adequacy of the ration given out to those who chose to take it.

The British object to the German cooking as displayed under the exigencies of camp life. On this head Dr. Taylor makes the following statement:

It is clear, from conversations with even the most violently protesting prisoners, that their objections do not apply materially to the foodstuffs, and do not mean to imply that the food as cooked is unfitted for human consumption. They simply mean that it is so different from the food to which they are accustomed that they cannot learn to regard it with anything else than distaste.

Replies to widespread questioning of men in normal flesh indicated that loss of weight had not been frequently observed; indeed, some men had gained in weight. On the other hand, many prisoners who were obese had lost weight, and the diet is obviously not calculated to produce obesity.

The supplies received from abroad consist of 800 kg. [1,760 lb.] of bread daily, and varying amounts of butter or margarine, tinned British army ration, corned beef, sugar, cakes, biscuits, tea, jam, honey, bacon, and various titbits.

The camp ration is particularly deficient in fat, and inquiry has led Dr. Taylor to the conclusion that the supplies from abroad of cakes, sweets, and tit-bits are disproportionately large, and of fats surprisingly small. Some men receive far more than they can consume, others a moderate supply, several hundred none or next to none. Some are generous, but many do not believe it proper to receive food from their fellow prisoners.

It is clear that there is in Great Britain a complete, and from the standpoint of the prisoners in Ruhleben most lamentable, lack of organization in the selection of foodstuffs and distribution of food packages for these prisoners. It is again the old story of unorganized charity being qualitatively inefficient and quantitatively wasteful.

Dr. Taylor points out that, from a nutritional point of view, the two sources of food supply, from Germany and from Great Britain, should complement each other so as to secure a satisfactory ration. The sending of supplies from Great Britain should be organized and controlled, and the German authorities should cease to attempt to furnish a balanced ration with the money it was decided to apply for the purpose, devoting their outlay entirely to certain articles of food. The following general arrangement in diet is proposed—the figures have been prepared for 3,500 men:

Suggested outlay from the German side per man per day: Three days a week, 125 grams fresh meat; two days a week, 200 grams fresh fish; one day a week, 150 grams tinned corned beef; one day a week, 150 grams smoked fish. Each day in the week 1 kilo potatoes and 300 grams of a root or leaf vegetable.

Suggested outlay from the British side per man per day: Each day in the week, 400 grams white bread, 30 grams butter or margarine, 50 grams bacon, 50 grams sugar, 30 grams jam or preserves, 30 grams Quaker oats, and 30 grams condensed milk; tea and coffee as needed.

Such a diet, says Dr. Taylor, would contain 80 to 90 grams of protein, about 65 grams of fat, and 425 grams of carbohydrate, and would yield about 2,600 calories. It would contain the desirable amount of fat, it would conform to the tastes of the prisoners, and it would provide the interned men with certain desired articles which the German authorities do not supply.

In acknowledging the report Sir Edward Grey "fears that the circumstances will not permit of the adoption in practice of the recommendations made by Dr. Taylor in regard to the establishment of an organization controlling the supply of food parcels sent to the camp from this country." He promises, however, to communicate the report to the Prisoners of War Help Committee with the request that it be made known as widely as possible among the various societies and individuals by whom such parcels are now being sent to Ruhleben.

It is certainly a task which such societies should take up, for it will be a disgrace to this country if the defects in organization pointed out by Dr. Taylor are not remedied.

A PAMPHLET entitled, *An Every Day Directory for War Time*, has been compiled and published (price 6d., post free 9d.) by the Women's Imperial Health Association, 7, Hanover Square, and the Women's Emergency Corps, 15, York Place, Baker Street, W. It includes women's work, but does not exclude other organizations.

British Medical Journal.

SATURDAY, JUNE 17TH, 1916.

RECIPROCAL DUTIES OF STATE AND PROFESSION.

THE General Medical Council at its recent session passed two resolutions which will undoubtedly prove to be of serious importance to the medical profession. The two have a certain relation to each other, for both are concerned with the relation of members of the medical profession to the State.

The first resolution¹ seemed to follow naturally on a series of disciplinary cases in which medical practitioners were charged with covering midwifery practice by uncertified women. The President was asked to draw up a warning notice in consultation with the legal advisers of the Council. It will not be difficult to draw up such a warning notice if it is to be only a general threat of penalties for the covering of uncertified women, but if it is to contain any instruction as to the limitations of what is meant by "covering," it will have to be most carefully framed to avoid injustice, not only to practitioners, but to the public. With the Midwives Act as it stands, the dividing line between "covering" which deserves punishment, and a proper and sympathetic service to the poorer classes of parturient women is not always easy to draw, and unless the term "covering" is very strictly defined, there will be great danger that fear of transgressing may impel many practitioners to refuse to go to any case of confinement which is being attended by an uncertified woman. The ideal put forward by Dr. Newsholme, that there should be a proper supply of certified midwives in every area, and that county councils or town councils should co-operate with the State, each paying half the fee of a certified midwife when the mother cannot afford it, is a long way from being realized either in country or town areas generally; a large percentage of mothers are still unfortunately being attended by handy women, either on the ground of expense or because there is no certified midwife in the district. If in one or other of these circumstances a doctor is called in because some difficulty occurs, what is his duty? It would not be in the public interest to make a rule which would deter doctors from attending in such cases. That is not the way to bring pressure to bear on public authorities in town or country. For a doctor habitually to "follow" (to use the popular term) an uncertified woman whom he knows to attend confinements "habitually and for gain," would, as a rule, rightly come under the term "covering," and it is a matter for regret that there should be thought to be any need for a warning notice to this effect; but will a doctor be running any risk of disciplinary measures if without any previous arrangement he responds to the call of such a woman, or will he be expected to act as a public detective and report such cases to the authorities at the risk of a charge of "covering" if he failed to report them? It is no use burking the fact that, rather than run such risk or incur the odium of reporting a patient for employing an uncertified woman (for that is certainly how the patients will regard any such

detective work), many doctors will prefer to be otherwise engaged and unable to attend any case for which they have not been previously engaged or to which they do not receive a call for aid on the official form from a certified midwife. The mere mention of this, among many other difficulties that arise every day in general practice in connexion with similar cases, makes it imperative that any warning notice should be not merely one more of those threats of pains and penalties with which the profession is so freely bombarded to-day, but that it should be educative and fully explanatory; while protecting the mothers as well as the midwives so far as possible from unqualified women, it should not place medical practitioners in a position of doubt and difficulty. The fairness and efficacy of any warning notice on the subject will depend entirely on the way in which it is drawn up and the information it gives, and we repeat that the task committed to the President and legal advisers of the Council is by no means easy, and we feel sure that the result will be very carefully scrutinized by the Council when the draft comes before it.

The second resolution of the General Medical Council² to which we refer is in the nature of a recommendation that "instruction should be given, in the courses of forensic medicine and public health, or otherwise, on the duties which devolve upon practitioners in their relationship to the State and upon the generally recognized rules of medical ethics." To carry out part of this resolution ought to offer no insuperable difficulty to the colleges and medical schools. Some instruction is already given, though perhaps not so fully as it ought to be. Instruction in the duties of practitioners in regard to coroners' cases and the giving of evidence in either civil or criminal courts ought undoubtedly to receive more attention than is generally given to it. The duties of the prompt notification of infectious diseases, including tuberculosis; the duty, so far as it falls on medical practitioners, of notifying births; the law as to death certificates, certificates in lunacy, and so on, afford material for lectures to students which is not difficult to handle. When we come to what may be called more specialized obligations, difficulties will arise which will compel lecturers to confine themselves within narrow limits. For example, the duties of medical officers of health, Poor Law medical officers and public vaccinators, school medical officers, and many other public medical officials, could not be treated in anything but a very summary way in a general course.

But the hard experience of the profession in recent years compels the suggestion that the rights of practitioners as well as their duties are subjects on which students should be instructed. The resolution speaks only of the duties of practitioners, but the systematic and often crude attempts of many public officials, especially of too many coroners, to require, with a show of authority and without a fee, services which practitioners are in no way legally bound to render, make it important that if legal duties are to be explained, legal rights ought equally to be described.

Again, the working of the Insurance Acts offers a wide field for instruction, since the duties and rights of practitioners in relation to the State in this respect are often matters of great importance; yet it is more than doubtful whether any course of lectures to students could satisfactorily cover even a fraction of this field. In the first place, ordinary university professors probably know nothing of these matters

¹ SUPPLEMENT, June 1st, p. 128.

² SUPPLEMENT, this week, p. 145.

worth lecturing about beyond the vaguest generalities, and the complexion placed on these would depend far too much on the personal feelings of the lecturers in favour of or against panel practice.

The second part of the resolution—that referring to instruction in medical ethics—will also present difficulty in application. A distinction must, of course, be drawn between the “ethical rules” of the British Medical Association and “generally recognized rules of medical ethics.” The “ethical rules” are, of course, really rules of procedure in determining cases where ethical conduct is involved, and in most cases the question is one of obedience to or neglect of decisions of the Representative Meeting or the local Division. For example, the numerous decisions of the British Medical Association adopted by Divisions with regard to minimum salaries or fees that should be accepted are regarded as of such importance that in not a few cases non-compliance has led to expulsion from the Association on the ground of conduct “detrimental to the honour and the interests of the profession.” Loyal members of the Association have often longed for some means of enforcing its rules of conduct on the attention of medical students, but can it be claimed that the decisions of the Association on such matters come within the range of instruction contemplated by the General Medical Council? On the other hand, if this cannot be claimed, what is left to the lecturer on medical ethics? The British Medical Association has from time to time covered by its pronouncements practically the whole field of medical ethics, but who is now to determine which of its pronouncements are “generally recognized”? Is this to be left to each university lecturer, or does the General Medical Council now intend to proceed to draw up a sort of code of honour binding on all medical men, failure to comply with which may involve removal from the *Register*, or some lesser penalty which the Council may obtain power to inflict? Something of the sort might be of great advantage to the profession, and the task of the General Medical Council would be greatly lightened by the accumulated experience and help of the British Medical Association, but in the meantime lectures to students on the generally recognized rules of medical ethics can cover little ground. Such things as undercutting one's neighbours, ingratiating oneself with patients first seen in consultation with a colleague with a view to attract them from him, the innumerable ways of touting for patients short of open advertising, and other matters of the kind, could of course be referred to in lectures to students, but all such references could only be in the most general terms.

ENROLMENT A DUTY FOR MEN BETWEEN 41 AND 45.

THE memorandum issued by the War Office to all medical men who may be under the age of 45, and the covering letter from Sir Alfred Keogh, which we publish in this week's SUPPLEMENT, p. 141, will bring home once more to the minds of all medical men the importance of proper organization of our profession in the national crisis.

We dealt last week with the position of medical men under 41, who now come under the provisions of the Military Service Acts; and we pointed out how essential it is to their own interests, no less than to the interest of the country, that every one of them should be enrolled before June 24th. This week it is our duty to call attention to the later part of Sir

Alfred Keogh's letter, wherein the Director-General appeals to men between the ages of 41 and 45.

The provisions of the Military Service Acts limit compulsion to those single men who had not reached their 41st birthday on March 2nd last, and to those married men whose 41st birthday is later than June 24th. But the difficulty of supplying the medical needs of the navy and army from men below this age, with due consideration to the maintenance of proper and sufficient treatment for the civilian community, led long ago to the raising of the age up to which medical men are eligible for service at home or abroad. Any medical man whose age does not exceed 45 next birthday, and who is physically fit and acceptable to the military authorities, may apply for a commission in the R.A.M.C. Not all the medical men under 45 are wanted for the army, nor could all be spared without serious dislocation of the medical requirements of the civilian population. How, then, can selection be made? So long as compulsion is not applied to men between the ages of 41 and 45, there are only two methods by which voluntary assistance can be obtained from them: First, the military needs may be made known by advertising them, when such men as are moved by the spirit of patriotism may offer their services. The objections to this method are that no individual can possibly know in what direction his services are most needed. In his desire to serve his country by taking a commission he may be putting the area in which he practises to serious inconvenience. Moreover, at what he believes to be the call of duty, he may be inflicting great hardship upon himself and his dependants—hardship which might have been avoided by a process of judicious selection by some one in a position to know all the requirements and difficulties of the case. The second method is to introduce an intermediate body possessing knowledge both of the military requirements and of the civilian and individual difficulties. Such bodies are the Central Medical War Committee and the Scottish Medical Service Emergency Committee. These Committees are able to view the situation in its proper proportions owing, on the one hand, to their close relations with the medical military authorities, and on the other hand to their sympathetic understanding of the position of the medical profession and of the civilian community.

The scheme of enrolment is accepted by Sir Alfred Keogh as by far the best and fairest method for obtaining medical officers for the army. In his letter the Director-General says: “Practitioners between 41 and 45 years of age are in fact in a position, by now enrolling, to assist in a peculiarly important degree the achievement of the objects of this scheme for the organization of the profession, thus enabling the Government both to meet the pressing needs of the forces at home and abroad, and to ensure the maintenance of an adequate medical service for the civil population.”

The scheme completely loses the spirit of fairness unless the majority of men agree to accept it and the obligations it involves. It is inconceivable that any medical man exists in this country who does not wish to serve at the present time wherever he is most needed. It is certain that every man is anxious to make whatever sacrifices are demanded of him. Is it possible that any man will continue to hang back, will refuse to take his part in a scheme of organization approved by the Government, supported by the strong appeal of the Director-General, designed and carried out by committees which have the assistance of the heads of the profession; a scheme which satisfies the instincts of patriotism and equity?

He must be a bold man who sets his private judgement against a proposition supported by such weight of opinion as is found to support the scheme of enrolment.

We trust, therefore, that the appeal of Sir Alfred Keogh to the medical profession may meet with immediate response, and that within a very short space of time there will not be a man left who is under 45 years of age who will not be enrolled with one of the committees responsible for organizing the medical services of the country in time of war.

COMMISSIONS FOR MEN BETWEEN 45 AND 55.

WE are authorized to state that the War Office has decided to give commissions in the R.A.M.C. to medical men between 45 and 55 willing to undertake whole-time general service in the United Kingdom. The announcement will, we believe, be received with satisfaction by a considerable number of medical men between the ages mentioned, who are anxious to serve the country, but have hitherto been debarred from doing so on the score of age. This step has been taken owing to the growing demands upon the Army Medical Service—demands which, we believe, are particularly urgent at the present time. Every man who thus offers himself for whole-time general service in the United Kingdom will set free one younger medical officer now employed in this country to serve with the armies which the country has in France, in the Mediterranean, in Mesopotamia, in India, and in Africa.

Information supplied to the Central Medical War Committee at its meeting on June 14th makes two points clear. The first is that there is an urgent necessity for more medical men to meet the demands of the new units of the new armies, and to make good the wastage which must continually go on in all the many and various fields in which the British armies are operating. The second point is that the War Office seems to be doing all that is possible to meet the demand by calling on all young men who pass qualifying examinations to join the R.A.M.C. at once, and by making an appeal to young graduates in the Overseas Dominions. All these are eligible to receive commissions in the R.A.M.C. for general service abroad. The War Office is considering how far it may be possible to employ senior medical students as residents in hospitals, and other methods of dealing with hospital work are being developed.

A medical man who has not previously engaged in any form of military service must undergo a period of training in his special duties in this country; this period has been reduced to the lowest possible limit. There are, however, as has been said, a considerable number of medical officers in the Territorial Force who had undergone training before the war and have since gained much practical experience. It is such men that the War Office would prefer to send abroad in considerable numbers, and it is the places of such men with the forces at home that can be filled by men between the ages of 45 and 55. We understand that a certain number of medical men between these ages have volunteered to serve abroad and are being employed in the Mediterranean.

The decision of the War Office affords a great opportunity to medical men between 45 and 55 who can see their way to get free from their present civil obligations and accept commissions in the R.A.M.C. with the home armies. It must, however, be understood that the offer applies only to men who will

undertake to give whole-time service and to go to any place in the United Kingdom to which they may be sent.

RECOGNITION OF PROFESSIONAL COMMITTEES UNDER THE MILITARY SERVICE ACT.

THE Central Medical War Committee for England and Wales and the Scottish Medical Service Emergency Committee have been recognized by the Army Council as the Central Professional Committees for England and Wales and Scotland respectively, under the regulations made by the Order in Council in compliance with the provisions of the Military Service Act, 1916 (Session 2). The Reference Committee appointed by the Royal College of Physicians of London and the Royal College of Surgeons of England has also been approved by the Army Council under paragraph 5 (1) of the regulations.¹ Communications from practitioners in England and Wales should be addressed to the Secretary, Central Medical War Committee, 429, Strand, London, W.C., and from practitioners in Scotland to the Secretary of the Scottish Medical Service Emergency Committee, Royal College of Physicians of Edinburgh. The Secretary of the Committee of Reference is Mr. F. G. Hallett, the Conjoint Board in England, Queen Square, Bloomsbury, W.C.

THE BATTLE OF THE CLUBS IN NEW ZEALAND.

WE desire to call attention to a notice which appears on page 38 of the advertisement columns with reference to friendly society lodge appointments at Wellington, New Zealand. For some time the relations between the lodge doctors and the friendly societies throughout Australasia have been very unsatisfactory, and though in New South Wales the doctors have been able to some extent to better their position, in New Zealand they have met with little success. At present Wellington is the centre of dispute, and the New Zealand Branch of the British Medical Association appeals for the loyal co-operation of all doctors in the mother country. Briefly the facts seem to be as follows: For some years past the lodge doctors have received 15s. per member a year; for this they had to give medical and surgical attendance to the member, his wife, all male children up to 16 years of age and female children to 18 years, as well as the widowed mothers of single members. Operations, confinements, and anaesthetics were not included, and there was a distance limit of three miles. At the conference at Auckland in 1914 it was decided to give notice to the lodges to bring into force a new standard agreement at the beginning of 1915, but the outbreak of the war prevented this being carried out. As a large number of doctors joined the forces, not only did the work of those remaining increase, but, with greatly increased expenses, the position became practically unbearable, and the lodge doctors, after notifying the Wellington Division of the British Medical Association, approached the lodges for better terms. The sum of 24s. a year was demanded, and the doctors handed in their resignations to take effect at the end of 1915, the requisite notice being given in each case. A minority of the lodges adopted the new terms at once, except that the doctors agreed to accept 21s. provisionally until the end of the war. The majority of the lodges, however, refused to agree to any increase over the 15s., and they immediately issued circulars seeking applicants on the lodge terms for the appointments. The Wellington Division then took the matter up vigorously, and the resignations of the doctors took effect, the lodge members only being treated as private patients; for this the lodges had to pay. In this predicament the lodges approached the Minister of Public Health (the Hon. G. W. Russell), who, after hearing the friendly societies, asked for a deputation of medical men. Accordingly, on April 11th, members of the Wellington Branch formed a deputation

to the Minister and presented a memorandum on behalf of the lodge doctors. It was made clear that, though the doctors would be willing to treat the families of lodge members absent at the war at the old rate of 15s., the full rate required for members and families would be 24s., a reduced rate of 21s. being accepted in some cases until the end of the war only. Statistics obtained by the Wellington Division showed that on an average each family consisted of four persons, and the memorandum pointed out that in Great Britain under the Insurance Act each individual insured person paid 7s. for himself alone, as compared with the 15s. paid for four persons in New Zealand. The Minister of Public Health thought that a rise from 15s. to 24s. was large, and that the present was not the time to ask for increases. The deputation pointed out that though there was a rise in the cost of living, unemployment was never less in evidence, and the working man was better off now than ever. The 15s. rate worked out at only 10½d. per attendance on the average, and in some cases as low as 3d. to 5d. The Minister asked that he should be allowed to call a conference of the lodges and the doctors; he was prepared to admit that 15s. was too low, but he was also prepared to admit that 24s. was too high. His position placed on him the necessity to find medical service for every part of the country, and if a large body of persons were unable to get medical attendance at a price they could afford, he would have to find some method to supply the need. The suggested conference has since been held, but no agreement was arrived at. Some of the lodges appear to have boasted that they would be able to get any number of medical men from Great Britain or America to accept their terms, and the New Zealand Branch now confidently appeals to all medical practitioners to assist in its fight for reasonable terms. The societies are evidently ready to take advantage of the ignorance as to the real state of affairs of doctors in the mother country who might think to better themselves by going to New Zealand, but there can be no excuse for any such ignorance, and the real position will be fully explained to any doctor who desires full information, if he will apply to Dr. H. G. Gibbs, Honorary Secretary New Zealand Branch, 123, Willis Street, Wellington, New Zealand, or to the Medical Secretary, British Medical Association, 429, Strand, London.

FEVER WITH MENINGISMUS.

In the *Muenchener medizinische Wochenschrift* for May 9th, 1916, Dr. Richard Stephan, of Leipzig, describes an outbreak of febrile illness associated with meningismus which occurred during the summer and autumn of 1915. The first cases were observed during May. The illness was ushered in by rigor with pyrexia, headache, and marked hypersensitiveness to either active or passive movements. The mucous membrane of the tonsils and pharynx was red and swollen, and from the third to the sixth day catarrhal bronchitis frequently supervened. Stiffness of the neck muscles and bradycardia were also observed. Diarrhoea occurred in some cases, and acute dilatation of the heart was also met with. Some of the cases exhibited herpes labialis. A point of particular interest is that several developed haemorrhagic nephritis. In spite of the gravity of some of these symptoms the prognosis proved to be good. On lumbar puncture the cerebro-spinal fluid was found to be clear and showed no increase in its albumin content. The centrifugalized deposit yielded few cells of any kind, those present consisting of lymphocytes and polymorphonuclear leucocytes. Gram-negative cocci were seen in the latter. This clear cerebro-spinal fluid on incubation yielded in every case after enrichment of the fluid by Kutscher's method, and in half of the cases without such enrichment, a Gram-negative diplococcus which was distinguished from the meningococcus by its profuse growth on agar, and also by agglutination tests; but this matter is to be more fully dealt

with by Drs. A. Harzer and C. Lange in a future communication. From the nasopharyngeal secretion of the cases the meningococcus could not be isolated. Blood cultures gave a negative result. In two of the cases that developed haemorrhagic nephritis Gram-negative diplococci were observed in the centrifugalized deposit of the urine. Investigation as to the occurrence of the diplococcus isolated from these cases in the upper respiratory passages of normal persons, and of persons suffering from other diseases, has had to be deferred until its serological characters have been defined more fully. As regards treatment, Stephan states that good results followed the administration of hexamine (urotropin), which was given without harm to cases after the development of haemorrhagic nephritis. The dose was 0.5 gram of hexamine six times a day. As has been mentioned, prognosis was good, recovery taking place as a rule in eight to ten days. No mention is made of any case having died. The malady may be described as an acute febrile illness with meningismus. Stephan regards the condition as due primarily to a bacteraemia, the upper respiratory tract or the lung being the portal of entry. As to whether this acute meningismus is a new disease, hitherto unknown, or not, Stephan is uncertain; but he believes that in all probability a great number of cases of so called febris ephemera, febris herpetica, or febris cryptogenica belong to this group. In any case he is convinced that the disease is distinct from cerebro-spinal fever. In view of the study which is being made in this country at the present time of Gram-negative cocci in connexion with outbreaks of cerebro-spinal fever, no little interest attaches to Stephan's communication.

WEIL'S DISEASE.

In 1886 Weil described a type of epidemic jaundice that has since gone by his name; its etiology has till quite recently been obscure. A similar, if not identical, disease appears to exist in Japan, and here it is caused by infection with a particular spirochaete, as was described in the *BRITISH MEDICAL JOURNAL* of April 1st on page 491. Advices from Germany report¹ that in that country also a spirochaete has been isolated from the blood of patients with acute infectious jaundice by Hübener and Reuter, and by Uhlenhuth and Fromme. This organism can be cultivated from the circulating blood only during the first few days of the fever; in a case reported by G. Herxheimer² ending with a fatal result due to the occurrence of bronchopneumonia, the spirochaetes could be demonstrated in the patient's tissues by Levaditi's method of staining with silver. The liver and kidney were the organs mainly involved, and the latter was found to contain many more of the spirochaetes than the former. The spleen, curiously enough, showed no enlargement, and was practically normal. Herxheimer points out that several recent writers besides himself have failed to confirm Weil's original statement that the spleen is enlarged in this form of epidemic jaundice. Two cases of the disease are reported by Krumbein and Frieling;³ here the source of the infection was a dog acutely ill with jaundice that lasted about four weeks. The infection in one case may have taken place by means of a scratch on the hand inflicted by one of the dog's teeth in the process of washing out the animal's mouth with hydrogen peroxide on the second day of its illness. Both patients—the dog's owner and a medical man—were daily in close contact with the animal, and may have become infected by flea-bites; both had attacks of acute febrile jaundice, and both recovered. The incubation period of the disease could not be determined with any certainty in these two instances, but Krumbein and Frieling argue that it was probably nineteen days in the case of the owner whose hand was scratched, and twenty-two days in the other case.

¹ *Deut. med. Woch.*, Berlin, 1915, No. 43.

² *Berl. klin. Woch.*, 1916, No. 19.

³ *Deut. med. Woch.*, Berlin, 1916, No. 19.

MEDICINE IN THE ENCYCLOPAEDIA OF RELIGION AND ETHICS.

It is with a mixture of wonderment and respectful admiration that the eighth volume of Dr. Hastings's great *Encyclopaedia of Religion and Ethics*¹ must be welcomed in these days when nearly the whole world is at war, and when publishers and editors in particular are hard put to it to go on. Still this volume is only a little behindhand, for although its title page bears 1915 the volume itself has just been issued. It contains 910 pages of double columns and not less than 1,200 words on each; its writers, of many nations and races (including German professors), number 185; and its articles more than 260—it is an achievement. The first article, on "Life and death," by Professor J. A. Thomson of Aberdeen, deals, of course, with many medical matters; and those which follow it, and which look at the subject from Primitive, American, Babylonian, Buddhist, Celtic, Chinese, Christian, Egyptian, and many other standpoints, contain not a little which is of intense interest to the thoughtful physicians who "beside the unveiled mysteries of life and death go stand." Another group of articles, occupying about fifty pages, discusses marriage in all its relations, including the medical, and among all races. It is a storehouse of most interesting information such as could not easily be gathered from any other single source. Milk (bathing in it as well as drinking it) is another article of interest for the curious. Madura is described, and its wondrous shrine, but not (indeed, one could hardly expect it) its "foot"; lycanthropy is entertainingly explicated; the Melanesians and Malaysians have all their inmost secrets laid bare; melancholy is intimately inquired into, its medical aspects set forth, and dear old Robert Burton, "by profession a divine, by inclination a physician," is referred to; magic is brought very near to ancient medicine; mana, which seems to be, like taboo, a word which can mean almost anything and nearly everything, gets full consideration; and therapeutic effects of the wonderful Midsummer-day fires of Morocco are not forgotten. Monsters are investigated from a biological standpoint by Dr. W. L. H. Duckworth of Cambridge, and from an ethnic one by J. A. MacCulloch (who also writes on metamorphosis, miracles, and mouth), but the ethics of what is to be done with them in relation to social status, marriage, legal position, and the like is prominent by its absence; indeed, the page and three-quarters given to this subject is meagre in the extreme. Another criticism arises in connexion with the articles on missions, which occupy fifty-one pages, but through which one has to search with microscopic minuteness in order to discover (on p. 740) a reference to medical missions. These, however, are trifling faults to find in the midst of so much which is magnificent, massive, and mature.

RURAL SANITATION.

A CORRESPONDENT suggests that it would serve the turn of local authorities to send their medical officers of health for a tour of instruction in the parts of France at present guarded by the British armies. If the chairmen of the public health committees were to go also it might be still better. Starting from conditions worse than we are accustomed to put up with in this country, the Army Medical Service has brought about a state of things in the small towns and villages within the British military zone a great deal better than anything known in similar places at home. The transformation is due partly to zeal and knowledge, partly to the possession of authority and the command of adequate labour, and partly to liberal expenditure. It is the old story of the trained practical expert in command possessed of adequate means and unhampered by amateurs who may be excellent tinkers, tailors, or cabinet-makers,

but are wholly ignorant of sanitary administration or the scientific principles on which it rests. Lieutenant-Colonel Herbert Jones, who has had a long experience of public health administration in civil life, said at the conference at the Royal Sanitary Institute last week that he had been astonished at the rapidity with which sanitary improvements could be carried out in the army at home. To see the work on a large scale it would, we believe, be necessary to visit France.

NAPOLEON AND TISSOT.

DISCUSSIONS on the real and supposed diseases of Napoleon already make a considerable body of literature, and there is no sign that interest in the subject is dying out. The latest new document we have seen is published in *Paris Médical* of May 13th. It is a letter written to Tissot, the famous physician of Lausanne, and is to the following effect: "Sir,—Without having the honour of your acquaintance, having no other right than the esteem with which your writings have inspired me, I venture to importune you with a request for your advice on behalf of one of my uncles who suffers from gout. Humanity, Sir, bids me hope that you will deign to reply to this request for a consultation so ill expressed. I myself for a month past have been troubled by a tertian fever, which makes me doubt whether you will be able to read this scrawl. I conclude, Sir, with an expression of the perfect esteem with which the reading of your works has inspired me, and the sincere gratitude which I owe you. I am, Sir, with the most profound respect, etc." Tissot did not think the letter worth answering, and, indeed, as a statement of a case it is pitifully vague, and as a literary composition it is poor and feeble, very different from the lightning strokes of the Napoleonic pen. This may, perhaps, be explained by the illness of the writer. At any rate, Tissot endorsed the letter "Not interesting." He was no prophet, or the signature, "Buonaparte, artillery officer in the regiment of La Fère," would certainly have aroused his interest. Perhaps the poor lieutenant had forgotten to send a fee. Tissot wrote much and on the most various subjects—inoculation, bilious fever, the health of literary men, epilepsy, diseases of the nerves, and onanism; the last of these books made his name known throughout the world. Probably the works which gained for him the admiration of the future emperor were his popular treatises on health, which went through countless editions and were translated into most European languages, and his essay on the health of men and women of the world.

LOCALIZATION OF BULLETS.

A REPORT of a demonstration of a new *x-ray* apparatus by Hasselwander of Munich for the correct stereoscopic showing of bullets, etc., was published in *Electrical Engineering* for May 11th. In this method a land surveying instrument called the stereoplanigraph is used, and the idea appears to be to reproduce by means of this instrument and the stereoscopic image an automatic modelling in all three dimensions of space of the radiograph. It is claimed that this method is very exact; that it has been used in 100 cases with complete success; and that it gives a permanent record of each case. It seems to be a distinct advance in the methods of stereoscopic radiography, but it is not clear from the description that, from the practical point of view—namely, the exact localizing of a foreign body for the purposes of surgery—it equals in exactitude and ease of application the cross-thread method devised by Mackenzie Davidson.

THE King has appointed Mr. John B. Story, M.B., F.R.C.S.I., Professor of Ophthalmology and Aural Surgery in the Royal College of Surgeons of Ireland, to be Honorary Surgeon-Oculist to His Majesty in Ireland, in the room of the late Dr. Charles Edward Fitzgerald.

¹ *Encyclopaedia of Religion and Ethics*. Edited by James Hastings, with the assistance of John A. Selbie, M.A., D.D., and Louis H. Gray, M.A., Ph.D. Vol. viii. Life and Death—Mulla. Pp. xx, 910. Edinburgh: T. and T. Clark. 1915.

THE WAR.

ABDOMINAL INJURIES.

(From a Correspondent in Northern France.)

ALL along the British front cases of gunshot wound of the abdomen are the subject of special arrangements. These are not invariably identical and nowhere are they regarded as unalterable should the needs of the moment seem to dictate their modification. Everywhere, however, the same underlying principles prevail.

Whatever be the ordinary rules of the area for dealing with casualties, they are held to apply to no case which there is reason to regard as one of penetrating wound of the abdomen. Unless any such case obviously will not bear transportation, it is to be sent without delay to the nearest medical unit at which it can be detained and suitably treated for any desired length of time.

The official status of the unit to which the case is sent may vary, but it will always be one possessed of an operating-room kept ready for instant use; of a personnel which includes women nurses and at least one surgeon versed in abdominal surgery; and of a ward equipped on the lines of an ordinary hospital and so disposed that its current work and occupants need not be disturbed if occasion require that the rest of the establishment be evacuated or moved elsewhere at short notice.

Units which meet these desiderata are to be found all along the line. As a rule, they are casualty clearing stations, but occasionally they are or have been "tent sections" of field ambulances which have budded off the original unit and almost lost any connexion therewith. Their distance from the trenches varies, but is never so great that it could not easily be traversed by a motor ambulance within an hour and often in half that time.

It would be wrong, however, to conclude that not more than about sixty minutes will commonly elapse between the receipt of an abdominal wound by a soldier and his appearance as a patient in an operating theatre. There have been instances in which this has occurred, but as a rule it is not to be expected. The determining factors are numerous, and the precise distance between the spot at which a man is wounded and the unit at which he is to be treated is about the least influential of all of them. The difference that it can make is a matter merely of minutes, that caused by the rest may be one of hours.

Among the more important factors are the following: (a) The occupation of the patient at the time he is hit; (b) the hour of the day; (c) the state of the weather; (d) the extent and character of the fighting at the time in progress; (e) the character of the communications between the fire trenches and the regimental aid post and between the latter and the advanced dressing stations; (f) the extent to which the roads immediately behind the fighting line are exposed to artillery or rifle fire.

It is obvious that any of the first three of these factors may vary greatly from day to day, while in regard to the three latter it may be said that hardly two consecutive miles of trenches seem to present quite the same problem from the point of view of evacuation of casualties.

As for the effect of occupation, a man may be struck when (1) in a fighting or communication trench, or (2) when out in front of the trenches as a member of a wire-repairing or other working party; or (3) when engaged in an active attack on the enemy; or (4) while going up to or back from the trenches by an above-ground route.

In case (1) he is likely to receive immediate attention, though whether he will be removed to the rear forthwith is quite another question. In cases (2) and (3) it may sometimes be impossible to get him brought in for a very long time. In case (4) he might not be found for an indefinite period. There are plenty of places where the ground behind the lines is either woody or obscured by hedges and bushes.

As for the other factors it may be impossible to spare men to take an abdominal case to the rear if active fighting

is in progress, or heavy rain may render a communication trench temporarily impassable; or the enemy may take it into his head to pepper with shells a road along which the patient and his bearers will have to pass when they have left the trenches behind them, and such "strating" may be kept up for hours.

Other considerations are the following: Some lines of trenches, either because the ground is flat or the enemy occupies a slight elevation, can neither be entered nor left except under cover of darkness. Other trenches, either because the ground behind them lies low or is covered by trees, can be entered in daytime and by an above ground route without material risk unless the enemy happens to be shelling what is usually "dead ground."

The character of the communication trenches is also a factor of importance; they may, for instance, be habitually flooded except in the driest weather because the German trenches lie sufficiently high and sufficiently near to allow them to pump down on the British trenches as much water as they please.

At other places the trenches may at all times offer an easy route for evacuation of casualties, but are so long, say upwards of two miles, that the journey of a patient down them necessarily absorbs considerable time.

Finally, there are spots where it is comparatively easy to get the patients from the fire trenches to the advanced dressing station, but not any further, with promptitude because there is no place near the advanced dressing station at which it is possible to keep an ambulance waiting, and consequently it has to be fetched.

The writer is personally acquainted with places which exemplify each of these statements, and the general list of determining factors could doubtless be extended. The net result is that already indicated—namely, that the time elapsing between the moment that a patient is hit and that of his arrival at the hospital where he is to be treated is liable to great variations not only at different parts of the line but at one and the same spot. There was, for example, at work till quite recently an institution which sometimes got its abdominal cases on the operating table within as little as an hour from the time at which they were struck, and sometimes not for a dozen hours. This was despite the fact that it lay within a quarter of an hour's drive of the trenches which it served, and that these could commonly be approached and left in daylight.

The foregoing, though the most important, are not the only circumstances which help to bring about great variation in the lapse of time between the receipt of an abdominal wound and the undertaking of any consequent operation. All abdominal wounds cause more or less shock, and the shock is liable to be increased by many circumstances, including exposure to wet and cold. Some surgeons are disposed to operate as soon as they possibly can, despite the existence of even profound degrees of shock. Others prefer to wait for some time, adopting meanwhile any measures they deem calculated to reinforce the patient's vitality. These always include the changing of wet clothing, keeping the patient in a warm atmosphere, and making him as comfortable as his injuries permit.

Everywhere now opinion seems on the whole to favour habitual operative interference in all cases of abdominal wounds. It is hardly disputable that cases are saved which would certainly have died under the starvation or expectant treatment formerly in favour, but it is by no means certain that the change of practice spells as much real progress and saving of life as might be assumed from some of the accounts that have been published.

Individual attitude towards the work varies greatly. Some of those who have had most experience of it regard it as of a most depressing and disappointing character, while others are buoyantly enthusiastic. The explanation seems to be that the depths of this very special class of surgery have not yet been fully plumbed, with the result that some men are unduly influenced by the endless cases in which a favourable prognosis eventually proves unjustified, while others are too ready to generalize from the apparently hopeless cases which proceed to convalescence without a check.

The stretcher used for the transport of abdominal cases whenever possible has a back support and a thigh support, relaxation of the recti and other abdominal muscles being thus secured.

CASUALTIES IN THE MEDICAL SERVICES.

ROYAL NAVY.

Killed.

The cruiser H.M.S. *Hampshire*, which was carrying Lord Kitchener and his staff on a mission to Russia, was blown up by a mine off the west coast of the Orkneys on the evening of June 5th, and sank with all but twelve of her complement of some 650 men. Among thirty-eight officers who perished were three medical officers—Fleet Surgeon P. G. Williams and temporary Surgeons H. F. McNally and H. G. Chaplin.

Fleet Surgeon Penry Garnons Williams was the son of the late Prebendary Garnons Williams, of Abercarnlais, Brecon, was educated at St. Thomas's Hospital, took the diplomas of M.R.C.S. and L.R.C.P.Lond. in 1899, and entered the navy the same year. He was promoted to staff surgeon on May 15th, 1907, and to fleet surgeon last year. Prior to his promotion he was serving on H.M.S. *Amphitrite*.

Temporary Surgeon Hugh Francis McNally was the son of Mr. Nicholas McNally, late Principal of Raglan Street Boys' School, Belfast. He was educated at St. Malachy's College, and served his apprenticeship as a chemist, after which he entered Queen's University, Belfast, where he graduated M.B., B.Ch., and B.A.O. in 1915. He was a member of the University O.T.C., and also of the Irish National Volunteers.

Surgeon Maurice H. de J. Harper, whose death on the *Queen Mary* was briefly noted last week, was 27 years of age, and was the son of a naval chaplain. He received his early education at the Pocklington Grammar School and Trent College, and when at Newcastle-upon-Tyne College of Medicine played cricket for his university and college. After joining the navy he was stationed for many months at Chatham Naval Barracks, was then appointed to H.M.S. *Thames* and about three months ago to H.M.S. *Queen Mary*.

Surgeon T. Mansergh Wood-Robinson, who was killed on the *Black Prince* as noted last week, was also the son of a naval chaplain. He was 25 years old and received his early education at Crediton and Portsmouth grammar schools. After the outbreak of war, while waiting for a commission, he held the appointment of house-surgeon at the Middlesex Hospital. He joined H.M.S. *Black Prince* in May, 1915. A short time ago he was awarded the Royal Humane Society gold medal for a gallant attempt to save the life of a man who had fallen overboard.

Casualties in the Naval Action of May 31st.

Since the casualty list was published on June 5th it has been reported that eight officers, mostly from the destroyers *Nomad* and *Nestor*, and about 170 men, were picked up by the Germans, and are prisoners, not killed, as was reported at first. Among the survivors are Surgeon-Probationers D. J. T. Oswald, of the *Nomad*, and A. Joe, of the *Nestor*.

ARMY.

Killed in Action.

Captain Walter Seymour Armstrong, R.A.M.C., of Monatha, Hythe, Kent, was killed in action on May 31st. He was the youngest son of the late Rev. William Armstrong, Vicar of St. Mark's, Dalston, Yorkshire, and was educated at St. George's Hospital, taking the M.R.C.S. and L.R.C.P.Lond. in 1903, after which he acted as assistant medical registrar at St. George's. He subsequently went to Newfoundland, where he was surgeon of St. Anthony's Hospital and surgeon in charge of the Indian Harbour Hospital and a Justice of the Peace. He received a commission as temporary captain in the R.A.M.C. towards the end of 1914, and served with the British Expeditionary Force in France in 1914-15, and subsequently with the Mediterranean Expeditionary Force.

Died of Wounds.

Lieutenant-Colonel A. W. Tanner, commanding the 10th Canadian Field Ambulance, died from wounds received on June 3rd. He was born at Watford, Ontario, in December, 1875, graduated at Toronto University in 1899, and settled in practice in Moosomin, Saskatchewan. There he rapidly made his mark as a general practitioner and most capable surgeon. In 1910 he joined the 16th Canadian Light Horse, allied with the 16th (the

Queen's) Lancers, and within a month of the beginning of the war was given his lieutenantancy in this brigade. From being a combatant officer he transferred to the C.A.M.C., and last year was appointed A.D.M.S. of the 10th Canadian Military District, which included the Provinces of Manitoba and Saskatchewan. As such he was in medical charge of the Sewell Camp in Manitoba, and later was largely instrumental in bringing together and establishing the 10th Field Ambulance. This unit arrived in England on March 13th, 1916, and within a month was at work at the front. Here Colonel Tanner immediately impressed all with whom he came into contact as a most capable officer with administrative abilities of the first order. His death is a very distinct loss to the Canadian Army Medical Service.

Surgeon-General Carleton-Jones, D.M.S. Canadian Expeditionary Force, writes: "Lieutenant-Colonel Tanner I have only known a short time, since he joined the Expeditionary Force in England, but from what I saw of his work in England and in France, I was particularly struck with his natural ability for military medical work. I feel his loss very much, as it means that the service is deprived of a most capable and useful officer."

Wounded.

Captain D. A. R. Haddon, R.A.M.C. (T.F.).
Captain J. J. Jamieson, Canadian A.M.C.
Captain J. A. Reid, Canadian A.M.C.
Captain C. F. White, R.A.M.C.
Lieutenant E. V. Sullivan, R.A.M.C.

Missing.

Captain F. S. Park, Canadian A.M.C.
Captain W. R. W. Haight, Canadian A.M.C.

Died on Service.

Temporary Lieutenant G. S. Engineer, I.M.S., was reported as having died on service, in the casualty list published on June 8th. His commission was dated July 24th, 1915.

Temporary Captain Elfred Chalmers Austin, R.A.M.C., died at West Didsbury, Manchester, of septicaemia following pneumonia and empyema, on June 5th, aged 39. He was educated at St. Mary's Hospital, and took the diplomas of M.R.C.S. and L.R.C.P.Lond. in 1899, subsequently taking the F.R.C.S. at Edinburgh in 1903. After acting as resident obstetric officer at St. Mary's Hospital, house-physician to the Leicester Infirmary and Fever House, and assistant medical superintendent of the Kensington Union Infirmary, he went into practice at Barnard Castle. About four years ago he was appointed medical superintendent of the Hope Hospital, Salford. In March, 1915, he was appointed by the Manchester Guardians medical superintendent of the Withington Institution Hospital and of the Dr. Rhodes Memorial Home, Withington. The Withington Hospital was soon after transferred to the military authorities as a hospital for sick and wounded soldiers, and he received a temporary honorary commission as captain in the R.A.M.C. while in charge of it. He was a hospital administrator of great experience, keenly interested in surgery, and an operator of repute. He leaves a widow and two young daughters.

PRISONERS OF WAR.

On June 7th the War Office published a list of the officers taken prisoners by the Turks when General Townshend's force surrendered at Kut-el-Amara in April owing to want of food, after enduring a siege of five months. The total number of names given was exactly 200, and it was stated that a few more would follow. Besides General Townshend himself, there were five other general officers in the force: Major-Generals Sir C. J. Melliss, V.C., K.C.B., and W. S. Delamain, D.S.O., and Brigadier-Generals H. D. Grier, C.B., W. G. Hamilton, C.B., D.S.O., and G. B. Smith, C.B. Among the 200 officers were twelve officers of the R.A.M.C. and twenty of the I.M.S.

R.A.M.C.

Lieutenant-Colonels J. Hennessy, C.B., and H. O. B. Browne-Mason.
Majors E. V. Aylen, E. Bennett.
Captains A. S. Cane, C. E. M. Jones, A. T. J. McCreery, R. K. Mallam, L. Murphy, T. E. Osmond, and J. Startin.
Lieutenant F. T. Simpson.

I.M.S.

Colonel P. Hehir, C.B., Principal Medical Officer.
 Majors S. Anderson, C. H. Barber, W. M. Pearson.
 Captains L. A. P. Anderson, D. Arthur, R. C. Clifford,
 S. C. R. Haughton, H. H. King, J. S. S. Martin, K. K.
 Mukerji, C. Newcomb, M. L. Puri, and F. H. Salisbury.
 Captain G. O. Weston, I.S.M.D.
 Lieutenants N. K. Bal, R. V. Martin, and W. C. Spackman.
 Temporary Lieutenants A. Y. Dabholkar and N. R. R. Ubhaya.

DEATHS AMONG SONS OF MEDICAL MEN.

Austen, Mark, Midshipman H.M.S. *Queen Mary*, only son of Fleet Surgeon Austen, R.N., killed in action, May 31st, aged 16.
 Bates, Edwin Raymond, Midshipman H.M.S. *Indefatigable*, elder son of Dr. Bates, of Lingfield Road, Wimbledon, killed in action on May 31st, aged 17. He entered Osborne in January, 1912.

Cathcart, F. J., Lieutenant R.F.A., aged 21, who was killed in action in Mesopotamia on June 4th, was the only son of Mr. C. W. Cathcart, Senior Surgeon to the Edinburgh Royal Infirmary. He was an engineering student at the University of Edinburgh, where he was a member of the artillery unit of the O.T.C. His commission was dated August 26th, 1914. Before going to Mesopotamia he had seen service at Suvla Bay.

Cooper, William Francis Reginald Ashley, Midshipman H.M.S. *Indefatigable*, only son of the late Dr. T. G. Duncan Cooper, killed in action on May 31st, aged 18.

Faulkner, Robert Irvine, Lieutenant H.M.S. *Black Prince*, younger son of Dr. C. I. Faulkner, late of Escrick, Yorkshire, killed in action on May 31st. He joined the navy as a midshipman in May, 1904, and became lieutenant in July, 1908.

Flemming, Thomas Frederick Stewart, Lieutenant H.M.S. *Invincible*, aged 22, killed in action on May 31st, was the eldest son of Dr. Charles Flemming of Bradford-on-Avon.

Hind, Charles Raymond, Second Lieutenant South Staffordshire Regiment, second son of Alfred E. Hind, F.R.C.S., of Portland House, Jersey, killed in action on May 30th, aged 22. He was educated at Laleham School and at Radley College, where he was captain of the eleven, and had been a medical student at Pembroke College, Cambridge, for two years, when the war began. He got a commission from October 3rd, 1914, and for a year had commanded a brigade grenade company in France, having been mentioned in despatches.

Hodgson, Edward Thomas, Midshipman H.M.S. *Invincible*, younger son of Dr. Hodgson, of Alresford, Hants, killed in action on May 31st, aged 17. He was a second term cadet at Dartmouth when the war began, and he went to sea. He had been present in the battles of Heligoland Bight and of the Falkland Islands.

Lydall, Rev. Cyril Wykeham, M.A., Chaplain H.M.S. *Lion*, son of the late Wykeham Hawthorn Lydall, M.D.Lond., killed in action on May 31st by a shell which struck H.M.S. *Lion* in the recent action. He was born in 1873, and was educated at Bradford and Worcester College, Oxford. He had held previous commissions as chaplain in the *Minerva* and the *Swiftsure*. He was to have been married on the Monday following the action to Miss Grace Clarke, of Newcastle House, Nottingham. He was a nephew of Lord French.

Matthews, Humphrey, Lieutenant Royal Navy, lost in H.M.S. *Hampshire* on June 5th, aged 23, son of Valentine Matthews, Colonel late R.A.M.C. (Vol.).

O'Brien, Hugh Rivers Hamilton, Captain Royal Field Artillery, only son of Lieutenant-Colonel J. O'Brien, I.M.S. (retired), of Newstead, Instow, North Devon, killed in action on June 1st, aged 25. He was born in August, 1890, got his first commission in December, 1910, and became lieutenant on December 23rd, 1913.

MEDICAL STUDENT.

Surgeon-Probationer Robert Walker (H.M.S. *Shark*) was an Australian. He was in his fourth year as a student in medicine at the University of Edinburgh. He had won the Vans Dunlop scholarship in anatomy, the John Aitken Carlyle and the Mackenzie bursaries in anatomy, as well as the Cunningham memorial medal presented to the most brilliant student of the year in anatomy. He had in addition won eight medals in other subjects at the university.

NOTES.

FRENCH AND RUSSIAN PRISONERS IN GERMAN CAMPS.

A new arrangement which came into force on June 6th will henceforth ensure a regular distribution of 2 kilos of bread a week to all French prisoners in Germany. The bread ration provided by the German Government is 300 grams a day. The consignments of food-stuffs and clothing will continue as heretofore. All the French departmental organizations for aid to prisoners have been invited to group themselves into a national federation, and this organization, which has its head quarters in Paris, has undertaken to manage the bread supply. In this it will be helped by the French Government and by the International Red Cross Bureau in Geneva. The Federation has obtained certain guarantees. In each camp a delegate may correspond directly and without control with the Federation to inform it as to the regularity of delivery. A further control will be exercised by the neutral embassies. The German

Government has authorized the transport of collective consignments by express. It has also undertaken henceforth to furnish the exact numbers of French prisoners in each camp.

There are many complaints in the French papers about the ill-treatment of French prisoners in German camps. It is said that the sick are forced to work before they are well. *Le Journal* of June 5th published the statement of a soldier repatriated from Gardelegen on account of cancer, which he attributes to a blow in the stomach with the butt end of a rifle when he was suffering from a wound. At Erfurt, a month and a half before the repatriation, ten severely wounded men were left behind in huts lying on mattresses without any care; two of them suffering from tuberculosis died. Every pretext is seized upon for torturing the men and inflicting on them fresh sufferings and privations. A letter from a prisoner to his father is quoted in which the writer says that he and his fellow captives have to work from 7 a.m. till mid-day and from 1 to 6 p.m. on starvation diet. He adds: "Frankly, they try to kill us." To mislead public opinion the Germans continue to send out lying reports as to the treatment of the prisoners in France. The reports of neutral delegates as to the depôts in Brittany which they have recently visited testify to the excellent impression made upon them. At Chateaufort, where officers are interned, the delegate reports that "the state of the camp and of the prisoners is excellent." As to the Russians, there is abundant evidence of the bad treatment to which they were subjected by their German gaolers. The latest is given by the *Amsterdam Telegraaf*, which is quoted in the *Times* of June 10th as saying that some Russian soldiers who had arrived in Holland from German prison camps stated that during the sixteen months they were in captivity they did not taste meat. Their food consisted of potato soup and 7 oz. of bread daily. One of them said that nevertheless their treatment of the matter of food was much better than that of the British prisoners, many of whom fell ill.

MEDICAL OFFICERS WANTED.

The Scottish Women's Hospitals for Foreign Service.

Applications are invited from medical women for the posts of radiographers and bacteriologists in the Scottish Women's Hospitals. An honorarium at the rate of £200 per annum is granted, and uniform, board, and travelling expenses are provided. Application should be made to the Honorary Secretary, Personnel Committee, Scottish Women's Hospitals, 2, St. Andrew Square, Edinburgh.

England and Wales.

WAR-TIME SANITATION.

A CONFERENCE held at the house of the Royal Sanitary Institute of London last week was attended by a large number of medical officers of health and other delegates from nearly one hundred local authorities to discuss sanitary administration under war conditions. It was opened by the Lord Mayor of London, who was followed in the chair by the Mayor of Westminster; on the second day the meeting was presided over by Mr. Leslie Scott, K.C., M.P.

Economics in Health Departments.

At the first meeting, on June 9th, a discussion on the maintenance of the standard of municipal sanitation during the continuance of war conditions was introduced by Mr. H. Percy Boulnois, M.Inst.C.E., and Dr. James Wheatley, Medical Officer to the Shropshire County Council. Dr. Wheatley considered that child welfare and the medical inspection of school children should be maintained in all essentials. In other respects economies might be effected in health departments; work of the nature of original investigation might be dropped, and a certain amount of inspection eased off. He urged that action, with regard to conditions injurious to health, should be of a more summary and preventive character than at present; the creation of a nuisance, and not persistence in it after warning, should be the offence. Generally speaking, the measures for the prevention of infectious diseases should not be relaxed, and in some directions should be strengthened. Bacterial examinations necessary for the diagnosis of such diseases should at all costs be maintained. As to tuberculosis, it would be well to concentrate upon preventing the spread of the infection, and the M.O.H. should have power to cause the removal to hospital of any patient who was a grave danger to his household and to the public. Dr. Wheatley's further suggestion that, in the absence of other accommodation, boards of guardians should be compelled to provide for advanced and dangerously infective cases of phthisis by means of temporary shelters in connexion with the work-houses, was criticized by one or two subsequent speakers.

Much of the discussion centred around the question of disposing of house refuse. Mr. Boulnois, in his opening paper, expressed the opinion that though it would be false economy to interfere with the regularity of the refuse collection, the householder might do more in the way of burning refuse, and separating refuse which had an economic value. Dr. J. T. C. Nash (Norwich) suggested that three receptacles should be provided—one for green-stuff, a second for bottles and pots, and a third for other waste materials—and Dr. H. Kerr (Newcastle) held that a local by-law might be framed making it incumbent upon the householder to burn his own refuse. In reply to the objection that in many houses now there were only gas fires, Mr. Boulnois suggested that a simple domestic cremator might be designed, to be attached either to a gas or coal kitchen range. Major A. J. Martin urged that there would be no hardship in making the civilian do with regard to his refuse what the soldier had to do in the camp, and suggested that men ineligible for military service should be compulsorily put to scavenging or other public duty. Lieutenant-Colonel Herbert Jones (Hereford), speaking as one who had recently exchanged civil for military service, said that nothing struck him more in the transition than the rapidity with which reforms were accomplished in camp, as compared with the long delays in civil work. A resolution was passed unanimously requesting the Council of the Institute to consider at the earliest moment what temporary extension of legal powers was necessary to economize labour in the public health service and to make it more efficient.

The Administration of the Mental Deficiency Act.

At the meeting on June 10th Dr. A. Brown Ritchie, the medical officer of the Manchester Education Committee, opened a discussion on the administration of the Mental Deficiency Act. In dealing with the rule that all children certified as mentally defective should be kept in the special schools until 16, he said that a considerable number of them were as far advanced at 14 as they would be at 16, and there was no reason for keeping them at school until 16 unless some special training was provided during the last two years. He considered that the teacher's evidence was of great assistance in framing a diagnosis of mental deficiency or backwardness, but did not sympathize with the agitation that the teacher should take a higher position than that of a witness before the medical assessor. While he had always taken advantage of the information given by teachers, he could not see the value of a joint certificate in which the teacher and doctor shared the responsibility. Some one authority must certify the mentally defective. Mr. Leslie Scott, M.P., thought that the true policy would be to educate in the special schools those children who were likely to become more or less self-supporting citizens in after-life. Dr. Veitch Clark (Croydon) referred to the great difficulty of defining educability and non-educability, and preferred a triple classification—educable, trainable, and non-trainable. He did not think it was possible to look for any solid advance by means of home supervision, and in the country just now private guardianship of mentally defective children was practically non-existent. Dr. G. E. Shuttleworth (London) urged that there should be "backward" schools or classes in which children who were not decidedly but only presumably defective could be kept under observation before being certified. Dr. J. Oldershaw (Wallasey) said that the non-educable class of children ought to be handed over by the education authority to the mental deficiency committee, and suggested that the Government would do well to form a kind of non-criminal Borstal institution. Another speaker stated that at Brighton, under the Guardianship Society, defectives had been placed out with respectable families, and were visited once a fortnight, and by the doctor once a quarter, employment being found for them as far as possible.

BY-LAWS FOR MESSAGE ESTABLISHMENTS IN LONDON.

At the meeting of the London County Council on June 6th the by-laws which have been framed for massage establishments, as provided by the London County Council (General Powers) Act, 1915, were submitted and approved. These by-laws, which are framed for the purpose of preventing immorality, lay down a very strict system of registration and supervision, and, with regard to records,

it is made necessary for each registered person to show on demand all details with regard to his assistants and fees, as well as full particulars of every case of remedial treatment, with the name and address of the medical practitioner (if any) by whom or at whose instance such treatment was prescribed, the name of the person giving such treatment, and the sex of each patient. The definition of a massage establishment is a place used "for the reception or treatment of persons requiring massage, manicure, chiropody; light, electric, vapour, or other baths or similar treatment," but hairdressing establishments, where massage is confined within certain limits, have partial exemption. The chairman of the Public Control Committee stated that up to the present the Act had proved very successful, and the proportion of places suspected of being objectionable was very small.

Scotland.

WOMEN MEDICAL STUDENTS AT EDINBURGH AND GLASGOW.

THE necessity for providing further accommodation for the largely increased numbers of women studying medicine both in Edinburgh and Glasgow is engaging the attention of the medical teachers in the two cities. At the meeting of the Glasgow University Court, on June 8th, Principal Sir Donald MacAlister stated that he had to ask authority to make some additions to the equipment of Queen Margaret College, especially for students of medicine; congestion was already evident in the departments of anatomy and chemistry. He was unable to state what the cost would be, but as the number of women students had doubled during the year it was necessary to face the situation. The extension proposed would take the form of internal arrangements. The request was granted. In Edinburgh matters are somewhat different and it is possible that more radical changes may be required. Some three years ago (see BRITISH MEDICAL JOURNAL, October 25th, 1913, p. 1109) new anatomy rooms were provided for the Edinburgh School of Medicine for Women, the institution whose lecturers are recognized by the University as the teachers of the women students in Edinburgh. It was then thought that sufficient accommodation had been provided for many years. The phenomenal increases of the past two years have thrown all such anticipations out of gear, and the lecturers of the School of Medicine for Women are approaching the University Court with a view to a conference at which the whole question of the relations existing between the University and the women training for graduation in the School of Medicine could be considered.

FRENCH PROFESSORS IN EDINBURGH.

The French professors who have been visiting universities in Great Britain during the last few weeks were received in the Senate Hall of the University of Edinburgh on June 8th by the Senatus Academicus.

Sir Thomas R. Fraser, as senior professor, presided, and expressed the gratification of the Senate in receiving visitors who represented so many of the higher educational and academic institutions of France, not of Paris only, but of Lyons, Grenoble, Clermont, Montpellier, Nancy, and Poitiers. The visit, he said, recalled the close relations of friendship and co-operation that had existed between France and Scotland for many centuries. The desire that that relation should be maintained had been shown by the formation of the Franco-Scottish Society. There had, however, been no formal or official visit of French professors to Edinburgh since April, 1884, when the university celebrated the tercentenary of its foundation, and received through their numerous representatives the congratulations of practically every civilized nation and educational institution in the world. The university regretted that the distorted arrogance of some of these nations, and even of their most educated classes, had disappointed the full expectations of friendship then originated. This made it all the more a cause for rejoicing that the bond of union between many of these nations, including France, had been unbroken, and, indeed, drawn closer by the

momentous events of the recent past. Sir Thomas Fraser went on to sketch the development of the university since 1884. The number of professors had increased from forty-six to fifty-nine, and of lecturers from three to ninety-four. Practical instruction in research was then scarcely recognized as a part of higher education; now the greater part of the much-enlarged accommodation of the university was occupied by well-equipped laboratories. Unfortunately, however, the full life and activities of the university could not at present be exhibited, for the requirements of the devastating war in which, with its gallant allies, the country was engaged against a ruthless and unchivalrous enemy—the patriotism of its alumni and teachers—had depleted the number so much that while the matriculated students in 1913-14 numbered 3,283, in the present session the number was only 1,797. This number would be further reduced in the next session, as all eligible students would be required to give their services to the State, except those in the fourth and fifth years in the Faculty of Medicine. Before the passing of the Military Service Act 4,500 graduates and students had joined the services, or 1,217 more than the total number of matriculated students, both men and women, in the session 1913-14. Of these, at least 170 had been killed in action or otherwise in war service, 126 had been wounded, 2 were missing, and 8 were prisoners. They had acquitted themselves well, as military honours and decorations had been conferred on upwards of 77, while other 90 had been mentioned in dispatches. Other two members of the university had met with an untimely end in the deplorable catastrophe that overtook H.M.S. *Hampshire*—namely, Lord Kitchener and Sir Hay Donaldson, a member of his staff. Lord Kitchener's death added to the sorrow and academic gloom still remaining after the death of their late greatly distinguished Principal, Sir William Turner. They had now to lament the loss of their Lord Rector. These bereavements, as their guests would understand, had led to some curtailment in the expression of their hospitality, but, he was sure, not in the warmth and cordiality of their welcome. After dwelling on the unalterable determination of the empire and its allies to continue the task imposed on them of curbing the arrogant assumptions of their inhuman Germanic enemy, Sir Thomas Fraser went on to refer to the war of commercial and manufacturing industry which would follow the other war, and upon which the fate of nations would largely depend. Our educational system and methods, he said, would have to be remodelled to increase the facilities for advanced instruction throughout a wider range of the community than was now reached. A lesson which the war had taught was that expansion was required not only in general education, but especially in science and technology, in finance and commerce and modern languages, in the physical training of the body, and perhaps also in mental and moral discipline.

Dr. Joubin, Rector of the Lyons Academy, who responded, said that France also was mourning Lord Kitchener. He and his colleagues, he said, had been touched by the cordial welcome they had everywhere received; they had visited both old and new universities, and had been greatly impressed by everything they had seen. The empty classrooms had their counterpart in France, where everyone had gone to the war. He concluded by referring to the close and old union between Scotland and France, and expressed the hope that the exchange of students which had continued since the Middle Ages would go on after the end of the war, for the two countries had much to learn from each other.

In the evening the visitors were the guests of the Scottish branch of the Franco-Scottish Society at an "At home" in the Kintore Rooms, where they were received by Lord Strathclyde, president of the branch.

Glasgow was visited on June 8th and 9th, and Principal Sir Donald MacAlister, K.C.B., addressed the French professors, who were shown over the University, Queen Margaret College, and other places of interest.

RED CROSS AMBULANCE TRAIN.

There was a large attendance of Red Cross bearers at a drill held at the Aberdeen Joint Station on June 11th. Mr. Bennett Mitchell, Red Cross transport officer, said that on June 10th the Red Cross had the first ambulance train to deal with without any aid from the R.A.M.C. They had

the maximum of cot cases, and the number of miles run amounted to 244. The time occupied was sixty-five minutes. Sir Alexander Ogston, who has enrolled himself as a volunteer, said it was necessary to be ready to deal with 470,000 wounded and sick at the lowest computation on the side of the Allies within the next twelve months. The work done at the train was such as those engaged in it might be proud of; but even if the 470,000 were dealt with by this one train at the same rate without a halt, day or night, it would take seven months to clear the whole into the hospitals.

Ireland.

INFANT AND MATERNAL WELFARE.

A COUPLE of months ago we gave some account of an inquiry instituted by the Carnegie United Kingdom Trust into the present position with regard to infant and maternal welfare, with special reference to the provision made, or in immediate contemplation, in various areas. As was there indicated, the inquiry instituted by the Executive Committee is of a comprehensive character, the desire being to obtain the fullest information, as to the existing provision, as to the legislation which exists for governing the administration of such centres, and as to the extent to which the municipal authorities have availed themselves of the powers they possess. After obtaining such full information the Executive Committee will consider what steps, if any, the trustees of the Carnegie Fund can take to assist in the solution of the problems which arise, the intention of the trustees being that their efforts shall not supersede, even in a small measure, State or municipal endeavour. It was recognized, however, that there may be some directions in which financial assistance may prove useful in encouraging developments which might not otherwise be attempted. As was stated when the matter was first noticed in these columns, Dr. E. W. Hope, M.O.H. for Liverpool, is supervising the inquiry for England and Wales. Dr. Leslie Mackenzie is discharging the same office for Scotland, and the trustees have secured the assistance of Dr. E. Coey Bigger, of the Local Government Board in Ireland, for the preparation of the report for Ireland.

The Local Government Board in Ireland has addressed a circular letter to the clerks of county boroughs and urban districts drawing attention to the operation of the Notification of Births (Extension) Act, 1915, which contains provisions enabling local authorities to make arrangements for attending to the health of expectant mothers, and nursing mothers, and of children under 5 years of age. In view of the considerable incidence of infant mortality in urban districts in Ireland, the problem of protecting infant life is one which deserves the serious attention of local authorities, and the fact that a grant of £5,000 in aid of approved schemes for maternity and child welfare has been included in the estimates to be submitted to Parliament will no doubt serve as an additional inducement to take action. Any scheme should, in the Board's opinion, include not only the care and supervision of children in the first year of life, and up to the age of 5 years, but should aim at securing improved antenatal and natal conditions.

Home Visiting.—The work of home visitation is one to which the Board attaches very great importance, and the first step should be the appointment of an adequate staff of qualified health visitors.

Maternity Centres.—In the case of the larger urban areas, it would be desirable to provide maternity centres to which expectant mothers and mothers with infants and young children could be referred for advice and treatment. Such centres should be under the charge of a medical officer and qualified nurse; and careful records kept for which the medical officer should be responsible.

Midwifery Facilities.—The scheme should further include suitable provision for medical and midwifery attendance for necessitous women not entitled to benefit under the National Insurance Acts or in receipt of assistance from the Poor Law authority.

Day Nurseries.—For the care of the young children of working women necessarily absent at work, day nurseries might, in industrial districts, be established. Definite fees should be charged to the mothers, sufficient at any rate to cover the cost of all food supplied.

The Board considers that as far as possible each sanitary

authority of an urban district should, in consultation with the medical officer or medical superintendent officer of health, undertake the organization of a scheme of maternity and child welfare for its district, having regard to the local circumstances and requirements. It is not suggested that the sanitary authority should necessarily institute and control all the arrangements; it is, on the contrary, hoped as a preliminary step the sanitary authority will get into touch with all the local associations and institutions dealing with matters connected with maternity and child welfare and will fully utilize their services.

Correspondence.

IMPORTED SYNTHETIC DRUGS.

SIR,—I agree that chemical industry will need protection during the next few years. Many of the drugs imported so largely can be produced here, but we have much to learn and a long way to travel before our chemists can put a beautiful packet of sodium salicylate at 3s. a pound on the market. Of course, it is well known that many of these drugs are by-products, and it would pay the Germans to give them.

We ourselves are largely to blame. We have played their game. We general practitioners have slavishly followed hints given by the specialists. A drug once used at the bidding of the great man becomes a regular item on our list.

Personally I have better results in treatment during the last two years than ever before. I have tried to get my patients better by a more careful consideration of all the circumstances—rest, simple treatment, and every care in diet. I have used less sodium salicylate and other antipyretics of similar nature in two years than in any two months previously.

I honestly believe that more harm is done by over-treatment than the reverse. Two of my young friends in the army, who before they joined would have never forgotten to take their tablets of phenacetin even on holiday, took some to France. I saw them both a few weeks ago, looking very fit. "Have you finished your tablets?" I asked. "Have never seen them," was the answer.—I am, etc.,

June 6th.

M. B.

"THE SOLDIER'S HEART."

SIR,—May I support Dr. Lyon Smith in his desire to know from Sir James Barr how he eliminates "the many toxæmias to which Dr. Harry Campbell refers" from the causation of "soldier's heart"? Practically every soldier is the subject of some degree of dental or naso-pharyngeal sepsis, and to me it seems clear that till this all-pervading possible causation is eliminated Sir James Barr's case stands non-proven.—I am, etc.,

London, W., June 10th.

J. G. TURNER.

FEES OF LOCUMTENENTS.

SIR,—May I suggest a more practicable method of dealing with the locum question than that proposed by "M. W. B." in your issue of June 10th, p. 838? Surely at such a time as this an opportunity is offered to abolish a great deal of the mutual distrust and suspicion that have been so prevalent amongst us in the past. In most cases a professional neighbour, with his local knowledge, is a much better substitute than a regular locumtenent. Even when reliable the average locumtenent is looked on with suspicion by patients, who often transfer themselves elsewhere. On the other hand, if Dr. A. is doing work for Dr. B. he is bound to hand over all patients to Dr. B. on the latter's return, and he will be encouraged by the fact that Dr. B. is to do his work in return, and will naturally do as he has been done by. Suspicion breeds suspicion and confidence begets confidence. A strong ethical committee would further assist matters, and strengthen those whose ethical conscience needs stimulating. I am aware that this system will not meet the case of unopposed practices, but I believe that it would be found to work satisfactorily in most places where there are several practices, and should be more extensively tried. It is a matter of mutual obligation, and needs only to be fairly and honestly carried out by both parties to the contract. Most men of experience have some

bitter experience of some locumtenent, and my own leads me to say (without any reflection on the numbers of able and conscientious men engaged in that class of work) "anything is better than risking patients' lives and the welfare of the practice to an unsteady locumtenent."—I am, etc.,

Minster, June 11th.

H. DOWNES.

SIR,—With reference to the complaint of your correspondent "M. W. B.," may I state that an impression that has unfortunately gained ground, that it is almost impossible to procure locumtenents and that the fees are £9 9s. or more, is quite at variance with facts? Since the war began many hundreds of vacancies have passed through my hands, and I am glad to be able to assert that, thanks to the loyal help of many men retired from practice and others ineligible for the army, the supply has so far been equal to the demand.

The fees at present obtaining are £7 7s. a week for normal practices, less if hospitality is offered to a wife or others. Somewhat higher fees are paid in manufacturing, north country, and colliery districts.

If, as your correspondent suggests, principals would refuse to pay excessive fees, the few men who are trying to take an unfair advantage of their country's difficulties would soon be brought to reason.—I am, etc.,

London, June 12th.

PERCIVAL TURNER.

The Services.

AUXILIARY R.A.M.C. WIDOWS AND ORPHANS FUND.

As was briefly mentioned in our last issue (p. 828) a meeting was held at the Royal Army Medical College on June 1st, 1916, to consider the desirability of establishing funds raised by voluntary contribution for the benefit of widows and orphans of officers and of other ranks of the Special Reserve, Territorial Forces, and Temporary Branches of the R.A.M.C. who serve during the war and who die without making sufficient provision for their families. The meeting was well and representatively attended.

Surgeon-General Sir Alfred Keogh, Director-General A.M.S., who was in the chair, described the means taken in the Regular R.A.M.C. to meet such contingencies, and expressed the opinion that it was desirable, now during mobilization, that the Auxiliary Branches of the R.A.M.C. should themselves at once make some effort to meet cases of distress in the families of both officers and men which must and will occur after the war. He left it entirely to the meeting to decide whether or no any such action should be taken, and if so, whether there should be a separate fund for each of the three branches—namely, the Special Reserve, the Territorial Force, and the temporary officers of the Regular service—or one fund and one committee embracing the three branches.

After considerable discussion, in which many of those present took part, Major Ewen Maclean proposed the following resolution, which was seconded by Colonel Culver James, and carried unanimously:

That a fund in connexion with the officers of the Auxiliary Branches of the R.A.M.C. be formed, and that a committee be appointed representative of the three branches to formulate a scheme and to report to a further meeting.

Colonel Westmacott proposed:

That the aforesaid committee be also requested to consider and report as to the possibility of establishing a general relief fund for the rank and file of the same forces.

This was seconded by Major A. C. Farquharson and carried unanimously.

The Director-General then asked the meeting to elect from among themselves a provisional committee to consider and report on the above resolutions, and the following officers were elected, with power to add to their number:

Colonel W. Culver James (T.F.), Colonel J. Atkins, C.M.G., Lieutenant-Colonel Sir John Collie, Lieutenant-Colonel H. H. Tooth, C.M.G. (T.F.), Major Ewen Maclean (T.F.), Major G. Newton Pitts (T.F.), Captain R. J. Stirling (S.R.), with Lieutenant-Colonel F. W. H. Davie Harris as Secretary, 124, Victoria Street, W.

The scheme formulated by the provisional committee will be considered at a meeting, to be presided over by the Director-General, at the Royal Army Medical College, Grosvenor Road, S.W., at 2.45 p.m. on Monday, June 26th. It is hoped that as many medical officers as possible of the Special Reserve, Territorial Forces, and those holding temporary commissions in the R.A.M.C. will attend.

Obituary.

CHARLES EDWARD FITZGERALD, M.D.,

EX-PRESIDENT ROYAL COLLEGE OF PHYSICIANS OF IRELAND,

SURGEON OCUList IN ORDINARY TO THE KING IN IRELAND; PROFESSOR
OF OPHTHALMIC SURGERY, ROYAL COLLEGE OF SURGEONS,
IRELAND.

THE death of Charles Edward Fitzgerald, occurring with unexpected suddenness a few hours after an operation on the afternoon of May 27th, has left a blank sense of loss amongst the medical profession in Dublin and amongst all branches of society there. This is particularly felt in the world of art and music in which he took the keen interest of an expert and connoisseur. In social relations no medical man of his time in Dublin exercised a greater personal charm than Fitzgerald, and he was regarded in many circles with feelings of the greatest affection and esteem.

He was the second son of Francis Alexander Fitzgerald, Baron of the Court of Exchequer, and was born in Dublin on February 9th, 1843. His professional studies were pursued at Trinity College, Dublin, and in the Paris School of Medicine, where he attended the clinic of Professor Galewski, then at the zenith of his fame. On Fitzgerald's return to Dublin he began to practise as an ophthalmic and aural surgeon, and shortly afterwards was associated with the late Sir Henry Swanzy as surgeon to the National Eye and Ear Infirmary in Molesworth Street. In 1875 he was appointed lecturer in ophthalmic surgery to the Carmichael School of Medicine, and in 1889, when the two schools were amalgamated, he became joint professor of ophthalmology in the school of the Royal College of Surgeons. For ten years he held the post of ophthalmic and aural surgeon to the Richmond Hospital; he resigned in 1883. In 1876 Fitzgerald was appointed surgeon-oculist in Ireland to Her Majesty Queen Victoria, and he held the same appointment during the reigns of King Edward VII and King George V—a period of forty years.

Fitzgerald took an active part in effecting the amalgamation of the two old ophthalmic hospitals in Dublin and erecting the Royal Victoria Eye and Ear Hospital, which is now such a credit to the Irish metropolis. Shortly afterwards he retired from hospital practice. He continued his large private practice with unflagging zeal till the day of his death, and was always ready and pleased to lend the aid of his extensive experience to his former colleagues in their hospital work.

We are indebted to Sir ANDERSON CRITCHETT, Bt., for the following tribute to Dr. Fitzgerald's memory:

In the short space of three years Dublin has had to mourn the loss of her two senior ophthalmic surgeons, Sir Henry Swanzy and Dr. Charles Fitzgerald. When the latter was last with us during the International Medical Congress in 1913, his buoyant spirits and other signs of

constitutional vigour gave hopeful promise to all those who loved him—and their name was legion—that his useful life might be extended far beyond the allotted span. We now learn with profound grief that these expectations have not been realized. The congress was held at the time when he was President of the Royal College of Physicians in Ireland, but we found him to be still the same genial, modest, self-effacing Charlie Fitzgerald who had won our hearts in the far distant long ago, and, like Duncan, King of Scotland, he "had borne himself so meek in his great office," that many who were present did not know that he was holding it until after his departure. In addition to many other distinctions, he had the exceptional honour of bearing office as surgeon oculist in ordinary in Ireland to three British monarchs, and I know that his services were always held in the highest esteem. His extensive practice and the intervention of the Irish Channel prevented him from coming to the meetings

of the Ophthalmological Society as often as he desired; but his visits were always welcome, for, in addition to the valuable information which he never failed to impart, he brought with him that bright mental atmosphere which was inseparable from his delightful personality, and which, alas! cannot be replaced.

ALBERTO RIVA, a distinguished Italian clinician, died recently at the age of 72. He was born at Piacenza in 1844, and studied medicine at Parma and Bologna, graduating in the latter university in 1866. In 1876 he obtained by competition the post of professor of pathology and clinical medicine at Perugia. In 1886 he was appointed professor of medical pathology at Pavia, and two years later was called to the chair of clinical medicine in the University of Parma, which he continued to occupy till his death. He was a very successful teacher and the author of writings on chlorosis, rheumatic infection, juvenile arterio-sclerosis, gastric neuroses, the influence of the nervous system on the symptomatology of heart disease, the pigments of the urine and faeces, the action of arsenic and iron on the composition of the blood, and

many other subjects. He gave much attention to the drainage of serous cavities, and his name is associated with apparatus for thoracocentesis and paracentesis. He was one of the founders of the Italian Society of Internal Medicine, and took a prominent part in the promotion of hygienic reform, notably in the campaign against malaria. In conjunction with Canali he made researches on ankylostomiasis in the province of Parma.

JOHN HAROLD, M.B., B.Ch., B.A.O. ROY. UNIV. IREL.,

PHYSICIAN, SS. JOHN AND ELIZABETH HOSPITAL, LONDON.

DR. JOHN HAROLD, who died on May 27th, at 65, Harley Street, after a long illness, was born in Dublin in 1860 of an old and highly respected Catholic family. His father, Mr. William Harold, was occupied with commercial metallurgy, and the son's tastes naturally turned to chemistry and were practically cultivated at an early age. But his ardent mind was unsatisfied with work of



[Photograph by F. A. Swaine,
London and Southsea.]

C. E. Fitzgerald

the kind, and he resolved to try his fortune in London. He worked in the dispensary of a medical practice, and spent his spare hours as a student at Charing Cross Hospital. From that time forward progress was steady, and progress ended in success. He was one of a distinguished group of Charing Cross men of the Eighties, winning the respect of his teachers, who quickly appreciated his bright young spirit, ability and industry; and at the same time those of his fellow students who were most intimate with him knew of his humble room in the depths of Bloomsbury, and of his labours in practical pharmacy in the long evenings after his hard day's work in the dissecting room and laboratories. Even before he qualified he was appointed assistant in several of the classes; and, when he had "passed" the Colleges, the post of house-physician under Dr. Henry Green and Dr. Mitchell Bruce, and in due course that of medical registrar and teacher of practical medicine fell naturally to him, as well as a more responsible position in the school. Presently he found himself engaged in the drudgery of serial medical literature and medical coaching, and thereupon he left his nest in Bloomsbury and the dispensing table for the district of Cavendish Square and a practice of his own. In the most determined fashion he did not rest until he had again and again gone to Dublin and returned a graduate with Honours of the Royal University of Ireland. Naturally, he had help from his old teachers, who knew the great value of the assistance which he gave them in return. Still, it was Harold's own character and qualifications that accounted for the position which he reached as one of the most successful family practitioners in London. There was his bright Irish manner and "ways," attracting and securing the respect and intimate regard of patients. The friends who knew him best were aware how much of his success came from his unselfish devotion to poor patients; his bread cast on the waters returned to him after many days. But, quite beyond these, his reputation and position were made by real ability, by knowledge of medicine properly gained, and by the thoroughness of his work. With all his popularity, he never became dependent on social or fashionable repute, but remained a student, ready to appreciate and employ with well-trained discrimination every increase of knowledge and every improvement in the means of diagnosis and treatment. If a complaint were ever heard from his patients it was that he was over-exacting. He always used the best. He spared no expense in respect of laboratory reports, radiographic investigations, nurses, consultations and operations. He would leave nothing undone that he considered right and possible. And so obedience to advice, strictly enforced, developed into confidence and loyalty, and then into personal regard and close attachment.

The last sixteen years of his life were a specially happy period because of his appointment as Physician to the Hospital of St. John and St. Elizabeth and member of the council. By none will his death be more deplored than by the Sisters of Mercy and his colleagues there. He was

also referee to the London Cremation Company and Honorary Physician to the Academy of Dramatic Art.

It is two years since Dr. Harold's oldest friends who watched his career with cordial interest began to note in him evidences of physical and nervous strain. With difficulty he was persuaded to rearrange and reduce his work. Then fell on him the cruel hand of the great war. His eldest son left Oxford for the front. His second son, a naval cadet of 15 only, was lost with H.M.S. *Hogue* on September 22nd, 1914. He was never himself again. He leaves a widow and two sons and two daughters.

J. M. B.

SAMUEL F. McLACHLAN, M.B., C.M.Glasg., J.P.
The death took place on June 9th of Dr. McLachlan of Longtown, one of the oldest and best known medical men in North Cumberland. Dr. McLachlan was a Dumfriesshire man, was educated at the University of Glasgow, and graduated M.B., C.M. in 1873. He settled in Longtown in 1879, and continued in practice there until failing health compelled him to retire in 1914. He held the post of M.O.H. for the Longtown district for over thirty years, and was keenly interested in sanitary improvements. He was also medical officer of the union, certifying factory surgeon, medical officer to the P.O. He was a member of the British Medical Association up to the time of his retirement. In the midst of the exacting demands of a large general practice he found time to keep himself abreast of the progress of medical science, and was a keen student of the best modern literature. He was essentially a cultured man, and took an active interest in the Longtown Literary and Scientific Society. He was a member of the United Free Church, chairman of the managers, session clerk, and trustee of the church. He was placed on the commission of the peace for the county of Cumberland in 1907, and regularly attended the sittings of the Longtown Petty Sessional Division. The large attendance at the funeral at Arthurat on June 12th from all parts of the district testified to the high esteem in which he was held. He leaves a widow and one son.

Last month there was laid to rest the remains of one of those quiet unobtrusive practitioners to whom the rural districts of Scotland owe so much, and whose name and fame are household words in the countryside. For thirty-six years, with the exception of a year or two practising in Birmingham, Dr. JAMES GILROY, of Waterbeck, Dumfriesshire, who graduated M.B., C.M.Glasg. in 1889, was the devoted parish doctor of Middlebie. An earnest student and an accomplished clinician, he early acquired the confidence of his patients, and his advice and help were much sought for in neighbouring parishes. He had high literary attainments, and was an occasional contributor to the columns of the JOURNAL. As a friend he was staunch and true. He was a widower, his wife and only child having died many years ago. Professor Gilroy of Aberdeen University, assisted by the local clergy, officiated at the

funeral, which took place amidst manifestations of the utmost sorrow and respect, and was attended by neighbouring fellow practitioners and representatives of all classes in the district. His place will be hard to fill, and when one thinks of the mossgrown gravestones in the quiet burial place of Caruthers, on the banks of the purling Kirtle Burn, it is with the thought that at last he has attained well earned rest and peace—the rest of the faithful and true, and the peace which passeth understanding.

DR. LÉON GAUTIER, who died on April 20th, was born at Geneva in 1853, and received his preliminary education at the gymnasium and academy of his native city. In 1872 he went to Paris to study medicine, and in 1877 won the post of *interne*, and worked under Hayem, Lancereaux, and Guyot. It was under the inspiration of Lancereaux that in 1882 he presented a graduation thesis on chronic absinthism, a subject as to which little was then known. On his return to Geneva he devoted himself chiefly to obstetrics. He was for a long time librarian and twice president of the Medical Society of Geneva. In 1902 he was elected a member of the Swiss Medical Commission, of which he was later vice-president. Although he qualified as *privat-docent* in the University of Geneva in 1899 he seems never to have delivered any lectures, but he made many contributions to clinical medicine, and especially to obstetrics. His most important literary productions, however, were in the domain of history. His chief work, *La Médecine à Genève jusqu'à la fin du XVIII^e siècle*, is based on researches in the archives of the city extending over twenty years. He also took a considerable part in the compilation of the history of Geneva by the Secretary of State, J. A. Gautier, and in that of the registers of the council of the city. Among his other writings are memoirs on the last epidemic of plague in Geneva, on the lepers in Geneva in the Middle Ages, on the diseases of Calvin, and reports on legislative subjects connected with medicine—the federal insurance laws, the federalization of midwives, the reform of medical studies, and alcoholism. Gautier took a very active part in the campaign against tuberculosis. In 1909 he was elected a member of the Grand Council of Switzerland, where he was often the only representative of the medical profession; he was a strenuous defender of its rights, and was always active in the promotion of measures of sanitary betterment. On the outbreak of the war he joined the International Prisoners Agency at Geneva, and did much valuable work for it.

OUR BELGIAN COLLEAGUES AT HOME AND ABROAD.

A MEETING of the Central Committee of the Fund was held on June 8th at the office of the *Lancet*, when Sir Rickman Godlee, the chairman of the Committee, reported the receipt, through the International Commission for Relief in Belgium and Mr. Herbert Hoover, of an acknowledgement of a cheque for £800 sent by the Committee for distribution to medical men and pharmacists in Belgium. The distribution had been made through the agency of the Aide et Protection aux Médecins et Pharmaciens Belges Sinistrés. This sum was the first of three monthly donations of £800 which it had been agreed by the Committee should be transmitted to Belgium in the manner and for the purpose described. Mr. Hoover enclosed also for the consideration of the Committee a transcript of the proceedings of the Belgian Committee, which sufficiently showed the urgent need of the money sent and the wise way in which it was allocated. The Committee thereupon decided to continue sending these monthly grants for three more months. Professor H. G. Greenish was elected a member of the Committee, and will co-operate with Dr. Des Voeux in organizing the consideration of individual cases of distress of Belgian pharmacists in this country. The total receipts of the Fund up to June 8th were £19,250.

SUBSCRIPTIONS.

The subscriptions to the Belgian Doctors' and Pharmacists' Relief Fund received since the last list was published are as follows:

	£ s. d.		£ s. d.
Dr. G. H. D. Carpenter (thirteenth and fourteenth donations— total £14) ...	2 0 0	South-West London Pharmacists' Association, collected by Mr. J. Krall ...	25 0 0
Mrs. Victor Williams ...	2 2 0		

Subscriptions to the Fund should be sent to the Treasurer of the Fund, Dr. H. A. Des Voeux, at 14, Buckingham Gate, London, S.W., and should be made payable to the Belgian Doctors' and Pharmacists' Relief Fund, crossed Lloyds Bank, Limited.

Universities and Colleges.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

AN ordinary Council was held on June 8th, 1916, Sir W. Watson Cheyne, President, in the chair.

Court of Examiners.

Mr. R. L. Knaggs and Mr. Jonathan Hutchinson were re-elected on the Court.

Results of Examinations.

First Fellowship.—Eleven candidates were approved at the late examination.

Final Fellowship.—Diplomas were granted to the following candidates found qualified at the recent examination:

A. L. P. Gould, Temporary Surgeon R. S. Lawson, C. W. B. Littlejohn, F. D. Sauer, G. S. Milner.

Dental Surgery.

Diplomas of the Licence in Dental Surgery were granted to eighteen candidates found qualified.

Examiners in Anatomy and Physiology for the Fellowship.

The following were appointed for the ensuing year:

ANATOMY.—W. H. Clayton Greene, R. W. Reid, Gordon Taylor, W. Wright.

PHYSIOLOGY.—G. A. Buckmaster, J. Sydney Edkins, J. B. Leathes, A. Rendle Short.

Examiners under the Conjoint Examining Board.

Examiners in Elementary Biology.

ELEMENTARY BIOLOGY.—G. P. Mudge, W. G. Ridewood.

ANATOMY.—J. B. S. Fraser, A. M. Paterson, A. Thomson.

PHYSIOLOGY.—C. M. H. Howell, H. E. Roaf, G. A. Buckmaster (sub.), MIDWIFERY.—H. R. Andrews, J. S. Fairbairn, C. H. Roberts, G. D. Robinson.

PUBLIC HEALTH.—Part I: J. W. H. Eyre. Part II: Sir Shirley Murphy.

TROPICAL MEDICINE.—J. W. H. Eyre, C. W. Daniels.

Candidates for Election on the Council.

A meeting of the Fellows will be held at the College on Thursday, July 6th, for the election of four Fellows in the vacancies occasioned by the retirement in rotation of Sir Alfred Pearce Gould, Mr. W. F. Haslam, and Sir William Arbuthnot Lane, and by the death of Mr. Stanley Boyd.

Candidates.

Of the three retiring candidates—Sir A. Pearce Gould, Sir Arbuthnot Lane, and Mr. Haslam of Birmingham—the third alone seeks re-election. Six Fellows not already on the Council are candidates—namely, Mr. T. H. Openshaw, C.M.G., a Member in 1882, a Fellow December, 1886 (London Hospital); Mr. Raymond Johnson, Member 1885, Fellow December, 1888 (University College Hospital); Mr. John Murray, Member 1887, Fellow December, 1890 (Middlesex Hospital); Mr. Vincent Warren Low, Member 1891, Fellow December, 1893 (St. Mary's Hospital); Mr. Herbert Pendlebury, Member 1896, Fellow December, 1897 (St. George's Hospital); and Mr. Francis J. Steward, Member 1895, Fellow 1898 (Guy's Hospital). Thus seven Fellows will contest the four vacancies left by the three retiring members and by the death of Mr. Stanley Boyd.

Medical News.

THE Queen has become patroness of the Incorporated Society of Trained Masseuses. The society has been in existence for twenty years, and since the outbreak of war its members have done much work among the wounded.

AT a special meeting of the Section of Surgery of the Royal Society of Medicine to be held on July 12th at 5 p.m., Dr. Fred. H. Albee of New York will give a cinematograph demonstration on bone surgery, including bone grafts for Pott's disease, inlay grafts for fracture of long bones, and peg grafts for fracture of the neck of the femur.

MR. J. Y. W. MACALISTER, Secretary of the Royal Society of Medicine, desires to replace in the library of the Society the copy of Henry Lawrence's *Treatise on Hernia*, 1807, which has been destroyed by mice. He has tried the booksellers in vain, and would be grateful to any one who would put him in the way of finding a sound copy.

AT the annual general meeting in London of the Coroners' Society of England and Wales, Mr. F. N. Molesworth, solicitor, H.M. Coroner for the Rochdale Division of Manchester, was unanimously elected President for the ensuing year, vice Dr. F. J. Waldo, J.P., H.M. Coroner for the City of London and Ancient Borough and Vill of Southwark. Owing to the war, the usual banquet was not held, but the members of council were entertained at lunch by the outgoing president (Dr. Waldo).

THE Council of the Faculty of Insurance has appointed a committee to consider the report of the departmental committee on approved society finance and administration, and to advise on the whole position of the insurance scheme. Mr. John Hodge, M.P., will act as chairman, and three other members of Parliament have joined—Mr. Handel Booth, Mr. G. W. Currie, and Mr. J. W. Pratt. The committee also contains representatives of approved societies, of the Federation of Employers Provident Funds, and the chairman of the Manchester Insurance Committee. The committee, when complete, will include representatives of women's organizations.

DR. W. C. GORGAS, Surgeon-General of the United States Army, said recently that the United States would, in a few years, have an army of one million men, and would require at least 10,000 medical officers. He recommended the formation of a national conference of medical examiners, who should prepare questions to be set by State boards throughout the country. Candidates who passed this examination would be eligible for the United States Medical Reserve Corps, and would not be required to pass any other examination for the licence to practise. Each surgeon would be instructed in field duties, camp sanitation, and the foods suitable for different climates.

AT a drawing-room meeting last week in support of the South London Hospital for Women, Clapham Common, Sir Frederick Treves, who was the principal speaker, said that it was impossible to foresee what the full development of the woman doctor might be, or what limitations she might encounter, but it was evident that her first energies were rightfully directed to the treatment of her own sex. If the battle of the woman doctor was over, and the obstacles put in her way were becoming negligible, and the opportunities in front of her were increasing year by year, it was none the less true that she could not be said to have come into her own until hospital practice was more fully open to her. In hospital practice he (and now she) had the continual stimulus and safeguard of well-informed criticism. The other speakers were Lady Frances Balfour and Mr. Pett Ridge.

THE accounts presented at the usual monthly meeting of the Medical Sickness and Accident Society on May 19th showed a falling off in sickness in comparison with the same period last year, and the experience is below the expectation for the four months—an unusual feature for the spring months. It was reported that further sums had been invested in Exchequer bonds, making a total of £180,000 now invested in war stocks since August, 1914. Applications were reported from members for annuities under the new table which is now registered by the department, and is accordingly open both to members and non-members, and it is hoped will prove satisfactory and useful to the profession generally. The committee has decided that in future the society will pay the usual fee of £1 ls. for the medical examination of both new and additional proposals, the member to have the same right as hitherto of going to whom he pleases for such examination unless otherwise instructed by the society. Membership is still open to those taking temporary commissions in the R.A.M.C. or the Royal Naval Medical Service within certain limits with regard to amounts, as so far the committee do not consider that the casualties justify them in any way altering their previous decision in this matter. No extra premiums are charged to members of the two forces mentioned. All applications for prospectuses and further information should be addressed to the Secretary, Medical Sickness and Accident Society, 300, High Holborn, W.C.

Letters, Notes, and Answers.

THE telegraphic addresses of the BRITISH MEDICAL ASSOCIATION and JOURNAL are: (1) EDITOR of the BRITISH MEDICAL JOURNAL, *Astology, Westrand, London*; telephone, 2631, Gerrard. (2) FINANCIAL SECRETARY and BUSINESS MANAGER (advertisements, etc.), *Astology, Westrand, London*; telephone, 2630, Gerrard. (3) MEDICAL SECRETARY, *Mediscera, Westrand, London*; telephone, 2634, Gerrard. The address of the Irish office of the British Medical Association is 16, South Frederick Street, Dublin.

Queries, answers, and communications relating to subjects to which special departments of the BRITISH MEDICAL JOURNAL are devoted will be found under their respective headings.

QUERIES.

ACNE ROSACEA.

S. asks for suggestions as to the treatment of an obstinate case in a healthy working woman, aged 34, an abstainer from alcohol and, recently, from tea. The nose is much disfigured and the rash has extended down to the chin.

ANSWERS.

ATTENDANCE ON SOLDIERS BY CIVIL MEDICAL PRACTITIONERS.

THE note by "X. Y. Z." published last week, has brought up a number of other letters. Two correspondents state that their experience has been exactly the same—namely, that they have received no reply to applications made in proper form—and a third states that he has received no reply to a letter of inquiry. On the other hand, a correspondent states that though he has had to wait periods varying from one to four months after sending in his accounts, he has always been paid, though he has sometimes had to send a reminder. Another correspondent states that he has in the course of twelve months sent thirteen accounts for medical attendance to soldiers on furlough for varying sums, and that they have all been paid with satisfactory promptitude. A Major, R.A.M.C., asks whether "X. Y. Z." studied the regulations of the Royal Pay Warrant before sending his account. He would, this correspondent adds, have no claim on Government unless regularly appointed with the approval of an A.D.M.S. to attend the troops at contract rates.

LETTERS, NOTES, ETC.

PARAFFIN FOR LOUISINESS.

A NAVAL medical officer writes to express the opinion that the use of paraffin to get rid of lice in the manner suggested by Dr. B. Hall in the JOURNAL of June 10th, p. 837, might prove decidedly dangerous owing to the inflammability of the paraffin. He thinks that if the method is used at all a special warning should be given, for thoughtlessness or inexperience might lead to disastrous results.

MEDICINE AND THE NATIONAL VOLUNTEERS.

COLONEL JAMES CANTLE (Principal, The College of Ambulance, 3, Vere Street, London, W.) writes: In reply to a letter from Dr. Hildige (at p. 840, June 10th, 1916) in regard to ambulance instruction, I beg to say that classes for instruction of medical men have been held from time to time as the necessity arises. Medical men wishing to join should communicate with the secretary.

INADEQUATE MEDICAL EXAMINATION OF RECRUITS.

A CORRESPONDENT tells us that he has recently had to examine about thirty enlisted men alleged to be medically unfit. Among them were the following: (1) An undersized and badly-developed boy, weighing 93 lb. and measuring 30 in. round the expanded chest. The commanding officer reported that he was quite unable to march, bear his pack, etc. (2) A boy mentally deficient and unable to answer intelligibly even the simplest question. The commanding officer reported that he could not understand any order and walked about in a lost way. (3) Several men with very defective vision, for whom the oculist could do little, and some who were almost stone deaf. Even the most cursory examination, our correspondent states, made it apparent that none of these men would make efficient soldiers. Some of them had been in the army for two or three months and some for a shorter period. The military authorities, with no medical knowledge, had discovered, as quickly as could be expected of them, that these men were physically or mentally deficient. At the same time, the expense to the State must have been considerable. Such a state of things reflects, our correspondent thinks, very badly on the medical profession. He adds that the time spent in examining and discharging such men, who should never have been passed, involves serious waste of the time of medical men whose services are now so urgently needed.

BOLUS AND BULLET.

THERE is a story, duly put down in his tablets by that interesting diarist, Grant Duff, of an eighteenth century doctor who had been an apothecary and afterwards a physician at Bath. Being obliged to flee the country to escape his creditors he found his way to Berlin. There he contrived to get an audience of Frederick the Great, among whose good qualities was readiness to hold converse with all sorts and conditions of men. After questioning the doctor about his experiences the King said to him with true Teutonic tact, "You must have killed a great many people." "Not so many as your Majesty!" was the prompt reply. Frederick's degenerate descendant is said to be fond of rude jests at doctors, but we do not think that even his hardened conscience would now allow him to expose himself to the same retort.

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

	£	s.	d.
Seven lines and under	0 5 0
Each additional line	0 0 8
A whole column	3 10 0
A page	10 0 0

An average line contains six words.

All remittances by Post Office Orders must be made payable to the British Medical Association at the General Post Office, London. No responsibility will be accepted for any such remittance not so safeguarded.

Advertisements should be delivered, addressed to the Manager, 429, Strand, London, not later than the first post on Wednesday morning preceding publication, and, if not paid for at the time, should be accompanied by a reference.

NOTE.—It is against the rules of the Post Office to receive *posto restante* letters addressed either in initials or numbers.

Clinical Lecture

ON

THE RIGHT SIDE OF THE HEART AND
ITS RELATION TO OVERSTRAIN.

BY

WILLIAM RUSSELL, M.D., F.R.C.P.Ed.,

PROFESSOR OF CLINICAL MEDICINE IN THE UNIVERSITY OF
EDINBURGH, AND PHYSICIAN TO THE ROYAL INFIRMARY.

I ASK your attention to-day to the consideration of the clinical phenomena which, when correctly interpreted, enable us to arrive at certain conclusions as to the condition of the right side of the heart. At the outset we must recall the anatomical relations of the right heart. A frontal view of the heart is made up of right auricle and ventricle, and, at its left limit, of a strip of left ventricle about half an inch in breadth. The origin of the pulmonary artery, from that part of the right ventricle called the *conus arteriosus*, is in the second left intercostal space, while its position, when not thus situated, can often be precisely determined by palpation and auscultation, as these define the point at which the closure of the pulmonary cusps is best felt and heard. The right ventricle lies under the third, fourth, and fifth spaces, extending in the fifth space to within half an inch to an inch of the apex of the left ventricle. The right border of the heart forms an arc the convexity of which is to the right, and which lies in the third, fourth, and fifth intercostal spaces, extending in the fourth to an inch or one and a half inches from the right sternal border.

METHODS OF EXAMINATION.

Percussion.

The position of the left and right borders of the heart can be determined by percussion in the different intercostal spaces. The right border is the more difficult of the two to determine, but I have explained to you on previous occasions how it can be done, and I have warned you that a right border represented as a line along the sternum may be the border of the right lung, but cannot be the right border of the heart. The way you must look at this matter is, that the right border even of the normal heart is an inch or more beyond the sternum, and that you have to learn to find it. It is often considerably to the right of its normal limit.

Inspection.

Pulsation in the second left space is usually not due to the pulmonary artery, but to the *conus arteriosus*, and results from the fact that this part of the right ventricle dilates early, and that as it dilates it occupies the space carrying the origin of the pulmonary artery outwards and upwards, so that it may lie under the second rib, and be an inch or more to the left of the sternal border. Pulsation in the third, fourth, and fifth spaces, in the latter of these to within an inch of the apex, is always caused by the right ventricle, and all ideas based upon the phrase "diffuse apex beat" are erroneous. Such pulsation is a diffuse cardiac impulse, not a diffuse apex beat.

Auscultation.

In auscultating the heart the site of the apex of the left ventricle is auscultated, first, to determine the intensity of the first sound as produced by systole of the left ventricle; and, secondly, as the first step in determining whether a mitral lesion is or is not present. Having begun with the apex, and passing from it towards the sternum in the fifth, fourth, and third spaces, the loudness, faintness, or absence of the first sound is noted as an indication of the strength of the right ventricle. The old idea that the first sound as heard over the right ventricle was attributable to the left, as the thin-walled right ventricle was too weak to produce sound, has been more or less abandoned. The right ventricle is now credited with at least some part in the production of the first sound as heard over it. I, however, ask you to go further than that. I would advise you to look at this matter from a different standpoint—namely, that the first sound originating in the left ventricle and murmurs produced at the mitral orifice, as a rule and in the majority of cases, are not passed through the interventricular septum to the anterior wall of the right ventricle. The first sound as heard over the right ventricle

is therefore *not* produced by the contraction of the left ventricle. As regards murmurs produced at the mitral orifice, I again impress upon you that, as a rule, these murmurs are not heard to the right of where the ventricular septum forms part of the anterior aspect of the heart. We have frequently in the wards cases—and there are two or more such cases there now—in which loud systolic mitral murmurs are not heard over the body of the right ventricle, while they are well heard outwards and upwards to the left of the apex. Such cases must be accepted as the standard by which we are to judge of the true area of limitation as well as the direction of propagation of mitral murmurs. You must abandon any erroneous views you may have learnt that mitral murmurs are commonly conducted over the whole precordia—conducted even to the base. The rule is that when a systolic mitral murmur is audible at the apex, and a murmur of the same time is heard to the right of the ventricular septum, this latter is a separate and super-added murmur, and is tricuspid in origin. In cases of marked incompetence the tricuspid murmur is often heard so high on the sternum that it may be thought to be aortic in origin. When the murmur thus raises the question of its seat of production, it will be found that on making the patient sit up in bed the murmur will disappear from the manubrium sterni if it is tricuspid in origin, and will reappear when the patient lies down. An aortic systolic murmur does not disappear and reappear with these changes in posture. The presence of a tricuspid murmur can thus, in the majority of cases, be readily determined. In judging of the right heart the power to determine with accuracy the presence or absence of this murmur is essential, as it gives important evidence as to the condition of the right heart.

Let me impress upon you the points I have endeavoured to expound to you. They are: (1) That pulsation in the second, third, fourth, and fifth spaces, half an inch or more within a vertical line drawn through the apex, is caused by the right ventricle; and (2) that you have to differentiate tricuspid from mitral murmur on the lines I have formulated for you.

ABNORMAL PHENOMENA.

Visible Pulsation of Right Ventricle.

From these elementary points, which it has been necessary to dwell upon owing to the prevalence of misconceptions, we pass to the consideration of their bearing on the investigation of the condition of the heart. In the dorsal decubitus and in normal conditions the pulsation of the right ventricle is not visible save in persons with exceptionally small and thin chests. Visible pulsation means either that the right ventricle is dilated or that the left heart is dilated and has lifted the right ventricle into closer contact with the chest wall. With regard to the first of these explanations, I would warn you against a too facile belief in dilatation of the right ventricle; as a matter of fact, although various interesting changes occur in the right ventricle, dilatation such as is common in the left ventricle does not occur, for the simple reason that a very strong muscular band passes from wall to wall preventing it. The *conus arteriosus* readily dilates, and when it does so it carries the origin of the pulmonary artery outwards and upwards. With regard to the second explanation, it has this important practical significance, that visible pulsation of the right ventricle may be proof of dilatation of the left heart, and herein, perhaps, lies its chief value as a clinical sign.

Accentuation of the Pulmonary Second Sound.

Returning to the auscultation of the right heart, you only require to be reminded that the second sound produced by the closure of the pulmonary cusps may be accentuated in its own area. The accentuation means heightened pressure in the pulmonary artery, and, when primary lung changes are excluded, it means increased fullness, with the consequent degree of increased difficulty, in the pulmonary circuit. Accentuated pulmonary second sound thus indicates the measure of impairment of the left ventricle which has determined the increased difficulty in the pulmonary circuit. Whenever the left ventricle is overstrained some degree of dilatation occurs. This necessarily means an increase of residual blood in the ventricle, a corresponding measure of greater distension of

the left auricle, and the increased engorgement of the pulmonary vessels which leads to the accentuated pulmonary second sound. You have here, then, a second means provided by the right heart of helping your judgement as to the state of the left heart.

Systolic Murmur in Pulmonary Artery.

The presence of a systolic murmur in the second left intercostal space close to the sternum and strictly limited to this area is frequently noted. The conditions in which the murmur is present shall be presently dealt with; meanwhile I ask you to note that the murmur is heard over the first part of the pulmonary artery; that this is the position of this part of the artery is confirmed not only by observations made after death, but also by the fact that, either by palpation or auscultation, or by both, the vibrations caused by the closure of the pulmonary cusps or the localized intensity of the sound enables us to locate with absolute precision the exact point where the artery joins the conus arteriosus. An interesting and important characteristic of the murmur is that during inspiration, especially during a somewhat deep inspiration, the murmur disappears to reappear during expiration.

As to the conditions in which this murmur is present, chlorosis may be taken as an example. In chlorosis three murmurs may be present over the precordia—namely, a mitral systolic, a tricuspid systolic, and a pulmonary systolic. The mode of differentiating tricuspid from mitral and from aortic systolic murmur has been already dealt with. That these murmurs are not due primarily to the impoverishment of the corpuscles in haemoglobin is proved by the fact that the murmurs are pronounced in a case of chlorosis if the patient, usually a young woman, has been struggling to carry on her ordinary working duties in spite of an increasing sense of physical weakness. When such a patient comes into hospital and is kept in bed, two of the three murmurs commonly disappear in a few days, long before any material improvement has been effected in the blood. The mitral and tricuspid murmurs are due to dilatation and to such myocardial weakness as allows of leakage at both these orifices during systole. In other conditions of debility these murmurs may also be present. Apart, however, from the presence of mitral and tricuspid murmur, the systolic murmur in the pulmonary artery is frequently present as the only murmur heard over the precordia, and it is this murmur I specially want to explain the significance of and to show you that its presence enables us to judge of the condition of the left heart. The explanation I offer to you of the mode of production of this murmur is as follows: We have already seen that the right ventricle is lifted by dilatation of the left heart into close contact with the chest wall, so that its pulsations may be visible in the third, fourth, and fifth left spaces; systole of the right ventricle, especially systole of that portion of it called the conus arteriosus, carries the origin of the pulmonary artery obliquely downwards and to the right; if you endeavour to simulate this action, you will find that the anterior and posterior surfaces of the artery at its origin are approximated, and that a relative narrowing is thereby produced. This narrowing is, to my mind, undoubtedly the mechanism by which the murmur is produced. It explains the disappearance of the murmur during inspiration, for with inspiration the heart has a freer forward movement and the kink is prevented. This explanation gives an important value, and I believe the true value, to this murmur. Its presence becomes a proof of a dilated left heart with usually an enfeebled myocardium. It is present in anaemia, in febrile conditions, in debility, and as a result of heart strain. It belongs to the class of murmurs which are called *functional* to differentiate them from murmurs due to endocarditis and called *organic*. The murmur is present in cases of organic mitral lesion when the origin of the pulmonary artery has not been carried to the left and upwards by the dilatation of the conus arteriosus.

Pulmonary Diastolic Murmur.

Pulmonary diastolic murmur not due to endocarditis at this orifice is, in my experience, very rare. I have, however, recently seen a case of the kind. The patient was a young Royal Field Artillery officer who had returned to light work after recovering from an extremely feeble

heart following upon a febrile attack in Flanders. The light work had proved too much for him, and he showed a faint diastolic murmur over the pulmonary orifice, a faint systolic, tricuspid murmur, a right auricle considerably to the right of its normal position, and a marked ventricular systolic wave in the neck veins. This was a case of pure strain in a heart that had materially improved in myocardial strength but not sufficiently to withstand the strain of the work laid upon it. The murmurs disappeared under physical rest and medicinal treatment.

Explanations.

The explanations already given of the phenomena with which we have dealt may be supplemented with advantage. In the first place, feebleness or absence of the first sound over the right ventricle means weakness of the myocardium of that chamber, and in stout people it commonly means fatty infiltration. Cases of this kind die suddenly from some sudden physical effort, death resulting from right heart failure, not left failure. As we have seen, accentuation of the pulmonary second sound, systolic pulmonary murmur, systolic tricuspid murmur, diastolic pulmonary murmur are the auscultatory phenomena, having origin on the right side of the heart, which may be present. They all indicate strain, varying in degree, of course—strain in the sense that the myocardium is being called upon, or has been called upon, to do more than it can do comfortably or satisfactorily. Such strain leads to dilatation, sometimes of the left heart, at other times of the right, sometimes of both. Some of the phenomena produced on the right side of the heart become the index and guide to strain of the left heart; these are especially accentuation of the pulmonary second sound, pulmonary systolic murmur, and pulmonary diastolic murmur. The presence of tricuspid murmur shows, of course, that the right ventricle is dilated, or atonic and enfeebled, either from initial strain or from the strain due to heightening of the pulmonary blood pressure the consequence of initial strain of the left ventricle. The auscultatory phenomena result from relaxation and dilatation, and it is that fact which gives them their clinical significance and importance. Visible pulsation of the right ventricle has the significance already dwelt upon, and it is sometimes more valuable as an index of left-sided than of right-sided dilatation.

Venous Pulsation.

I now ask your attention to a further source of information—to another set of phenomena from which important deductions can be made and which may lead very promptly to accurate diagnosis. I mean pulsation in the veins of the neck. There are two methods of making observations on these: the first is by means of the unaided eye. Fullness and pulsations, the rhythm of pulsations as timed by cardiac systole, whether they are entirely synchronous with systole, or what their time relation to systole may be, can be seen and noted, and let me impress upon you that this field of observation ought to be diligently explored by you. The second method of investigation is by means of that beautiful clinical instrument invented by Sir James Mackenzie, and known as Mackenzie's polygraph. The latter method gives details which the eye cannot provide; at the same time I repeat that the unaided eye carries us a long way.

Pulsations in the veins of the neck are of course determined by the right side of the heart. This simple proposition is fundamental, and when it is fully grasped the second step is inevitable—namely, that such pulsations can only be caused by contraction of the ventricle or of the auricle. Pulsations are therefore systolic in time when ventricular in origin; all other pulsations are diastolic in time, and have their origin in the auricle. In the consideration of this aspect of our subject I confine myself to cases which are at present under observation, and I shall show you on the screen tracings made by means of the electro-cardiograph and by means of Mackenzie's polygraph.

CASE I.—R., a woman aged 65, had a pulse-rate of 40 when I first saw her. The pulse-rate corresponded with the number of ventricular systoles. On inspection of the veins in the neck there was visible a wave synchronous with ventricular systole, and between each of these another wave, which was presumably auricular systolic

in time, and it was so regular that there was little doubt that the case presented the phenomena of a 2 to 1 heart-block. I show you the polygraph tracing (Fig. 1) in which

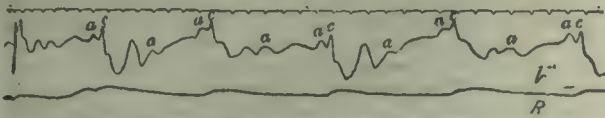


Fig. 1.—Case I. Polygraph tracing, 2 to 1 heart-block.

each wave marked *a* is produced by the auricle which is contracting quite rhythmically; the wave *c* is the communicated wave produced in the carotid artery. A few



Fig. 2.—Case I. Electro-cardiogram, 2 to 1 heart-block.

days later the electro-cardiogram (Fig. 2) was taken, and you note that each wave *r* which is near the commencement of the ventricular movement is preceded by two auricular contractions marked *p*. The diagnosis of a

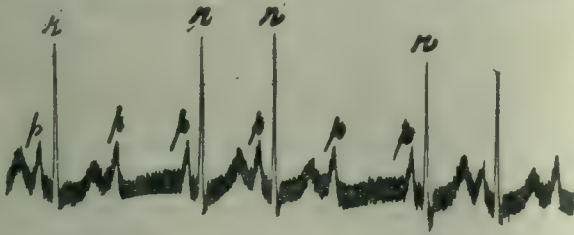


Fig. 3.—Case I. Alternate ventricular systoles preceded by two auricular systoles.

2 to 1 heart-block was thus confirmed. This patient's heart was improving, and even at the same *séance* as gave us Fig. 2, Fig. 3 was also obtained, and shows that only every alternate auricular systole *p* was not followed by the ventricular wave *r*.

CASE II.—W., a man aged 60, with marked cardiac irregularity, showed in the neck to the unaided eye a confused succession of undulatory movements, in addition to the respiratory distensions and emptyings. The polygraph tracing from the neck and the radial artery (Fig. 4) gives the position of the communicated carotid pulse

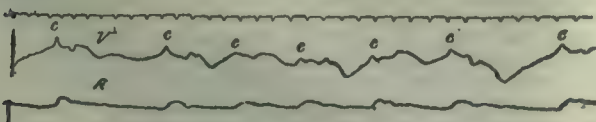


Fig. 4.—Case II. Polygraph tracing.

marked *c*, and you note there is an absence of the auricular wave present in the preceding tracings. In fact, there is no evidence here of rhythmic auricular systoles; there is practically what used to be called

paralysis of the auricle, but is now known as auricular fibrillation. The electro-cardiogram (Fig. 5) bears out the diagnosis of extreme irregularity, the absence of a true

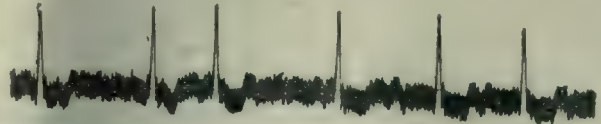


Fig. 5.—Case II. Electro-cardiogram, no auricle wave.

auricular wave, and the opinion that the patient had a fibrillating auricle.

CASE III.—S., a man aged 54, with a systolic mitral murmur and a large heart, showed a ventricular systolic venous wave in the neck. The tracing (Fig. 6) shows the position of waves *a* and *c* as taken by the polygraph.

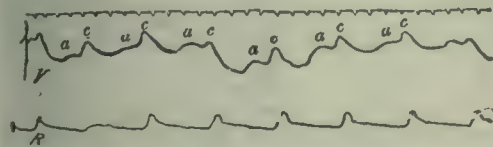


Fig. 6.—Case III. Polygraph tracing, in which the venous pulse seemed to be systolic.

The timing of visible venous pulsations is sometimes difficult, but in many cases ventricular systolic and auricular systolic waves can be separated, and their presence must be a measure of the fullness of the right side, especially of the right auricle.

I do not follow our subject further to-day, but you will understand that the study of the means by which the right side of the heart can be investigated, and the method of interpretation of the phenomena which I have presented to you, are able to guide you to a true estimate of many a heart that will come under the consideration of some of you, probably in the near future. The matters I have dealt with lie at the foundation of a true understanding of overtaxed hearts.

THE THEORY OF BLOOD PRESSURE MEASUREMENT

WITH SPECIAL REFERENCE TO THE USE OF SCHEMATA AND BLOOD PRESSURE INSTRUMENTS, TOGETHER WITH AN EXPLANATION OF THE DISCORDANT RESULTS ARISING FROM THE APPLICATION OF THESE INSTRUMENTS.

BY

LEONARD HILL, F.R.S.,

DIRECTOR, DEPARTMENT OF APPLIED PHYSIOLOGY, VERTICAL RESEARCH COMMITTEE.

AND

JAMES M. McQUEEN, CAPTAIN R.A.M.C.(T).

RESEARCH FELLOW OF ABERDEEN UNIVERSITY.

THE study of blood pressure measurement has been of slow growth. The literature of the subject in past years shows how varying types of measuring instruments were employed, how the readings of systolic pressure obtained by them differed with the type of instrument; how with the same instrument discordant readings were obtained from arteries in different situations, where equality or something approaching to equality of reading might have been expected.

Much attention has also been given to the fixing of the diastolic standard. Here also disagreements were to be met with, disagreements both on the nature of the auditory and on the nature of the oscillatory index. Recent work, however, has made possible methods of accurately determining both the systolic and the diastolic pressure in the human subject.

Considerable progress, apart from the fixing of standards, has been made in the theory of blood pressure measure-

ment. A wider knowledge of the factors involved now renders capable of explanation many of the difficulties and inconsistencies of blood pressure measurements. Let us consider first the theory involved in the use of schemata in the elucidation of the phenomena of blood pressure measurement. Such schemata aim at the simplification of the factors involved. The schemata used by Erlanger, by MacWilliam and his co-workers consisted of a compression chamber filled with water in which an artery was placed, and through this artery a flow of water was maintained under a pressure made to pulse from diastolic to systolic level. A constant peripheral resistance was arranged to impede the flow from the artery. In the latest schema used by Erlanger the resistance is infinite, and there is no flow.

Now all these schemata simplify the factors involved in blood pressure measurement, but they neglect a highly important factor which Flack, Hill, and McQueen have drawn attention to—namely, the necessity of providing a peripheral resistance which should increase *pari passu* with the increase of the compression pressure, thereby approximating closely to the physical conditions which pertain to the use of the armlet on the human being. By the provision of such a resistance Hill, Flack, and McQueen were able to explain the increase in the amplitude of the pulse tracing (known to clinicians) that is obtained from the radial artery at the wrist when the armlet is made to compress the upper arm with pressures varying from 0—to just below diastolic pressure; they were also able to elucidate the mechanism of production of the *dull* (Korotkoff) sounds which are heard on auscultation of the artery below the armlet. They showed that the pulse-wave passing under the compressing armlet was actually augmented as the compressing pressure rose from 0—to just below diastolic pressure, and this augmented pulse-wave stretched the arterial wall beyond the normal, and so gave rise to those dull tension sounds which are heard when the compression is below the diastolic pressure. Thus, when Erlanger and MacWilliam simplify their schemata and make the peripheral resistance either a constant or an infinite resistance, they appear to us to ignore one of the most essential physical factors involved, and lose thereby a knowledge of an essential part of the phenomenon of the Korotkoff sounds—namely, the mechanism of the production of the dull sounds.

It has been found by Flack, Hill, and McQueen that in their schema, with a properly contrived peripheral resistance, the systolic pressure is accurately measured by that pressure which obliterates pulsation (felt in a piece of artery placed beyond the compression chamber), and that diastolic pressure can be no less accurately measured either by the auditory method (sudden diminution of sound) or the oscillatory method (maximal pulsation). MacWilliam, using his imperfect schema, failed to get agreement between the auditory and oscillatory indices. The compression in all forms of schemata used by the different workers is a fluid one and so equally applied all round the artery placed within the compression chamber. Accordingly the assumption is made that such schemata more or less accurately resemble the conditions of an armlet placed round the upper arm when compression is applied.

One is led to believe that the tissues, muscles, tendons, etc., which lie in relation to the brachial artery transmit the pressure precisely as the fluid round the artery in the compression chamber. However, it was exactly on this point that older writers had their doubts. Tiegerstedt called attention to the possibility of a loss of pressure in transmission through varying integuments. The same idea is still to be noted in Erlanger's recent paper on the mechanism of the oscillatory criteria. Here, then, we must consider these questions: Do the tissues transmit pressure like water? Does a muscle with an elastic membrane surrounding it transmit pressure precisely as water? Or do the muscles, tendons, connective tissue transmit pressure but imperfectly, and are all our measurements more or less approximations?

Let us analyse more closely the factors involved in a circular compression chamber. One may state that the pressure must not merely be delivered equally all round the artery, but, what is equally important, the fluid or air, if air be used, must be capable of being moved with each pulsation—that is, the compressing pressure must be

applied in a vibratory manner, and the periodicity of its vibration must be the periodicity of the pulse.

If the compression pressure be rigidly applied the whole schema fails. This was shown to be the case by Flack, Hill, and McQueen, and was brought out again later when the compression tube was applied to the femoral artery in certain animal experiments carried out by Erlanger. He notes that the Korotkoff sounds always disappear when the closing of the stopcock, which renders his arteriograph more rigid, catches the pulse in the diastolic phase. In other words, a circular compression chamber of a pressure above diastolic, made rigid at the moment of diastole, holds the artery closed during the entire pulse cycle. It is quite obvious that it should do so, because the pulse must simply beat against the walls of an artery compressed and deformed into a flattened shape, while in diastole, and then surrounded by a rigid medium. An artery, if it is to expand during the pulse pressure phase, must expand by virtue of its power to move the whole compressing medium.

Accordingly those who use a schema with compression chamber to determine the phenomena involved in the estimation of systolic and diastolic pressure must use a schema which permits of the compression being applied in such a way that it can yield and be pulsed, or, to use the terminology of Erlanger, the medium in the chamber must have a sufficient amount of "compressibility."

Hill, Flack, and McQueen and Ingram first drew attention to this phenomenon in their study of arteries placed superficially and resting on bone—for example, the *dorsalis pedis*, temporal, or the aberrant radial artery. When the bag of Hill's pocket sphygmometer was placed on an aberrant radial artery at the back of the wrist or on the *dorsalis pedis*, a systolic reading of, say, 40 to 45 mm. of Hg was obtained. The artery was deformed at pressures below diastolic pressure, and as the compressing medium, the bag, was not capable of being transformed into a vibrating or compressible pressure by the beat of the aberrant radial artery alone, or by the *dorsalis pedis* alone, the pulse ceased to pass below the bag. On the other hand, when an armlet was placed over the aberrant radial artery at the back of the wrist so that in addition it embraced the pulsing tissues of the forearm on the front of the wrist, the reading rose to 110 or 115 mm. of mercury, a close approximation to the real systolic pressure. When, on the other hand, the front of the forearm was encased in a wooden groove, and the armlet put on outside this, so that pressure of the armlet could be applied on the aberrant radial artery, but ceased to be under the influence of the pulsing tissues of the front of the forearm, the reading fell to 40 or 45 mm. of Hg, a precisely similar reading to that obtained by Hill's bag.

In the one case the artery is deformed by the compression from the circular into the oval or flattened shape, and the frictional resistance to the passage of the pulse wave is thereby so increased that the pulse spends its force in dilating the elastic wall of the artery *above* the point of compression, and does not pass through. In the other case the veins and capillaries are compressed so that blood cannot be expressed, and the whole mass of blood vessels in the compressed area becomes filled with blood, which pulses, and the artery keeps its circular form, and cannot be deformed until the compression rises above the systolic pressure.

It is obvious that the blood flow is not absolutely stopped at any pressure under systolic. It continues to escape from the veins as the systolic pressure in the mass of compressed tissues overcomes the pressure of the compressing armlet, the capillary channels becoming all filled to distension. The tissues under the armlet become comparable to the brain enclosed in the skull, where, with each arterial pulse, an equivalent venous escape takes place.

The necessity of applying compression so that the whole mass of tissue vibrates with the pulse was first emphasized by Hill, Flack, and McQueen. To use the terminology employed by them, at each beat of the pulse the compressing bag or armlet must be lifted off the artery; the damper must be a vibrating damper if true systolic readings are to be obtained.

When the armlet embraced the aberrant radial artery together with the whole forearm, the pressure in the armlet became a vibrating pressure vibrated by the pulse

which affects the whole mass of tissue in the front of the forearm, all the vessels of which mass are filled with blood. When, on the other hand, an artery lies on bone and is alone compressed by the armlet or Hill's bag, the artery, *per se*, is powerless to lift the armlet or bag at each pulse; the pulse strikes the artery deformed near diastolic pressure and fails to pass through.

The conditions are precisely similar to those produced by Erlanger when he closed the stopcock of his schema during diastole, and at the same time made rigid the rubber membrane of his apparatus. The action of the simultaneous pulse of all the vessels in the mass of tissue compressed by the armlet or bag in pulsing the armlet or bag off the artery, thereby rendering the whole compressing system compressible, Flack, Hill, and McQueen designated by the term "resonance."

It was shown that when a pressure in the armlet was raised by, say, 10 mm. Hg, those veins under the armlet with an internal pressure lower than 10 mm. of Hg were compressed, and the whole capillary area rose to 10 mm. of Hg pressure. So with each increment of pressure in the armlet an equivalent rise of pressure in the capillary system took place, so long as the systolic pressure of the artery supplying the capillary area was not overtopped and the artery shut up. Consequently the pressure that an armlet exerts on the mass of tissues is obtained through the compression of the veins, and the mass of blood congesting in the tissues through the compression of the veins transmits the pressure to the artery. Here one has the counterpart of the fluid in the schema, and the pulsing beat of the mass lifts the armlet off the artery precisely as the mass of fluid surrounding the artery in a schema, constructed of suitable resilience, is lifted by each beat of the artery. In the case of the schema the artery by its pulse moving the arterial walls transmits their vibration to the compressing mass of fluid. In the case of the armlet the pulse in the main artery passes into all the arterics and arterioles of the mass of tissue embraced by the armlet, and it requires the sum of all these arterial pulsations to vibrate the armlet, or, to use the terminology of Erlanger, to render the armlet "compressible." The experimenter arranges his schema so that the artery enclosed is fully capable of moving the compressing mass around it. But when an armlet is used, it is found that the main artery alone is insufficient, and that the throb of the whole mass of tissue enclosed is required.

There is one essential condition to be complied with before a blood pressure instrument can measure accurately. It is obvious that it must be broad enough to compress a sufficiently large area of veins, and so embrace a sufficiently large enough pulsing area around the artery.

The first blood pressure instrument devised by Herissart conformed to that requirement. The bag or capsule as pictured by him was broad. Succeeding inventors, endeavouring to improve the instrument in portability or neatness, diminished the size of the bag, with resulting inaccuracy.

When a small bag is applied to an artery it closes the veins underneath it; but owing to the multiplicity of lateral connexions in the vascular system, the veins and capillary system pressed on are obliterated, through the blood escaping by these collateral channels. Similarly, the physician who places his finger on the radial artery (with, say, a systolic pressure of 130 mm. of Hg in it) deforms the artery at a pressure of, perhaps, no more than 40 mm. of Hg, and if the systolic pressure were 200 mm. of Hg, his finger would deform the artery at 70 mm. of Hg or so, depending not on the height of systolic pressure but on that of the diastolic pressure. Consequently, his estimation of changes in blood pressure in an artery is only relative; the range through which he appreciates rises of pressure is limited, and his reading of change of systolic level really depends on whether the diastolic pressure is raised correspondingly to the rise of systolic pressure. The finger of the physician easily deforms the artery into the oval or flattened shape, and so prevents the pulse from passing, because the area of veins compressed by the finger is totally inadequate. There is no mass of pulsing tissue under the finger, and the finger becomes a rigid damper.

In a blood pressure measuring instrument, then, the area of the compressing bag or armlet must be adequately broad to compress sufficient veins, so that the blood is congested

under the bag or armlet and the pulsation of the mass of tissue is secured.

Instruments such as Oliver's haemodynamometer, with a small pad placed on an artery from which systolic and diastolic pressures are obtained by an oscillatory index, fail because the pad is not broad enough. They deform the artery, as the finger does. The bag of Hill's pocket sphygmometer, on the other hand, is made large enough to compress the whole of the forearm; the hand enclosing the bag compresses the back of the wrist. Here we have the explanation of many of the discordant readings in the literature of blood pressure measurement. The instruments varied in the breadth of the area which compressed the veins.

There remains to be considered the discordant readings obtained with the same instrument on different sites. It was pointed out by Tiegerstedt that readings of the systolic pressure in the temporal artery varied greatly from those of the radial artery taken with the same instrument. Loss of pressure due to the covering tissues in the case of the radial artery was called in to explain the discrepancy. That false idea—of an obstruction which the tissues place in the way of accuracy in blood pressure measurement—runs through most of the literature and still persists. Now when the instrument was applied to the temporal artery, where it lay exposed on bone, the reading was certain to be erroneous and too low. In fact, the reading would be exactly comparable to the aberrant radial artery or dorsalis pedis. Here we have no mass of tissue surrounding the artery, where with the simultaneous compression of the veins a pulsing mass could be developed around the artery. Consequently, if the instrument used were broad the readings from the radial and from the temporal artery must differ. But where the instrument had a narrow bag or pad, the readings of the radial artery and the temporal artery would approximate, and both would be equally erroneous. Because with a narrow pad or bag the tissues surrounding the radial artery, though there to be utilized, could not be brought into play.

Consequently, readings become accurate, not because pressure can get at an artery without loss through tissues, but because when sufficient tissues, and these amply supplied with blood, are embraced under the compressing pressure, the pulse of the congested tissues enables the compressing pressure to be a resilient pressure and not a rigid pressure, and prevents continuous deformation of the artery until the systolic pressure is overtopped. Flack, Hill, and McQueen showed that when all the vessels of the forearm are dilated by heat, while those of the upper arm are constricted by an ice-bag, then the artery in the upper arm is obliterated by a lower armlet pressure than it is in the forearm. They thus demonstrated the importance of the blood in the tissues by a conclusive experiment.

When one turns to the consideration of auscultatory indices, the same laws apply. Using Hill's bag on the aberrant radial artery (where it lay on bone) sounds were heard, but not sounds similar to Korotkoff's sounds. The level of pressure and the range of pressure at which sounds occur were all erroneous. The diastolic index was absurdly low and the systolic index was 40 or 45 mm. of Hg, because the artery was deformed and held deformed by the rigid pressure. When the armlet was applied to the aberrant radial and the front of the forearm was enclosed in the wooden groove so that the armlet did not come under the influence of the pulsing tissues, the Korotkoff readings were exactly the same as with Hill's bag and wrong.

When the armlet was made to embrace the forearm—that is, the mass pulsing tissues—the readings in the aberrant radial rectified themselves.

Consequently, when Erlanger writes, "Views assigning prime significance to the tissues surrounding the artery are invalidated by the fact that the bare artery suffices for the production of characteristic sounds," his argument is fallacious. The bare artery under the armlet or under Hill's bag neither gives the characteristic Korotkoff's sounds nor does it suffice to indicate systolic and diastolic pressure. It produces sounds the whole range of which appear below diastolic pressure.

The sounds which Erlanger succeeded in hearing in the isolated artery he obtained by compressing the artery

circularly with fluid, and after carefully arranging that the size of the arteriograph and its compressibility were such that it was within the power of the artery to pulse the whole compressing mass of its walls.

Erlanger does not seem to realize that what makes the armlet on the upper arm as "compressible" as his arteriograph is not the beat of the brachial artery alone, but the simultaneous throb of the whole mass of tissues below the armlet.

Further, the genesis of Korotkoff's sounds owe their fundamental origin to this mechanism brought into play by the compression of the surrounding tissues. Erlanger states: "Hill, Flack, and McQueen maintain, *without offering any experimental evidence for their view*, that the compressing armlet converts the compressed area of the arm into a resonating mass; the pulse is not damped down in the labile arterios, but strikes the blood, which fills to distension, not only the main artery, but every patent arteriole throughout the mass, and causes the whole, tense mass to vibrate."

It is difficult to believe that Erlanger has followed the series of researches of Hill, Flack, and McQueen. In their work they show how the veins are compressed and the peripheral resistance rises as compression of the armlet rises; how this rise in pressure stretches the arterial wall and produces the dull sounds; how the blood is congested in the mass of tissues under the armlet. Consequently, through this action of the armlet on the tissues, both under it and beyond it, each pulse strikes the blood, and the arterial wall experiences an additional strain as the kinetic energy of the flow of blood meets the obstacle of contained blood in front of it. Erlanger describes this phenomenon as water hammer, but the use of this term brings out no new idea to that already demonstrated by Hill, Flack, and McQueen.

We conclude, then, that—

1. To give accurate information on the factors concerned in blood pressure measurement, a schema must permit of compression being applied to an artery in a pulsable and not rigid manner, and a rise of peripheral resistance *pari passu* with increasing compression must be arranged for.

2. When an armlet or bag of Hill's pocket sphygmometer is made to compress an artery where it lies on bone with little tissue round it—for example, temporal, dorsalis pedis, aberrant radial—it deforms the artery and prevents the passage of the pulse at a pressure less than diastolic. The finger of the physician acts in the same way, and therefore cannot estimate the systolic pressure accurately.

3. Compression of the tissues surrounding the artery so as to block the venous outlets is essential to accurate blood pressure measurement. This congests the blood beneath and beyond the armlet or bag. The pulsing of the congested mass of tissues renders armlet or bag capable of delivering a circular compression to the artery, and one which yields to the pulse and prevents deformation of the artery until the systolic pressure is overtopped.

4. Sufficient area of veins must be blocked if the blood pressure instrument is to be an accurate one, consequently the bag or armlet must be broad. The bag, together with the observer's hand, enclose the forearm, and so makes the bag of Hill's pocket instrument equivalent to the armlet. Failure to make the bag broad accounts for many inconsistencies in the literature of blood pressure measurement.

REFERENCES.

Studies in Blood Pressure Estimations by Indirect Methods, I and II, by Joseph Erlanger, *Amer. Journ. of Physiol.*, vol. xxxix, No. 4, February, 1916; vol. xl, No. 1, March, 1916. Hill, McQueen, and Flack: *Proc. Roy. Soc. B*, vol. lxxxvii, p. 344, 1914, and vol. lxxxviii, p. 517, 1915. MacWilliam and co-workers: *Heart*, vol. v, p. 153, 1914, and vol. iv, p. 393, 1913.

FOR some years rabies had decreased in France almost to vanishing point. Owing to the large number of dogs which since the war have taken to a wandering life and thus escape police control, there has been a considerable recrudescence of the disease in many departments. The number of persons bitten by dogs suspected of rabies and treated at the Paris Pasteur Institute was 373 in 1914 and 654 in 1915. In 1916, from January 1st to May 13th, it was 420; this figure, if the same rate of progression is maintained, will give a total of more than 800 for the whole year. On June 9th the Paris prefect of police issued an order that in the streets all dogs must be led in a leash or muzzled and have a collar bearing the name and address of their owner.

THE SYSTOLIC PRESSURE IN ACUTE NEPHRITIS.

By RODOLPH G. ABERCROMBIE, M.D.,
TEMPORARY CAPTAIN R.A.M.C.

I HAVE recently treated at a base hospital in France several hundred cases of nephritis occurring amongst the soldiers of the Expeditionary Force, and have taken advantage of the opportunity thus afforded for the study of the blood pressure during the acute phase of this disease.

The characters of war nephritis have already been described;¹ here it may be said that it presents the usual features of an acute nephritis of moderate severity, and that, as in other forms of acute nephritis, the blood pressure appears to be always raised at some period during the course of the disease.

Duration of Elevation of Pressure.

In cases of average severity the pressure was usually raised for a period of from five to ten days after the patient's admission to hospital; not infrequently, however, the elevation persisted for several weeks, so that the patients were transferred to England with the pressure still high.

Range of Systolic Pressure.

During the early stages the systolic pressure usually ranged between 135 and 180 mm. Hg; exceptionally, and particularly in association with convulsions, it reached 200 or 210. The pressure was thus lower than that usually seen in chronic nephritis; indeed, a pressure of over 200 was found to be presumptive evidence that the disease was really of long standing.

Diurnal Variations in Pressure.

A striking feature was the wide diurnal variation which often occurred between the morning and evening blood pressures. Just as in certain diseases there is a wide difference between the morning and evening temperatures, so in this form of nephritis some agent appears to be at work which causes an evening rise of blood pressure and a morning fall; the difference between the morning and evening pressures may be 20, 30, or even as much as 60 mm. Hg (Chart 1 and Chart 2).

All the charts here reproduced show the systolic pressure taken twice daily, namely at 10 a.m. and 6 p.m., and recorded in millimetres of mercury. The palpatory method was used, with the patient recumbent; a tambour sphygmomanometer (Tycoos) was employed.

If Charts 1, 2, 3, and 4 be examined, it will be noticed that had the morning blood pressure alone been recorded, a totally erroneous idea of the course of the pressure would have been obtained; indeed the chart would have been as misleading as the temperature chart of a case of tuberculosis upon which only the morning temperatures were shown.

When the blood pressure was falling from day to day, it usually did so in a series of morning remissions and evening rises, thus forming a descending "staircase"

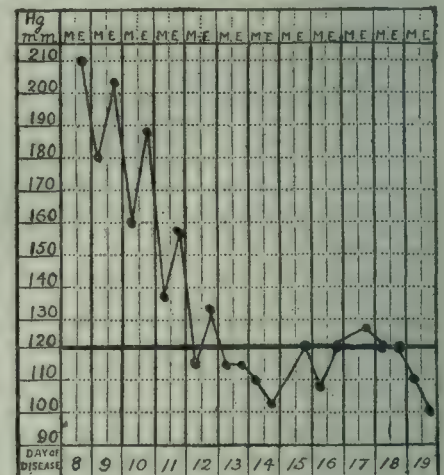


CHART 1.—Systolic pressure, taken twice daily at 10 a.m. and 6 p.m., and recorded in millimetres of mercury. "Staircase" descent.

(Chart 1). Exceptionally, when the pressure fell unusually rapidly, the evening pressure was lower than that

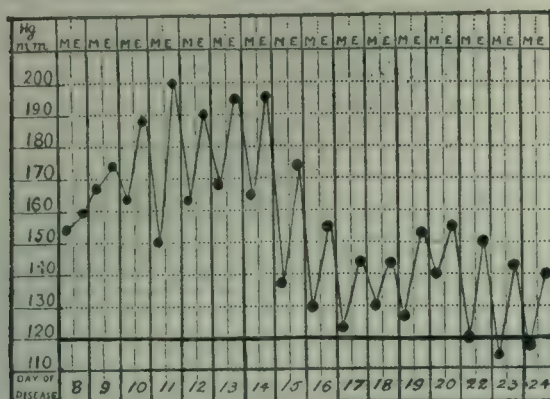


CHART 2.—Systolic pressure, taken twice daily at 10 a.m. and 6 p.m., and recorded in millimetres of mercury.

recorded on the preceding morning (Chart 3); such a chart may be compared to that of a case of pneumonia terminating by crisis.

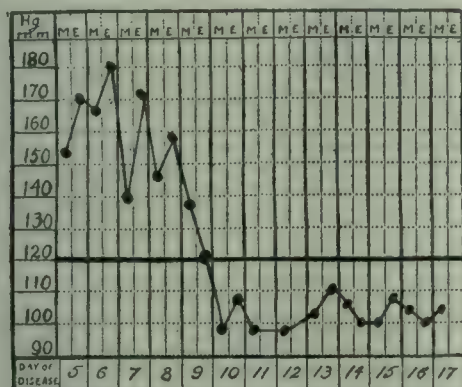


CHART 3.—Systolic pressure, taken twice daily at 10 a.m. and 6 p.m., and recorded in millimetres of mercury. Termination by crisis.

A frequent type of record is shown on Chart 4. During the early phase of the disease the pressure rises and falls irregularly; a stage is then reached of morning remissions

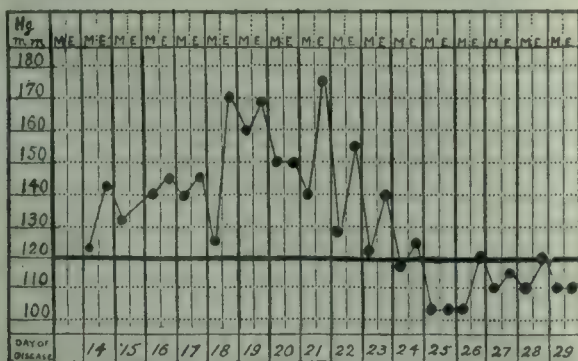


CHART 4.—Systolic pressure, taken twice daily at 10 a.m. and 6 p.m., and recorded in millimetres of mercury.

and evening rises forming a descending "staircase"; subsequently the pressure becomes subnormal, rising later to the normal.

Association with other Symptoms.

In association with uraemic convulsions (14 cases) the pressure was found to be always raised, but to a variable extent; in some cases it was 200, in others considerably lower; in one severe case the systolic pressure taken a few hours before the fit was 135. Immediately after the

fit the pressure was often over 200, probably owing to the great muscular exertion.

Two symptoms, usually nocturnal in incidence, appear to be specially associated with the great evening rises of pressure—namely, paroxysmal dyspnoea and headache. The connexion between these symptoms and the rise in pressure is undergoing further investigation.

Usually the amount of albumin diminished *pari passu* with the fall in pressure, although residual albuminuria often persisted after the pressure had fallen to the normal. Sometimes, however, the two curves bore no relation to one another. During convalescence transient elevations in the blood pressure occasionally occurred; sometimes they followed an advance of diet, but often they formed a part of a general recrudescence of symptoms for which no cause could be assigned.

The estimation of the blood pressure was found to be of great value both in diagnosis and in judging of the patient's progress. As noticed by Captain W. Langdon Brown,² those patients appear to do well in whom the pressure is at first high and rapidly falls to the normal. Often, however, the morbid process in the kidney appeared to continue after the pressure had fallen to the normal.

Conclusion.

The blood pressure was found to be always raised during some stage of the course of the disease, although not to so great a height as is the case in chronic nephritis. Wide diurnal variations in the pressure were usually present, the pressure being highest in the evenings.

REFERENCES.

- ¹ Abercrombie: *BRITISH MEDICAL JOURNAL*, October 9th, 1915.
- ² Langdon Brown: *Journal of Royal Army Medical Corps*, July, 1915.

CONGENITAL CYSTIC KIDNEY WITH LOCAL DIFFUSE PERITONITIS: SURGICAL DESTRUCTION OF PART OF KIDNEY: RECOVERY.

By JOHN D. MALCOLM, F.R.C.S. EDIN.,
SENIOR SURGEON TO THE SAMARITAN FREE HOSPITAL.

HYDATIDS may develop in the kidney, and a dermoid cyst containing hair has been found in place of that organ in a healthy sheep.¹ Apart from such rare conditions there are two chief forms of cystic kidney. In one an obstruction in some part of the large urinary ducts causes dilatation of the pelvis or calyces by modified urine, pus, or tuberculous matter. Retention cysts thus formed are by far the commonest cystic kidneys. Congenital cystic kidneys are altogether different. In them there is no evidence of obstruction in the renal pelvis or in any lower portion of the urinary tract. The whole renule is transformed into a mass of small cysts, from about half an inch in diameter downwards, with generally a few larger cavities. The walls between are flattened by pressure, so that an irregular honeycomb appearance is presented on section. The cysts usually contain a clear fluid, but in one specimen various cysts contained a transparent fluid, a dark yellowish or brown and viscid substance, and turbid nearly solid material respectively.² Some cysts are dilated tubules, or Malpighian bodies, with their epithelial lining recognizable under the microscope. In other cysts there is no lining epithelium.

One specimen in the College of Surgeons' museum was associated with a similar cystic formation in the liver, and the condition has been found with multiple cysts in the spleen and thyroid. It also occurs with congenital imperfections such as heart malformations, spina bifida, and in anencephalic monsters. Frequently more than one member of a family is affected. These facts suggest, and it is generally believed, that a congenital cystic kidney is an abnormal development. Another view is that the condition is one of new growth, and, again, it has been attributed to an excess of connective tissue causing obstruction in the urinary tubules. It is possible that the pathology is not always the same, and there are cases of single cysts and of a few cysts in the kidney which are not associated with any obvious obstruction of the large ducts. These are generally unilateral, and whether they are modifications of the congenital cysts, or retention cysts,

or new growths is not clear. Congenital cystic kidneys have been found in a pony and in a kitten.³

This abnormal condition may exist without symptoms and the patient may die of some other disease at any time from infancy to old age, the cystic change being discovered at autopsy. All the effects produced are due to pressure on the kidney substance or on adjacent parts.

Obvious enlargement of one or both kidneys or a dragging pain caused by the weight may be the first indication of trouble. The condition is usually bilateral, but more advanced on one side, so that one kidney may distend the abdomen to an enormous size whilst the other, also cystic, is only slightly enlarged. Records show that in these circumstances the small kidney, although cystic, may produce sufficient renal excretion to maintain apparent good health, whilst the larger gives a modified secretion resembling that of a small granular kidney. The specific gravity and urea excretion are reduced, the amount of urine is increased and a small quantity of albumin is found in it.

As the kidney enlarges there is a liability to attacks of pain, sometimes accompanied by fever, during which the mass swells and hardens, shrinking again when the attack ceases. With the pain and fever haemorrhage from the kidney may be associated; this symptom is not obvious in every case, but blood discs in the urine are frequently reported.

Numerous specimens of congenital cystic kidneys are preserved in museums, but it does not appear that individual surgeons have had personal experience of many cases. Two have come under my observation. In the first I acted as assistant to Knowsley Thornton, and the nature of the case, published in 1890,⁴ was not recognized until excision of the kidney was unavoidable. The other kidney was also cystic, but it acted so well that the patient lived five days, although she suffered from intestinal obstruction and underwent a second operation for that condition on the fourth day. It has in recent years been fully proved, by successful nephrectomies, that a small congenital cystic kidney can do all the necessary work. The second patient, whose case is now recorded, gave the following history:

She miscarried, at the age of 31, after two months' gestation, and no renal disease was then detected. Two years later, when eight months pregnant, she suffered from suppression of urine and amblyopia. Labour was induced, and with the first pain the patient had a fit, after which she was unconscious twelve hours. A living child, delivered by forceps, died six hours later. Convalescence was complicated by pain and swelling of the right kidney with fever, but complete recovery took place, except that the kidney remained big, and albuminuria, with increased secretion of urine, was persistent.

At the age of 36 the patient, being then abroad, lost much blood in the urine, and there was again pain and swelling of the right kidney with fever. Operative treatment was recommended but refused on the cabled advice of Dr. F. G. Crookshank, and the symptoms ceased after six weeks. About a year later another pregnancy was terminated at the eighth month by induction of labour, and an apparently healthy child was delivered without trouble in November, 1913, but died after twelve hours. Convalescence was uncomplicated, and good health was enjoyed for another year, although the right kidney was still obviously big, and the secretion of urine copious. During December, 1914, the patient felt ill, and on December 24th, after playing two rounds of golf—a quite usual exertion—she was seized with severe pain in the right kidney, which became big, hard, and tender, and there was blood in the urine. The temperature rose gradually until for three days it was between 102° and 104.8° F.

Dr. Crookshank, who had been in charge of the case, was on war duty, and Dr. S. H. Snell of Christchurch was consulted. He, in association with Dr. Hyla Greeves of Bournemouth, concluded that nothing but surgical treatment could give relief, and I saw the patient, then aged 38, on January 3rd, 1915. The kidney occupied the greater part of the right half of the abdomen, crossing the middle line, and standing out prominently below the ribs. It was so tender that no satisfactory examination could be made, and a slight enlargement of the left kidney was not detected. There was a little albumin in the urine, which had a specific gravity of 1010, but did not contain obvious blood. It was stated that before the attack began the urine was sometimes clear and sometimes thick. A feeble pulse (120), a temperature of 104.8° F., and a drowsy, apathetic brain condition combined to suggest that the patient was dying from absorption of poisonous products. Her friends said that she appeared to be much more seriously ill than on any previous occasion, and it was also stated that the patient's sister died at the age of 38 from the same disease.

This history was obtained from the husband and friends up to the beginning of the last attack on December 24th, 1914. The husband stated that a cystic kidney was diagnosed by Dr.

Crookshank after the first full time pregnancy five years before, and it appeared later that double congenital cystic kidneys were recognized at that time, but nothing that was said suggested the true nature of the disease. A diagnosis of suppurating cystic kidney was made with blocking of the escape of pus. Nephrectomy was considered desirable, but if, as seemed likely, removal of the kidney was impossible, it was thought that relief could be obtained with certainty and safety by draining the kidney.

On January 4th, 1915, the abdomen was opened, and it was then seen that the anterior part of a very long gall bladder was pushed forward well in front of the liver edge and was tightly nipped and indented about its middle, between that edge and the kidney, which was very hard and appeared to be solid. An area extending 4 to 5 inches around the gall bladder showed peritonitis, with adhesions so recent that they were easily separated by a sweep of the finger.

The diagnosis was clearly mistaken, and it appeared that the relief of pressure which seemed necessary could be effected only by removing the whole mass—an obviously dangerous, if not impossible, task. The left kidney was slightly enlarged. To decide whether enucleation could be accomplished the right kidney was exposed by incising the peritoneum covering it, and its whole surface was then seen to be cystic, the cavities being so small that the condition was hardly perceptible to touch. A second examination of the left kidney showed that it was similarly affected.

The nature of the condition was now obvious and an attempt to remove the kidney was considered unjustifiable. But the need for relief was imperative. The kidney was therefore opened through a second incision behind the peritoneum and its structure freely broken up by means of scissors and forceps. The finger alone could not be thrust into the kidney substance, which felt quite solid. No large cavities were opened, and only a small quantity of clear fluid escaped, but the size of the mass was considerably reduced. With the hand in the peritoneal sac as a guide, the region of the renal pelvis was avoided. The upper pole of the kidney, over which the evidence of recent diffuse peritonitis existed, was especially broken up and rendered flaccid. Two large drainage tubes were inserted towards the upper and lower ends of the kidney, and the anterior wound was closed.

The patient was very ill for a few days, and had much trouble from intestinal distension and incontinence of urine. Little discharge escaped and no urine from the drainage tubes, which were kept in nearly three weeks to relieve tension, and after they were quite short to facilitate deep healing. When they were removed the wound soon closed, the kidney being then much smaller than before the operation. The patient's condition gradually improved, and after six weeks she could walk a little, but there was a drag in the right side which prevented her standing upright. Since the operation there has been blood in the urine a few days before, during, and a few days after many menstrual periods, accompanied by pain in the kidney. In July, during a period, the patient lurched heavily from a sudden movement of a train, and then felt a severe stabbing pain in the left kidney for the first time. The left kidney became very big and tender. This attack passed off like the others, and after a time the patient was able to play golf on a putting green.

In November, 1915, after an injudicious attempt to take more exercise, she had a severe attack which did not begin with a period. To the usual symptoms were added vomiting and a rise of temperature. The right kidney was considerably enlarged and very tender, and the patient became so weak and pale that it appeared as if death might occur at any time. After a fortnight the symptoms ceased abruptly, and the conditions rapidly improved. The patient was kept in one room for a time, and became as well as she had ever been since Christmas, 1914. She was able to stand quite erect.

June 6th. Dr. T. Croft Neville informs me that the patient's condition is now very much better than it was six months ago. The right kidney extends below the pelvic brim, but the left is almost of normal size. The patient walks out daily when the weather is warm, but when it is cold she must stay in, and she cannot exert herself much.

This patient was first seen by those responsible for the operation in an acute condition, and the nature of the case was not recognized, but the need for surgical interference was correctly estimated. The failure to recognize the primary disease was due partly to the rareness of the condition, partly to the masking of the indications by the acute symptoms and partly to the diagnosis of cystic kidney, passed on by the husband and accepted in its ordinary meaning. The mistake was a fortunate one for the patient, because with a diagnosis of congenital cystic kidneys the chances of recovery would probably have been considered greater without surgical interference. But the diffuse peritonitis around the gall bladder could not have been recognized without exposure of the parts, and it is practically certain that this inflammation would have spread and proved rapidly fatal. The only useful procedure that might have been advised, if a diagnosis of congenital cystic kidneys had been made, was to reduce tension by emptying some of the cysts with a trocar and cannula from behind the peritoneum. This would have

required innumerable punctures because of the small size of all the cysts, and without inspection of the peritoneal cavity the need for special treatment of the upper part of the kidney could not have been recognized.

Good results seem to have been obtained in reported cases by removing the larger kidney, but it is doubtful whether this is a wise proceeding. Nephrectomy was not practicable in the case now recorded when I saw the patient. Where it is practicable, the effect must be to throw the whole burden of renal excretion upon the second kidney, which is also unhealthy, and which, therefore, will come to an end of its capacity sooner. The disease, after symptoms develop, seems to be inevitably progressive, and relief of tension by an operation which does not destroy more kidney tissue than is necessary would appear to be the ideal treatment if the symptoms indicate surgical interference. The case now recorded shows that diffuse peritonitis is a complication which, though not usually described, is to be feared, and that it may be cured and life may be prolonged by a timely reduction of tension. In this connexion it is interesting to note that the patient's sister is said to have died of the same disease at the same age as the patient when she was operated upon. Another important point shown by this case is the power of healing of a large wound in a congenital cystic kidney.

Medicinal treatment does not come within the scope of this communication, and it is extremely difficult to estimate its influence upon such a rare disease. Iodides seemed to have some beneficial effect, and Dr. Crookshank informs me that thyroid tablets were always useful, but the cystic change made progress in spite of all treatment. Child-bearing would appear to be dangerous whenever renal excretion is deficient, but the symptoms in the case recorded only became marked after the second pregnancy, and there is no evidence that the first and third were harmful. Rest and an invalid life seem beneficial now, but before Christmas, 1914, the patient was very active, playing golf almost daily, and often two rounds, her health being then very good. I am indebted to the above-named gentlemen for permission to publish their names, and especially to Dr. Snell for his management of the case after the operation.

REFERENCES.

¹ Catalogue of Museum, Royal College of Surgeons of England, Pathological Series No. 3558A. ² Ibid. ³ Ibid. ⁴ J. Knowsley Thornton: *Surgery of the Kidney*, pp. 42 and 93.

MEMORANDUM ON THE PREVENTION OF AMOEBIC DYSENTERY.

By J. GORDON THOMSON AND D. THOMSON,
CAPTAINS R.A.M.C.

PRELIMINARY REMARKS.

It has been proved that it is of the greatest importance to give a thorough course of emetine treatment to all cases of amoebic dysentery before discharge from hospital. Efficient treatment prevents the patients from becoming cyst carriers. Small doses of emetine, such as 3 or 4 grains given in 1-grain doses daily and then discontinued, must be avoided. Treatment such as this benefits the patients at the time, but it is actually dangerous, as these cases may relapse or become cyst carriers. They also run the grave risk of subsequently developing abscess of the liver. The dose of emetine required to bring about a complete cure varies with the case to be treated. Acute cases treated early may be cured by the continuous administration of emetine up to 7 grains. One grain must be given daily, and on no account should the dosage be intermittent. The giving of 1 or 2 grains and then stopping for a day or two and then continuing is to be avoided. Other cases require 10 grains and more; chronic cases have required 18 to 20 grains. In all cases of cyst carriers experimental evidence tends to prove that administration of emetine ought to be continued till at least 12 grains and sometimes more have been given. Where a microscopic examination of the faeces is impossible, the clinician must use his own judgement, and in all cases he ought to go on with the treatment even after all the symptoms have ceased. It is of the utmost importance to keep the patient in bed during treatment.

When a patient has become a cyst carrier he can as a

rule be rendered non-infective by the administration of emetine combined with magnesium sulphate in doses of 2 drachms every four hours. Here if possible the treatment should again be controlled by the microscope. In most cases 10 grains clear out the cysts of the pathogenic entamoebae, but in one case we still found cysts after the administration of 13½ grains. This is sufficient to show that the result of treatment by emetine should be controlled by daily microscopic examination of the faeces, and it is also advisable to make another examination some time after the treatment has ceased.

We have now proved that flies are capable of ingesting cysts of the pathogenic entamoebae from infective material and depositing these in their faeces on food. The cysts of *Entamoeba histolytica* will persist for a month, and much longer under conditions in which the stool is not allowed to dry too much. It has been shown that the pathogenic cysts in faeces well diluted with fresh drinking water persist for weeks, and this has also been proved in the Central Laboratory. In Egypt, where the faeces are deposited in the open on sand by the native, we have a constant danger to the community from flies, water, and even blown sand. Fresh faeces can be quickly trampled up in the sand, and small particles of highly infective material adhering to the sand grains may be blown long distances.

PREVENTION.

The following recommendations regarding prevention are based on the foregoing facts.

1. Thorough and Rapid Disposal of Faeces.

In an army it is absolutely essential that all faeces should be disposed of in such a way that flies can have no opportunity of alighting and feeding on them for even one second. Hence it is necessary to employ, in the absence of a flush-water system, either fly-proof latrines or metal buckets containing kerosene or some other anti-septic. Kerosene wards off flies, and it is inflammable and assists in the incineration of the faeces later on. No random defaecation must be allowed even some distance from the camp bounds. This is a common occurrence in Alexandria. The sanitary squads should devote their attention not only to their own compounds, but to the neighbouring clear areas used by the native as latrines. This is of great importance, as we have found cysts of the pathogenic entamoebae in samples taken at random from deposits on the seashore. It has been found difficult in many cases, even in our own soldiers' camps, to make men use the latrines. The reason for this is obvious, as often the latrines are very unattractive and in many cases repulsive to men accustomed all their lives to the privacy of a water-closet. In an army such as now exists, in which men of all grades of society are mingled together, more care ought to be taken in the construction of latrines. Partitions of some sort ought to be placed between each bucket and a special man ought to be detached to keep the place absolutely clean. A little expense would obviate these difficulties.

2. Thorough and Rapid Disposal of Horse Dung and Refuse.

Since flies breed in faeces, horse dung, and refuse, these should be cleared away daily and preferably burnt in a powerful incinerator.

3. Separation of Camps from Native Quarters and Horse Lines.

Camps ought to be pitched at a considerable distance (one mile, if possible) from native villages or dwellings, or else it will be necessary to exercise a thorough sanitary control over the latter. This will be found a very difficult matter, since having no sewage system they are littered with highly infective faeces and dung, and flies abound.

Permanent dwelling camps should also be stationed at a considerable distance from horse lines (if possible, 1,000 yards) since horses always attract flies.

4. Careful Guard of all Water Supplies.

Contamination of water supplies by faecal matter and filth must be avoided, since the cysts of the pathogenic amoebae can live in water for a long time.

5. Fly-screening and Destruction of Flies.

All more or less permanent messes, canteens, and cook-houses ought without delay to be thoroughly fly-screened

before the hot weather brings the flies. The doors should close automatically by means of powerful springs. The ideal state of affairs is to have a passage 10 ft. long with a spring door at each end. This passage serves both as the entrance and exit. This system is adopted in the American houses and hospitals all over the Panama Canal zone, and a special gang of carpenters was sent round periodically to examine the condition of the screening and make any necessary repairs. The extra expense has well repaid the authorities by practically stamping out dysentery amongst the white population. As a second line of defence, even in a fly-screened building, all food on the tables ought to be covered with gauze. This is easily done. All flies which gain an entrance to the building should be immediately destroyed.

6. Supply of Sterile Sand for Cleaning Mess Tins.

This is necessary, as the sand about a camp is very liable to be contaminated and infective. Sand is easily sterilized by roasting or boiling it with water. The sterilized material should be kept in a covered boiler or other metal receptacle.

7. Eating and Drinking in Native Quarters.

Uncooked food, such as salads, vegetables, and ices, also unboiled water and milk, are dangers in all native eastern villages or in the filthy quarters of the larger towns. The milk should always be boiled. As vegetables are often manured with human faeces, they should be thoroughly washed and plunged for a few seconds into boiling water before they are eaten.

8. Recommendations with regard to Hospitals.

Cases of amoebic dysentery should be isolated as much as possible in special wards. Fouled clothing and bed sheets should be placed immediately in antiseptic lotion, so as to prevent flies from alighting on them. The hands must be washed after handling such clothing or the patients themselves, and also after handling bedpans. When bedpans are sent to the laboratory, the report paper should not be secured between the bedpan and its lid, because in this way it becomes soiled. Orderlies must be instructed in these matters and thereafter punished for lack of attention to details. Dysenteric wards should be thoroughly fly-screened, as well as the hospital cook-houses and mess-rooms. In addition, flies should be destroyed in all hospitals by every available device.

9. Early Thorough Emetine Treatment.

All cases of suspected dysentery should receive at once 1 grain of emetine daily at the advanced dressing station, field ambulance, hospital ship, or base hospital. This treatment must not be stopped during the transit towards the base until at least 7 grains have been given. It is bad practice to omit one single dose. The 7 grains should be received in seven days.

10. Microscopic Examination of Faeces before Discharge.

The faeces of every case of amoebic dysentery should be examined microscopically after a full course of emetine in order to determine that they are free from cysts. Patients should not be discharged from a field ambulance for duty, or from any hospital, until they are pronounced free. It should be remembered that the mildest cases may become dangerous cyst carriers.

11. Isolation and Thorough Treatment of Cyst Carriers.

All cyst carriers must be sent to hospital to receive a thorough course of emetine combined with salines. They must not be discharged or allowed to join their unit until quite free from cysts.

12. Examination of all Cooks and Mess-room Orderlies.

No soldier should be employed as a cook or mess-room orderly in a camp or hospital until it has been proved by microscopic examination that he is not a cyst carrier. Particular attention should be paid to this matter where those so employed happen to be natives.

13. Larger Sanitary Staff and Equipment.

There can be no doubt that these sanitary measures are necessary in a country like Egypt. If larger sanitary

squads and equipment could be provided, the measures could be thoroughly carried out, and this disease, with others, would rapidly disappear from our army. The extra expense necessary would be repaid almost immediately, and ultimately save an enormous amount of money and life to the State.

THE CAUSATION AND CURE OF CERTAIN FORMS OF LUNACY.

By RUPERT FARRANT, F.R.C.S., CAPTAIN R.A.M.C.,
LATE HUNTERIAN PROFESSOR, ROYAL COLLEGE OF SURGEONS.

BEFORE going on foreign service for a second year, I wish to publish the following preliminary conclusions and summary of work directed to the causation and cure of lunacy carried on during the last seven years. The work is a continuation of that previously published on the thyroid gland in the elucidation of goitre and exophthalmic goitre.

The work consists of the microscopical examination of sections taken from the pineal, pituitary, thyroid and sexual glands—first, at different ages and periods of life such as puberty, menopause, and childbirth; secondly, the effect induced in these glands by the acute and chronic toxæmias; and thirdly, the changes found in cases of lunacy.

Clinical examinations were carried out of cases exhibiting signs of enlargement and atrophy of these glands and symptoms of excess or diminution of secretion. Similar examinations have been made on all classes of lunacy for the presence of signs and symptoms. Photographs and x-ray examinations have been made to illustrate their occurrence. Mental cases and others have been examined for the presence of toxæmias inducing the alteration in the glands and the consequent induction of symptoms of excess and deficiency. Bacteriological examinations have been made of the faeces of lunatics and the colons examined *post mortem*.

From some 3,000 sections it is found that these glands vary at different ages and periods of life; with advance of life they tend to atrophy.

It is found that the pineal reacts to certain toxæmias, the ultimate result of which is fibrosis. The pituitary reacts in a similar manner, the terminal result of which is fibrosis; intermediate stages of hyperactivity are seen, and the formation of cysts and adenomata. The reaction of the thyroid to certain toxæmias with the induction of hypertrophy, cysts, and adenomata, I have already described in my lectures as Hunterian Professor in 1915. A comparison was made of such specimens with those obtained from cases of lunacy, apart from those in which a definite pathology has already been proved, such as general paralysis of the insane (other syphilis cases), meningitis, head injuries, etc. The effect of age and of the lethal toxæmias was discounted and the state of the glands in cases of lunacy determined.

In primary and secondary amentia atrophy of the pineal, pituitary, and thyroid were found in three main groups of cases. In dementia præcox an alteration was found in the glands which varied with the duration of the case. Alteration and degeneration was also found in other cases of dementia. In some cases of acute confusional mania, melancholia, manic-depressive and other forms of insanity, changes were found in the thyroid, pituitary, and sexual glands. The changes varied from hypertrophy to atrophy.

Clinical examinations were made of some 1,000 cases of insanity, analogous to those from which the pathological sections had been prepared, for signs of enlargement or atrophy, and the presence of excess or deficiency of secretion from these glands.

The thyroid gland was frequently found to be abnormal in children, adolescent and adult lunatics; its size varied from considerable enlargement to complete atrophy, and the general condition from one of hyperthyroidism and exophthalmic goitre to myxoedema and cretinism.

The pituitary gland was found sometimes to have given rise to symptoms of hyperpituitarism to apituitarism, in idiocy, dementia præcox, and other forms of insanity. Enlargement and atrophy of the pituitary were deduced

from x-ray photographs of the sella turcica and clinoid processes.

Signs of alteration in the pineal were found, especially in children and adolescents, with consequent symptoms of hyperpinealism and apinealism.

Alteration was found in the sizes of the testicles associated with ductless gland changes. Testicular atrophy was well seen in cases of apituitarism. From the histories of cases it was deduced that the stimulation of the sexual organs or its sudden cessation was associated with altered mentality varying from mania to exhaustion psychosis; altered mentality was also found in cases of double castration. Hypertrophy of the prostate was often found to be associated with altered mentality, and after complete removal cases were frequently associated with depression or melancholia.

Some 200 cases were examined for obvious signs of chronic toxæmia. Pyorrhoea and carious teeth were found to be a frequent accompaniment of lunacy in adults; in certain cases signs of chronic intestinal stasis and toxæmia were well marked.

Bacteriological examination of the faeces was made in some 100 cases for simple aerobic infections (apart from cases of *asylum dysentery*). Streptococci were found up to 100 per cent., and *Bacillus coli* was totally absent in some cases of mania. Streptococci were also found from vaginal swabs of puerperal mania.

Colons have been examined *post mortem*, and found to exhibit changes varying from normal to pericolicitis, fibrous thickening of the walls of the gut, and atrophy of the mucous membrane, and in other cases dysenteric ulceration.

It is deduced that many cases of lunacy may be classified according to the toxæmia present and the change that it has induced in the ductless glands.

The effect of the toxæmia varies with the intensity, duration, and the age of the patient; the first effect is stimulation, the final fibrosis. In the fetus and in childhood an acute or chronic toxæmia may induce atrophy of a ductless gland, and consequent maldevelopment and idiocy. Three groups stand out when the pituitary, pineal, or thyroid is atrophied. Cases of dementia præcox exhibit a polyglandular syndrome, and different gland types are to be found, and the appearance of the cases varies whether the gland is hypertrophic or atrophic.

In adults certain toxæmias react on these glands, especially the thyroid and pituitary, and induce stimulation, hypertrophy, and, finally, atrophy. The alteration in the amount of secretion—whether excess, deficiency, or absence—induces an altered mental state, and this, combined with the effect of the toxæmia, renders the patient insane or liable to insanity from slight mental stress.

Alteration in the sexual glands, whether primary or secondary, leads to altered mentality up to insanity.

The lines on which beneficial treatment may be carried out based on the above pathology become obvious; the matter may be summed up by saying that toxæmias, if present, should be removed by medicinal or surgical measures, and the glands allowed to involute if they are hypertrophied, or, if they are degenerated with deficient secretions, these secretions should be supplied. Good results may be expected before cortical brain lesions have taken place.

Careful experimental treatment with control cases is at present being carried out for me at Bethlem Royal Hospital by Dr. Phillips, commencing with the simpler medicinal treatment.

In a work of this nature due credit must be given to those who have so kindly given me pathological material and access to clinical cases. Full acknowledgment will be made when the work is published in detail. Dr. Braxton Hicks has supervised the collection of pathological material during the last year.

M. ÉTIENNE LAMY, perpetual secretary of the Académie Française, has given £20,000 to that body for the foundation of a prize to be applied for the benefit of large families in need of assistance.

JEFFERSON MEDICAL COLLEGE, Philadelphia, was founded in 1826. It has been a chartered university since 1838 and has graduated 13,278 doctors of medicine, of whom 4,678 are in active practice. Efforts are now being made to secure an additional sum of £400,000 for its permanent endowment.

THE TREATMENT OF BACKWARD DISPLACEMENTS OF THE UTERUS.*

BY

FREDERICK J. McCANN, M.D. EDIN., F.R.C.S. ENG.,
SURGEON TO THE SAMARITAN FREE HOSPITAL FOR WOMEN, LONDON.

Introduction.

DISCIPLES of the healing art are not infrequently taunted by the laity because their treatment of common ailments is far from satisfactory.

That this is true to a certain extent cannot be gainsaid, for what is of common and everyday occurrence seems not to stimulate the ardour of the scientific investigator, who looks further afield to discover amidst the rarer morbid processes some fruitful source of inquiry. There is a tendency, too, in clinical work, to spend more time and thought over what are termed "interesting cases," and to treat common ailments on a routine plan. Yet such ailments are all-important to the patients, the more so because of their frequent occurrence.

Backward displacement of the uterus is a common ailment which, from its frequency and importance, demands the closest investigation and study in order to decide what measures of relief may be afforded to the unfortunate sufferer.

Happily the treatment has markedly improved in recent years, owing largely to the advances made in gynaecological surgery and to a better understanding of the causation and sequelae, so that women can now be promised a restoration to health which was not attainable in former years.

When a backward displacement is discovered, it is necessary to determine the cause, for this often affords important guidance to correct treatment.

Congenital Displacement.

The displacement may be congenital, for it has been discovered in the newly born.

I have found undersized retroflexed uteri not infrequently amongst Polish Jewesses of the hospital class, who seek treatment for sterility, and in whom there were no symptoms pointing to any uterine trouble. The association of under-development of the uterus, anteversion, dysmenorrhoea, and sterility is well known, but I have rarely found small-sized retroflexed uteri amongst British women. Such examples represent the true congenital backward displacement, and, although fully developed uteri displaced backwards may be found in young girls, it is more than probable that the displacement is acquired. In another type met with in the newly born the cervix is much elongated, the uterine body small, and the organ is retroverted; and in yet another type the uterus is retroverted and anteverted. Needless to say, unless symptoms result no treatment is indicated.

Excessive Uterine Mobility.

Again, excessive mobility of the uterus may be encountered, so that it may at one examination be found displaced backwards and at another occupying an anterior position.

Traumatic Displacement.

The part played by traumatism in the production of backward displacement has been variously estimated from time to time, but from a close study of this subject I have come to the conclusion that in the causation of backward displacements in virgins and nulliparae, and in parous women too, the possibility of traumatism as an etiological factor must constantly be borne in mind.

I have seen backward displacement of the uterus result from accidents in the hunting field, falls on the buttocks, strenuous exercises at school, and recently after strenuous "war work." When the extreme mobility of the normal uterus is remembered it is indeed surprising that this accident does not happen more frequently. Yet it is stated to be very rare, and has even escaped mention by many writers.

The acute displacement is an example of a true intra-peritoneal hernia in which the body of the uterus becomes incarcerated in the pouch of Douglas.

* A paper read before the Harveian Society.

The symptoms suggesting the possibility of an acute traumatic backward displacement may be thus briefly summarized: Pain is referred to the lower sacral region and coccyx. If the woman attempt to stand there is slight nausea and vague distress in the epigastrium. Pain is often localized over the sacro-iliac synchondrosis or down the sciatic nerve. Defaecation may be painful, and headache, generally occipital in type, may be a prominent symptom. Added to these there may be distressing vesical irritability, whilst the menstrual type becomes altered. Uterine haemorrhage may follow the accident or menstruation becomes painful, prolonged, and too frequent. Amenorrhoea has been noted. If treated promptly, there is no change in the menstruation. There is a characteristic posture and gait like traumatic lumbago. The shoulders are stooped forwards, the head carried slightly forwards, the dorsal and lumbar portions of the spinal column being held in a position of slight kyphosis.

The treatment consists in replacing the uterus under anaesthesia, followed by rest in bed for at least a fortnight.

The majority of backward displacements in virgins and nulliparae are, however, encountered in what may be termed the chronic stage.

Treatment of Backward Displacements in Virgins.

When symptoms suggesting some pelvic disorder are met with in a virgin a recto-abdominal examination, preferably under anaesthesia, should be made. If a backward displacement be discovered, it is necessary to determine whether the displacement alone is the cause of the symptoms. A careful abdominal examination should be made to make sure that there is no visceral ptosis (stomach, intestine, or kidney), at the same time noting the condition of the abdominal wall and the general muscular development.

If the woman be of the thin neurotic type, exhibiting various so-called reflex nervous phenomena, pains of various kinds, fatigue after slight exertion, gastric troubles, and constipation with feeble muscular development and visceral ptosis, the uterine trouble is only a small part of her disease, and treatment by pessary or operation would do little good.

For such women local treatment should be avoided, and massage, exercises, fresh air, and appropriate employment will be most helpful. For those in whom the displacement is not associated with visceral ptosis I believe surgical treatment affords the greatest relief.

It is often urged that the woman should be told to forget about her displacement, or if it is not causing marked symptoms it should be left alone, or if discovered accidentally the knowledge should be withheld from her, or, again, she may be told she is neurotic and fanciful, when her sufferings are very real.

Much depends on the attitude the medical attendant adopts when confronted with disorders of this kind. That a backward displacement of the uterus has a profound influence on a woman's health and wellbeing is evident from the extraordinary benefit which follows its cure by operation. And although in my earlier days I approached this subject with a sceptical mind, I am now convinced of the far-reaching effects produced by a backward displacement, and can fully credit the importance given to this subject by our medical forefathers.

Further, it is frequently advised that nothing should be done if symptoms are absent. To this I reply that sooner or later a backward displacement will cause symptoms, and that as a spontaneous cure is not to be expected the sooner the displacement is remedied the better for the patient.

Apart from prevention, the trend of all modern treatment is to apply the remedy in the early stages of disease in order that the malady may be effectually checked. The same principle should therefore be applied in the treatment of backward displacements.

The modern gynaecological surgeon has had the great advantage of being able to inspect the pelvic organs through an abdominal incision, and so obtain a knowledge of living pathology which was denied to his forefathers, who relied solely on clinical or *post-mortem* evidence. From actual inspection on the operating table I have satisfied myself of the frequency with which tubal inflammation accompanies a chronic backward displacement, how the appen-

dages become congested, and adhere to neighbouring bowel or pelvic peritoneum, and how the uterine body becomes enlarged and congested.

It is assumed by some writers that the uterine congestion is due to the body of the uterus being gripped by the peritoneal folds bounding Douglas's pouch. I have paid some attention to this subject by observing the actual conditions when the abdomen was opened. I have seen the uterine body deeply congested, dark purple in colour, on many occasions lying perfectly free from the folds of Douglas, and also uteri whose colour closely resembled the normal being "gripped" by these folds. Moreover, these folds are easily stretched, and the distance between them varies considerably in different individuals, whilst childbearing exerts an important influence.

I believe the uterine congestion is due to the torsion of the broad ligaments tending to retard the venous return, and that where this congestion is only slight in amount the torsion is not so marked, and the circulation better able to accommodate itself to the altered conditions. Needless to say, when the uterus is infected another factor comes into play.

Slow and insidious changes occur in the uterus and appendages which sooner or later will cause symptoms both local and general.

For all these reasons a backward displacement should not be left alone, but should be promptly remedied. In a virgin it is much better to remedy the displacement by an operation than to introduce a pessary. It is surely better for her to have a neat abdominal scar than a torn hymen and a stretched septic vagina.

Treatment of Backward Displacements in Nulliparae.

In the nulliparous married woman the problem is a little different, for should she become pregnant this may lead to the cure of her displacement. Unfortunately, however, although pregnancy may occasionally occur in a uterus displaced backwards, as a rule the displacement hinders conception, and for this reason the woman may present herself for examination.

When an examination is made and a backward displacement is discovered, then the mobility of the uterus should be tested. Can it be replaced into the normal position or is it fixed?

A useful clinical division of backward displacements is into three classes:

1. Those in which the uterus is replaceable without anaesthesia.
2. Those in which the uterus is replaceable with anaesthesia.
3. Those in which the uterus is fixed.

The uterus may be movable to a certain extent without being replaceable in its normal position. Such movement is permitted when the adhesions are not numerous and are filamentous in character. Again, the woman may resent any attempt at moving the uterus, owing to the tenderness of the uterine body or the prolapsed appendages. Such uteri are readily replaced under anaesthesia. If, in addition to tenderness, the adhesions are numerous and strong, the uterus remains fixed even under anaesthesia.

To determine if the uterus be replaceable is the first step in treatment. If replaceable, treatment by pessary may be tried, whilst if the uterus be fixed a pessary will cause pain through pressure on inflamed or sensitive structures.

Method of Replacing the Uterus.

(a) *Bimanual Replacement.*—The uterus may be replaced by the internal fingers pressing the fundus upwards and forwards until it is further assisted by the external hand, the internal fingers being then used to press the cervix backwards and upwards.

(b) *Replacement by the Aid of a Volsella.*—Where there is difficulty in carrying out bimanual replacement the anterior lip of the cervix should be seized with a volsella and the uterus pulled downwards, and then the cervix pushed upwards and backwards, thus causing the fundus to rotate forwards. As a rule, this alone will suffice, but if there be any difficulty, the finger or fingers may be used in addition to push the fundus forwards.

(c) *Replacement by the Uterine Sound.*—The usual method recommended is replacement by means of the uterine sound. With the sound you may infect the uterine

cavity, you may perforate the fundus, or you may produce abortion in a gravid uterus. For all these reasons the sound should be avoided. Nothing can be more reprehensible than the repeated straightening of the uterus by means of the uterine sound, for the risks of infection are very real, and tubal inflammation may follow.

Treatment by Pessary.—Having replaced the uterus, it is maintained in position by a pessary. The capacity of the vagina will have been gauged by the former examination, and a pessary of suitable size should be selected or a cast of the upper portion of the vagina may be taken by means of a thin rubber ring previously immersed in boiling lotion to make it soft, and a pessary of corresponding size can be procured or, if necessary, made. The most suitable variety of pessary is the Hodge or Albert-Smith, made of hard glass or vulcanite. It should be introduced in the antero-posterior diameter of the vulva, the index finger pressing the upper bar backwards and upwards into the posterior fornix. The pessary should be grasped by the vaginal vault, and should not cause pain or discomfort. Before leaving the examination couch the woman should be asked to "bear down," in order to see whether or not the pessary can be pressed out. It is well to request her to report herself in three or four days to ascertain if the pessary is causing any pain or interference with micturition or defaecation. During the wearing of a pessary a daily vaginal douche is necessary, and for this purpose warm saline solution is useful, as it does not interfere with conception. The pessary should be changed every two to three months, when the opportunity may be taken to see if its use may be discontinued or if a smaller or larger size be required.

When asked the question, How long has the pessary to be worn? the answer is, Until the uterus can maintain itself in the normal position. That may be months or years, or it may never maintain itself in the normal position.

Women are often told that they will be cured at the "change of life." This is true when the uterus becomes smaller and the upper portion of the vagina contracts, or when, from an increased deposit of fat, the retentive power of the abdomen is increased. But in parous women with a relaxed vagina and a gaping vulva the condition becomes worse.

I think, therefore, that the prospects of pessary treatment should be put before the patient, and she should be left to decide whether she will endure the inconvenience of wearing a pessary or have surgical treatment.

A vaginal pessary is an unclean thing, requiring constant attention, and as it acts by stretching the vaginal vault it is in reality favouring the condition it is supposed to remedy. As cures by pessary treatment are not numerous, I believe the interests of the patient are best served by advising appropriate surgical treatment. Moreover, the social status is an important factor, for the hard-worked woman has not the time to give the attention and care which treatment by pessary demands.

The uterus may be found tilted slightly backwards in association with a congenital hypertrophic elongation of the cervix, a condition frequently mistaken in practice for uterine prolapse. A supravaginal amputation of the cervix followed by accurate suture cures the condition, and pregnancy has followed this operation. When met with in a virgin the same treatment is employed.

Treatment of Backward Displacement when Pain and Tenderness Exist.

When the body of the uterus is tender and any movement of it is resented, before attempts at replacement are made treatment should be applied. The best is the "ichthyol treatment." For its successful application the patient should rest in bed for a fortnight or three weeks, during which time tampons of glycerine and ichthyol 10 per cent. are inserted into the vagina every other day and a saline douche given once a week, to clear away the excess of ichthyol. Ichthyol vaseline 10 per cent. is rubbed into the flanks, and ichthyol pills 2 to 3 grains given three times daily. It will be found that after this treatment the uterus can be easily replaced and a pessary inserted.

When the uterus is enlarged and there is excessive and irregular menstruation, probably indicating that there is some adenomatous growth *in utero*, the curette should be

employed to remove this growth under anaesthesia, and after all discharge has subsided a pessary may be inserted.

It is here that the operation of curetting may be usefully employed, but only if the menstrual loss is markedly increased, as it is an operation the indications for which are very definitely limited, and it is far too frequently done at the present time.

From a series of cases collected by the late Dr. Herman he estimated that in 40 per cent. menstruation was increased, sometimes in quantity, sometimes in frequency, sometimes in both. Occasionally it is diminished. What is frequently noted is a "relative retention" of the menstrual flow, so that it is prolonged as a brownish discharge for two or three days, and in the intervals between menstruation a uterine discharge, mucoid or muco-purulent, comes away in gushes.

All these symptoms disappear when the uterus is kept in position, and no curetting is required. They prove, however, the evil effects which result from a backward displacement.

The wearing of a pessary is only a part of the treatment of women with backward displacements, and general treatment should always be adopted. For this purpose tonics, exercise in the fresh air, graduated exercises, massage, and dieting are most helpful. The appropriate exercises should be written down and carried out by the masseuse under medical supervision.

The somewhat narrow outlook possessed by many of those who attempt to treat these disorders in women has been the means of diverting countless numbers of patients into the hands of various types of unqualified practitioners. Many patients seem to take a delight in informing medical practitioners that they have tried many doctors without obtaining any benefit, and that they have been cured by massage and exercises. It behoves us all to take the hint, and remember that to strengthen the abdominal muscles and to favour the deposition of fat is the best way of increasing the retentive power of the abdomen.

(To be continued.)

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

THE INCUBATION PERIOD OF PARATYPHOID B FEVER.

THE following case is of interest as *Bacillus paratyphosus* B was found in the stools some time before the onset of the disease.

The patient, No. 403, Pte. McK., was admitted on September 23rd, 1915, suffering from "dysentery." A specimen of his stools was sent to the laboratory next morning; amoebae were not found. On plating the stool dysentery bacilli were not found, but *Bacillus paratyphosus* B was isolated.

It was thought that the patient might be convalescing from paratyphoid B fever, so a serum reaction was carried out by the microscopic method with negative results.

Twelve days after admission, on October 5th, his temperature began to rise. A blood culture was made on October 7th, and *Bacillus paratyphosus* B was isolated. On October 25th a serum reaction was again carried out, and agglutination of *Bacillus paratyphosus* B was found in a dilution of 1 in 1,000 by the microscopic method.

This case shows that *Bacillus paratyphosus* B can be present in the intestine at least twelve days before the onset of the fever, and that cases which develop in hospital are not necessarily infected in hospital.

T. J. HALLINAN, Captain R.A.M.C.,
M.B., B.S., D.P.H.

H. E. ROAF, Captain R.A.M.C.(T.),
M.D., D.Sc.

FIELD MARSHAL VON MOLTKE, who died suddenly in the Reichstag on June 18th, was a supporter of Christian Science, of which his cousin, the heir of the conqueror of 1870, is the official head in Germany.

THE 4th London General Hospital has added one more to the number of military hospital magazines. Two numbers have appeared, May and June. Its title is *The Fourth*, and it presents a cheerful countenance.

Reports of Societies.

WAR INJURIES OF THE JAWS.

THE annual meeting of the British Dental Association was held in London in the premises of the Royal Society of Medicine on June 15th-17th. The President, Mr W. H. DOLAMORE, in his opening address, expressed his appreciation of the honour done him by his election as president for the second year in succession, and reviewed the efforts of the association to secure adequate dental treatment for our armed forces. The whole three days of the meeting were devoted to discussing war injuries and gunshot fractures of the jaws. Papers were read by—

Dr. V. H. KAZANJIAN, Harvard Surgical Unit, 20th General Hospital, France: Immediate treatment of gunshot fractures of the jaws.

Dr. O. RUBBRECHT, Belgian Red Cross, Professor of Stomatology, University of Ghent: A new method of treatment of fractures of the jaws.

Mr. G. E. SMITH, Cannes: Permanent bridge work as splints in fractured maxillae.

Mr. J. F. COLYER: Treatment of ununited fracture and malunion.

Captain H. M. HOLT, R.A.M.C.: Diet, massage, and dynamic exercises.

Discussions were opened by Mr. MONTAGU HOPSON, on reduction of misplaced portions of bone by immediate and gradual methods and retention of parts in normal position during the period of union; by Mr. J. E. SPILLER, on restoration of lost parts by prosthetic apparatus; and by Dr. PONT, of Lyons, on restoration of lost portions of the jaw by surgical means.

There were demonstrations on the making of masks for facial wounds, by Lieutenant DERWENT WOOD, A.R.A.; on restoration of soft external tissues by flexible material, by Mr. H. BALDWIN; and on a rapid method of producing special trays in metal for impressions of fractured jaws, by Mr. G. BRUNTON. A good museum of splints and apparatus was on view, which included a very useful extra-oral splint with pad attachments for supporting soft parts and flaps of plastic operations from the outside (V. H. Kazanjian), and specimens of Dr. G. Villain's "directing rods" for use in cases of deviation of the mandible after ununited fracture.

In the course of the discussions the desire for early co-operation between surgeon and dentist was freely stated. Hopeful opinions as to the possibility of bone-grafting were expressed by Dr. PONT, who claimed considerable success in cases of loss of portions of the mandible, but these hopes were not shared by all the speakers.

Considerable divergence of opinion was disclosed as to the treatment of ununited fractures, and especially of cases in which there was limited loss of continuity of the horizontal ramus of the mandible. Mr. COLYER, on the one hand, urged that bony union should be the primary consideration; on the other hand, many, including Dr. VILLAIN and Dr. KAZANJIAN, urged that normal occlusion of the teeth should be the paramount consideration, even at the risk of obtaining only fibrous union. Dr. VILLAIN showed that by means of a "connecting rod," which is fixed in various ways to the remaining teeth, a normal and powerful occlusion could be obtained. Mr. COLYER urged that bony union, even at the cost of loss of normal occlusion, left a permanent solid base independent of later loss of teeth. In cases in which the loss of bone concerned the horizontal ramus of one or other side he demonstrated his method of extracting the teeth, both upper and lower, on the injured side, thus allowing the smaller posterior fragment to be tilted up and brought into actual bony contact with the larger fragment. Union then took place with the larger fragment displaced to the injured side, but this, as Mr. Colyer demonstrated in cases drawn from the Croydon War Hospital, could be remedied by forcible pulling towards the uninjured side and the use of an "interdental splint." Mr. Colyer's method was to stretch at intervals, splinting between whites, till a good occlusion on the uninjured side was obtained. This he found soon became the permanent position of the jaw. He emphasized the value of extraction of all teeth whose roots reached the line of fracture in cases of ununited fracture.

Dr. RUBBRECHT's innovation in the treatment of fractures of the jaws consists in making separate frame wire splints for each part of the fracture. These splints are fixed by bands to the teeth, the fractured parts brought into position, and the separate parts of the splint soldered together *in situ*.

Captain HOLT read an interesting paper detailing the steps from "fluid" to "full" diet which he had worked out at the Croydon War Hospital. The whole dietary was contained within the limits of the army diet scale, but was nevertheless very varied and well suited to its purpose of educating the injured jaw back to dealing with ordinary food.

Reviews.

PSYCHO-ANALYSIS.

DR. JUNG was formerly a hypnotist; he then became a disciple of Freud; and later he broke away from some of the teaching of his master and has preached a modified doctrine of psycho-analysis, which does not, however, differ materially from that of the Viennese professor. Some of Dr. Jung's writings have now been translated into English and published in a volume of considerable size, entitled *Collected Papers on Analytical Psychology*,¹ edited by Dr. Constance Long. "Analytical Psychology" is not an appropriate title for the book, which deals with very different subjects, from very different points of view, from those treated of in the *Analytical Psychology* of Dr. Stone, which is now become a classic. The book treats, not of analytical psychology in the current and accepted sense of that term, but of psycho-analysis, which is a very different thing. The first ninety-three pages are occupied by a chapter entitled "The Psychology and Pathology of so-called Occult Phenomena," a chapter containing very little psychology, and very little pathology, but a long and detailed exposition of various manifestations of spiritualism, table-turning, automatic writing, and the usual gibberish of the spiritualistic "mediums." Although Dr. Jung makes some little attempt to explain them as pathological phenomena, he does not entertain, or at least he does not discuss, the hypothesis that any of them is due to deliberate imposture; if he has any doubt that the "communications" really emanate from the "spirits" he does not obtrude that doubt. He then explains the procedure of psycho-analysis, and initiates the reader into the mysteries, now becoming familiar, of the Oedipus-complex and the Electra-complex, laying down as an axiom that when a marriage is "crippled" through the neurosis of a wife, "the cause of the unhappiness always lies in a too firm attachment to the parents." No proof of this assertion is given. No evidence in its favour is advanced. No reason for it is assigned. It is stated as a fundamental truth, and apparently as a self-evident truth—an axiom.

The author relates how he discovered by psycho-analysis out of three persons the one who had committed a theft. The process was extremely elaborate, and is illustrated by five tables of reaction-times, percentages, complex indicators, and so forth, tables that it requires an expert to appreciate. The reader, however, is most impressed, not by the tables, but by the naïve admissions of the analyst, that the thief turned out to be "precisely the one most suspected"; that on being examined she "showed marked excitement," which the others did not; that her pulse went up under the ordeal to 120, while the pulses of the others were unaffected; that she "evinced a very 'suspicious,' or I might say almost 'impudent' countenance"; and that the analyst set about adding up the results "with the definite idea of finding in her the guilty one." It would have been strange if in these circumstances he had arrived at any other result, and we may suspect that it could have been just as well achieved without the use of psycho-analysis.

It is in the interpretation of dreams, however, that the real strength of psycho-analysis is displayed and that its greatest value is found. Dream analysis, we are told, is the *real instrument* of psycho-analysis. For instance, a

¹ *Collected Papers on Analytical Psychology*. By C. G. Jung, M.D., LL.D., formerly of the University of Zurich. Authorized translation edited by Dr. Constance E. Long. London: Baillière, Tindall, and Cox. 1916. (Demy 8vo, pp. 410; 14 figures. 12s. 6d. net.)

little boy of 8 years old dreams of a *black snake* which *wants to bite his face*. (Italics in original.) "The infantile attitude here, it is evident (italics not in original) is nothing but infantile sexuality." A married man, who was engaged in an intrigue, dreamt of the number 2477. This is very easily explained. The psycho-analyst adds together the dates, in days of the month, on which the births took place of the patient, his mistress, his wife, his mother, and his two children, having previously taken the number of the month on which these events severally took place, and put it sometimes before and sometimes after the day of the month. The 26th of February, for instance, becomes either 262 or 226. The sum of these numbers comes to 2416, which does not agree with the dream number. However, the patient's age is 36 and his mistress's age is 25. Add these, and we get the dream number 2477. Could anything be more convincing? Unfortunately, beyond that "it led to a deeper layer of the dream's meaning," we are not told what it signifies. It may be pointed out to Dr. Jung that the number 2477 may bear a different significance. If we take from this number the number of the year 1915 we get the number 562, and it is exactly 562 years since the Turks conquered Greece, and 562 miles from Zurich to Belgrade. This seems to lead to a much deeper layer of the dream's meaning. The same patient subsequently dreamt of the number 315. The psycho-analysis of this number produces a separation into 3-1-5. This means that the doctor has three children, and just lately there is one in addition, and the patient himself would have five children if all were living. There are several other analyses of dream figures, equally instructive and revealing. Mr. Ignatius Donnelly never produced any cryptogram half as convincing. Can any one, after this, fail to agree with Dr. Jung when he says that "psycho-analysis no longer appears to be a mere reduction of the individual to his primitive sexual wishes, but it becomes clear that, if rightly understood, it is a *highly moral task of immense educational value*."

SERUMS AND VACCINES.

THE third edition of the excellent little book on *Serums, Vaccines, and Toxins*,² by BOSANQUET and EYRE, has appeared seven years after the second, and shows evidence of compression as well as of bringing up to date. It begins with a full account of immunity and resistance to disease; here the authors follow Ehrlich in calling chemotherapy by the name "chemotherapy," as though the art were that of therapy by "chemosis," or oedema of the conjunctiva, rather than by "chemia" or chemistry. Then follow chapters on the preparation and administration of serums and vaccines, and the use of serums and toxins in diagnosis. The rest of the volume is occupied with the employment of serums and vaccines in the various diseases in which they have been found to be most serviceable. The facts are well presented, and the book is well written; on page 23 the structural formula of symmetrical trinitrophenol is given by mistake for that of trinitrobenzene. The book may be warmly commended to the attention of medical students and practitioners who are on the lookout for a simple account of the subject with which it deals.

Applied Immunology,³ by Drs. THOMAS and IVY, is a rather loosely written work, in which the general practitioner may read about the practical employment of therapy by serums and vaccines. The text deals with laboratory work at least as much as with the treatment of patients. A few references to the very extensive literature of the subjects dealt with are given, mostly from recent American periodicals. The text appears to be of the nature of a compilation, speaking generally, rather than an account based on extensive personal acquaintance with the methods advocated, although a number of charts illustrating cases are introduced. An appendix contains an account of chemotherapy and the use of salvarsan.

² *Serums, Vaccines, and Toxins in Treatment and Diagnosis*. By W. C. Bosanquet, M.A., M.D. Oxon., F.R.C.P. Lond., and J. W. H. Eyre, M.D., M.S. Dunelm., F.R.S. Edin. Third edition. London, New York, Toronto, and Melbourne: Cassell and Co., Ltd., 1916. (Cr. 8vo, pp. 464; 17 figures, 2 charts. 9s. net.)

³ *Applied Immunology: The Practical Application of Sera and Bacterins Prophylactically, Diagnostically and Therapeutically. With an Appendix on Serum Treatment of Hemorrhage, Organotherapy, and Chemotherapy*. By B. A. Thomas, A.M., M.D., and R. H. Ivy, M.D., D.D.S. Philadelphia and London: J. B. Lippincott Co., 1915. (Med. 8vo, pp. 370; 68 figures, 5 plates. 16s. net.)

NOTES ON BOOKS.

DR. R. B. FAULKNER of Columbia University has compiled a pamphlet⁴ in which he arrays the opinions of medical men and professors of the art of singing who do not believe in the operative removal of enlarged tonsils. Indeed, he goes so far as to conclude that "children with large tonsils are always large, well grown, and healthy." He appears to regard enlargement of the tonsils as due to misuse of the voice in some cases. He holds that the condition can be cured, and should be cured, if cure is required, by medical treatment. Medical men in Great Britain see very large numbers of cases of tonsillar enlargement, and have a wide experience of the benefits that result from the removal of enlarged or diseased tonsils in many cases. It is doubtful whether they will find themselves in agreement with all Dr. Faulkner's conclusions.

Dr. E. M. MAGILL's *Notes on Galvanism and Faradism*⁵ is a little textbook intended for the use of masseuses preparing for examinations in medical electricity now held by the Incorporated Society of Trained Masseuses. It is divided into three parts, defined as "galvanism" (in which static electricity is included), "faradism," and "currents from the main." It is clearly written, but the authoress is not rarely astray in her statements of fact. Thus it is incorrect to define static electricity as "electricity at rest" (p. 16). To say that the common electrical units "have been chosen arbitrarily by electricians" is to ignore the scientific basis of the whole C. G. S. system of units (p. 37). The ohm is not the measure of the resistance of a given column of mercury "1 millimetre in cross section" (p. 38). "Treatment by diathermy appears not to receive any notice. In Fig. 21 on p. 54 the cells in use are wrongly numbered. Much of the text is excellent, and the book would seem to be well designed for the purposes for which it is intended.

⁴ *The Tonsil and Its Uses: Vocal, Mechanic, and Physiologic*. By R. B. Faulkner, M.D., Columbia University. Pittsburgh, Pa.: The Blanchard Co., 1916. (Cr. 8vo, pp. 29. 1 dol.)

⁵ *Notes on Galvanism and Faradism*. By E. M. Magill, M.B., B.S. Lond., D.P.H., R.C.S.I. (Hons.). London: H. K. Lewis and Co., Limited, 1916. (Cr. 8vo, pp. 235; 67 figures. 4s. 6d. net.)

THE MEDICAL INSURANCE AGENCY.

THE Committee of the Medical Insurance Agency, at its meeting on June 15th, was able to allot further substantial sums to medical charities: to the Royal Medical Benevolent Fund, £150; to the Royal Medical Benevolent Fund Guild, £100; to the Epsom College Benevolent Fund, £100; to the Royal Army Medical Corps Officers Benevolent Fund, £25; and to the *Lancet* Editor's Fund, £25.

Before proceeding to this part of the business, the chairman, Dr. G. E. Haslip, presented the balance sheet for the year ending December 31st, 1915, audited by Messrs. Price, Waterhouse, and Co., and reviewed the work of the Agency during that year. In spite of adverse circumstances due to the war the business of the Agency had expanded, and it had earned in commission £1,950, as against £1,816 in the previous year. Out of this sum £838 had been returned to those insured through the Agency, representing a direct saving to them. After paying working expenses the sum of £725 remained over for medical benevolence. Of this amount £630, or just double that distributed in the previous year, was allotted to various medical charities, and £95 was carried forward to be dealt with in the current year. The serious problem which medical men liable to military service had to face owing to the fact that most life offices either declined the risk outright or required such a heavy additional premium as to make the business prohibitive for most men, was taken up early by the Agency. It succeeded in arranging with an office of high standing to accept assurances at more reasonable rates, and the terms have proved acceptable to many medical men who might otherwise have had to take up military service without being able to provide against the contingency of death. The motor business was good during the year, and there was, in fact, an expansion under each head of insurance, while the working expenses were lower than in the previous year. Summarizing the work of the Agency since its initiation, Dr. Haslip said that it had been able to return as a direct benefit to those insured through it £4,530, representing a real saving to the medical profession, and the Agency had distributed £1,700 to medical charities down to the end

of 1915. With the amounts allotted at the meeting on June 15th, the total distributed to medical charities from the first amounted to £2,100. The Chairman concluded by recommending the Committee, in accordance with precedent, at once to make the interim grants mentioned in the opening of this article from moneys accumulating in the Medical Benevolence Account since the beginning of the year, and this was done.

The amounts allotted during 1914 and 1915 and for the first six months of this year are shown in the following table:

Grants.	1914.	1915.	1916, First Six Months.
	£ s. d.	£ s. d.	£ s. d.
Royal Medical Benevolent Fund ...	105 0 0	230 0 0	150 0 0
Royal Medical Benevolent Fund Guild	52 10 0	160 0 0	100 0 0
Epsom College Benevolent Fund...	78 15 0	145 0 0	100 0 0
Royal Army Medical Corps Officers Benevolent Fund	—	50 0 0	25 0 0
Royal Medical Benevolent Fund Society of Ireland	26 5 0	30 0 0	—
Royal St. Anne's School ...	10 10 0	15 15 0	—
Lancet Editors' Fund ...	15 15 0	—	25 0 0
Belgian Doctors' and Pharmacists' Relief Fund	26 5 0	—	—
Total ...	£315 0 0	£630 15 0	£400 0 0

This result cannot but be satisfactory to all those medical men who have insured through the Agency; not only has there been a considerable saving in their own expenditure, but it has been possible to make substantial contributions to medical charities without making any call upon the finances of the profession itself. We believe that the advantages and aims of the Agency have only to become more widely known in order that the financial assistance it will be in a position to give to medical charities in future years shall be even more substantial. The success of the Agency is very encouraging, and reflects the greatest credit upon the chairmen. The first chairman was the late Dr. Radcliffe Crocker, and on his death the office was accepted by Dr. G. E. Haslip, who has taken the greatest possible interest in the work, as has the Agent and Secretary, Mr. Guy Elliston, from whom particulars of the policies—life, accident, motor-car, and others arranged to meet various needs—can be obtained on application to the Agency, at 429, Strand. The Committee has lost by the regretted death of Sir Frederic Hewitt, a member nominated by the *Lancet*, who always showed deep interest in its work and greatly assisted in making it better known. The vacancy thus caused will be filled at a subsequent meeting of the Committee.

"NEURONE" OR "NEURON."

By W. M. BAYLISS, F.R.S.,

Professor of General Physiology, University College, London.

I MAY perhaps be permitted to make a few further remarks on this question, since it appears from various representations made to me that an agreement on the spelling of the name is desirable.

It is stated by Barker in his *Nervous System* that the Greek word from which Waldeyer derived the name which he suggested for the nerve cell, including all its processes, is "νευρών." If this be accepted, it is clear that, in order to make the *o* long, it must be spelled in English with a final *e*, just as, in fact, it was spelled in French from the first. But, on referring to the course of lectures given by Waldeyer in 1891 (published in the *Deut. med. Woch.*, 17), in which it is generally stated that the name was originally suggested, I have been unable to find any mention of the Greek word from which it was formed. Indeed, no use is made of the new name until the summary in the last lecture (p. 1352), where it appears in brackets in the plural form, "Neuronen," as an alternative name for "Nerven-einheiten." It is possible that the derivation may be given in some other publication, but I have been unable to trace it. Further, as Professor Sherrington has pointed out to me, the word *νευρών* is

not to be found in classical Greek; we have *νεύρον* or *νευρά*. It must therefore be a coined word. Professor Barker refers to the opinion of a Greek scholar that it would be justifiable on the analogy of *παρθενών*, the part of the house set apart for the young women. Thus it may be taken as suggesting something on a higher scale, or greater degree of complexity, than would *νεύρον*, itself an appropriate name for the axis-cylinder process, which forms the unit element of the nerve trunk. It may be remembered that Sir Edward Schäfer proposed this use, although it has not met with general recognition. Notwithstanding the somewhat doubtful etymology, it seems preferable on the whole to adopt the spelling "neurone," partly in remembrance of the proposer, partly because this is the spelling used by the greater number of English-speaking neurologists, and also because it serves to convey the suggestion of a compound unit built up of constituent parts.

However much we may regret, with Sir Edward Schäfer, that it has been found necessary to have a special name for the nerve cell merely on account of the confusion caused by its happening to possess a particularly long process, the word "neurone" cannot now be displaced. It must be admitted, nevertheless, that the suggestion is apt to be conveyed to the student that the degeneration of a nerve fibre is a totally different process from that which occurs in a part of any cell when separated from the nucleus.

As to the names for the constituent part of the neurone, it is unfortunate that the Greek *ἄξων* has the *o* long. If we take the point of view put forward above, it is certainly preferable to use the form "axon" for the axis-cylinder process. This, indeed, appears to be the usual custom. It may reasonably be held that the precise etymological form of a word should not militate against a spelling which is of more scientific value. The distinction between "axon" and "neurone" in respect of the final *e* serves to convey a physiological fact. It may be said also that *ἄξων* is the root. Similarly, "dendron" is the best form for the other processes, while "dendrites" may be used for the finest ramifications, as is, in fact, done by Dr. Mott. No satisfactory name has yet been suggested for the body of the cell containing the nucleus. Waldeyer himself speaks of it as the "nerve cell." But this is clearly misleading. Indeed, it seems almost impossible to avoid the conclusion that the use of "nerve cell" will have to be discontinued altogether. "Cell body" is sometimes used for the part surrounding and including the nucleus, although a name which implies the presence of the nucleus would be preferable. "Peri-karyon" has been suggested, but it seems to exclude the nucleus itself, and is rather clumsy. Would "karyon" serve? I think it need not be supposed to refer to the nucleus alone since we have another name for that, but doubtless a better word may be found.

I would, then, venture to suggest that we should agree to use "neurone" for the whole nerve cell, "axon" and "dendron" for the parts. This, indeed, conforms to the practice of Dr. Mott and others; it also has the approval of Sir Edward Schäfer. "Neuron," as liable to ambiguity, should be dropped altogether.

ROYAL MEDICAL BENEVOLENT FUND.

At the last meeting of the committee, held on Tuesday, June 6th, eighteen cases were considered and £190 was voted to seventeen of the applicants. The following is a summary of the cases relieved:

Widow, aged 40, of L.R.C.P. Edin. who practised at Cliffoney, co. Sligo, and died in 1912. After her husband's death applicant opened a sweet shop in Scotland, and managed to get on until she had to undergo an operation in May, 1915. The Fund then made her a grant of £10. In April, 1916, her shop was blown up by a bomb from a Zeppelin, and all her stock and furniture destroyed, and she was not insured. Now wants help to re-establish herself. Voted £15.

Widow, aged 45, of L.R.C.P. Edin. who practised in the East End of London and died in December, 1915. Applicant is partially paralysed, and was left practically unprovided for at her husband's death, and has had to live on the small sum the practice realized, of which only about £70 is left. Has one son, aged 6 years. Has no home, and is staying with relatives who have promised to give all they can, which only amounts to £13 per year. Voted £10 in two instalments.

(To be continued.)

British Medical Journal.

SATURDAY, JUNE 24TH, 1916.

A SLOVENLY SCHEME.

MEASURES are being taken for the formation of an Auxiliary R.A.M.C. Benevolent Fund to embrace the three Auxiliary branches of the corps—namely, the Special Reserve, the Territorials, and those holding temporary commissions in the R.A.M.C. A Provisional Committee has already met, and has formulated a scheme for two funds—one a benevolent fund for officers' orphans, the other a relief fund for the widows and orphans of the rank and file of the auxiliary R.A.M.C. forces. With the latter we do not propose to deal, beyond suggesting that the officers of the Auxiliary branches are unlikely to be possessed of a superfluity of this world's goods, so that, on the principle that each group or class of individuals should concentrate its efforts, as far as possible, on relieving the necessitous in its own group or class, it might be well that the attention of medical officers should be directed principally to the benevolent fund scheme, with any extensions that may seem desirable. Such extension is already contemplated by the Provisional Committee, which has resolved to recommend the general meeting to be held at the Royal Army Medical College, Grosvenor Road, London, S.W., at 2.45 p.m. on Monday next (June 26th) to appoint "a committee to report to a further meeting on the possibility of the establishment of a loan fund to help medical officers of the auxiliary forces who are in temporary difficulties on returning to their civil practices."

It is proposed that the Auxiliary Officers' Benevolent Fund should be run on the lines of the R.A.M.C. Officers' Benevolent Society as far as they are applicable. The scheme proposes that the Fund should apply only to orphans in necessitous circumstances, and should be especially concerned to assist in their education and starting in life. Only the orphans of such officers as subscribe should be entitled to benefit. A minimum subscription of one guinea a year is suggested, which would entitle the subscriber to vote at the annual meetings. Various recommendations are made with regard to the distribution of grants.

The proposal to establish a fund for the benefit of the orphans of officers of the Auxiliary Branch of the R.A.M.C. will, we do not doubt, be most sympathetically received, but the scheme drawn up by the Provisional Committee does not meet the situation. It is cramped and lacking in imagination. It has been perhaps too hastily prepared, and has sought to go into details, such as for instance the provision of a "marriage outfit," before general principles were considered. It demands no great effort of the faculty of imagination to conceive the case of a man who, though he survives, is disabled by wounds or disease. It is quite true that he will be entitled to a pension from the State, but so small that he will be hard put to it to find housing and food, and will be in no position to provide for "the education and the starting in life" of his children. The framers of the scheme seem quite to have forgotten him, and he may ask himself bitterly whether he were not better dead. There can be no hesitation in agreeing that

the fund proposed for orphans is urgently needed, since the auxiliary officer R.A.M.C. who is killed or dies on active service, leaving a widow and orphans, will usually be a man so recently started in practice that he will have been unable to make sufficient provision for the education of his children, or the maintenance of his family. His widow may not be equal to earning a sufficient livelihood; and the medical charities in existence do not offer unlimited assistance. Epsom College is valuable—to the extent of its vacancies. The Royal Medical Benevolent Fund makes grants—often to the extent of £12 a year. The Society for the Relief of Widows and Orphans of Medical Men is only open to subscribers, who must reside or have resided within twenty miles of Charing Cross. The Professional Classes War Relief has many calls from other professions.

We confidently submit that before drawing up rules for the Benevolent Branch and entering into such details as we have mentioned, the Committee ought to have settled matters of principle. Who are the persons to be benefited by the Benevolent Branch? Is there need for a loan fund, and what should be its purpose? To whom is the appeal for donations to be made? And what is to be the relation of the administration of the fund, or funds, to other funds? We hope that the promoters will study carefully how they may extend the usefulness of the proposed fund or funds to the fullest possible extent, and will not at the outset tie their own hands by a narrow scheme and narrow references.

Upon the first matter of principle we have already touched. We are confident that a scheme for orphans only will not appeal so strongly to the profession at large as would a wider scheme.

The second matter of principle is as to the need and purpose of a loan fund. The recommendation which the Provisional Committee is making to the general meeting shows a laudable desire to widen the original terms of reference, but we venture to say that this matter should be settled before any general appeal is made. There is a Government scheme for meeting cases of hardship arising out of civil liabilities applicable to all who joined the ranks since August 4th, 1914, or may hereafter join, and to single as well as to married men. It is not contemplated that the assistance granted in any individual case shall exceed £104 a year. The items in respect of which assistance will be granted are rent (including ground rent and rent of business premises), mortgage interest, payments in instalments in virtue of contracts such as purchase of premises, business, or furniture, taxes, rates, insurance premiums, and school fees. The scheme, however, does not apply to officers. Yet there must be many cases among medical officers of the Auxiliary R.A.M.C. in which the need for similar temporary assistance must be very urgent. To meet these cases a loan fund, if it can be formed, would be of the greatest value. But the limitation of such a fund to helping medical officers who are in temporary difficulties "on returning" to their civil practices seems unwise. Surely many cases of hardship must occur when the practitioner is going on service and while he is away. In considering the question of a loan fund, the endeavour should be to relieve the anxieties of an auxiliary officer from the moment that he is called up.

The next matter of principle which needs to be settled is as to the people to whom the appeal should be made. From the wording of the scheme it would appear that it is founded upon the rules of the Regular R.A.M.C. Officers' Benevolent Society, but

it seems to us to need no argument to prove that rules applicable to the regular service into which a man enters as a life's career cannot be transferred to civil practitioners temporarily in military employ without root and branch modifications. This point is, we think, clearly shown by the recommendation of the Provisional Committee that orphans of officers who are not subscribers to the fund should have no claim on its benefits, and to a further paragraph expressing the hope that every officer of the Auxiliary R.A.M.C. will at once become a subscriber and, if able to do so, give a donation to assist in starting the fund. This is to take far too narrow a view of the situation. Undoubtedly officers now employed should, and, we believe, will, respond, but the appeal ought to be much wider. There are, we believe, in fact we know, many members of the profession debarred by age or other circumstances from engaging in military service who feel strongly that there is an obligation upon them to do anything within their means to help their brethren who have joined the Forces of the Crown, by contributing to a benevolent fund or to a loan fund, or to both. In this way they will feel that, after all, they are able to "do their bit."

The final matter of principle is with regard to the relation of the Auxiliary R.A.M.C. funds to other funds already in existence. Care should be taken to avoid overlapping and the closest possible connexion established and maintained with such other funds. This might be attained by inviting representatives of other bodies to sit on the committee of the Auxiliary R.A.M.C. funds. It must be remembered that that committee will have to deal with men drawn almost entirely from civil practice, the large majority of whom will, after the war is over, revert to civil practice.

For these reasons we counsel the general meeting on Monday to make a clean slate, and refer the whole matter to a strong mixed committee containing a large proportion of men acquainted by experience with the special difficulties of Territorial, Special Reserve, and temporary medical officers, especially those who before the war were engaged in general practice, ready to give sympathetic consideration to those difficulties, and competent to interpret the feeling of the civil profession on the subject.

THE INCREASING MORTALITY FROM CANCER.

Two views as to the alleged increase in the annual mortality from cancer are generally held. One of these is entertained by the optimists, and explains away the increase as virtual, not real, and due to improved skill on the part of medical men in diagnosis and the filling up of death certificates. Holders of the other view—largely statisticians and experts—have long been asserting that there is a steady increase year by year both in the relative and the absolute number of persons dying of cancer. The Prudential Insurance Company of America has gone very thoroughly into the question, collecting the most complete and recent statistics bearing on it from all available sources, and has published all its facts, figures, and conclusions in a well-written volume of over eight hundred pages.¹ The main conclusion reached is, briefly, that the actual frequency of malignant disease throughout the civilized world is much more of a menace to mankind than has generally been assumed to be the case.

The general death-rate shows a marked decline; the death-rate from cancer shows an actual and

persistent increase in practically all the countries and large cities for which trustworthy data are available. Europe, Asia, Africa, and America are laid under contribution to prove this point, and vast quantities of statistics have been tabulated to illustrate it. Arguments that are apparently sound are brought forward to show that the increase in malignant disease is real, and not the result of improved diagnosis, more scientific classification, or a changed age distribution. Thus, combining the returns for the United Kingdom, Norway, Holland, Prussia, Baden, Switzerland, Austria, the cities of Denmark, the Commonwealth of Australia, and the Dominion of New Zealand, it appears that in 1881 these countries had an aggregate population of 98,380,000, and 44,047 deaths from cancer, equivalent to a rate of 44.8 per 100,000 of population. By 1891 the rate had increased to 59.6, by 1901 to 76.3, and by 1911 to 90.4. Thus during thirty recent years the cancer death-rate in these countries, which—excluding perhaps Prussia—are typical of the civilized portion of the world, has more than doubled. And this in spite of an important factor tending to reduce the death-rate from cancer, namely, the increasing practice of surgical operations for malignant disease; deaths must result to an increasing extent from causes other than cancer in the case of patients with malignant disease successfully operated upon in conformity with modern surgical practice. A further numerical illustration of the increase in the death-rate from cancer is furnished by combining the principal European countries for the period 1896-1900; it is found that the average rate during these five years was 69.1 per 100,000 of population. It was as high as 127.4 in Switzerland, and as low as 30.7 in Hungary. During the five-year period 1901-5 the average rate rose to 74.2, being 128.3 for Switzerland, 39.1 for Hungary. During the five years 1906-10 the average rate was 80.1; in Switzerland it was 125.9, in Hungary it had risen to 43.6. One of the highest recorded death-rates from cancer is that of the cities of Denmark, which stood at 142.1 for the quinquennium 1908-12. Consideration of these and other similar figures with which Mr. Hoffman's book abounds would seem to show that the optimists who seek to prove that there is no general increase in the prevalence of cancer throughout the world, and more particularly in highly civilized countries like our own, will have to reconsider their position.

Numerous interesting problems and side issues of the great cancer question are discussed in the volume. The mortality from cancer in different occupations is considered at full length, with many references to the abundant literature of the subject; cancer is also considered as a problem in life insurance medicine, and its geographical incidence throughout the world is discussed, so far as the imperfect statistical returns of the less civilized countries permit. It appears certain that cancer is exceptionally rare among primitive peoples, such as the North American Indians and the Esquimo population of Labrador and Alaska; though cancer of the cheek is common among chewers of the betel nut in Ceylon, and in Afghanistan malignant disease of the abdominal wall, or kangri cancer,² is often met with as the result of wearing a portable fire basket under the clothes for warmth.

Mr. Hoffman enters a strong plea for the importance of collecting cancer statistics on a uniform basis. At the present time cancer hospitals and the various associations interested in the problem of cancer collect their statistics and issue their reports

¹ *The Mortality from Cancer throughout the World*. By F. L. Hoffman, LL.D., F.R.S., F.A.S.A., Statistician the Prudential Insurance Company of America. Newark, New Jersey: The Prudential Press, 1915. (Med. 8vo, pp. 841.)

² E. F. Neve: *BRITISH MEDICAL JOURNAL*, 1910, i, 589.

as each thinks best. The results as reported are, therefore, not comparable one with another, and the figures given, commonly lacking in important particulars, are not as valuable as they easily might be made. There is every reason, therefore, for the general adoption of uniform methods of tabulation and analysis on the part of these institutions and associations; the special form in which the returns should be made is a matter for settlement by general discussion and agreement.

COMPULSION AND ENROLMENT.

COMPULSORY military service comes fully into force in Great Britain on this day, Saturday, June 24th, 1916. We have received several inquiries as to what a medical man of military age should at this moment do in view of this enforcement of all-round compulsion. The answer is, if he be enrolled—Nothing. The answer if he be not enrolled is—Enrol.

The compulsory clauses of the Military Service Acts apply to members of the medical profession under 41 years of age as to those of every other calling, but the most recent Act and the regulations made under it contain special provisions with regard to the tribunal by which their applications for exemption shall be heard and decided.

If a medical man has enrolled he may in the meanwhile possess his soul in peace. For him the procedure is very much simplified. The enrolment scheme evolved by the profession itself is similar to the Derby attestation scheme for the general population, but antedated it, and has, we conceive, been continued under the new Military Service Act for two reasons: first, because the original response of the profession to the first call of the country in 1914 was so good; secondly, because the enrolment scheme attained a respectable measure of success and was sound in principle, inasmuch as it was the only plan by which the medical needs of the military forces of the Crown could be met, while those of the civil population were safeguarded as fully as the great test to which the nation was being put allowed. Voluntary effort produced five million men and over ten thousand medical men. A large army and a large medical service, but an army and a medical service undergoing constant wastage—according to the law of averages; so many men a week in every branch have to be sent home, a large proportion of whom will never be fit to rejoin.

Now compulsion has come, and it applies to medical men of military age as to men of military age in any other calling. The only difference is that medical men have the privilege of applying to a special professional tribunal; their case is to be tried by their peers—a very good old English principle. These tribunals, styled "Central Professional Committees," are now recognized by the Order made by the King in Council under Section 7 of the second Military Service Act, the new Act which applies compulsion to all men of military age whether married or single. The statutory Central Professional Committees in England and Wales are the Central Medical War Committee (429, Strand, London, W.C.), with, for the staffs of hospitals in the County of London and for certain other cases specially referred to it, the Committee of Reference formed by the Royal Colleges in London (Conjoint Board in England, Queen Square, Bloomsbury, London, W.C.). In Scotland the Statutory Committee is the Scottish Medical Service Emergency Committee (Royal College of Physicians, Edinburgh). To the secretaries of these committees any inquiries

that may be considered necessary should be addressed. As a matter of fact no inquiry should be necessary. The position, to any one who has read the public newspapers and medical papers, is as plain as a pike-staff. Every person should make himself acquainted with legislation by which he is, directly affected; ignorance of the law, is no excuse.

A medical man who has enrolled knows exactly what his position is. He has been told that he will receive a month's notice before his services are required. Until he receives this notice he need do nothing. The procedure of the statutory Central Professional Committees, which received official recognition from the Army Council only last week, has not yet been settled, but an enrolled medical man will in practice probably receive rather more than a month's notice. In any case it will not be until he is warned that he need take any action to obtain exemption, should he desire exemption. He should then, and not before, prepare his case and submit it, with any evidence he desires to advance, to the appropriate Professional Committee, which will be bound to hear him and his witnesses if any, should he so elect.

As to the medical man who does not enrol, we do not pretend to say what excursions and alarms may be his lot, but eventually, if he does not want to serve in the ranks, his case will go before the appropriate Professional Committee, where it will be heard and decided.

Nothing hereinbefore stated applies to Ireland, which has contracted out of compulsion. But members of the medical profession in Ireland are free to volunteer for commissions in the R.A.M.C., and we believe that a good many have already done so, though we have not been supplied with figures. It will, however, have been seen that not a few boards of guardians and other local authorities in Ireland have granted leave of absence to their medical officers. Medical men in Ireland willing to offer their services should address themselves to the secretaries of the Irish Medical War Committee, 16, South Frederick Street, Dublin.

COMMISSIONS FOR MEN BETWEEN 45 AND 55.

We understand that the appeal of the War Office to medical men between 45 and 55 to accept commissions in the R.A.M.C. for whole-time general service in the United Kingdom is urgent, and that it is very strongly hoped that the response may be large and immediate. Those who thus offer themselves for whole-time general service in the United Kingdom will set free to serve with the British armies abroad younger medical officers now employed in this country. The military correspondent of the *Times*, who has often proved himself to be very well informed, published in that paper on June 20th a letter, dated from Northern France, in which he said: "We have continually growing numbers of men and guns and better preparation for our next effort. The stream of troops and of drafts which reaches our front flows ceaselessly, and we receive constant proofs of the admirable efforts made by those who direct our strategy at home towards the building up of a formidable army." After referring to the feat of the French in holding up, all by themselves, for four months, the German enemy on the Meuse, to the extraordinary successes of the Russian Southern armies, to the arrest of the Austrian offensive against Italy, to the resuscitation of the Serbian army, and to the effects of the naval battle off Jutland, as well as to certain evidences of the decline of German man power, he went on to say, "With all these circumstances to our credit the fact remains that the German fighting machine is still intact, and has to be broken down before we can think of peace. This task remains an exceedingly hard one, and not one

man, or gun, or shell can legitimately be spared from its accomplishment. We cannot afford to reduce Germany by starvation alone. She must be beaten in the field, so that the ruling military caste may be convinced, as profoundly as the poor people of Germany appear to be convinced, that the game is up. . . . What we can say with confidence, after reviewing the whole position, is that the conditions are favourable to us, and that it only remains for generalship and hard fighting to take advantage of them." Hard fighting! Field-Marshal French, in ending his tribute to Lord Kitchener in the House of Lords on Tuesday, said that the finest monument the British people could erect to this great man's memory "is to clothe themselves in the spirit of determination and concentration of effort which characterized his public career." The voluntary effort already made by the medical profession has been so splendid that we feel confident that this fresh appeal to men between 45 and 55 will meet with a response at least as good as that given by their juniors. Offers of service—which, we repeat, must be for whole-time service in any part of the United Kingdom to which the officer may be directed to go—may be made to the Secretary of the War Office, Whitehall, London, S.W.

GERMAN TREATMENT OF PRISONERS OF WAR.

A WHITE PAPER recently issued contains correspondence between Sir Edward Grey and Mr. Page, the United States Ambassador, and a *Note Verbale* from the German Government concerning the employment of prisoners of war. From this it appears that 1,950 German combatant prisoners of war have been transferred from internment camps in the United Kingdom to Rouen and Havre, where they are engaged, under British supervision, in clearing cargo ships of goods other than munitions of war. It is added that the treatment of a camp in France is precisely similar to that of one in England. By way of reprisals the German authorities transferred 2,000 British prisoners from camps in Germany to Russia, where it was said they would be put to work under the same conditions as those obtaining in the case of the German prisoners sent to France. Sir Edward Grey arranged for inspections by representatives of the United States Ambassador in Paris of the dépôts in France to which the German prisoners had been sent. He added an expression of his hope that it might be found possible to arrange for an inspection of the British prisoners very shortly after their arrival at their destination, and suggested to Mr. Gerard that it might prove of great advantage if one of the doctors now attached to his staff could be delegated to reside for this purpose at some place in Russian territory under German occupation as long as British prisoners were interned in that territory. One of these places is Windau, a Baltic port, where the prisoners are engaged in railway work. The *Daily Mail* has published some evidence as to their treatment. According to statements by prisoners, they rise at 4 a.m. and work, with short intervals, till 5.30 p.m. Food is scarce, and parcels are not received; water to wash in is not to be obtained. Some of our newspapers speak of this transfer of prisoners as a new step taken by our Government. But it would seem that the Germans began it. The first batch was sent from this country on April 5th. According to the *Paris Journal*, about the end of March some thousands of French prisoners were transferred from the camps of Westphalia, the Grand Duchies of Baden and Saxe-Coburg-Gotha, Münster, and other places, to Russia, Poland, and Courland, by way of reprisals for the sending of a number of German prisoners to Morocco and Dahomey, where, it was alleged, they were ill-treated. *Le Journal* says this allegation is open to the gravest doubt, and the character of German official veracity does not stand so high that such statements can be received without the most cautious reserve. The testimony of the French prisoners as to the way in which they

are treated strongly confirms that of the British. They are stationed in places the climate of which is notoriously unhealthy, the conditions being made worse by exceptionally bad weather. They do not receive the letters and parcels which their families send. They are badly housed, badly fed, and are compelled to do work for which they are altogether unfitted. Some are set to work in the marshes in water halfway up the leg, cutting out peat from 6 to 6 in all weathers, or carrying stones to break for the roads. Men repatriated from Germany bear testimony to the brutality of the Germans. They were tied to posts for refusing to do munition work, and punished with twenty-eight days' cells on black bread and water.

PLAN OF NEW PRISON CAMPS IN GERMANY.

The Germans still profess indifference to the feeling of repulsion excited in other nations by the low ethical standard they have displayed in dealing with the problem created for them by the prisoners they have interned or captured, but there is some evidence that they are becoming awake to the contempt for their powers of organization and administration aroused by the incapacity shown in handling it. A camp at Cottbus for Russian prisoners was visited by a severe epidemic of typhus, as has happened in many other German prison camps. The conditions of the camp must have been very bad, for 500 of the prisoners who survived were set to work to build a new camp in the same neighbourhood to provide accommodation for 10,000 prisoners. It is reported to have been completed last July, and is said to have served as a model on which new prisoners' camps in Germany have subsequently been built. In the early camps barracks were run up in parallel rows, and stood completely above ground. The barracks of the Cottbus type are dug in so that only the upper half of the building is above ground. The barracks are disposed like a fan spread out over a half-circle. It is claimed for this arrangement that the buildings are much warmer than those built wholly above ground, and that their concentric distribution facilitates the supervision of the whole camp from the central observation station. Early in the war one soldier was required to guard every ten prisoners, but with the new plan only one soldier is required for every twenty prisoners.

GRADUATED WORK FOR THE TUBERCULOUS.

WAR teaches many lessons. The physical fitness of the individual for the work that he is called upon to do has been forced into prominence by the "recruiting problem." There is no hard-and-fast line to be drawn between the fit and the unfit. For the latter class there is work to be found, and there is no longer any excuse for a physically strong man to be employed upon work that does not require physical strength if it can be equally well done by a weaker one. Among the large number of adult males who are unfit to face hardships there is always a very considerable proportion who are actual or potential consumptives, and experience is giving abundant proof that the incipient disease, if intelligently handled, is no bar to usefulness within reasonable limits. The tenth annual report of the National Sanatorium Association, which describes the system adopted at the Benenden Sanatorium, affords striking evidence of the extent to which the period of treatment may be turned to good account by the employment of graduated exercise in the form of productive labour, with due observance of the needs of each individual case. While the hours for sleep and for meals are fixed for all patients alike, the time to be devoted to exercise in any form is strictly prescribed for every patient separately. By successive stages a period is reached when productive work can be undertaken, and the steadily increasing development of the land surrounding the main building of the sanatorium gives convincing evidence of the fact that consumptive workmen, if enabled to live a strictly hygienic life, are capable of the best class of productive labour. Among sanatorium

patients there are always a certain number, usually too many, with whom the disease has progressed too far to admit of anything but very easy work. For them special methods have been tried at Benenden, as elsewhere, but neither the numbers treated nor the results achieved are sufficiently striking to warrant any conclusions. The general results do not vary greatly from year to year. A somewhat different form of classification, as suggested by Sir R. W. Philip, has been adopted whereby the amount of systemic disturbance is taken into account in addition to the extent of the local lesions (Turban's system). But the ultimate outcome is much the same and only serves to emphasize the truth of the universally recognized rule that treatment in the earliest stages gives the best chance of success.

SPHAGNUM MOSS AS A SURGICAL DRESSING.

In a paper published in the *BRITISH MEDICAL JOURNAL* nearly a year ago (July 24th, 1915), Mr. Charles W. Cathcart, surgeon to the Royal Infirmary, Edinburgh, called attention to the value of sphagnum moss properly dried and prepared. Since then great progress in the organization, collection, and preparation of the moss has been made by the Scottish War Dressings Supply Organization, which has from time to time extended its work-room accommodation in Edinburgh to meet the demand. At present the secretary's office and central workrooms are at 37, Palmerston Place, where information can be obtained; the receiving dépôt and storerooms are at 10, Queensferry Street; the sublimating and compressing workrooms, instituted by Sir John Cowan, are at Messrs. Redpath, Brown and Co.'s workshops in Albion Road; and the packing and dispatching dépôt is at the West Gate, Royal Infirmary. In a communication to the *Scotsman* last week, Mr. Cathcart said that the Director-General, A.M.S., had placed sphagnum moss on the list of materials approved by the War Office for surgical dressings, and that large orders for military hospitals were being received. Four sub-centres have been established at Lerwick, Aberdeen, Oban, and Beattock, from which consignments of moss collected from the surrounding districts are dispatched to Edinburgh, free of charge. Professor I. Bayley Balfour, and the staff of the Royal Botanic Garden, Edinburgh, have given much valuable assistance and advice, and Mr. W. W. Smith, assistant keeper of the garden, has made careful survey of the moorland districts round Edinburgh, and has prepared a report indicating where the best moss grows on the Pentlands, Moorfoot Hills, and Lammermoors, as well as on the Moffat Hills, the Eildons, and Ettrick Forest. Mr. Cathcart added that he had received communications from surgeons of military hospitals stating that the moss had proved a most serviceable dressing. A Lieutenant-Colonel R.A.M.C., writing from Alexandria, said: "It is very absorbent, far more so than cotton-wool, and has a marked deodorizing power." An officer commanding one of the Territorial hospitals in London stated that the moss had been found most valuable and efficient, and other officers in similar positions have borne similar testimony. Mr. Cathcart concludes by making an appeal for a sum of at least £500 to carry on the work for another twelve months, and asks that subscriptions should be sent to the Honorary Treasurer, Mr. A. G. Miller, F.R.C.S., 36, Alva Street, Edinburgh.

THE HEALTH OF THE GERMAN CHILD.

In the German lay press it has been repeatedly stated that the Allies' blockade has not affected the health of the children in Germany, taken as a whole. This view of a most important matter is not shared by Dr. A. H. Kettner, school medical officer in Charlottenburg, who even last autumn gave a rather gloomy account of the health of the school children in his district. He alleged that within six months of the outbreak of war the adults of the working classes were underfed. This was not at

first the case with the children, at any rate with very young children. The action of the Government in subsidizing the suckling mother helped to ensure that children in the first year of life should be as healthy and vigorous as before. Children to the end of the sixth year also seemed to have escaped any serious effects of the war, their parents in many cases having made great sacrifices. Two diseases had, however, increased among children on account of the war. The first was rickets, due, apparently, to poverty in the homes, and tetany or the spasmophil diathesis, which was the result of the excitement of the war reacting on the young pregnant mother. As late as the spring of 1915 Dr. Kettner reported to his school board that the war had left no trace on children of school age. In this impression he was supported by the teachers and superintendents. But when, in June, the yearly weighing and measuring of the scholars took place, the fallacy of his optimistic report in the spring was revealed. The figures compared most unfavourably with those for previous years. Increase both in weight and height had been checked in all the classes from the eighth to the fourteenth year; girls suffered more than boys. Of a class of 33 girls aged on the average 10 years, weighed early in February, 1915, and again five months later, at the beginning of the summer holidays, 27 had lost weight, the loss amounting to as much as 2 kilos in some cases, two were as heavy as before, and the rest had gained weight, the gain in these cases being much below the average gain under the same conditions in time of peace. Various measurements of the children in this class told the same tale of stunted growth.

THE HALF-YEARLY INDEXES FOR 1916.

THE usual half-yearly indexes to the *JOURNAL*, to the *EPITOME*, and to the *SUPPLEMENT* have been prepared and will be printed. They will, however, not be issued with all copies of the *JOURNAL*. Any member or subscriber who desires to have one or all three of the indexes can obtain a copy of what he wants, post free, by sending a post-card notifying his desire to the Financial Secretary and Business Manager, British Medical Association, 429, Strand, W.C. Such copies will be dispatched shortly after the middle of July.

SIR ALFRED KEOGH, K.C.B., Director-General of Army Medical Services, has been elected an Honorary Freeman of the Society of Apothecaries of London "in recognition of his peculiar services to the State and the medical profession."

Medical Notes in Parliament.

Insurance.

THE first business taken by the House of Commons when it reassembled on June 20th was the votes for National Insurance, but Mr. C. Roberts, Chairman of the Joint Committee of Insurance Commissions, had a very small audience to hear his apologetic.

He began by saying that the Insurance Commissions had suffered more depletion of their staffs than older departments because fewer were over military age: 50 per cent. of the 1,424 men in the English Commission had been released for war service either through enlistments or by transference to other departments. The English Commission was now employing 1,331 women. The staffs of approved societies had also been depleted. The war had also prevented the Commissions from dealing administratively with a number of controversial questions. For instance, it had often been suggested in the course of the last twelve months that something ought to be done with respect to sanatorium treatment or with questions connected with the payment of doctors; but when the whole of the medical profession was being mobilized for the needs of the army it was out of the question to attempt to revise or reconsider the terms of the original agreement. Such questions must wait until peace restored normal conditions. The process of consolidating regulations hastily made at the beginning was proceeding, and so far as the English Commission was concerned was now practically complete, but it had been necessary to leave the Medical Benefit Regulations untouched.

Within the course of a few weeks a volume would be published containing the Act, orders, and regulations, and this publication he hoped would help to put the Act upon a proper basis. The chemists of England and Wales had reached an agreement with the Commissioners under which the very bad and unbusiness-like habit of discounting their bills had been abolished and prompt payment in full assured. In Ireland a belated and long overdue system of medical certification had come into force on January 1st. The grants for the Joint Commission—the four Commissions—and for the audit, showed a reduction, the figures being £7,700,000 in 1914, £7,195,000 in 1915, £6,300,000 in 1916-17; but it was not easy to compare this year's estimates with last year's. Two main changes had been made in the mode of keeping the accounts. The first was that sums paid to insurance companies for medical and sanatorium benefits and expenses connected therewith had, under the Act of 1911, to be paid at the beginning of the year; since the Act of 1913 payments could be made from time to time, and were, in fact, generally made month by month. Consequently, in the estimates for 1915-16, it was necessary only to provide one quarter's moneys, up to March 31st, 1916, whereas in the estimates for 1916-17 it was necessary to provide for the full financial year. The other main change was that now sums actually issued from time to time to the societies were charged against the vote. On balance, however, there was a substantial reduction in expenditure. The war itself had lessened expenditure; large transfer was going on from the class of employed contributors to the new armies, but this was offset by the new entrants, women and others, coming into employment. The State did not lessen its liability for benefits that would have been paid if the insured person had not gone into the army, except in reference to what he called doctors' half-crowns. There would be fewer half-crowns granted this year, and this was a real saving produced by the war. Further, with the rise in wages, the State would have to pay a lessened contribution on account of low-wage contributors. Under the abnormal conditions produced by the war, with greater opportunities for employment and high wages, the provision made for sickness and maternity benefits was in the case of men 8 per cent. above what was required, taking the average of all societies. On the other hand, though the shortage on the women's side was diminished, it had not been wiped out. This was due partly to the action of the House in 1911 in cutting down the actuaries' estimate. The result of the war on the finances of the Act would depend upon the balancing of forces. On the one hand, there might be benefit from improved physical training to set off against the strain of war service; there would be release of reserves by premature death; there was the opportunity of getting a higher rate of interest, and there was the present low rate of sickness. It was to be feared, however, that at a later stage, some years hence, there might be an upward curve of ill health due to the indirect effects of the war. On the whole, however, he considered that there was no real financial unsoundness which required special precautions to be taken. He hoped that the grant of £135,000 a year, representing the grant-in-aid of excessive sickness of women voted in 1914-15, would be continued, but apart from that it would be idle and unpatriotic to expect any further Government grants in the present condition of national finances. There had been very considerable progress in counties and county boroughs in tackling tuberculosis; with the money made available through the Insurance Act and by means of the Hobhouse grant the country had been covered with a network of hospitals, sanatoriums, and dispensaries, and, by voluntary effort and otherwise, tuberculosis schools and care committees had been set up. The comprehensive schemes of many counties and county boroughs were not yet complete, having been suspended by the war. The latest figures available were those for 1914. The applications for treatment that year increased by 6 per cent., persons treated by 17 per cent., cases treated in residential institutions by 69 per cent., and those treated in dispensaries by 232 per cent. Although full figures were not available, it was known that the percentage of cases treated in dispensaries had largely increased in 1915; the number of persons treated in residential institutions had dropped by a small percentage, but there were vacancies in institutions in different parts of the country. In Scotland there had been no difficulty in finding room for all the tuberculous soldiers reported, and in some of the institutions there were vacancies for the civil population. The number of cases of tuberculous soldiers referred to the Insurance Commissioners was 3,250. Arrangements had been made by means of a special grant to get priority of treatment for tuberculous soldiers, and all the cases reported had been offered treatment in residential institutions. Since the Insurance Act had been in force £2,800,000 had been found for the attack on tuberculosis by means of sanatorium benefit, and in 1916-17 the insurance committees would have from that source an income of £760,000, including a grant of £35,000 for tuberculous soldiers. In 1915 the sum paid to insured persons in respect of sickness benefit was £6,300,000, for maternity benefit £1,300,000, for disablement benefit £840,000, and the Commissioners had got a sum of £28,000,000 invested to meet the anticipated sickness which the present population would have to face ten, twenty, or thirty years hence.

Mr. Currie observed that the statement of Sir Gerald Ryan's Committee, "bankruptcy in the strict sense of the word cannot overtake the scheme," was not a very high compliment, and referred to the very severe strictures made on the administration of the Act by the Public Accounts Committee. Mr. J. Samuel, who also criticized the finances, demanded that

the Insurance Commissioners should prepare what insurance companies were bound to prepare every year for the Board of Trade—namely, a statement showing, first, the total income from all sources; secondly, the cost of administration; thirdly, the total amount paid in sickness, maternity, and disablement benefits. Mr. Rutherford contended that a considerable number of the societies were insolvent, and Mr. Booth argued that the expert committee would not have advised a raid on the sinking fund to the amount of £1,800,000 a year if a surplus could really be shown. He had held from the first that the financial provision made in respect of women was insufficient, and experience had proved this opinion to be correct. Mr. Booth also criticized the position with regard to sanatorium treatment, and alleged that the Insurance Commissioners sought to shift the responsibility from the insurance funds to the rates. The Financial Secretary to the Treasury deprecated discussion of the report of Sir Gerald Ryan's Committee; it had made certain recommendations which were now under consideration by the Treasury in consultation with the Insurance Commissioners. Mr. Dennis accused the Commissioners of making use of the fact that owing to tuberculosis now being a notifiable disease the public health authorities were under an obligation to provide hospital accommodation in order to evade their liabilities under the Insurance Act to provide sanatorium treatment. He asked whether it would be possible without legislation to arrange that when a man went into a sanatorium his sick benefit should accumulate. At present the money saved went into the General Purposes Fund, and the man, when he came out from a sanatorium, fell back into ill health because he was not able to earn wages sufficient to provide him with proper food and accommodation. Mr. Dennis also protested against the delay in paying doctors' accounts. Other members having criticized the manner in which sanatorium benefit was administered, Mr. Roberts, in a general reply, said that the obligation to building sanatoriums had not been imposed upon the Insurance Commissioners but upon the Local Government Board. The Act did not give every tuberculous person an unqualified right to sanatorium treatment in the sense of residential treatment; only those persons recommended by insurance committees had the right to claim such treatment.

Finance Bill.

Several important alterations in the Finance Bill were announced on June 21st. The clause imposing increased duties on licences for motor cars was withdrawn, and the Government announced its intention of making up the loss of prospective revenue by a tax of 6d. a gallon on petrol. This change, it was stated, was rendered possible by the fact that the Petrol Control Committee had instituted a central control of petrol stocks, which would be distributed under permits issued by the central authority. It was also announced that it is intended to raise the income a man may have, in order to claim the allowance for children, from £500 to £700. The method of graduating unearned incomes was altered. Clause 20 (Right of soldiers and sailors to pay reduced rates of income tax in respect of their pay) was so amended that while the rate upon a total income from all sources not exceeding £300 remains at 9d., as in the bill, incomes between £300 and £1,000, instead of being liable to a tax at the rate of 2s. 1d., would be subject to a graduated scale—1s. 3d. on incomes between £300 and £500, and 1s. 9d. on incomes between £500 and £1,000; on incomes between £1,000 and £1,500 the rate should be 2s. 3d. instead of 2s. 5d.; the rates upon incomes above £1,500 should remain as proposed in the bill. These reductions, it is estimated, will cost the country £200,000.

ALEXANDRIA is declared officially to be infected with plague, and it is unofficially reported that the disease prevails in Jaffa also.

CAPTAIN ARTHUR RYLAND CHAVASSE, R.A.M.C., only son of the late Sir Thomas Chavasse, left unsettled estate valued at £5,978.

The Hospital of the University of Pennsylvania, Philadelphia, has opened a clinic for the exclusive study of industrial and occupational diseases. Dr. Alfred Stengel, professor of medicine, is in charge.

SIGNOR LEONARDO BIANCHI, who is a member of the new Italian Ministry, no doubt as a representative of the party he leads—that of the Constitutional Democrats—is professor of psychiatry in the University of Naples and director of the University Clinic for Nervous and Mental Diseases. Although without portfolio, it is understood that he will devote himself to hygienic and social problems arising out of the war, especially the provision to be made for men who have lost limbs or have been otherwise disabled from following their civil occupations.

THE WAR.

THE SECOND GERMAN SURGICAL WAR CONGRESS.

ON April 26th, 1916, the second "Kriegschirurzentagung" was opened in Berlin by Professor v. Sehjerning, who reviewed briefly the main surgical events since the previous surgical congress held in Brussels last year. The fact that tetanus had been completely suppressed since then was, he said, a great triumph, as was also the adoption of a uniform treatment for fractures. The prevention of stiff joints by systematic early movements, and the more active surgical treatment of wounds of the skull and abdomen, especially in stationary warfare, also marked important advances. It was officially established that 86.6 per cent. of the soldiers in the field hospitals and special war hospitals, and 90.1 per cent. of the soldiers in military hospitals in Germany were discharged as fit for service; only 1.5 per cent. of the sick and wounded in the military hospitals in Germany had died. He also eulogized the services of the 6,800 nurses and sisters at the various stations on the lines of communication.

THE LOCALIZATION OF FOREIGN BODIES.

The allegation as to the use by the British of dum-dum bullets was repeated by Küttner, whose passion for accusing the British of employing this bullet does not seem to have been cooled by the numerous publications of other German surgeons, who have pointed out the impossibility of distinguishing between wounds inflicted by the dum-dum and the German regulation bullet. He also accused the Belgians of using a rifle bullet on to which a piece of wire had been soldered. Other speakers, discussing the fate of bullets left in the body, pointed out that, *ceteris paribus*, the French copper bullet was less harmful than bullets containing lead, as this was gradually absorbed by the body and excreted in the urine and saliva. Küttner insisted that bullets should be removed not only when they provoked sepsis or pain, or when they were quite superficial, but also when, by the help of the x rays, they could be located with precision, always provided that the operation was not dangerous in itself. Above all it was important that bullets should be removed from bone marrow. He had found that the extraction was frequently facilitated by the injection of iodipin into the track of the fistula; methyl violet and pyoktanin were also used. Grashey, in dealing with the localization of foreign bodies, said that there were more than 250 methods, which he proceeded to classify and criticize.

WOUNDS OF BRAIN AND NERVES.

Professor v. Eiselsberg expressed the opinion that tangential wounds of the skull should be operated upon as quickly as possible, provided a skilled surgeon were available. Large fragments of bone should be removed. When once meningitis had developed, its further progress could not be arrested. It was frequently basal, and lumbar puncture was of prognostic value only. The conditions least suitable for operation were those in which the bullet passed through the brain and escaped, and prolapse of the brain. When the bullet remained in the brain, but was superficial, or caused severe symptoms due to suppuration, operation was indicated. Abscess of the brain should be opened, but when the presence of a projectile within the skull caused no reaction, he preferred to wait. The filling up of gaps in the skull caused by projectiles should not be attempted early, as abscesses frequently developed long after the patient was apparently cured. Recent injuries of the cord seldom required immediate operative treatment. Adequate immobilization of the body and retention of a catheter in the bladder or the induction of a fistula of the bladder should be the first measures. Only in the case of compression fracture of the vertebral column was early operation indicated; otherwise it was best to wait eight to ten weeks. Incidentally he remarked that transverse lesions of the cord occurred not only when it was compressed, but also when there was serous meningitis. The prognosis of wounds of the cord was bad, and even when both sensory and motor symptoms improved, there was seldom any improvement in the bladder

symptoms. In 16 cases of complete paralysis, in which no definite improvement had occurred in the course of eight to twelve weeks, operation was followed by improvement in 8 cases and by none in 7. When, at the time of operation, serous meningitis was discovered, rapid improvement followed. Of 284 cases of open wounds of the brain, Steinthal said that he still had 37 under treatment; 89 had died, and 118 had returned to the colours. The causes of death in his fatal cases were abscess of the brain, encephalitis and meningitis.

In discussing the treatment of wounds of the nerves, M. Borchardt said that, from the surgical point of view, it was best to operate early. The earlier the operation, the less the amount of scar tissue encountered. The longer a nerve had been divided, the longer did it take to reunite; the sooner an operation was performed, the less were the contraction and atrophy of the muscles. But it was necessary to wait three to five months for the wound to be in a satisfactory state for operating. In many cases symptoms of total paralysis showed considerable improvement during this interval.

WOUNDS OF THE LIMBS, ABDOMEN AND CHEST.

Payr insisted on the advisability of reducing amputations to a minimum; the indications for amputation should be absolute, not merely prophylactic. Extension treatment should be adopted only after the patient had become afebrile. Early in the war secondary operations were necessary in 95 per cent., and they were still as frequent as 75 per cent. The importance of early operation in wounds of the abdomen was emphasized by Sauerbruch, whose experience with abdominal cases, operated on early, had been most gratifying. He considered the prognosis of intestinal fistula bad. In most cases the fistulae were multiple, and were often followed by severe disturbances of peristalsis due to adhesions. The prognosis of haemothorax was, on the other hand, good; when it persisted, he recommended puncture. The prognosis in empyema, of which he distinguished three forms, was worse. When the pleura was directly infected by the projectile, thoracotomy with drainage was indicated. Empyema resulting from suppuration eight to ten weeks after the development of haemothorax was less dangerous. The third form of empyema (caused by rupture of the lung and subsequent infection of the pleural cavity) was more serious, and required thoracotomy and extensive drainage. He recommended thoracoplastic operations when empyemata had left large cavities. Abscesses of the upper lobe of the lung should be opened from behind, whereas abscesses of the lower lobe should be treated on ordinary principles. In his opinion, it was rare for tuberculosis to develop in a lung as a consequence of a wound. Moritz had treated 532 cases of projectile wounds of the lungs, and only 28 patients had died. In 21 out of 511 cases the wound of the lung had been followed by peribronchitic inflammation. In 8 out of 615 cases gangrene of the lung had supervened. Returning to the subject of abdominal wounds, Læwen pointed out the high mortality of wounds of the kidney; the mortality in 28 such cases was 93 per cent.

CASUALTIES IN THE MEDICAL SERVICES.

ROYAL NAVY.

Killed in Action.

SURGEON GEORGE MOORE JOHNSON, who met his death on H.M.S. *Defence* in the naval battle in the North Sea on May 31st, was born in 1879, and was the eldest son of Mr. G. W. M. Johnson of Childs' Bank and of Mrs. Johnson of Shortlands, Kent. He was educated at Charterhouse and at Magdalen College, Oxford, and the London Hospital, taking the degrees of M.A., and M.B., Ch.B. in 1908. He held the posts of house-physician and house-surgeon at the Radcliffe Infirmary, Oxford. In January, 1913, he went to Trinity, Newfoundland, and practised there till after the outbreak of war. He returned to England in January, 1915, and held the posts of assistant tuberculosis officer and school medical officer for the county of East Suffolk till he applied for a post as surgeon, R.N., when he was appointed to H.M.S. *Defence*. He leaves a widow, to whom we offer our sympathy. Such is the brief record of a man of whom his friends—and they were many—felt certain that he would have done good and distinguished service in his profession. Always fond of

sport and good at all games, he was a good shot and a keen and successful fisherman and boatman; indeed, in the course of his professional duties in Newfoundland he often went out in such weather that the fisherman would be anxiously awaiting his return. He had a very keen sense of his duty to his professional work, to which he applied abilities considerably above the average. Gifted with a superb body, he had a boundless store of energy, and lived his life with a zest and keenness it was a pleasure to watch, but beyond all was his extraordinary capacity of forming real friendships socially and professionally, and he will be sadly missed by a very wide circle.

ARMY.

Wounded.

Captain C. H. Maskew, R.A.M.C. (T.F.)

Captain J. F. H. Perras, Canadian Army Medical Corps.

Captain W. L. Shannon, Canadian Army Medical Corps.

PRISONERS OF WAR.

The *Pioneer Mail* of May 20th states that, among the invalided prisoners of war who were exchanged by the Turks, after the surrender of Kut, was Private Binod Bihari Chatterji, of the Bengal Ambulance Corps, who stated that all the other members of the detachment serving at Kut under General Townshend were well.

DEATHS AMONG SONS OF MEDICAL MEN.

Austen, Mark, Midshipman H.M.S. *Queen Mary*, killed in the action of May 31st, aged 16, was the son of Fleet Surgeon Thomas Austen, of H.M.S. *St. Vincent* (also engaged), and of Mrs. Austen, of 10, Palmeira Avenue, Brighton. After preparation for the Royal Navy he became a cadet captain at the Naval College, Osborne, and was appointed to his ship from Dartmouth College on January 1st, 1916. He had the qualities of a good cricketer.

Champneys, John Dalrymple, Lieutenant Leicestershire Regiment, who was officially reported "missing, believed wounded," in France on November 22nd, 1915, and who is now known to have been captured by the Germans and to have died of his wounds on the following day, aged 26, was the elder surviving son of Sir Francis H. Champneys, Bt., of Nutley, Sussex. He was educated at Rossall School, of which he was a foundation scholar, and matriculated at Balliol College, Oxford, taking honours in the Final School of Law. He was a good all-round athlete. At the beginning of the war he obtained a commission as second lieutenant, and was soon after appointed lieutenant. He was mortally wounded and captured while on patrol duty in France, died the following day, and was buried by the Germans at Monchy. His commanding officer writes: "He is a great loss to me, as he was an exceedingly useful and gallant officer, and has carried out many useful reconnaissances."

Elphick, William Roy, Second Lieutenant Indian Army, eldest son of the late Major H. W. Elphick, I.M.S., died of cholera at Bombay, on June 7th, aged 22. He got his commission on August 2nd, 1914, and was serving in the 108th Infantry, formerly the 8th Bombay Infantry.

Harvey, Ralph de Warene, Second Lieutenant Dorset Regiment, only surviving son of Harold Harvey, M.R.C.S., of Wyke Regis, Dorset, died of wounds on June 7th, aged 18. He got his commission on January 27th, 1915, after being educated at Weymouth College, where he was in the school eleven. His elder brother, Keith Harvey, serving in the Australian Force, was killed in France on April 25th last.

Page, Henry Rauthwell, of Winnipeg, and of Brough Fold, Kendal, Lieutenant Canadian Infantry, second son of the late David Page, M.D., killed in action on June 10th, aged 39.

Robertson, Thomas Arthur May, Sub-Lieutenant R.N., aged 21, was killed on H.M.S. *Queen Mary* in the North Sea action on May 31st. He was the third, but eldest, surviving son of Dr. James S. Robertson, of West Kensington, whose second son, Frank Henry May Robertson, came over with the 1st Canadian Contingent, and died in France on April 12th, 1915, at the age of 21.

MEDICAL STUDENT.

Aitchison, Andrew J., Second Lieutenant Highland Light Infantry, who died from wounds in France, was about 27 years of age, and was the youngest son of Mrs. Aitchison of Alexandria. He was studying medicine at the Glasgow University when he joined the colours over a year ago.

NOTES.

SIR DOUGLAS HAIG'S DISPATCH.

On June 15th the War Office published a dispatch, dated April 30th, from General Sir Douglas Haig, G.C.B., Commander-in-Chief of the British Forces in France, mentioning the names of 4,800 officers and men for gallant and distinguished conduct in the field. The list of those thus mentioned fills thirteen columns in the *Times* of June 16th. The following are the names of the medical officers included in the list. In addition, a large number of members of the various nursing services and of non-commissioned officers and men of the R.A.M.C., Regular and Territorial, are mentioned.

1st Life Guards.

Surgeon-Major R. M. Cowie.

2nd Life Guards.

Surgeon-Captain E. J. H. Luxmoore.

Army Medical Staff and Royal Army Medical Corps.

Surgeon-General R. H. S. Sawyer.

Colonels H. Carr, W. L. Gray, O. R. A. Julian, C. J. Macdonald, F. J. Morgan, F. R. Newland, H. I. Pocock, H. N. Thompson, S. Westcott, J. Wilson, R. W. Wright, A. L. F. Bate, A. Fullerton (temporary).

Lieutenant-Colonels F. C. Buswell, H. N. Dunn, J. D. Ferguson, J. V. Forrest, J. S. Galle, F. W. Hardy, H. C. R. Hime, E. W. Slayter, H. H. Thurston, E. A. Bourke, A. W. N. Bowen, O. W. A. Elsner, J. G. Gill, J. Grech, H. Hewatson, W. J. Taylor, A. C. Thompson, G. N. Stephen (temporary).

Majors H. H. A. Emerson, R. L. V. Foster, W. R. P. Goodwin, P. H. Henderson, D. O. Hyde, E. T. Potts, J. H. Brunsell, R. A. Bryden, T. S. Coates, R. F. M. Fawcett, A. O. H. Gray, R. C. Hallows, W. J. S. Harvey, A. J. Hull, T. C. L. Jones, W. D. O. Kelly, P. J. Marett, W. G. Maydon, A. C. Osburn, H. G. Pinches, A. M. Rose, H. G. Smeeth (S.R.), A. E. Webb-Johnson (temporary), C. F. White, J. H. R. Winder, B. F. Wingate, J. C. Webb (temporary).

Captains A. H. Heslop, W. B. Purdon, G. H. Dive, G. R. Edwards, L. T. Poole, H. C. D. Rankin, J. Rowe, W. C. Smales, A. D. Stirling, G. P. Taylor, J. L. Wood, W. A. Wright.

Captains, Special Reserve, W. J. Adie, W. M. Biden, S. M. F. Cesari (killed), D. B. Chiles-Evans, D. Dougal, T. I. Dun, W. R. Gardner, R. A. Greenwood, A. T. Logan, D. C. Macdonald, W. C. B. Meyer, W. A. Miller, R. Montgomery (killed), A. C. Perry, A. L. Robertson, H. E. Rose, H. N. Stafford, A. M. Thomson, P. Thornton.

Temporary Captains A. B. Cheves, H. J. Couchman, R. D. Fitzgerald, C. Y. Ford, J. H. Fletcher, A. C. Giles, A. S. Glynn, T. L. Gurney-Dixon, A. C. Hancock, C. Hardy, H. M. Hart-Smith, C. Kingston, E. C. Lindsay, N. P. L. Lumb, J. B. McCabe, D. J. McKee, E. L. Mackenzie, E. S. Marshall, D. C. Munro, H. Moore, J. W. Pell, E. L. Reid, H. H. Robinson, W. A. Sneath, J. L. Stewart, A. Stokes, W. A. Taylor, T. H. Whittington, C. M. Wilson, E. White, D. H. D. Wooderson, P. R. Woodhouse.

Temporary Lieutenants F. J. Blackley, W. E. Burrows, A. J. W. Cunningham, A. J. Cunningham, J. P. Musson, E. T. Pinkey, C. L. G. Powell, R. R. Scott, H. D. Smart, T. Strain.

Quartermaster and honorary Major: H. Spackman.

Quartermaster and honorary Lieutenants F. O. Chappell, E. W. J. Escott, J. D. Genese, J. W. Osborne, J. T. Packard, H. S. Polhill, W. C. Renton.

Dentists, Mr. A. C. Valadier, temporary Lieutenant R. L. O'Grady.

Royal Army Medical Corps (T.F.).

Colonels C. E. Harrison, Sir J. R. A. Clark, Bt.

Lieutenant-Colonels J. Clay (Northumberland C.C. Station), J. McKinnon (W. Riding F.A.), W. Peake (N. Midland C.C. Station), R. M. West (N. Midland F.A.), E. A. N. Wraith (N. Midland F.A.).

Surgeon-Major A. W. Cuff (W. Riding Brigade R.F.A.).

Majors E. F. Finch (W. Riding F.A.), A. C. F. Turner (N. Midland F.A.).

Captains H. M. Calder (London F.A.), W. Cowie (London F.A.), H. K. Dawson (London F.A.), N. A. Dore (London Sanitary Service), S. S. Greaves (W. Riding F.A.), S. J. C. Holden (W. Lancs. F.A.), M. T. Inglis (S.E.), A. E. Ironside (London F.A.), R. Jacobs (London Sanitary Service), G. G. Johnstone (London Sanitary Service), C. D. Law (S. Lancs. Regiment), J. P. Matthews (W. Riding F.A.), J. Miller (N. Midland F.A.), F. J. J. Ney (London Sanitary Service), H. G. Pearson (London Sanitary Service), J. E. Sandilands (London F.A.), A. Sutcliffe (Northumbrian C.C. Station).

Quartermaster and honorary Lieutenant S. Lyall (Northumbrian F.A.).

Canadian Army Medical Corps.

Lieutenant-Colonels G. La F. Foster, J. T. Fotheringham, R. P. Campbell.

Majors J. A. Amyott, A. C. Rankin, A. E. Snell.

Captains J. A. Crozier, H. B. Jeffs, J. S. Jenkins, G. C. Hale.

Indian Medical Service.

Major E. A. C. Matthews.

Captains R. L. Binning, W. B. Cullen, P. K. Gilroy, J. G. B. Shand.

Indian Subordinate Medical Department.

Assistant Surgeons W. E. Moody, E. J. Pell.

Sub-Assistant Surgeons Kunniyal Raman, Nabl Ahmed Sidiqui, Rafi-ud-din Khan.

HONOURS.

The Victoria Cross has been awarded to Captain John Alexander Sinton, M.B., I.M.S., for conspicuous bravery and devotion to duty. Although shot through both arms and through the side he refused to go to the hospital, and remained, as long as daylight lasted, attending to his duties under very heavy fire. In three previous actions Captain Sinton displayed the utmost bravery. Captain Sinton was a student at Queen's College, Belfast.

BRITISH RED CROSS SOCIETY.

The motor department recently dispatched nine cars and thirteen drivers to France, and one hundred other cars are ready to follow. Ten motor ambulances have been sent to the Russian Army in the Caucasus, and requests for special motors have been received from East Africa. There are fifteen launches at work on the Tigris, and, in addition, five

large and two small ambulance launches have recently been dispatched to Basra. The Aberdeen Branch has dispatched a motor launch to Malta to replace one sent from there to Mesopotamia.

PHYSICAL CLINIC FOR WOUNDED AND DISABLED SOLDIERS.

We have received the following communiqué: A physical clinique for the treatment of wounded and disabled officers is about to be opened at 126, Great Portland Street. The treatment, which will be entirely free of charge, will be under the direction of an honorary medical and surgical staff. In addition to the more familiar physical remedies (hot air and electrical baths, douches, massage, and manipulation) the clinic is furnished with whirlpool baths for the local treatment of stiff and disabled limbs and with a complete series of apparatus for mechanical treatment. The committee and medical staff invite members of the medical profession to view the clinic on Monday, Tuesday, and Wednesday, June 26th to 28th, and matrons and nurses on Thursday, June 29th, between 2.30 and 5 p.m. Cases will be received for treatment on and after Monday, July 3rd, at 2.30 p.m.

FEDERATED MALAY STATES HOSPITAL.

Thanks to the liberal financial support accorded by all classes of the community in the Federated Malay States, the Committee of Management of the Military Hospital established by these States at Blackmore End, Kimpton, Herts, has been able to increase the accommodation from 80 to 168 beds. Two new wards, each of 44 beds, similar in type to those of the Canadian Military Hospital at Orpington, Kent, have been erected in the grounds of the house kindly lent by Mrs. Vincent. The hospital is being equipped with an x-ray installation, the cost of which is being borne by Messrs. Edward Bonstead and Co., of Leadenhall Street, E.C., in conjunction with Messrs. Bonstead, Hampshire and Co., of the Federated Malay States. Captain G. D. Freer, R.A.M.C.(T.), formerly P.M.O., Selangor, is in charge of the hospital.

MEDICAL OFFICER WANTED.

3rd Line Field Ambulance, R.A.M.C.(T.F.)

Vacancy for a keen Medical Officer as Lieutenant (promotion to Captain in six months) in above unit, at present in England but drafts supplying; should ride or learn. Must sign for the war and imperial service obligation (foreign service if required). State age and experience.—Address, Commanding Officer, No. 1234, BRITISH MEDICAL JOURNAL Office, Strand.

England and Wales.

ROYAL COMMISSION ON UNIVERSITY EDUCATION IN WALES.

THE members of the Royal Commission on University Education in Wales have been paying a visit to Cardiff this week, where they have made themselves acquainted with the organization and equipment of the University College of South Wales and Monmouthshire and with the proposals for the establishment of a National Medical School for Wales, and the part which the Cardiff Hospital is prepared to take in that school. They propose to visit North Wales next week, and after the annual meeting of the North Wales Branch at the University College, Upper Bangor, on Tuesday, June 27th, a meeting of the profession will be held at 3 p.m. to hear an address by Sir William Osler, one of the members of the Commission, on the proposed National Medical School for Wales. It is expected that Mr. Thelwall Thomas, Professor of Regional Surgery in the University of Liverpool, and Lieutenant-Colonel Lynn Thomas, C.B., Consulting Surgeon to the Western Command and Surgeon to the Cardiff Hospital, will take part in the discussion on the subject. We hear that there is a proposal on foot to establish a separate University of Cardiff—a proposal which will call for very serious consideration, inasmuch as it seems extremely doubtful whether, with its present population, the policy of having two universities in the Principality is well advised. The proposal would no doubt come within the terms of reference of the Royal Commission, which is instructed, among other matters, to consider in what respects the present organization of university education in Wales can be improved.

NEW HOSPITAL SUPPLY DÉPÔT AT MANCHESTER.

The demand for surgical requisites and hospital garments for wounded soldiers and sailors has led to the establishment of the "Manchester War Hospital Supply Workrooms" at Dover House, opposite the University; they are under the superintendence of Lady Donner, with a committee of ladies, and under the auspices of the British Red

Cross Society and the Lancashire County War Comforts Association. The workers are all voluntary, and the rooms are open every day except Saturdays and Sundays. The work will supplement without interfering with the other work of the Red Cross Society or the County Association's working parties.

THE COTTAGE BENEFIT NURSING ASSOCIATION.

The Countess of Gainsborough presided at the annual meeting of this association, held on June 14th at Denison House, S.W. The objects of the society may be briefly stated as the training and supply of cottage nurses for country districts, the confederation of local associations working on the Holt-Ockley system, and the registration of cottage nurses, with needful supervision of their conduct and performance of duties. These nurses are selected from women (of good character, intelligence, and health), between 23 and 35, of the cottage class, and are trained during a four or six months' course in the theory and practical duties of sick nursing, and in some cases in maternity work. Their services are then placed at the disposal of the branch committees (of which there are some 150 in the country), and are available for tending sick persons in cottage homes, where they not only carry out the nursing instructions of the doctors, but give help in the household arrangements. To entitle to this benefit the patient has to pay a small annual subscription as well as a weekly fee during the nurse's residence, the amount of which is graded to meet the beneficiary's circumstances. The nurse is paid by the association, which reserves her certificate till she has proved her efficiency by four years' satisfactory service.

Miss B. M. Broadwood (the honorary secretary and director of the association) urged the importance of such service in sickness continuing to be available for cottagers in villages outside the range of district nurses. Nursing was a service rather than an independent profession. The doctors were the officers, and their instructions were to be carried out by the nurses. She trusted that the authorities of the College of Nursing might see their way to recognize in a separate list nurses of this special class, who did useful, if humble, work in the community, which could hardly fall within the scope of hospital-trained nurses. She was followed by Miss E. C. Joseph (Somerset), who outlined a scheme for the registration of nurses, based upon the standardization of efficiency; the recognition of different classes in the nursing service (for example, village nurses, sanatorium nurses, school nurses, children's sick nurses, and mental nurses, as well as fully trained hospital nurses), much as in the Teachers' Register were found elementary, secondary, university and special subject teachers, all hall-marked as efficient in their own class, though possessing different qualifications, certificates, and knowledge. She thought the college could do useful work by bringing within its fold nurses of all grades, with a recognized minimum standard of practical and theoretical efficiency, at the same time enabling a nurse to specialize, and to be recognized as "trained" in various branches of nursing. She recommended independent examinations distinct from those of the training schools, and that there should be at least two, the final admitting to qualification in various "schools," just as was the case at the universities with regard to final degree examinations. Specialities should be specially registered, so that the public might know for what the nurse was fitted and employ her accordingly. A short discussion followed.

RED CROSS WORK IN THE COUNTY OF LONDON.

The County of London Branch of the British Red Cross Society has issued a report on its work during the first seventeen months of war. A large part of its eighty pages is concerned with the eighteen Voluntary Aid Detachment hospitals which the branch has established in the county area. (Since December, 1915, the end of the period covered by the report, we believe that the number has grown to twenty-three.) The largest of these hospitals is that handed over to the Kensington Division of the branch by the trustees of the Weir Hospital Charity; it has 150 beds, and the report claims for it that it is one of the best hospitals of its kind in England. The other hospitals are mostly private houses which have been lent for the purpose, and accommodate each from thirty to fifty patients. Up to the end of 1915 the admissions to the hospitals numbered close upon 3,000. Other forms

of-work undertaken by the branch have included general service in military hospitals and the forming of squads of Red Cross men to assist in the transport of the injured across London; the report records with pride that among the injured thus assisted was His Majesty the King. The only grudging word in the report is a reference to the disadvantage under which a County of London branch must labour owing to the comparative lack of local patriotism in the youngest of the counties; but with twenty-one divisions all keenly at work, and Voluntary Aid Detachments at a strength of above 7,000, not to speak of 350 members serving abroad, even the conglomerate boroughs which make up London ought to feel that they have here something in common and to be proud of.

Scotland.

DR. ROBERT A. FLEMING has been appointed on the staff of officers of the King's Body Guard for Scotland (Royal Company of Archers) vice Dr. William Allan Jamieson, deceased.

At a meeting of the Aberdeen University Court on June 13th Principal Sir George Adam Smith announced that the University had accepted an offer of Sir J. R. D. McGrigor to convey to the University a painting of the quadrangle of Marischal College as it was before the recent additions, and including the obelisk which used to stand there before it was removed to the Duthie Park. The Principal said they accepted it as a memorial of Sir James McGrigor, one of the most illustrious medical graduates of the University. The painting is by the late Mr. J. Giles, a well known Aberdeen artist, and is dated 1861. McGrigor was chief of Wellington's medical staff in the Peninsular War. An account of him appeared in the *BRITISH MEDICAL JOURNAL* of July 25th, 1914. McGrigor was Director-General from 1815 to 1851, and did much for the reform of the medical service of the army. He was described by Wellington as "one of the most industrious, able, and successful public servants I have ever met with."

THE SCOTTISH RED CROSS BRANCH.

A deputation, headed by Major David Wallace, C.M.G., R.A.M.C.(T.), which at the request of the Executive of the Scottish Red Cross Branch recently paid a visit to France, has reported very favourably on the work of the Scottish units. At Rouen they noted great improvements in the accommodation of the staff, and the general air of comfort and amenity of the grounds and buildings of the Scottish hospital, and found the Scottish convoy was undertaking all the motor ambulance work in the centre. They inspected the personnel and cars, which number over one hundred, and were satisfied with the arrangements for the maintenance and repair of vehicles. They were informed by the D.D.M.S. that the work of the convoy was highly appreciated. In Paris they visited the Hôpital de l'Ecosse, carried on by the branch since September, 1915. They found that it was working in a most satisfactory manner, and was highly appreciated by the French military authorities. A Scottish convoy of thirty ambulances has been working on the French front since the beginning of this year, and has earned golden opinions from the Minister of War. The branch has recently presented an x-ray ambulance car to the French, another to the Russians, and three for the use of our own troops. Each has a complete x-ray apparatus and a portable tent, and is designed for use immediately behind the firing line.

Ireland.

A MIDWIVES BILL FOR IRELAND.

At a special meeting of the Royal College of Physicians of Ireland, held on Friday, June 16th, the President and Fellows unanimously adopted a resolution urging on the Government the pressing necessity which exists for the passing of a Midwives Bill for Ireland, which is now the only part of the United Kingdom without legislative control of midwives. Such a bill is needed to protect lying-in women, to control infant mortality, and to enable

Irish trained midwives to take their proper place in the ranks of the registered midwives of the United Kingdom. The Parliamentary Committee of the College was empowered to take such steps as might be deemed necessary to help forward such legislation.

Sydney.

THE UNIVERSITIES AND THE WAR.

At a recent meeting of the Senate of the University of Sydney a communication was received from the University of Queensland in regard to the award of university scholarships and medals to children of alien parentage during the continuance of the war, and asking for co-operation between the universities to secure the objects aimed at. It was resolved:

That, in the opinion of the Senate, it is not desirable that public endowments in the form of public exhibitions, scholarships, bursaries, medals, or prizes should be awarded to persons of enemy parentage who are unable to produce satisfactory proof of naturalization with complete release from their obligations of allegiance to the country of their birth or descent.

THE DEPARTMENT OF PUBLIC INSTRUCTION AND THE NEW SOUTH WALES BRANCH OF THE BRITISH MEDICAL ASSOCIATION.

The Political Labour League has been holding its annual conference in Sydney, and its proceedings have been marked by some extraordinary speeches and votes. At one of the sessions a letter was received from the Minister of Education, Mr. Griffith, asking that the conference should be given an opportunity of discussing the question of the British Medical Association and the medical treatment of school children. A member obtained a suspension of the standing orders to move the following:

That this conference extends its unstinted support to the Government in resisting the attempts of the British Medical Association to prevent the medical treatment of defective school children by their threats of the boycott of those members accepting appointments for that purpose.

Permission was given to Mr. Griffith to speak on the matter. He stated that, as the result of an inspection by a travelling clinic, the parents of 57,000 school children were notified that their children were physically defective. After twelve months, 40,000 of these children were still without treatment. If not attended to, the defects would become permanent. In most cases the lack of treatment was due to the want of means to pay the heavy fees charged by the medical practitioners. In the country it was worse because often treatment could not be obtained. Money for a travelling clinic was voted by Parliament, and medical men were advertised for. The British Medical Association had said it would give permission to its members to do the work, provided that the parents of the children certified that they were not able to pay for treatment. He (Mr. Griffith) resented this as putting a brand of pauperism on certain children. Later on the British Medical Association had decided to "black-ball" those doctors who did the work. As a response he had obtained permission to bring in legislation to provide that any registered medical practitioner who refused to meet the Government doctors in consultation would lose his own registration. It was of enormous importance to give the children a chance in life. It had been said that the State could not afford the money, but he replied that the country could not afford to have 40,000 children growing up with physical defects. He would rather send to China for medical men than allow it. It had been stated that the British Medical Association was a kind of trades union, and that it had a sneaking regard for the unionists. It was not, however, a trade union, but a medical combine. The fight against the British Medical Association was going to be a bitter one, and he hoped for the unanimous support of the unionists and leagues.

The motion was carried unanimously.

Mr. Griffith reiterated in this speech a statement which does not accurately express the position taken up by the profession. The British Medical Association has never refused to treat these defective children, but insists that the

means for their treatment are already in existence, and that there is no necessity to appoint special doctors for this purpose.

THE ROYAL PRINCE ALFRED HOSPITAL AND THE WAR.

At the recent annual meeting of the subscribers of the Royal Prince Alfred Hospital, Sydney, the Chairman, Sir Thomas Anderson Stuart, referred to the effect of the war on the efficiency of the hospital. When war was declared the board determined that it was its duty to keep the positions of those members of the staff who desired to serve the empire with the military forces vacant until their return. Of the 40 honorary medical officers, there were 13 on active service; of the resident medical officers, 20 were at the front; of the nursing staff, a like number had joined the Expeditionary Forces; and of the members of the lay staff, 22 were under arms. He referred in sympathetic terms to the death of Dr. Verge in Egypt; his name appeared on the roll of honour placed in the main hall of the hospital by the kindness of Mr. S. Hordern, the new honorary treasurer. The board had also determined not to countenance permanent appointments to the honorary staff during the currency of the war, so that when the war was over and the men came back they would not find places for which they would have liked to have been candidates permanently filled in their absence.

The treatment of patients in the venereal clinics was begun on January 11th, 1915; unfortunately, it had been an overwhelming success in regard to numbers, but, fortunately, it had been an overwhelming success in regard to results. The number of persons, male and female, treated at the clinic was close on 2,300 in the past year. These patients overran the institution, and the doors had to be closed in order to limit their number. This state of things was a disgrace and a shame to Sydney, and a perpetual menace to its people. The chairman stated that he did not wonder that there were 500 soldiers constantly in the venereal compound connected with the military camp. He pleaded for a greater number of venereal night clinics connected with the public hospitals. Eighteen additional beds had been provided for children between the ages of 3 and 8 years suffering from congenital and other forms of syphilis. Regarding the question from the financial aspect, he emphasized the waste of keeping 500 men in idleness and worse in the compound. When these men were discharged from the service, as often happened, the cost of their training and equipment was thrown away.

VITAL STATISTICS.

According to the State Government statistician's report on the vital statistics of Sydney for the year 1915, the estimated population of the metropolitan area was 763,000 on December 31st; the city contained 104,200 and the suburbs 658,800. The increase during the year was 10,500. The city population decreased by 6,500, but the suburban population increased by 17,000. The number of marriages was 10,122 (the largest number yet recorded), corresponding to a rate of 13.36 per 1,000 of the population. The births registered during the year numbered 20,871, equivalent to a rate of 27.54 per 1,000 of the population. The number of births is the highest ever recorded in the metropolis, but the rate, which is 2.5 per cent. below the average of the preceding five years, is the lowest since 1910. The deaths numbered 8,189 (4,461 males and 3,728 females), equal to a rate of 10.81 per 1,000 of the population. The rate is equal to the average of the past five years. An exceptional mortality was experienced in November and December among infants, which materially affected the year's rate, which in other months was remarkably low.

THE Kansas State Board is endeavouring to get the State Universities to co-operate in an effort to induce the Government to establish a health experiment and research laboratory in connexion with each university school of medicine under the United States Public Health Service.

ON June 16th the President of the French Republic accompanied by Madame Poincaré and the Minister of Labour, M. Albert Métin, visited an exposition of the work of maimed soldiers in the Galliera Museum. M. Poincaré expressed his admiration of the ingenuity and artistic sense shown by the men.

Correspondence.

MEDICAL OFFICERS, SPECIAL RESERVE AND TERRITORIAL.

SIR,—May I draw the attention of your readers to the paragraph on page 144 of the SUPPLEMENT to your issue of June 17th which reads:

As every doctor coming under this heading B [that is, those who do not enrol], whether refused exemption or exempted only temporarily, will have been brought in under the compulsory provisions of the Acts, and as (by not enrolling) he has not availed himself of the privileges offered under A.C.I. 435, his term of R.A.M.C. service will be for the whole period of the war, and on the "ordinary" rates of pay, without any of the special arrangements as to pay or twelve months periods or otherwise that have been accorded to doctors who offer themselves for service in the R.A.M.C. in this war.

May I point out that:

1. Regular, Territorial, and Special Reserve medical officers are all paid the "ordinary" rate of pay, and that they serve for the full period of the war.

2. It therefore follows that in condemning those medical practitioners who do not enrol, to the "ordinary" rates of pay and service for the "full period of the war," you are condemning them to precisely the same term of service as has been accepted by the Regular, T.F., and Special Reserve officers—in other words, Sir, the T.F. medical officers who did their bit during peace time, and will continue to do so for the "full period of the war," are to be classed in the same category, financially and morally, as the man who has never done anything, and apparently doesn't wish to do it.

Further comment is unnecessary.—I am, etc.,

A SATURDAY AFTERNOON (R.A.M.C.T.F.) SOLDIER.
June 17th.

*** Judging from the terms of this letter, it does not appear that the writer fully appreciates the significance of the fact that the paragraph he quotes occurs in an official War Office memorandum. We altogether agree with what we understand to be the intention with which the letter is written, for we think that the officers of the Special Reserve and the Territorial Force are being shabbily treated by the State.

"THE SOLDIER'S HEART."

SIR,—When I wound up the discussion on "the Soldier's Heart" I did not anticipate that I should have to deal with very irrelevant letters written under the same title. It should be the duty and privilege of an editor to see that his correspondents not only stick to their text but show some knowledge of the subject on which they write. The late John Edgar, D.D., after listening to a sermon by one of his students, said, "Sir, one might think that your text had got the typhus fever, you kept at such a respectable distance from it." This caustic criticism was not more applicable to the sermon than to the letters of my critics.

The letter of Dr. Knox is merely a testimonial, in my opinion a very unnecessary one, to rehabilitate the professional ability—which was never assailed—of Dr. Florence Stoney. She may well exclaim, Save me from my friends! He incidentally says that I "should read more extensively and accurately." What are his grounds for turning my criticism on myself? Simply that I did not read a paper by Dr. Stoney on the x-ray treatment of Graves's disease; if I had, I do not know that I should have discovered anything new. Such treatment dates a long time prior to 1912, and I might claim to have been among the first who used the x rays in the treatment of exophthalmic goitre. I do not know who first used them in the treatment of this disease, and I do not care; there is nothing original in the idea: it is merely an extension of Keen's treatment of the spleen to the thyroid gland. I may candidly tell Dr. Knox, and I am pleased to say so, that I do not read a tithe of current medical literature, but if I were dealing, or attempting to deal, like Dr. Florence Stoney, with a question of priority I should take care to know the facts.

I would like to say to Dr. Lyon Smith, in the language of Byron, "A man must serve a time to every trade: critics are ready made." With his reference to my "remarkable sentence" I should like to turn him over to the tender mercies of Dr. Mercier. He says that I point

"out the association between the soldier's heart and trouble in the ductless glands." When did I do this? I thought that I had associated the irritable heart so commonly met with in soldiers of the present day with overaction of the thyroid. He complains that I "do not throw any light upon the factors which cause these glands to misbehave." I thought that I had, but at any rate I am sorry that I have not enlightened Dr. Smith. Even now I would try to do so if I thought that this anxious inquirer really sought information. I never said that he was to "draw the line rigidly at these two bacteria" of diphtheria and pneumonia respecting the effects of toxins on the adrenalin function. Let us have, by all means, the specific actions of the "hundreds of other bacterial ferments." The more knowledge we get the better, but let it be knowledge and not random talk about such ferments as have no more to do with the causation of the irritable heart than the flowers which bloom in the spring. As my quotation of Sir Isaac Newton's dictum does not seem to have made any impression on Dr. Lyon Smith I will give him a Latin one, which he will find, along with another by Sir William Hamilton, in *The Principles of General Physiology* by Professor W. M. Bayliss. "*Entia non sunt multiplicanda praeter necessitatem.*" Dr. Smith says that "it would be interesting to know the precise laboratory methods which Sir James Barr recommends for this important eliminative process." This may appear very smart to Dr. Lyon Smith, but I hope not to others. I should have thought that it would not require a laboratory method to eliminate a process which was not in action. At present I only wish to eliminate this belated critic.

My dental friend, Mr. J. G. Turner, evidently thinks that he has got his teeth into the subject of "the soldier's heart." I shall now try to release the matter from his incisive grip. I would remind him that the usual septic organisms which are found in the mouth and nasopharynx and their effects are well known, but the symptoms to which they give rise, when they or their toxins find their way into the circulation, are not those of "the soldier's heart." "Practically every soldier is the subject of some degree of dental or nasopharyngeal sepsis." Why limit the sepsis to the unfortunate soldiers? If he examine the mouths of all the dentists and doctors in London, how many does he expect to find aseptic, and how many of the examinees does he expect to find suffering from "the soldier's heart"? Personally I am always proclaiming a raid on oral sepsis, but I see much which appears perfectly harmless even when the breath stinks. So long as the organisms remain on the surface they can be disregarded, though in the interests of cleanliness, of dentistry, and of outsiders this is not advisable. It is quite true that three gentlemen discovered a harmless organism, which they thought was the cause of "the soldier's heart," but I think I scotched that idea last November; at any rate, its propounders have not come forth with any attempt at proof. Moreover, you cannot cure the irritable heart by eradicating the sepsis; there are many cases of "the soldier's heart" without any evidence of sepsis or septic absorption, and the symptoms continue after the dentist has worked his sweet will.

On the other hand, "the soldier's heart" is invariably associated with a more or less enlarged and overacting thyroid; the symptoms of "the soldier's heart," pure and simple, are those of hyperthyroidism and of nothing else. The causes of the thyroid taking on excessive action is beyond my present object. Of course there are many cases of tachycardia without any excessive function of the thyroid, and we should not confuse merely rapid action of the heart, however frequent, with hyperthyroidism, which presents many other definite symptoms. Perhaps Sir William Hamilton's dictum will do Mr. Turner good. "Neither more, nor more onerous, causes are to be assumed than are necessary to account for the phenomenon."—I am, etc.,

Liverpool, June 17th.

JAMES BARR.

ON MALUNITED AND UNUNITED FRACTURES.

SIR,—Lieutenant-Colonel Robert Jones, in his paper on this subject published in the *JOURNAL* of June 10th, states that for various reasons a certain proportion of fractures take longer to unite than others, and says that he prefers not to waste time on such cases as tabes, syphilis, and

acute diseases, but to go to what is, in his opinion, the root of the matter in the average case—namely, inefficient reduction, compression by splint and bandage, etc. I maintain that first and foremost, provided reasonable care is shown in practical details of alignment, etc., the root cause of non-union is the absence of lime salts, partly due to shock, partly to failure to select a diet containing such salts, and partly to the absence of medical treatment which might be carried out prophylactically in every case of fracture from the start. Why does the poultry farmer give grit to his hens? In order to make strong egg shell. As to treatment, Lieutenant-Colonel Jones says: "If a case of delayed union is first seen in the seventh or eighth week we need do no more than make quite sure of good alignment, etc. *Nature will do the rest.*" Will she? My hypothesis as outlined above suggests she may sometimes but not nearly always. Why not ally medicine with surgery, and try routine treatment of all fractures with the chemical constituents of bone; no suggestion as to suitable diet is made. I suggest plenty of milk, for it is rich in lime ($1\frac{1}{2}$ gram per litre, some as citrate and some as phosphate), eggs for the iron and phosphorus they contain, all cereals, porridge, and plenty of vegetables such as asparagus, radishes, turnips which contain plenty of lime salts. Is it not well known to farmers that turnips are the best thing to feed weak-boned animals on? The organic constituent of bone may be derived from meat, but it can be obtained from fish; at any rate plenty of milk suggests plenty of lime salts at disposal of the patient's economies.

The treatment by percussing and damming referred to by Lieutenant-Colonel Jones is, I take it, designed to stimulate and consolidate the indolent callus, to convert it, as he says, into an osteogenetic factory, so that bone may be generated. I suggest that this stimulating and consolidating action can be produced at any time by giving lime salts, and at any stage of non-union. I have carried this out successfully nine months after the accident in a case of fractured femur which had been plated and the ends rubbed together at a hospital with no success. I used it also in a fractured metacarpal bone with weak union at the end of two months; in a week it was strong, and the old callus levelled down and tendon movement freed. In an old fractured patella, twice wired, the second time with good union apparently, but much lumpy old callus, which prevented free movement, the exhibition nine months after the accident of lime salts acted so well that the patient could easily go back to work after a week's treatment. I treated a complete fracture of the tibia through the tibial tubercle of a man run over by a taxicab. The case was x-rayed at a hospital which had no bed free; at the end of ten days I took the splint off for massage and found hardly any evidence of union starting at all; the leg sagged at the slightest movement. I then amused the patient by telling him to watch the result at the end of four days' treatment with lime salts; on removing the splint, callus was evident and becoming hard, and there was no more sagging at the seat of fracture. This patient, although 70 years of age, got about on crutches at the end of five weeks and with a stick at the end of six, when he wished to go back to work. I have treated an old shrapnel wound of the wrist with exuberant callus (nine months in hospital), and in a few weeks movements have become nearly normal—before there were none.

This diet idea, of course, is not new, but is strangely absent from the usual textbooks; I have met with it only in Stimson's, where a good tonic—preferably one containing lime salts—is said to be useful. I say give syrup. ferri phos. co., which contains iron phosphoric acid, calcium carbonate, potassium bicarbonate, and sodium phosphate, which comes as near the constituents of bone as can be; 1 to 2 drachms a day in tablets should be given from the start in every case of fracture. The pathology of it is, I take it, that the natural setting of bone by calcification of the granulation tissue must be helped by plenty of lime to form good strong callus, and this takes usually one to four weeks, the osteoclastic action softens the ends of the fracture, and the callus must be well limed before the osteoplastic cells can start to work and make bone.

I conclude with the prescription of plenty of milk, eggs, and generous diet, and the vegetables named above, coupled

with tablets of syrup. ferri phos. co. from the start of the case, presuming, of course, the best possible surgical skill.—I am, etc.,

Southwark, June 10th.

REGINALD LARKIN, M.D.Lond.,
M.R.C.S.Eng., L.R.C.P.Lond.

THE RATIONALE AND PRACTICE OF CHEMIO-THERAPY.

SIR,—Leaving aside the fact that prejudice pervades the editorial on "The Rationale and Practice of Chemiotherapy," it is so full of misstatements that I must ask you to be so kind as to publish the following:

1. The compounds intramine and ferrivine were practically unknown to chemists. At the commencement of my work I sought the assistance of some of the leading chemists in this country, and even wrote out the formula of intramine for them, but none were familiar with it. It was purely by accident that I discovered Hofmann's work after I had succeeded in manufacturing the sulphur compound, and I doubt very much whether the phrase "long known to the chemists" would have found place in your columns if I had not in my first paper mentioned Hofmann's work. I am so far unfamiliar with any written description concerning the preparation of the ferric salt of sulphonic acid.

2. I particularly alluded to a case of interstitial keratitis which had proved refractory to intramine for two reasons—(a) to show the influence one drug has in assisting the action of another; (b) to bring to light the far from uniform results obtained by salvarsan in glossitis, as I had shown a case, which healed up at once with intramine, having proved refractory to salvarsan.

3. So far as ferrivine is concerned, it is obvious why the results obtained with it are not uniform, and one of my objects in reading the papers was to seek assistance to remedy the defects, needless to say without success.

4. Professor Bayliss was the only speaker who criticized my theoretical views. It is true that one other speaker associated himself with Professor Bayliss. Professor Bayliss was ignorant of my previous work, and admitted that he had probably misunderstood what I had said, as my paper was only an abstract. To show how true this is, I will review the remarks made by the speaker in question.

"It is unfortunate that oxidation and reduction processes should have been selected as the basis for the theory of chemotherapy." That such a statement should have been made is more than unfortunate. The light thrown on so-called scientific methods pursued by many shows the deplorable state of scientific research. Do our foremost scientists select the basis on which they found their theories? If so, I must plead guilty to entirely wrong methods. I did not select my basis; indeed, it was forced upon me by plain deductions from observed facts. A point on which I should like to lay special stress is this: however unfortunate my selection, it enabled me to produce at the first attempt a drug in some respects superior to those produced by Ehrlich in several hundred attempts, in spite of his having the services of the very best German chemists at his command.

"Of all processes taking place in the living body they are those the mechanism of which is most obscure." Doubtless it is unfortunate to disperse any of this obscurity, or even to endeavour to do so. However obscure these processes may be there is no doubt of their occurrence, and there is no doubt that they are the most important processes which take place in the living body. Must we therefore rule out of consideration oxidation and reduction processes in the body simply because their mechanism is obscure?

Maybe the sense in which the term "oxidase-reducase" system is used is not clear. It could not have been so if it gave the impression that one system should simultaneously be both oxidizing and reducing in its action on a given body. I desired to convey the impression that such a system was ready to act catalytically as either an oxidizer or a reducer, or to activate oxidizing or reducing reactions. As I have pointed out, the *Leucocytozoon syphilidis* has some phases which may be put out of action more quickly by oxidation, and others more quickly by reduction; it is therefore clear that simultaneous oxidation and reduction of the same body is not even desired or expected, even if it were possible.

"... but as adsorption had been shown to depend on surface, an increase in size of the molecules would tend to diminish their adsorptive power."

Professor Bayliss evidently assumes from this that the amount of protein in the serum is constant, and that aggregation of the smaller particles takes place. If this were the case, the specific surface—that is, the total surface—would obviously be less, but from ultra-microscopic examination I have proved that the protein particles in a syphilitic serum are greater in size and number than those in a normal serum. Unfortunately the ultra-microscopic method is not always available, so I proved the point in other ways. Syphilitic serums contain more protein than normal serums, more adsorbed amino-groups and more adsorbed electrolytes—note the readiness with which syphilitic serums clot. My new test for syphilis with glacial acetic acid lanthanum sulphate depends entirely upon the differences just mentioned.

Furthermore, the larger the molecule the greater the number of small molecules it will form when it breaks down, an action which follows the administration of the chemiotherapeutic remedies, hence their adsorptive capacity would be increased.

There is the further remark that "adsorption depended on active oxygen." I was naturally only referring to adsorption *in corpore*, not to adsorption in general, as Professor Bayliss probably thought, otherwise he would not have mentioned the adsorption of carbon dioxide by charcoal—an example far from apropos of the subject matter.

For the adsorption between the lipid-globulin molecules of the serum on the one hand and those of the parasite on the other, the presence of active oxygen is absolutely necessary, for without active oxygen the adsorptive power of the former would be diminished, since any interference with the active oxygen renders such molecules less emulsoid, and may even cause precipitation. In my book, *Links in a Chain of Research on Syphilis*, many other proofs are given for my statement that adsorption *in corpore* is dependent on active oxygen. Indeed, if my work be carefully studied it will be found that all my deductions have been built upon an experimental basis, and that none are contradictory or contrary to observed facts.

Before the meeting was held I am sure it was general opinion that arsenic was essential and that it killed the parasites directly, points which were deduced by Ehrlich from pure theory and built up on an unsound and illogical experimental basis. My object was to show that the rationale of Ehrlich's chemotherapy was totally incorrect, that arsenic was not essential, that the death of the *Spirochaeta pallida* was not the main point to aim at, as it is not the sole cause of the disease, and that sulphur and iron compounds could be prepared which had an anti-syphilitic action—an action which would be greatly enhanced by co-operation to improve the compounds so far prepared. Iron and sulphur are non-toxic elements, they are mutually complementary, and their use stimulates and stimulates processes that are naturally occurring in the body. Hence I think I may say that my object was attained, with the one exception of succeeding in obtaining any co-operation.

The last sentence in the editorial contains the following words: "Any reasonably safe therapeutic procedure will in this country secure an unbiased trial, especially if there is sound experimental evidence in its favour." This statement surely should not have been made, for it should be assumed that any trial would be unbiased. The mere making of the statement inevitably leads to the belief that there exists in the writer's mind a trace of suspicion that the trial may not have been entirely free from bias, a view held by the majority who are interested in this subject. So far as the sound experimental evidence is concerned, I think the cases I exhibited and the 400 odd injections I have given prove beyond doubt—namely, that ferrivine and intramine have a powerful anti-syphilitic action, and that the sulphur compound is complementary to the use of any metallic compound, and therefore should be employed in every case of syphilis.—I am, etc.,

London, W., June 15th.

J. E. R. McDONAGH.

FEES OF LOCUMTENENTS.

SIR,—I trust medical agents are not to be allowed to dictate rates of remuneration for the profession. We do not want the old sweated "locumtenent" back again, but

men whom we can trust and who deserve to be properly treated. The Clyde "rollers" make £20 a week!—I am, etc.,

Edinburgh, June 17th.

JAMES CAMERON, M.D.

THE DR. JAMES B. BIRD MEMORIAL FUND.

DR. JAMES B. BIRD, of Carlisle, was universally respected by his colleagues and highly esteemed by the people among whom he worked; he died of influenza last April, at the age of 47, and had been unable to make due provision for his family. A committee was formed in Carlisle to raise a memorial fund for the education of his children, and we are informed that it now amounts to £1,623 ls. 6d. At a recent meeting of the executive committee it was decided to close the fund at the end of the present month, and three trustees were appointed to administer it. Further subscriptions should be sent at once to the Honorary Treasurer, Mr. James Nelson, Bank of Liverpool, Limited, Carlisle. The following subscriptions from members of the profession have been received since the list published in our columns on May 20th:

	£ s. d.		£ s. d.
Dr. A. C. Burrows, Carlisle	5 5 0	Dr. J. R. Burnett, Keswick	1 1 0
Dr. Helm, Carlisle	5 5 0	Dr. John Brown, Blackpool	0 10 6
Dr. Farquharson, Carlisle	5 5 0	Dr. T. C. Guthrie, Tunbridge Wells	10 10 0
Dr. R. Fawcitt, Broughton-in-Furness	2 2 0	Dr. Shephard-Walwyn, Wetheral, Cumberland	5 5 0
Dr. C. W. Graham, Carlisle	3 3 0	Dr. C. T. Street, Crosby-on-Eden	2 2 0
Dr. Macdonald, Carlisle	3 3 0	Major Butterworth, Carlisle	2 2 0
Dr. H. J. Robinson, Kirkoswald	1 1 0	Dr. Rufus E. Evans, Newcastleton	2 2 0
Dr. Edwards, Carlisle	3 3 0	Dr. G. B. Muriel, Whitehaven	3 3 0
Dr. Logan, Ecclefechan	4 4 0	Dr. J. Barclay, Wetheral	2 2 0
Dr. Alfred Cox, London	1 1 0	Dr. Donald, Carlisle	5 5 0
V.P.R.C.S.E.	10 10 0	Dr. C. Crawford-Aitken, Carlisle	5 5 0
Dr. Doughty, Dalston, Cumberland	3 3 0	Lieut. P. A. Bennet, Clark, R.A.M.C.	2 2 0
Mr. C. Balfour Paul, Carlisle	8 8 0	Lieut. Walter Mercer, R.A.M.C.	2 2 0
Dr. Edington, Penrith	2 2 0		
Dr. Dodgson, Southwaite	2 2 0		

The Services.

THE AUXILIARY R.A.M.C. FUNDS.

THE Provisional Committee appointed at the meeting at the Royal Army Medical College on June 1st to consider and report on the steps which should be taken to establish a fund for the benefit of the auxiliary branches of the R.A.M.C., will present a scheme at the meeting to be held at the Royal Army Medical College on Monday next, at 2.45 p.m., under the chairmanship of the Director-General.

The committee will recommend the formation of two independent funds for the auxiliary R.A.M.C. Forces, one a benevolent fund for the orphans of officers and the other a relief fund for the widows and orphans of the rank and file. It is recommended that the funds should embrace the three auxiliary branches of the corps, and that both funds should be administered by the same committee, which should be representative of the three auxiliary branches—namely, Special Reserve, Territorials, and those holding temporary appointments in the R.A.M.C.

The scheme of the committee seems to us, as we have indicated elsewhere, so defective that we hope it may be withdrawn and a wider reference given by the meeting on Monday to a committee strengthened by the inclusion of more men who have an intimate personal acquaintance with the hardships and difficulties suffered by medical men engaged in civil practice, and by the addition of representatives of existing medical funds and organizations. We therefore refrain from publishing further details of the provisional scheme.

The Provisional Committee adopted the following resolution at its meeting on June 15th:

To recommend the general meeting to appoint a committee to report to a further meeting on the possibility of the establishment of a loan fund to help medical officers of the auxiliary forces who are in temporary difficulties on returning to their civil practices.

EXCHANGE.

CAPTAIN 2nd Line Field Ambulance (T.F.) wishes an exchange with M.O. attached to Base Hospital abroad, or Ambulance Train.—Address, No. 240, BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C.

Universities and Colleges.

UNIVERSITY OF LONDON.

MEETING OF THE SENATE.

The University and the War.—At a meeting of the Senate on May 24th a letter was read containing the King's congratulations upon the important part the University was taking in connexion with the war, not only in actual military service but in science and research, and expressing his sympathy with the losses sustained.

Recognition of Teachers.—The following were recognized as teachers at the institutions and in the subjects indicated:—St. Mary's Hospital: Mr. F. A. Juler (ophthalmology), Mr. C. A. Pannett (surgery).

Dental Schools.—It was resolved that the Royal Dental Hospital and London School of Dental Surgery, and the National Dental Hospital and College forming part of University College Hospital Medical School, be continued as schools of the University in the Faculty of Medicine (in dentistry only).

Withdrawal of Scholarships.—It was decided to reduce the number of university scholarships to be awarded in the summer of 1916 from nineteen to twelve.

Staff Examiners for Medical Degrees.—The following were appointed staff examiners in the subjects of examinations for medical degrees:—*Anatomy*: Professor R. W. Reid; *Bacteriology*: Professor R. T. Hewlett; *Chemistry*: Dr. H. F. Morley; *Forensic Medicine and Hygiene*: Drs. E. P. Manby and F. J. Smith; *General Biology*: Mr. M. Davenport Hill; *Medicine*: Professors Norman Dalton and Arthur J. Hall; *Mental Diseases and Psychology*: Drs. R. H. Cole and W. H. B. Stoddart; *Obstetric Medicine*: Professor W. C. Swayne and Dr. G. F. Blacker; *Pathology*: Professors F. W. Andrewes and J. Martin Bantle; *Pharmacology*: Professor R. B. Wild; *Physics*: Dr. Sidney Russ; *Physiology*: Professor D. Noel Paton; *State Medicine*: Drs. T. M. Legge and R. K. Brown; *Surgery*: Professor W. P. Haslam and Mr. William Turner; *Tropical Medicine*: Professor F. M. Sandwith and Dr. C. W. Daniels.

Physiological Laboratory.—The annual report of the Physiological Laboratory Committee for 1915 stated that the normal work of the laboratory had been hampered by want of funds and absence of workers on military duty. The resources of the laboratory had again been held at the disposal of the War Office.

UNIVERSITY OF EDINBURGH.

OWING to the large reduction due to the war in the number of students attending, it has been resolved not to hold separate graduation ceremonies in arts and medicine, but a combined graduation ceremony for arts, science, medicine, and the other faculties, which will take place on July 11th. Sir James A. Ewing, K.C.B., the newly-elected Principal, is expected to take part.

At the last meeting of the University Court Dr. McKenzie Johnston was appointed a governor of the Fettes trust for the residue of the term of office for which the late Principal had been elected.

It was announced that Mr. Balfour had expressed the wish that the sketch portrait of himself by the late Sir George Reid, which Sir William Turner had bequeathed to him, should at once find a place in the University. The Court accepted the bequest, and thanked the Chancellor for his considerate regard for the University.

The Combe trustees have agreed that Dr. W. G. Smith shall be reappointed to the lectureship in psychology for a further period of five years from September 30th next.

UNIVERSITY OF ST. ANDREWS.

THE Senate has resolved to confer the honorary degree of LL.D. upon Dr. James Musgrove, Bute Professor of Anatomy in the University 1901-14, and now Emeritus Professor. Professor Musgrove graduated M.D. Edin. in 1888.

ROYAL COLLEGE OF SURGEONS IN IRELAND.

Election of President and Officers.—The annual election of officers took place on June 6th as follows:—*President*: William Taylor; *Vice-President*: John B. Story; *Secretary of the College*: Sir Charles A. Cameron; *Council*: William Stoker, Sir Charles A. Cameron, Sir Lambert H. Ormsby, Richard D. Purefoy, Henry Gregg Sherlock, Sir Thomas Myles, D. Edgar Fliun, Sir Arthur Chance, Shepherd McC. Boyd, Sir Robert H. Woods, R. Bolton McCausland, Thomas E. Gordon, Edward H. Taylor, F. Conway Dwyer, Alexander J. M.A. Blayney, R. Charles B. Maunsell, Trevor N. Smith, William Ireland Wheeler, Sir C. Arthur Ball. Mr. William Taylor, the new president, has a long association with the Royal College of Surgeons, in the schools of which he studied; he became Licentiate in 1893, and a Fellow in 1898, and in 1902 graduated in arts and medicine in the University of Dublin. Mr. Taylor is surgeon to the Meath Hospital and County Dublin Infirmary, and visiting surgeon to the Cork Street Fever Hospital. For the past two years he has been Vice-President of the College.

Lord Kitchener.—The College has adopted a resolution expressing its profound regret at the great loss the empire has sustained by the death of Lord Kitchener.

Obituary.

DR. ALFRED FREER, J.P., born at Stourbridge, Worcestershire, on March 15th, 1829, died at his residence in that town on June 10th, aged 87. His family had held leading positions in Stourbridge since 1547, and he himself was one of the fourth generation of doctors who lived at Green Close, Stourbridge. His great-grandfather, John Freer, was one of the first four surgeons appointed to the General Hospital, Birmingham, in 1779. Dr. Alfred Freer entered King Edward's School, Stourbridge (where Dr. Samuel Johnson had been an usher) in 1836. He began life as apprentice to a doctor at Birmingham, studying at the same time at Queen's College, and serving as a dresser at the General Hospital. In 1850 he took the diploma of M.R.C.S. and went, in order to study midwifery, to Dublin, where he became L.M. in 1851. At the end of that year he was working in the Paris hospitals, and witnessed Louis Napoleon's *coup d'état*. In 1852, after taking the L.S.A., he entered into partnership with his father and brother, and remained in practice for sixty-four years, for he was working only a few months ago at the Stourbridge dispensary during the temporary incapacity through accident of the resident surgeon, Dr. Lloyd Francis. Dr. Alfred Freer was a very active member of the British Medical Association. He was president of the Birmingham Branch in 1890, and became chairman of the Dudley Division, and representative for the combined Bromsgrove and Dudley Divisions. Until recently he was a very regular attendant both at the Branch and the Division meetings. Dr. Freer was the first president of the Stourbridge District Medical Society, Birmingham. Thirty-four years ago he was appointed a county magistrate. He took a great interest in church questions, Conservative and Unionist politics, and, latterly, in matters concerning the war. Dr. Freer was likewise known as a geologist, archaeologist, and chess player. He was held in universal esteem in the neighbourhood, where he laboured and was so long known and beloved that representatives of all phases of life attended in great numbers at his funeral on June 15th.

DR. FREDERICK JOHN WADD died at his residence at Richmond, Surrey, on June 12th, aged 71. He studied medicine at St. Thomas's Hospital and the University of Aberdeen, where he graduated M.B., C.M. in 1866; he also took the diplomas of M.R.C.S. and L.S.A. in the same year. Dr. Wadd was for many years the family physician to the Duke and Duchess of Teck at White Lodge, Richmond Park, and attended Queen Mary at the birth of the Prince of Wales; his grandfather was surgeon-extraordinary to George IV. He was for twenty-two years a member of the Richmond Town Council, and held the position of Chairman of its Health Committee for seventeen years; he was also one of the oldest supporters of the Royal Horse Show. A service was held on June 15th at St. Mathias's Church, Richmond, where the Queen was represented by the Hon. Alexander Nelson Hood, and the burial took place at Richmond Cemetery.

DEPUTY SURGEON-GENERAL EDWARD MALCOLM SINCLAIR, A.M.S.(ret.), died at his residence in South Kensington on June 14th, aged 84. He was born in 1832, the son of Dr. Malcolm Sinclair, and took the diploma of M.R.C.S. and the degree of M.D.St. Andrews in 1853. Entering the army as assistant surgeon on March 28th, 1854, he became surgeon in 1866 and surgeon-major in 1873, retiring as deputy surgeon-general on December 19th, 1888. He served in the Crimea in 1854-56, and was present at the siege and capture of Sebastopol, receiving the medal with a clasp and the Turkish medal. He served also in the Indian Mutiny from 1857 to 1859, when he took part in the operations in Oudh and in Bandakhand, including the actions of Chanda, Umirpur, and Sultaupur, and the capture of Lucknow, and received the Mutiny medal and Lucknow clasp. He was principal medical officer of the lines of communication and base in the Transvaal war of 1881, and was mentioned in dispatches.

Medical News.

THE annual general meeting of the Poor Law Medical Officers' Association of England and Wales will take place at its offices, 9, Copthall Avenue, London, E.C., on Friday, July 7th, at 4 p.m.

DR. A. E. LARKING, honorary secretary of the Buckinghamshire Division of the British Medical Association and of the Buckinghamshire Panel Committee, has been appointed a magistrate for the Borough of Buckingham.

THE Duchess of Marlborough will give the Lady Priestley memorial lecture of the National Health Society, on Thursday next at 5 p.m., at the Royal Society of Medicine, 1, Wimpole Street, W. The subject of the lecture is "Saving the Children." The chair will be taken by Sir James Crichton-Browne.

THE King has granted Dr. James Russell Watson of the English Baptist Mission Hospital, Tsing-chow-fu, China, licence and authority to wear the order of the sixth class of the Excellent Crop conferred upon him by the President of the Republic of China, in recognition of valuable services rendered.

THE annual meeting of the National Training School for District Midwives will be held, under the presidency of the Lord Mayor of London, at the Mansion House, on June 27th, at 5.30 p.m. The meeting will be addressed by Lord Balfour of Burleigh, Sir Dyce Duckworth, M.D., Lady Betty Balfour, and Dr. Barbara Tchaykovsky, and a statement will be made by the honorary secretary, Miss Alice Gregory, from whom, at the British Hospital for Mothers and Babies, Woolwich, tickets of admission can be obtained on application.

AT no period of its history has Great and Greater Britain stood in greater need for the preservation of child life than at the present time, and a great responsibility now rests upon those who have the care of the children of to-day. The formation of associations under whose auspices a number of centres have already been established to spread information as to the best means of preventing infant mortality has done much within recent years to reach the wives and mothers of the poor. The National League for Physical Education and Improvement (4, Tavistock Square) has recently published a small book, price 3d., entitled *To Wives and Mothers*, compiled for the most part from leaflets carefully drawn up by expert workers among the poor, in which a vast amount of sound advice is contained as to the preparations and precautions that the expectant mother must observe, and as to the proper management of the infant during the first weeks or months of life. The vital and far-reaching importance of skilful upbringing during the first five years of life, whether it be regarded from the physical or the mental standpoints, can hardly be exaggerated, but it is not by any means as fully recognized as it should be. A short section on character training inculcates some points which deserve the respectful consideration of mothers in all ranks of society, to whom we can cordially commend the pamphlet.

AT the monthly meeting of the Central Midwives Board on June 15th, when Sir Francis Champneys presided, a letter was read from the M.O.H. Chatham forwarding a circular letter addressed to all midwives in that district inquiring whether they would be willing to supply the names and addresses of expectant mothers with a view to facilitating antenatal visiting in connexion with infant welfare work, and asking whether the Board was taking any action. The Board replied to the effect that no midwife had any right to give any information concerning her patients to any one except with the consent of the patient, which, if possible, should be expressed in writing. The Board agreed to co-operate with the Board of Education in approaching the Treasury with a view to the provision of grants in aid of the training of midwives. The Board accepted with regret the resignation of Dr. W. Crump Beatey, one of the examiners of the Newcastle centre, and appointed in his place Dr. W. L. Ruxton. University College Hospital, London, was granted recognition as a training school. At special meetings of the Board on June 14th, 15th, and 16th, fifteen fresh penal cases were heard, and in six the midwives were struck off the roll. In three cases the Board decided to take no action. Apart from the usual charges of dirt, ignorance of the pulse and temperature, etc., there were several of neglect in cases of serious rupture of the perineum, puerperal fever, and ophthalmia. Reports on four adjourned cases were heard; they were all satisfactory. The names of two women were removed from the roll on their own application.

Letters, Notes, and Answers.

CORRESPONDENTS not answered are requested to look at the Notices to Correspondents of the following week.

AUTHORS desiring reprints of their articles published in the BRITISH MEDICAL JOURNAL are requested to communicate with the Office, 429, Strand, W.C., on receipt of proof.

THE telegraphic addresses of the BRITISH MEDICAL ASSOCIATION and JOURNAL are: (1) EDITOR of the BRITISH MEDICAL JOURNAL, *Aitiology, Westrand, London*; telephone, 2531, Gerrard. (2) FINANCIAL SECRETARY AND BUSINESS MANAGER (advertisements, etc.), *Articulate, Westrand, London*; telephone, 2530, Gerrard. (3) MEDICAL SECRETARY, *Mediscera, Westrand, London*; telephone, 2534, Gerrard. The address of the Irish office of the British Medical Association is 16, South Frederick Street, Dublin.

Queries, answers, and communications relating to subjects to which special departments of the BRITISH MEDICAL JOURNAL are devoted will be found under their respective headings.

QUERIES.

H. D. asks whether at temperance hospitals where no brandy, etc., is given as a stimulant, absolute alcohol or any other substitute is prescribed, and if so in what doses.

M.D. writes: I want to find a place for two months or so for a strong healthy young woman who expects her accouchement in the early autumn. She will, I understand, be received into Queen Charlotte's Hospital, but not until shortly before the expected birth of the infant. In the meantime she is unable to remain in her present situation or to go home. Any suggestions for assistance will be gratefully received.

HARVEST BUGS.

M.D. asks whether there is any reliable prophylactic, or failing that remedy for the bites of harvest bugs.

The harvest bug, *Leptus autumnalis*, is the larva of a species of trombidium, usually *Trombidium holosericeum*, and was described by Dr. Shipley in one of his articles on insects and war (BRITISH MEDICAL JOURNAL, October 31st, 1914, p. 750). The article was republished in *The Minor Horrors of War*, p. 87 (Smith, Elder, and Co. Price 1s. 6d. net.). The irritation is caused by the mite implanting its mouth parts in the skin, preferably in the hair follicles or sweat glands. Dr. Shipley says that they may be "dislodged by the application of petrol or benzine, both very inflammable, and the itching they cause allayed by the application of acid or alcoholic lotions." In the late Dr. Radcliffe Crocker's *Diseases of the Skin*, we read, "The treatment is by mild parasitocides, such as are used in scabies, naphthol or weak sulphur, or white precipitate ointment. The soaking and scrubbing necessary for scabies are superfluous here."

ANSWERS.

ACNE ROSACEA.

D. writes: If "S," who asks as to the treatment of acne rosacea, will use this ointment and push the application almost to blistering, he will cure his patient. R. Hyd. iod. rub. gr. iv; att. rosae m ij; vaselin. $\frac{1}{2}$ oz. Apply with a brush once a day in the early morning, so that the severe smarting will have passed off before bedtime. He must return to the attack when and as often as may be necessary.

LETTERS, NOTES, ETC.

WILLIAM LAWRENCE'S "TREATISE ON HERNIA."

MR. J. Y. W. MACALISTER (Secretary, Royal Society of Medicine, 1, Wimpole Street, W.) writes: In my note which you kindly inserted, asking for the help of your readers to find a book entitled *Treatise on Hernia*, the name of the author was given as "Henry Lawrence" instead of, as of course it should be, "William Lawrence."

THE FRESH AIR CRAZE.

DR. D. W. SAMWAYS (Exeter) writes: Is it not time more discrimination were shown by the medical and nursing professions in the advocacy and employment of fresh air? When healthy people or invalids sit out of doors they choose a sheltered place, as free as possible from draughts, but in our wards it is the habit to open windows on all sides as generously as possible, without any consideration of the consequent draughts. Some friends of mine were lately present at a concert given to the patients at the Brompton Hospital. So great was the draught that music put down on the piano was actually blown off, while two assistants were required to hold in place any piece of music which was being played.

If debilitated consumptives profit by the fashion for draughts, which I doubt, why treat all patients as consumptives? Is the whole body a respiratory orifice? I find it almost impossible to prevail upon sisters to close the windows on the weather side of a ward when a cold wind is blowing, and open those on the lee side. They have always been taught that there cannot be too much fresh air.

Who of us suffering from colds, laryngitis, bronchitis, rheumatism, neuralgia, or insomnia would sit or sleep in a draught? Yet our patients have to suffer these things because of this fresh air fetish.

It has been established that pure air is eminently desirable for all. Fresh air, which is now almost synonymous with cold, draughty air, seems to me responsible for more ailments than it averts.

In the high Swiss health resorts the consumptive is supplied at night with still air by the protection of heavy curtains, and with warm air by hot pipes, the aim being to provide pure air, not cold draughts.

I maintain that the medical profession should cease the advocacy of fresh air. It is as risky to advocate fresh air as fresh water, both of which have killed or disabled numberless unwary people. It is pure air and pure water which alone are desirable, the pure air being reasonably warm and free from draughts. Till sisters and nurses are taught this, railway station ventilation will probably continue to be their ideal.

VALUE OF TUBERCULIN TREATMENT.

DR. JOHN MACKEITH (London, W.) writes: Although "Medicus" (JOURNAL, June 10th, p. 840) states that his "present opinion is that if I had continued tuberculin I would not now be penning these lines," yet I consider his present very satisfactory state is much more to be attributed to the immunizing effect of the tuberculin he had than to "silence treatment aided by the climate of Madeira," although these doubtless acted beneficially on his condition. One of the effects of tuberculin is to produce an active hyperaemia at the focus of disease, resulting in the formation of antibodies. This hyperaemia may sometimes, in cases of laryngeal tuberculosis, be attended by temporary aggravation of the symptoms, with an apparent exacerbation of the disease, as is observed on laryngeal examination. This action, if not excessive, leads to healing and cicatrization. Late and large doses of tuberculin, given in the course of treatment, do not produce hyperaemia, and yet result in the formation of antibodies. In my experience there is no method of treating laryngeal tuberculosis that can in any way compare with the favourable results obtained, in any series of cases, by tuberculin treatment. I have before me the notes and charts of three cases of pulmonary tuberculosis (tubercle bacilli present), with extensive laryngeal affection, all treated with tuberculin alone, and without rigid "silence treatment" or any climatic effect, other than that to be obtained in the neighbourhood of London, with perfectly satisfactory results to the patients. The result of treatment may not always be evident at once, because in cases of ulceration there is a mixed infection, and though tuberculin may have done its work well, time is often necessary for the slow recovery from the other infections. As one who has used tuberculin in large doses, both at the tuberculin dispensary and at the Central London Throat, Nose, and Ear Hospital, I can testify to the absence of any real danger in the use of tuberculin in the hands of an expert.

A CASE OF ABNORMALLY LARGE PLACENTA.

DR. H. WESSEN HUSBANDS (Taunton) writes that in a case of ante-partum haemorrhage, to which he was called by a midwife, he found the vertex distending the vulvar outlet, and the child was even born. Owing to the continuance of haemorrhage the placenta was delivered quickly, when the bleeding was controlled and the uterus became hard and firm and remained so. It was the ninth pregnancy, the labour being premature and the child stillborn. The weight of the fetus was 6 lb. 11 oz. The weight of the placenta was 6 lb. 14 oz. The patient had a normal recovery.

VALLAURI PRIZE.

THE Royal Academy of Sciences of Turin offers the prize founded by Ernesto Vallauri to the scientific investigator who in the four years from January 1st, 1915, to December 31st, 1918, shall have published the best work on any of the physical sciences, that expression being interpreted in the largest sense. Works offered in competition must be printed. The prize, which is of the value of £104, is open to foreigners.

A CORRECTION.

MAJOR RUSSELL COOMBE, R.A.M.C.(T.F.) (Exeter), writes: Will you kindly allow me to use your columns to correct an error in the Director-General's recent circular? I am not, as there described, consulting surgeon to the Devon and Exeter Hospital.

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

	£	s.	d.
Seven lines and under	0 5 0
Each additional line	0 0 8
A whole column	3 10 0
A page	10 0 0

An average line contains six words.

All remittances by Post Office Orders must be made payable to the British Medical Association at the General Post Office, London. No responsibility will be accepted for any such remittance not so safeguarded.

Advertisements should be delivered, addressed to the Manager, 429, Strand, London, not later than the first post on Wednesday morning preceding publication, and, if not paid for at the time, should be accompanied by a reference.

NOTE.—It is against the rules of the Post Office to receive *postae restante* letters addressed either in initials or numbers.

THE
British Medical Journal.

THE JOURNAL OF THE BRITISH MEDICAL ASSOCIATION.

EPITOME

OF

Current Medical Literature.

JANUARY TO JUNE, 1916.

London :

PRINTED AND PUBLISHED AT THE OFFICE OF THE BRITISH MEDICAL ASSOCIATION,
429, STRAND, W.C.

INDEX TO THE EPITOME FOR VOLUME I, 1916.

READERS in search of a particular subject will find it useful to bear in mind that the references are in several cases distributed under two or more separate but nearly synonymous headings—such, for instance, as Brain and Cerebral; Heart and Cardiac; Liver and Hepatic; Renal and Kidney; Cancer and Epithelioma, Malignant Disease, New Growth, Sarcoma, etc.; Child and Infant; Bronchocele, Goitre, and Thyroid; Diabetes, Glycosuria and Sugar; Eye, Ophthalmia, and Vision, etc.

The Figures in this Index refer to the Number of the Paragraph, NOT the Page.

A.

ABADIE, J.: Extension apparatus for fracture of humerus, 40
Abdomen, gunshot wounds of (Kraske), 52
Abdomen, wounds of (Marquis), 41
ALESSANDRI, R.: Acute Raynaud's disease with paralysis, 18
AMEVILLE, F.: Nephritis in soldiers in the field, 32
Anaesthesia by the rectum in thyroidectomy (Lathrop), 12
Anaesthetic in war surgery, ethyl chloride as (Jacques Carles and A. Charrier), 55
ANDERSON, E. A.: Mercury salicylate in syphilis, 11
Antiseptic, magnesium hypochlorite as an (Charles Mayer), 57
Atrophy, sling (Rochard and Stern), 84

B.

BARRINGER: Cardiac insufficiency, 17
BEAUSSENAT, A.: Extraction of projectile from the heart, 71
BELIN: Powdered potassium permanganate in wounds, 9
BERGONIÉ: Pulsatory pneumatic massage, 7
BERTARELLI, A.: Treatment of septic wounds, 33
Blindness, night, in soldiers (Wecker), 81
BLUM, Edgard: Simulated disease in soldiers, 75
BOIDIN: Typhoid and paratyphoid mortality, 48
Bone atrophy, non-infectious (Grey and Carr), 15
Bordet-Gengou test in echinococcal infections (L. C. Zappelloni), 29
Brachial plexus, traumatic paralysis of, without fracture or dislocation (Levison), 20
BRANDT: Fatal septicaemia due to intra-uterine pessar, 24
BROUQ: Influence of war on skin affections, 59
Bullet in heart, shrapnel (Richard Freund and Carl Caspersohn), 64

C.

CANE, Captain L. B.: Gas gangrene, 72
Cardiac insufficiency (Barringer and Teschner), 17
CARLES, Jacques: Ethyl chloride as an anaesthetic in war surgery, 55
CARR: Non-infectious bone atrophy, 15
Cartilage transplantation in plastic surgery (Morestin), 62
CASPERSOHN, Carl: Shrapnel bullet in heart, 64
CASTEX, Andre: War deafness, 54
Cerebro-spinal fever. *See* Fever
CHAMBA, Gustave: Scarlet fever in the French army, 30
CHARRIER, A.: Ethyl chloride as an anaesthetic in war surgery, 55
CHAVANNE: War deafness, 43
CHAVIGNY: Treatment of nervous disorder in soldiers, 66—War psychiatry, 74
Conception and menstruation, relation of (P. W. Siegel), 23
COTTON: Limitations of the x ray, 21
ORILE: Experiences of American military surgery, 2

D.

Deafness, war (Marcel Lermoyers), 6—(Lannois and Chavanne), 43—(Marage), 43—(Andre Castex), 54
DIMER, Gaston: Simulated disease in soldiers, 75
DÖHNER, B.: X-ray picture of gas phlegmons, 65
Dressings, gaseous bags as (Morisot), 37
Dysentery, prophylactic inoculation against (G. S. Sieffert and O. Niedieck), 85
Dysentery, treatment of (P. Emile Weil), 46—(Milian), 46

E.

Echinococcal infections, Bordet-Gengou test in (L. C. Zappelloni), 29
Electro-vibration in localization of foreign bodies (Phocas), 45
ELOSSE, L.: Experiences of German military surgery, 2
Enteric fever. *See* Fever
Erysipelas, facial, painting with methylene blue solution in (Nobécourt), 10
Ethyl chloride as an anaesthetic in war surgery (Jacques Carles and A. Charrier), 55
Extension apparatus for fracture of humerus (J. Abadie), 40
Extrasystoles after injury by shrapnel (O. Josué and Jean Heitz), 68

F.

FAUNTLEROY: Gas bacillus infection, 73
FERRERO, Gherardo: Lesions of the larynx and trachea in war, 60
Fever, cerebro-spinal (Jean Pignot), 47
Fever, enteric, mortality (Boidin), 48
Fever, scarlet, in the French army (Félix Ramond and Gustave Chambas), 30
Fever, scarlet, the pulse in (Nobécourt), 31
Fibrolysin in recent cutaneous scars (Henri Toussaint), 86
FORD: Hydatidiform mole: chorion-epithelioma: bilateral corpus lutein cyst, 25
Foreign bodies localized by electro-vibration (Phocas), 45
FORGUES: Simulated disease in soldiers, 75
Fracture of humerus, extension apparatus for (J. Abadie), 40
Fractures of the patella in war, 63
FREUND, Richard: Shrapnel bullet in heart, 64

G.

Gas bacillus infection (Fauntleroy), 73
Gas gangrene (V. Marconi), 72—(Giovanni Tiengo), 72—(N. Leotta), 72—(Captain L. B. Cane), 72
Gas phlegmons, x-ray picture of (B. Döhner), 65
Gas in the tissues (Woodburn Morison), 38
Gaseous bags as dressings (Morisot), 37
Gastric crises in tabes, surgical treatment of (Georges Patry), 19
GAUCHER: War and skin disease, 77—Syphilis in war time, 78
GAUD, M.: Acute nephritis in soldiers on active service, 67

GERVER, A. B.: War psychoses, 50
GIBON: X-ray images in stereoscopic relief on the screen, 39
Gonorrhoea treated with optoquin (Levy), 27
GOURBEAU: Treatment of syphilis in war, 56
GREY: Non-infectious bone atrophy, 15
GUISEZ: Direct laryngoscopy in war wounds, 61
Gunshot wounds of abdomen (Kraske), 52
Gunshot wounds of skull, radiography in (Vilvandré), 80

H.

Haemophilia calcipriva (Hess), 16
HALSEY, W. H.: Submarine casualties, 49
HAMILTON: Typhoid vaccination, 26
Hand, chronic traumatic oedema of the back of (L. Levy), 44
HANSEN: Treatment of laryngeal tuberculosis, 13
Heart, extraction of projectile from (A. Beaussehat), 71
Heart, shrapnel bullet in (Richard Freund and Carl Caspersohn), 64
HEITZ, Jean: Extrasystoles after injury by shrapnel, 68
HESS: Haemophilia calcipriva, 16
HIRSCH, C.: Isolated vestibular neuritis following typhoid inoculation, 1
Humerus, extension apparatus for fracture of (J. Abadie), 40
Hydatidiform mole: chorion-epithelioma: bilateral corpus lutein cyst (Ford), 25
Hyperaemia in treatment of wounds (E. Sebrt), 83—(Linberger), 83

I.

Inoculation, antityphoid (Hamilton), 26. *See also* Typhoid
Intracranial projectiles, extraction of under fluorescent screen (Rouvillois), 82

J.

JOSUÉ, O.: Extrasystoles after injury by shrapnel, 68

K.

KLEIN, Mdlla. Renee: War and skin disease, 77
KRASKE: Gunshot wounds of abdomen, 52
KREFFING, E.: Treatment of syphilis with salvarsan only, 28
KÜSTER, H.: Disinfection of the meningococcal carrier, 58

L.

Labour, management of placental stage of (Polak), 22
LANNOIS: War deafness, 43
Laryngoscopy, direct, in war wounds (Guisez), 61
LARYNX and trachea, lesions of, in war (Gherardo Ferreri), 60
LATHROP: Anaesthesia by the rectum in thyroidectomy, 12

LE FORT, René: Fractures of the patella in war, 63
LEOTTA, N.: Gas gangrene, 72
LERMOYER, Marcel: War deafness, 6
LEVISON: Traumatic paralysis of brachial plexus without fracture or dislocation, 20
LEVY: Treatment of gonorrhoea with optoquin, 27
LEVY, L.: Chronic traumatic oedema of the back of the hand, 44
LINBERGER: Treatment of wounds by hyperaemia, 83
LONGIN, A.: Trench foot, 3
Lung, extract of fragments of projectile from (Mauclaire), 35—(G. Marion), 70—(Petit de la Villéon), 70
Lupus in the Austrian army (Ludwig Spitzer), 53

M.

McWILLIAMS, C. A.: War injuries, 79
Magnesium hypochlorite as an antiseptic (Charles Mayer), 57
Magnesium sulphate solution for septic wounds (Morison and Tulloch), 4
Malingering. *See* Simulated diseases
MARAGE: Treatment of mutism following injuries of war, 8—War deafness, 43
MARCONI, V.: Gas gangrene, 72
MARION, G.: Extraction of projectile from lung, 70
MARQUIS: Wounds of abdomen, 41
Massage, pulsatory pneumatic (Bergonié), 7
MAUCLAIRE: Extract of fragments of projectile from the lung, 35
MAURIAC, P.: Acute nephritis in soldiers on active service, 67
MAYENDORF: Tremor in soldiers, 69
MAYER, Charles: Magnesium hypochlorite as an antiseptic, 57
Meningitis, cerebro-spinal. *See* Fever, cerebro-spinal
Meningococcal carrier, disinfection of the (E. Küster), 58
Menstruation, relation of to conception (P. W. Siegel), 23
Mercury salicylate in syphilis (Kent Nelson, and E. A. Anderson), 11
Methylene blue solution in facial erysipelas (Nobécourt), 10
MILIAN: Treatment of dysentery, 46—War and skin diseases, 77
Military surgery: American experiences (Grille), 2—German experiences (L. Bloesser), 2
MINGAZZINI, G.: Acute Raynaud's disease with paralysis, 18
MIRRO: Treatment of septic wounds, 33
MORESTIN: Paralysis of tongue from traumatic division of hypoglossal nerves, 5—Transplantation of cartilage in plastic surgery, 62
MORISON: Magnesium sulphate solution for septic wounds, 4
MORISON, Woodburn: Gas in the tissues, 38
MORISON: Gaseous bags as dressings, 37
MORSELL, Arturo: War psychiatry, 74
Mutism following injuries of war, treatment of (Marage), 8—(L. Roncoroni), 76

N.

NELSON, Kent: Mercury salicylate in syphilis, 11
Nephritis, acute, in soldiers on active service (M. Gaud and P. Mauriac), 67
Nephritis in soldiers in the field (G. Parisot and F. Ameuille), 32
Nerves, hypoglossal, paralysis of tongue from traumatic division of (Morestin), 5
Nervous disorder in soldiers, treatment of (Chavigny), 66
Neuritis, isolated vestibular, following typhoid inoculation (C. Hirsch), 1
NIEDIECK, O.: Prophylactic inoculation against dysentery, 85
Night blindness in soldiers (Wecker), 81
NOBÉCOURT: Painting with methylene blue solution in facial erysipelas, 10—The pulse in scarlet fever, 31

O.

Oedema of the back of the hand, chronic traumatic (L. Levy), 44
Optoquin in treatment of gonorrhoea (Levy), 27

P.

Paralysis of brachial plexus, traumatic, without fracture or dislocation (Levison), 20
Paratyphoid mortality (Boidin), 48
PARISOT, G.: Nephritis in soldiers in the field, 32
PATRY, Georges: Surgical treatment of gastric crises in tabes, 19
PEREZ: Treatment of septic wounds, 33
Pessary, intrauterine, causing fatal septicaemia (Brandt), 24
PETIT DE LA VILLÉON: Extraction of projectile from lung, 70
PHOCAS: Localization of foreign bodies by electro-vibration, 45
PIGNOR, Jean: Cerebro spinal meningitis, 47
Placental stage of labour, management of (Polak), 22
Plastic surgery, transplantation of cartilage in (Morestin), 62
POLAK: Management of placental stage of labour, 22
Potassium permanganate, powdered, in wounds (Belin), 9
POZZI, Samuel: Localized tetanus, 34
Projectile, extraction of from heart (A. Beaussant), 71
Projectile, extraction of from lung (G. Marion), 70. *See also* Lung
Projectiles, intracranial, extraction of under fluorescent screen (Rouvillois), 82
Projectiles, wounds by small (H. Roulland), 51
Psychiatry, war (Morselli and Chavigny), 174
Psychoses, war (A. B. Gerver), 50
Pulsatory pneumatic massage (Bergonié), 7
Pulse in scarlet fever (Nobécourt), 31

R.

Radiography in gunshot wounds of skull (Vilvandré), 80
RAMOND, Félix: Scarlet fever in the French army, 30
Raynaud's disease, acute, with paralysis (E. Alessandri and G. Mingazzini), 18
Rectal anaesthesia in thyroidectomy (Lathrop), 12
ROCHARD: Sling atrophy, 84
RONCORONI, L.: War mutism, 76
ROULLAND, H.: Wounds by small projectiles, 51
ROUVILLOIS: Extraction of intracranial projectiles under fluorescent screen, 82
RUGH: Typhoid spine, 14

S.

Salicylate of mercury. *See* Mercury
Salvarsan only in treatment of syphilis (R. Krefting), 28
Scarlet fever. *See* Fever
Scars, fibrolysin in recent cutaneous (Henri Toussaint), 86
SEHRT, E.: Treatment of wounds by hyperaemia, 83
SRIFFERT, G.: Prophylactic inoculation against dysentery, 85
Septic wounds. *See* Wounds
Septicaemia due to intrauterine pessary, fatal (Brandt), 24
Shell fragment in right ventricle (Vouzelle), 36
Shrapnel bullet in the heart (Richard Freund and Carl Caspersohn), 64
Shrapnel injury followed by extrasystoles (O. Josué and Jean Heitz), 68
SIEGEL, P. W.: Relation of menstruation to conception, 23
Simulated diseases in soldiers (Blum, Dimier, and Forgues), 75
Skin affections, influence of war on (Brocq), 59
Skin disease and war (Milian), 77
Skull, radiography in gunshot wounds of (Vilvandré), 80
Sling atrophy (Rochard and Stern), 84
Soldiers, simulated diseases in (Blum, Dimier, and Forgues), 75—Night blindness in (Wecker), 81
SPITZER, Ludwig: Lupus in the Austrian army, 53
Spleen, wounds of (Willems), 42
Stern: Sling atrophy, 84
Submarine casualties (W. H. Halsey), 49

Sulphate of magnesia solution for septic wounds (Morison and Tulloch), 4
Syphilis, mercury salicylate in (Kent Nelson and E. A. Anderson), 11
Syphilis treated with salvarsan only (R. Krefting), 28
Syphilis in war, treatment of (Goubeau), 56—(Gaucher), 78

T.

Tabes, surgical treatment of gastric crises in (Georges Patry), 19
TESCHNER: Cardiac insufficiency, 17
Tetanus, localized (Samuel Pozzi), 34
Thyroidectomy, anaesthesia by the rectum in (Lathrop), 12
TIENGO, Giovanni: Gas gangrene, 72
Tongue paralysis from traumatic division of hypoglossal nerves (Morestin), 5
TOUSSAINT, Henri: Fibrolysin in recent cutaneous scars, 86
Trachea and larynx, lesions of in war (Gherardo Ferreri), 60
Tremor in soldiers (Mayendorf), 69
Trench foot (A. Longin), 3
Tuberculosis, laryngeal, treatment of (Hansen), 13
TULLOCH: Magnesium sulphate solution for septic wounds, 4
Typhoid fever. *See* Fever, enteric
Typhoid inoculation followed by isolated vestibular neuritis (C. Hirsch), 1
Typhoid mortality (Boidin), 48
Typhoid spine (Rugh), 14
Typhoid vaccination (Hamilton), 26

V.

Ventricle, right, fragment of shell in (Vouzelle), 36
VILVANDRÉ: Radiography in gunshot wounds of skull, 80
VOUZELLE: Fragment of shell in right ventricle, 36

W.

War deafness (Marcel Lermoyez), 6—(Lannois and Chavanne), 43—(Marage), 43—(Andre Castex), 54
War injuries (C. A. McWilliams), 79
War mutism (Marage), 8—(L. Roncoroni), 76
War psychiatry (Morselli and Chavigny), 74
War psychoses (A. B. Gerver), 50
War and skin disease (Milian, Gaucher, and Middle Renee Klein), 77
War and syphilis (Goubeau), 56—(Gaucher), 78
WECKER: Night blindness in soldiers, 81
WELL, P. Emil: Treatment of dysentery, 46
WILLEMS: Wounds of spleen, 42
Wounds of abdomen (Marquis), 41
Wounds of abdomen, gunshot (Kraske), 52
Wounds, powdered potassium permanganate in (Belin), 9
Wounds, septic, magnesium sulphate solution for (Morison and Tulloch), 4
Wounds, septic, treatment of (Perez, Mirro, and Bertarelli), 33
Wounds of skull, gunshot, radiography of (Vilvandré), 80
Wounds by small projectiles (H. Roulland), 51
Wounds of spleen (Willems), 42
Wounds treated by hyperaemia (E. Sehrt), 83—(Linberger), 83

X.

X-ray images in stereoscopic relief on the screen (Gibon), 39
X-ray, limitations of (Ootton), 21
X-ray picture of gas phlegmons (B. Döhner), 65

Z.

ZAPELLONI, L. C.: Bordet-Gengou test in echinococcal infections, 29

AN EPITOME OF CURRENT MEDICAL LITERATURE.

MEDICINE.

1. Isolated Vestibular Neuritis following Typhoid Inoculation.

C. HIRSCH (*Deut. med. Woch.*, August 19th, 1915) records the case of an army surgeon, who had previously been well. The first inoculation was well tolerated, but twenty-six hours after the second inoculation the patient became exceedingly giddy and developed severe vomiting, which was renewed on the slightest movement of the head. During the following night the pulse and respiration were abnormally slow, there were spasmodic contraction of the muscles of the jaw, and a cold sweat and numbness of the fingers were accompanied by tinnitus. The patient diagnosed embolism, thrombosis or abscess of the cerebellum on the left side, and asked for an operation. A more detailed examination showed that the right tympanum was reddened, and that the patient tended to fall over to the right on walking. An ophthalmologist could find nothing amiss with the eyes, and diagnosed haemorrhage into the left labyrinth. Four weeks after the development of the first symptoms the patient still felt giddy on turning his head or eyes, especially on rotation to the left. There was marked ataxia on rapid movement, the patient was incapable of much exertion, and was easily excited by small doses of alcohol or coffee. The nose and ears seemed perfectly healthy, Romberg's sign was negative, and there was no spontaneous nystagmus nor deafness. Wassermann's reaction was negative. The author came to the conclusion that the inoculation had caused neuritis of the vestibular branches of both auditory nerves, the nerve on the right side being most affected. On May 3rd—that is, three months after the onset of the symptoms—the patient could resume his surgical work at home. Only when he moved his head quickly did he still experience slight giddiness.

SURGERY.

2. Military Surgery.
American.

CRILE (*Annals of Surgery*, July, 1915) narrates the history, equipment, and experiences gained at the Lakeside Unit of the American Hospital for wounded situated in Neuilly, a suburb of Paris, comprising a service of 150 beds, with an average performance of from five to ten operations per day. Compared with civil practice, these operations were simpler in technique, but offered more difficult problems as to the proper procedure in the more severe injections. Nitrous oxide-oxygen was the ideal anaesthetic, as many of the operations were relatively short and performed upon exhausted, exsanguinated, and extremely septic patients, and the advantages of this anaesthetic became so obvious that the anaesthetists and gas were utilized by other services in critical cases. While the stage of induction was found to be longer and more difficult in the French soldier than in the average American civilian, a relatively smaller amount of the anaesthetic was required after induction was completed, and a smooth and even anaesthesia was more easily maintained. Almost every wound was infected, a sepsis and antiseptics having failed in military surgery, the type of infection depending in a measure on the type of injury, the state of the soldier, and the interval elapsing before the wound could be adequately treated. Shell and shrapnel wounds produce a larger zone of contused and devitalized tissue having a low resistance to infection than do rifle wounds, and as most cases of gas gangrene follow shrapnel and shell wounds, these are promptly treated by clearing out foreign bodies, excising the devitalizing tissue, and providing good drainage. Many observers advise warm moist dressings, immersion in hypertonic solutions of potassium citrate and sodium chloride, and in severe knee and thigh injuries immersion of the patient in a bath, while apparently better results followed open-air treatment after a certain stage was reached, and exposure to electric light has been advocated. The best treatment up to date appears to consist in hot packs, immersions in hot water, free incisions, good drainage, and physiologic rest. Death from gas gangrene is caused by structural injury of the brain, adrenals, and liver, and the best hope for

recovery apparently rests with prompt amputation, leaving the stump wide open, and applying hydrogen peroxide. Next to infection, shock and exhaustion with emotional strain were probably most fatal, and in many cases very slight injuries caused great shock and even death. The best treatment for shock under the difficulties encountered in engagements is to give morphine. For compound fractures Blake's splint and the Balkan splint are among the most efficient. Stress is laid upon the urgent need for research into the control of infections, and in organization it would appear that the best results will be achieved by placing the Army Medical Service in charge of the field service, since these surgeons, whilst relatively untrained in surgical practice, are highly trained in organization, transportation, etc., and placing the heavy surgical work in charge of civilian units composed of surgeons untrained in military organization, etc., but highly trained in the actual care of the patient, and by having attached to each base hospital a board of consultants, composed of the most expert surgeons, responsible for the practical work and the formulation of general principles.

German.

L. ELOESSER, of San Francisco (*Journ. Amer. Med. Assoc.*, December 4th, 1915) gives his impressions of German military surgery as observed in the army reserve hospital at Ettlingen, Baden. Nearly all the wounded treated there came from the west front, where, owing to the nature of the fighting, most were shell and shrapnel wounds. Infantry and artillery fire cause different kinds of injuries. A man hit by an infantry bullet is either out of danger quickly or dies quickly, according to the part involved. If struck by a piece of shell, unless the wound is altogether superficial, he is an object of anxiety for weeks or months. There are exceptions, of course, to this general rule. The modern small calibre bullet by no means always makes a small smooth wound. The nature of its path is determined partly by the character of the bullet and partly by the part struck. Whether the bullets are pointed, like the English, French, and German bullet, or more snubbed, like the Russian missiles, does not seem to make much difference. The real difference is due to whether the points are smooth or have been notched or dented or otherwise deformed, either by the soldiers themselves or by more concerted arrangements, for Eloesser claims that there have been instances of manufactured dum-dum bullets, made in factories, taken from captured soldiers. A bullet with a nicked or hollow point no longer merely pierces. Evidence of a dum-dum bullet can only be got from an unspent bullet itself. The shape of the bullet is also of importance and the position of its centre of gravity. If the latter is near the rear it causes the bullet to turn in its course, when the point meets resistance, and make a more destructive track. Eloesser credits the French copper encased bullet with being most humane and the English bullet perhaps the worst, with its anterior core of aluminium and centre of gravity far back. If a bone is shattered each splinter acts as an additional projectile. Injuries to the skull are of three kinds—tangential, penetrating, and perforating. Most injuries seen at the base hospital are of the first kind; the other patients usually die before they get there. Although the wounds usually heal kindly, the patients are often permanently incapacitated from organic or functional brain disturbances. In case of a patient surviving a penetrating wound, a roentgenogram is advisable, as bullets or deep indentations and splinters are often found. Late abscesses often develop, and may be difficult to diagnose. The osteoplastic closure of Garré, with a flap of bone shavings from the outer lamina and periosteum, is sufficient for defects on the vault of the skull. When there is a deep defect in the forehead, a free transplant of bone may be used. Chest wounds do not give as little trouble as is generally supposed. Gunshot wounds of the extremities have increased in gravity with the increased power of the modern small arm; nerves and vessels cannot evade the modern bullet. The nerves are liable to be involved in scars, affecting their functions, and operation may be desirable. Fractures from the small calibre bullet, even with wide shattering of the bone, usually heal promptly. The question how to transport fracture patients is still unsettled; there is no time for applying plaster splints on the battle field. It is the wounds from shells and artillery projectiles which make one realize what war is.

Shells used in the beginning of the war broke up into large pieces or lumps. Another kind, which Eloesser says are of American manufacture, burst into jagged slivers with saw edges. Shell wounds are always infected; it may not be severely but generally is and seems to be getting worse as the war goes on, as Eloesser supposes, from the dirtier uniforms and the more infected soil. Tetanus has largely disappeared with the use of prophylactic injections. The dictum of "hands off" is not valid for shell wounds, as is being realized more recently. Gas phlegmons are of several types and should be laid wide open. The pus appears too quickly to be followed up, and in order to prevent its travelling upward it is well to cut the main subcutaneous veins across some distance above the wound. The after-care is one of the most difficult things in the surgery of these cases. On September 5th the Ettlingen Hospital was made a purely orthopaedic institution and run in connexion with the school for the one-armed and an institution for the care and training of cripples, and wound cases were not received. Every conceivable method is used to train the disabled for some future useful occupation, but Eloesser seems to think there will be many shirkers and pension grabbers after the war, and that it is quite likely that some law to keep cripples from idleness will be required.

3.

Trench Foot.

A. LONGIN (*Ann. de derm. et syph.*, Tome v, No. 11, October, 1915) classifies "trench foot" in three degrees: (1) A primary stage of oedema, to which the term "succulent" has been applied by neurologists. The colour of the part is white, sometimes cyanotic, and, if lymphangitis is superimposed, of a roseate hue. The oedema, though apparently superficial, involves all the structures of the part affected, so that the joints tend to become distended, and the patient may afterwards be severely handicapped by the laxity of his ligaments when the fluid is absorbed. (2) In the second stage the epidermis is distended by the presence of bullae, containing a serous or blood-stained fluid. These vary in size from that of a pea to a nut, and the more blood-stained the fluid the more should one suspect a deep-seated origin, and the more likely the possibility of gangrene supervening. (3) The third stage is that of gangrene, which may be either insular and superficial, or deep and usually leading to the loss of one or more toes, most often the little and big toes, and not infrequently stopping short at the proximal phalanges. The lateral aspects of the feet are more prone to gangrene than the central, and the line of demarcation may quite frequently therefore be V-shaped. Almost invariably the sole suffers more than the dorsum. The quantity of oedema present in these cases would appear to determine whether the supervening gangrene shall be of the dry or moist variety, and, according to Longin, the latter and far more serious complication may sometimes be avoided by incising and dehydrating the tissues with currents of hot air. The etiology is almost invariably the same. The men have been standing for hours at a time in water or mud, and in practically every case of a temperature considerably above the freezing point, and to these factors the tight application of puttees is doubtless contributory. The resulting vascular spasm and paralysis are the immediate causes of the affection, which has pathological resemblances to Raynaud's syndrome. The symptoms are commonly a feeling of distension at first, and the patient may not even be incapacitated from marching for a time. Presently, however, shooting pains and sensations of heat develop in the feet, and become more acute from day to day, so that the patient is forced to report sick. In the stage of gangrene the affected parts are, of course, completely insensitive to every form of stimulus, and there is usually acute pain at the line of subsequent demarcation of dead from living tissue. The treatment of this very disabling condition is of great importance. Asepsis should be undertaken systematically in every case, especially when the oedema is marked. Footbaths in warm water, followed by gentle friction with alcohol or ether and compresses with Hoffmann's anodyne (spt. etheris nit.), are very useful in the early stages. The hot air douche followed by these compresses has been of the greatest benefit in the author's cases. The temperature should be only a little above that of the blood. In a few cases in which the burning sensations were paramount, cooling lotions had to be exhibited for a time. In cases of moist gangrene the air douche finds its most potent application, and it was most useful in stimulating ulcers left after separation of sloughs, and in causing them to heal. The surgical removal of dead tissue must be entirely governed by a due consideration of each individual case. A minimum of loss should always be aimed at, and it is emphasized that the

length of treatment should be a purely secondary consideration. Longin's method of amputation has been largely by means of carbonization with air at a temperature of 700° to 750° C. and not with the knife, which, in his opinion, tends to open up fresh channels of infection, and the possibility of further gangrene and danger to life. Finally, the prophylactic administration of tetanus antitoxin is recommended in all cases of moist gangrene, as the bacillus finds an acceptable nidus in the devitalized tissues, and several cases of the disease have already been reported.

4. Magnesium Sulphate Solution for Septic Wounds.

MORISON and TULLOCH (*British Journal of Surgery*, October, 1915) from experience in the Northumberland War Hospital, where wounds are often seriously infected before the patients are admitted, and where neither asepsis is possible nor antiseptics of any service, report favourably on magnesium sulphate, which by virtue of its being absorbed with difficulty has certain advantages over other salts used for cleansing wounds by osmosis. It also appears to have the desirable property of interfering with the digestive activities of pus, and inhibits to some extent the growth of certain bacteria commonly found infecting wounds. The authors employ a saturated solution of the salt. Forty ounces of magnesium sulphate are dissolved in ten ounces of glycerine and thirty ounces of water, and sterilized in an autoclave. In recent injuries the wound is freely opened up, the foreign body removed, and the whole wounded surface swabbed with pure carbolic acid. The ends of fractured bones are treated in the same way, and loose but attached fragments are not removed. The wound is gently packed for twenty-four hours with gauze wrung out of carbolic lotion (1 in 20) and antiseptic wool applied as an outer dressing. At the end of this time the wound is dressed; the gauze plug removed, the wound is syringed out with magnesium sulphate solution, and loosely packed with sterile gauze wrung not too hard out of the same solution, and the whole area of the wound is then covered with a double layer of gauze or lint saturated with solution over which a piece of jaconet, and then cotton-wool, is placed, the whole being fixed loosely by a bandage. In the case of wounds of later date, where sepsis and suppuration are fully established, no carbolic acid is applied, but the magnesium sulphate treatment is commenced at once. Even in the worst cases, the dressings are only changed every twelve hours. Within two or three days the pus has almost disappeared, the sloughs begin to separate and the surface of the wound presents a bright red colour. The granulations never become flabby or oedematous, and the epithelium grows freely from the edges of the wound. The treatment may be continued with advantage until the entire wound is healed.

5. Paralysis of Tongue from Traumatic Division of Hypoglossal Nerves.

MORESTIN (*Soc. de Chirurg. de Paris*, June 23rd, 1915) records the case of a soldier who eight months ago was wounded by a bullet which passed from one side to the other in the infrahyoid region. The tongue is completely paralysed, and no cicatrices are present; its surface and contour are normal. On palpation, no induration can be felt; indeed, the tongue is uniformly very supple and flaccid. Taste and tactile sensibility of the organ are perfect. In the act of swallowing solids the tongue appears to take no part; the patient has to throw his head back and push the bolus backwards with his finger; saliva is swallowed with great difficulty, and there is constant slobbering. The patient can speak slowly in a sticky voice, but he is quite easy to understand. No change has occurred during five months' observation; and prognosis is held to be very bad. The lesion is attributed to division of both hypoglossal nerves by the bullet.

6.

War Deafness.

MARCEL LERMOYEZ, in a paper on war deafness, an abstract of which appears in the *Progrès Médical* for December, 1915, says there are two kinds of traumatic deafness, direct and indirect. The true war deafness is the indirect. The hearing is destroyed by a sudden inrush of air into the auditory meatus which violently strikes the tympanum; it is not the noise that causes deafness, but the "wind of the bullet." The best chance the labyrinth has of escaping is when the chain of ossicles does not work well. The prognosis varies according to the resistance of the drumhead. If the labyrinthine disturbance is slight the patient will recover his hearing without local treatment, and will be fit for service in a month. If it is serious, the man will remain unfit for military duty. Strychnine may hasten the resolution of certain curable forms of

inflammation of the auditory nerve, provided it is given in sufficient doses. Two or three injections of 2 mg. may be given daily, but not for more than a fortnight at a time on account of the danger of cumulative action. Electricity is useless.

THERAPEUTICS.

7. Pulsatory Pneumatic Massage.

BERGONIÉ (*Arch. d'electr. méd.*, October, 1915) describes a new method of physiotherapy, which he calls "pulsatory pneumatic massage," for the treatment of the after-effects of wounds. He states that if an appliance, such as the pneumatic drum of Marey's chronograph—that is to say, a closed cavity with rigid walls, save for one only, which is supple and elastic—be placed on the dorsal surface of a stiff or ankylosed hand or on any cicatricial lesion in such a manner that the elastic portion covers the part, it is possible by rhythmic variations of pneumatic pressure transmitted to this appliance from an air pump to massage mechanically the cicatricial stasis which is sometimes the despair of surgeons and physiotherapeutists. The drums or receivers, which may be of various sizes and surfaces to suit different parts of the body, are mechanical excitators similar to the excitators used in electrotherapy, but act by alternations of pressure instead of by alternations of potential. Several of them may be served from the one source of pneumatic pressure by means of a series of branch pipes, and the volume of air passing into each may be regulated by the length and diameter of the pipes as well as by a system of faucets. The transmitting arrangement is an air pump, having a cylinder proportional to the number and capacity of the receivers. The pressure may be as great as 1 kilogram per square centimetre, or even more, or it may be so slight as scarcely to brush the skin. The frequency of alternation varies with the number of movements of the piston, but 120 a minute appears to be the best. This elastic and rhythmic pulsatory pressure acts on the vessels, on the circulation, and also on the cells, stimulating nutrition and tissue exchanges. It has been found specially useful in the impotences which follow splinter fractures of the hand, in stiffness of finger-joints, in oedemas and trophic troubles, in tendinous and muscular coalescences, etc.; in fact, in all the secondary lesions and sequelae of wounds in which massage ordinarily is efficacious. The author does not bring forward this method as a means of replacing manual massage performed by an instructed hand, but it has the advantage of being capable of application simultaneously to a number of cases.

8. Treatment of Mutism following Injuries of War.

MARAGE has studied more than a hundred cases of mutism following directly on injuries in warfare (*Compt. rend. de l'Acad. des Sciences*, No. 20, November 15th, 1915). As a sequel of a cerebral concussion, without apparent lesion, caused by the explosion of a large shell, the patient, after a loss of consciousness varying in duration from a few minutes to many days, fails to recover his speech. In 64 out of 100 cases this mutism disappeared spontaneously at the end of some weeks, but in the remainder all kinds of treatment completely failed. The mutism is often accompanied by vertigo and distressing tinnitus, and all the patients complained of very violent frontal headache. Insomnia is the rule, and often for two or three months there may be only an hour or two's sleep at night. There is more or less marked defect of memory; not only are all events following the battle forgotten, but the patients cannot write a letter, owing to their defect of memory. Auditory hyperaesthesia is so great that sounds which are barely perceptible to a normal ear are described as intolerably loud. During the last five months Marage has treated 5 cases of complete deaf-mutism. As he found that their respiration was very defective, he gave them respiratory exercises. At the end of fifteen days their expiration was of good amplitude, but they could not speak, however much they tried. In addition the larynx and sides of the neck were massaged by a mechanical or electrical vibro-massage instrument, both the intrinsic and the extrinsic laryngeal muscles being stimulated. After four days the patients began to whisper simple words—for example, "papa," "mamma," "good morning," etc. After eight days' treatment they could repeat phrases written down for them. After three weeks two patients spoke naturally. But a third had such an extremely defective memory that he could not repeat a word of three syllables, owing to the fact that after repeating two

syllables he had forgotten what the third was; however, he improved later on. Marage thinks that this simple mode of treatment is worthy of use in military hospitals.

9. Powdered Potassium Permanganate in Wounds.

BELIN has for more than ten months treated all cases of wound seen by him during the war by the application of potassium permanganate in the form of powder (*Soc. de Pathol. Comparée de Paris*, October 12th, 1915). Before the war he showed how surprisingly quickly wounds cicatrized under this treatment. In the very worst wounds of warfare this followed within fifteen days. He finds that the permanganate soon ceases to be a very powerful antiseptic, and becomes a cicatrizing agent. The powder gives up its oxygen unceasingly to the plasma of the wound and to its cells. The pain becomes quite bearable. This treatment has the virtues of being easy to apply; the powdered permanganate is non-toxic, antiseptic; its action is durable; it adheres to the wound, favours its cicatrization, destroys bacteria, and protects the patient from infection by anaerobic microbes, such as those of tetanus, gaseous gangrene, and haemorrhagic septicaemia.

10. Painting with Methylene Blue Solution in Facial Erysipelas.

NOBÉCOURT (*Bull. et mém. Soc. Méd. des Hôp. de Paris*, December 2nd, 1915) has treated a large number of soldiers affected by facial erysipelas by painting with a 5 per cent. aqueous solution of methylene blue. He finds it very efficacious and even better than ichthyol or tincture of iodine; several of his colleagues have testified to its value. The solution is painted over the erysipelatous area, and also over the neighbouring unaffected skin for a distance of 1 cm. every night and morning; no dressing is necessary. The effect is very marked on the pain; in half an hour to an hour the patients have a sense of well-being, and forthwith their pain ceases. Digital pressure gives no pain, or at most a disagreeable sensation when applied over the scalp. No hypnotic nor anodyne drugs are needed. The swelling and oedema subside rapidly, and even when the eyelids have been closed by the oedema, the latter passes away almost entirely within two or three hours. The course of the disease is cut short, so that in most cases it is arrested on the first or second day; only rarely is the treatment necessary for more than two or three days. The slight staining of the bed and body linen can be avoided by due precautions. After cessation of the treatment the blue colour of the painted skin persists for several days, up to a maximum of six or eight, and it disappears spontaneously or by washing.

11. Mercury Salicylate in Syphilis.

KENT NELSON AND E. A. ANDERSON (*Journ. Amer. Med. Assoc.*, November 27th, 1915) report their experience with mercury salicylate in the treatment of syphilis. The patients were prisoners in the military prison at Fort Leavenworth, Kansas, and the facilities for observation and care were excellent. Each patient had had at least two double plus serum reactions at different dates before the investigation, and none had had previous treatment of any character. Unfavourable influences that could affect the treatment were thoroughly excluded, and no other treatment was used. The dose in all cases was the same—1½ grains. At first it was repeated every seventh day, and after this was found to be too short an interval, every fourteenth day, and at times a longer interval was allowed between doses. None of the patients were salivated, though they were kept saturated with the drug, and all completed their daily quota of work. Sore buttocks were complained of sometimes from the injections, but inflammation was kept down, and no serious objections were made by the patients. Objective symptoms yielded to the treatment, but much less rapidly than to salvarsan, and the authors do not think that a combination of the two favourably affects the treatment. While they hesitate to say that the mercury salicylate treatment of syphilis is altogether valueless, they hold that it has little influence over the disease.

12. Anaesthesia by the Rectum in Thyroidectomy.

LATHROP (*New York Med. Journ.*, November 13th, 1915) claims favourable results by the practice of oil-ether colonic anaesthesia in thyroidectomy where freedom of movement is essential and where the ether cone is absent.

The anaesthetic can be applied in bed, and the unconscious patient removed to the operating table and the thyroid excised with little or no conception of what has taken place. The pulse and respiration remain, as a rule, normal. The rapid pulse of hyperthyroidism remains quick, but does not increase as when fear is added to the patient's troubles. The cases under Lathrop were thyroidectomies (excepting one ligation) for (1) hyperthyroidism, 15 cases; (2) parenchymatous thyroid tumours, 38 cases; and (3) colloid and cystic tumours, 58 cases. There was only one death, in a case of exophthalmic goitre, three days after operation, the only instance in which ligation was performed instead of thyroidectomy. The preliminary injection which Lathrop now uses is morphine, $\frac{1}{2}$ grain; paraldehyde, 2 fluid drachms; and $\frac{1}{2}$ oz. of ether with the same amount of olive oil. This mixture is given forty minutes before operation. Lathrop finds paraldehyde superior to chloroform. He describes the special technique in full, and notes that to Gwathmey of New York belongs the credit of working out the scheme of oil-ether colonic anaesthesia.

13. The Treatment of Laryngeal Tuberculosis.

DISCUSSING the respective merits of operative and conservative treatment of laryngeal tuberculosis, T. BEGIRUP-HANSEN (*Ugeskrift for Læger*, September 23rd, 1915) suggests that the laryngologist is apt to take too narrow a view of the disease, and to forget that the ultimate fate of the patient in most cases depends on the pulmonary tuberculosis which is almost invariably associated with laryngeal tuberculosis. During the last two years the author has observed, at the Silkeborg Sanatorium, 63 cases of laryngeal tuberculosis the diagnosis of which was based on ulceration, infiltration, and granulation. Only in 2 cases was the laryngeal disease a more important factor than the pulmonary disease. In 55 cases the pulmonary disease was in the third, and in 8 cases it was in the second stage. In 21 cases in which the laryngeal disease was for the most part severe the patients were much debilitated and febrile. The treatment of the laryngeal condition could therefore be only palliative, and the only operative treatment was an occasional amputation of the epiglottis for dysphagia or an injection of alcohol into the laryngeal nerves. Both these measures can, however, be undertaken by the physician with some knowledge of laryngology. In 29 cases of slight laryngeal disease, that is, limited infiltration and superficial ulceration, the course of the laryngeal disease ran parallel with that of the pulmonary disease; and the only treatment necessary, in addition to sanatorium treatment, was the local application of menthol and lactic acid. Among the remaining 13 cases there were four in which the steadily progressive pulmonary disease was associated with extensive laryngeal disease, for which energetic operative treatment might have been beneficial locally. But the author confined the treatment to the application of menthol and lactic acid, as he foresaw the patients would die in any case. In the nine other cases there was no improvement in the laryngeal disease, although there was a steady improvement in the pulmonary disease. But when more energetic measures were adopted, including the use of the galvanocautery and the curette, there was, on the whole, an improvement in the laryngeal condition. With this experience the author concludes that radical operative treatment should be confined to a very few cases, and should be undertaken only when the condition of the lungs is not hopeless. He has seen several cases in which a too active treatment of the larynx has been detrimental to the lungs and the patient's general health. Within the last few years he has seen three advanced cases of laryngeal tuberculosis greatly benefited by an artificial pneumothorax, the ulcerations in two cases healing completely.

PATHOLOGY.

14. Typhoid Spine.

RUGH (*Amer. Journ. of Orthopaedic Surgery*, October, 1915) reports a case of typhoid spine with autopsy findings, this being the first recorded pathological report upon such a condition. The disease extended over a period of six or seven years. The patient, a woman aged 32, during delirium jumped from a third-floor window on to a cement sidewalk, suffering concussion of the brain, fracture of the right acetabulum, tearing of the ligaments of the right knee, and compound fracture of the right os

calcis. Four and a-half weeks later pain first appeared in the spine and grew gradually worse until at the end of four months a slight prominence of the lumbar vertebrae was noticed. About twice a year abscesses formed about the right hip until her death, nearly eight years later, and cultures from the pus were negative until the last abscess nine months before death, when it yielded a pure culture of the typhoid bacillus. At the *post-mortem* examination it was found that the intervertebral disc between the third and fourth lumbar vertebrae was missing and was replaced by a bony overgrowth closely resembling grossly the bony tissues of the vertebral bodies. Microscopically there was complete absence of cartilaginous tissue which was replaced by dense connective tissue having a rich blood supply, and bridging the space normally occupied by the intervertebral disc. Cultures from the spleen were sterile, and those from the gall bladder were negative for the typhoid bacillus, but contained a pure culture of the *Bacillus coli communis*. The inflammation involved the intervertebral disc rather than the bodies of the vertebrae, and was of a more or less destructive character, though probably it was considerably influenced by the fixation treatment employed.

15. Non-infectious Bone Atrophy.

GREY AND CARR (*Johns Hopkins Hosp. Bull.*, November, 1915) have published an experimental study on the factors responsible for non-infectious bone atrophy. The experiments were conducted on thirty-eight rabbits and nine dogs. In both series of animals the bones entering into the formation of the ankle and wrist joints proved to be the most suitable for such a study. Structural changes in the cortex and medulla were followed by means of Roentgen rays. The limb opposite that which was experimented upon was used as a control. As frequent examinations were made in each case it was possible to follow closely the appearance and the progress of atrophic changes. Grey and Carr have arrived at the following conclusions: (1) A destruction of the sensory nerves to a part occasions no direct local atrophy of bone. A destruction of the motor nerves, on the other hand, leads to a certain amount of atrophy. This, however, is indirectly the result of inactivity or disuse, and is directly proportional to the degree of paralysis present to the part. (2) Local venous congestion leads directly to no recognizable changes in the structure of bone. Local anaemia due to injuries of the arterial supply, except in an extreme degree, likewise occasions in bone atrophy so long as the part remains functionally active. (3) Inactivity atrophy may appear very soon after immobilization of a limb as early as the fourth or fifth day in rabbits. It is probably due to a decrease or to an absence of the functional stimuli necessary to the normal nutrition of bone. (4) Immobilization retards the process of repair in bone injuries.

16. Haemophilia Calcipriva.

Hess (*Johns Hopkins Hosp. Bull.*, November, 1915) investigated a sporadic case of haemophilia in a Jewish child 6 years of age. No other member of his family was a "bleeder." He was also subject to ichthyosis, though there was not, as is usual, any family history. The investigations were extended to a boy aged 9 subject to typical hereditary haemophilia. Hess notes that this typical hereditary bleeding was not associated with a deficiency of calcium. As other investigators have shown, Hess found that the addition of calcium to the blood *in vitro* delayed rather than hastened coagulation. A deficiency could not be established by quantitative determinations of the calcium in the blood, and a metabolism study showed that the exchange of lime salts, as well as of numerous other inorganic and organic substances, differed in no way from normal. The typical instance, though sporadic, had all the other symptoms of classical haemophilia, and so could not be considered to be a case of purpura. The patient showed a definite deficiency of the calcium in the blood from a functional point of view, the addition of a weak solution of calcium markedly hastening the clotting of the blood. Quantitative determinations of blood calcium also showed a deficiency compared with the normal. A study of the boy's general metabolism further detected a negative balance of lime, which became positive when lime salts were added to the diet. Thus the sporadic case seemed to be a distinct type of the disorder—an instance of haemophilia calcipriva. Hess doubted if haemophilia were an absolute entity, if disorders were included under that name where delayed clotting of the blood, a normal number of platelets and a negative "capillary resistance test" were all present.

AN EPITOME OF CURRENT MEDICAL LITERATURE.

MEDICINE.

17. Cardiac Insufficiency.

BARRINGER AND TESCHNER (*Arch. of Int. Med.*, November 15th, 1915) discuss the treatment of cardiac insufficiency by a new method of exercise with dumb-bells and bars, utilizing the circulatory reaction to exercise as a test of the heart's functional capacity. With dumb bells weighing from 3 to 25 lb. each and steel bars varying from 10 lb. upwards in weight it is possible to measure approximately the number of foot-pounds of work performed in each exercise. In treating patients the routine followed consisted in giving 50 to 100 foot-pounds of work with a pair of 5 lb. dumb-bells by pushing them alternately above the head, the pulse and blood pressure being taken before and every minute after the exercises. If they showed a normal type of reaction (that is, the systolic blood pressure becoming raised and the pulse accelerated, but both then rapidly falling to and below the figures noted before work began) in a few minutes another piece of work was given, increased by 50 or 100 foot-pounds through using heavier dumb-bells. By this means sooner or later an amount of work was reached which was followed by a delayed rise in blood pressure, thus showing that the functional capacity of the patient's heart had been exceeded. Many patients showed a cardiac efficiency of only a few hundred foot-pounds, contrasting strikingly with the efficiency of a normal heart, which may measure as much as 7,000 foot-pounds performed in two minutes. Having found in a given patient the number of foot-pounds which produced a delayed rise in blood pressure the daily exercise for the next seven days was limited to 100 foot-pounds less, this being given each day from four to six times with five to ten minutes' rest in between. At the end of the seven days the heart's functional capacity was again tested, and if it had increased, the work of the following week was kept just below the amount which produced a delayed reaction. As the cardiac efficiency increased various other exercises were added to the initial one of pushing the dumb-bells above the head, exercises which utilized the trunk muscles and increased the number of foot-pounds performed without tiring excessively any one group of muscles. It was found that one week's training of a normal person increased markedly the quantity of work he could do before a delayed reaction was produced. The cases selected for treatment were ambulatory patients with chronic valvular or myocardial disease and varying stages of decompensation, any acute process, history of recent emboli, or persistently high blood pressure being considered a contraindication for the exercise treatment. Nine of the thirteen patients treated showed marked improvement, apparently due to the exercises, for, with one exception, no other treatment was given, and three of those who did not improve suffered from mitral disease with marked decompensation and very low initial cardiac and respiratory capacities. The chief feature of the exercises is their concentration, each series of movements lasting from 30 to 120 seconds, followed by a rest of from five to ten minutes. By spreading the same amount of work over from ten to fifteen minutes, so that the patient does the same amount of foot-pounds in a longer period of time, a much slighter effect on the pulse and blood pressure is produced. Although the number of cases treated is small this system of exercises is a valuable adjunct to existing measures for treating cardiac insufficiency, and the validity of the post-exercise blood pressure test of the heart's functional capacity is established.

18. Acute Raynaud's Disease with Paralysis.

AMONG the victims of the earthquake in the Abruzzi on January 13th, 1915, a number of cases of paralysis of the limbs, combined with trophic lesions resembling those of Raynaud's disease, were admitted to hospitals at Rome. R. ALESSANDRI and G. MINGAZZINI (*Il Policlinico*, Rome, 1915, xxii, sez. med., 433) give an account of eighteen of these, divided into three classes, in accordance with their severity, as fatal, grave, or mild. The fatal cases were six in number, the patients were aged from 17 to 32, and had remained buried under fallen masonry for from thirty-six to seventy-two hours; the paralysis was segmental in type, and with or without pain and disturbances of sensation; the Raynaud's disease took the form of cyanosis, oedema, bullae containing blood-stained fluid, and the super-

vention in three cases of gangrene demanding amputation of an arm or a leg, or of both. Three of the patients died of adynamia cordis in two, five, and six days respectively. The second group—the grave cases—contained three patients, who had lain exposed in the ruins for from thirty-six to seventy-two hours, and were aged 16, 18, and 37 respectively. Gangrene supervened in each case, and amputation of a leg was performed in two, while the third patient, who had been buried face downwards with her arms crossed under her chest for thirty-six hours, had both forearms amputated at the proximal third a fortnight later. These patients all exhibited segmental areas of hypoaesthesia or anaesthesia, and in two the paralysis was also segmental in type; the third patient, an alcoholic man, exhibited tenderness of the sciatic and popliteal nerve trunks. The remaining nine cases were classed as mild, and were mostly females aged from 14 to 50, who had been exposed under the ruins for from eight to seventy-two hours; some had suffered trauma, others from the cold. Here the Raynaud's symptoms had not gone beyond the stage of asphyxia as a rule, though bullae and necrotic patches appeared in a few instances. In general the legs were more involved than the arms; in a few cases there was marked and very acute neuritis of certain nerve trunks (ulnar, median, radial, superficial peroneal, sciatic, lateral popliteal, crural) with the characteristic distribution of paralysis, anaesthesia, and trophic changes (that is, Raynaud's symptoms). In the first group—the fatal cases—the stocking-and-glove distribution of the nervous lesions indicated a "functional" or "hysterical" type of origin; in some of these patients examination of the nerves of an amputated leg showed no abnormality of the nerve fibres. The arteries of the amputated limbs in two other cases showed no abnormality, but were thrombosed in a third patient. Discussing the pathogenesis of this acute form of Raynaud's disease with paralysis, the authors connect it with the severe psychical shock caused by the earthquake. The patients in the first two groups showed rapid pulse and abnormally low blood pressure, and it is assumed that the Raynaud's symptoms were due to shock to the vasomotor system. Even in the mild cases with evidence of peripheral neuritis this factor probably was involved, as the Raynaud's symptoms disappeared before the evidence of neuritis. The authors can draw no very definite conclusions as to the way in which the trophic and vasomotor nervous systems were upset by the earthquake; they quote Cassirer's views on the question. They note that all their patients had been exposed to cold and to mechanical obstruction of the circulation by pressure, as well as to psychical shock. They argue that the adynamia cordis from which three of their patients succumbed was due to sympathetic vaso-constriction of the coronary arteries.

SURGERY.

III. Surgical Treatment of Gastric Crises in Tabes.

GEORGES PATRY (*Revue médicale de la Suisse Romande*, June 20th, 1915) deals with the surgical treatment of gastric crises and describes a case treated by himself by Guleke's modification of Förster's operation. The two predominant symptoms in gastric crises are pain and vomiting, and, according as the greater importance attaches to the pains or the vomiting, so the nerve chiefly implicated is the splanchnic or the vagus. Förster attaches the chief rôle to the sympathetic nerve, on the grounds that (1) the pain is the dominant factor, is the earlier symptom to appear, and is of longer continuance than the vomiting; (2) the origins of the splanchnic are in intimate relation with the intercostal nerves, and therefore the existence of the zones of anaesthesia or hyperaesthesia, frequently present in the epigastric region, is readily explicable on this hypothesis. Moreover, the pains are not confined to the stomach, and the presence of girdle pains localizes the lesions to the posterior roots corresponding to the rami communicantes which give origin to the great splanchnic. On this theory the vomiting is due to secondary reflex action. These clinical

facts are supported by the anatomical conclusions of J.-C. Roux, and more recently by those of Tinel. According to these workers the primary lesion is a posterior root lesion. The roots are found to be surrounded by masses of leucocytes, and there is a great excess of fibrous tissue. This lesion causes irritation both of the intercostal nerves and the sensory fibres from the splanchnic which reach the cord by way of the posterior roots. The object of the majority of recent operations has therefore been to interrupt the nervous conductivity above the irritative lesion. Exner alone attacks the pneumogastric nerve. He performs a double vagotomy, reaching the nerves through an incision above the umbilicus, and at the same time performs a gastro-enterostomy to combat any danger of future disturbance of gastric motility. Of 6 cases treated by Exner himself 3 only were benefited. Kuttner performed Exner's operation in a case already treated on Förster method in which the crises had ceased after the first operation but vomiting had persisted, but he found the vomiting much aggravated after the vagotomy. Förster ascribes the failure of double vagotomy to improve the motor lesions to the section being below the irritative lesion, and proposes in cases in which vomiting persists after radicectomy, to attack the jugular ganglion; in spite of the difficulties of technique, Kuttner has finally performed this operation with success. Förster and Kuttner's operation upon the posterior roots is carried out as follows: A laminectomy is performed at the level of the roots; these are resected to the length of about 1 cm., and the dura mater and the more superficial layers of the wound are carefully closed. The difficulties and complications of the operation may be considerable. To avoid the danger of shock it has been proposed to perform it in two parts, the preliminary laminectomy being performed on the first day and the opening of the dura mater and resection of the nerve roots a few days later. This method has, however, the great disadvantage that where clear vision is of the greatest importance, the field of operation is obscured by the presence of clots, and it should therefore be reserved for patients in an advanced state of cachexia. To avoid haemorrhage, which may be a serious complication, the cutaneous incision should be exactly in the middle line and the muscles should be rasped near to the bone, instead of being cut. Moreover, as soon as the laminae have been separated, the wound should be plugged for from five to ten minutes with hot wet compresses. Another frequent complication is the escape of cerebro-spinal fluid, which may not only obscure the operative field, and also even cause immediate fatal results, but may in other cases lead to the formation of a fistula with all the chances of infection of the meninges. To prevent it the patient should be placed with the head hanging down, and Debrey recommends that the spinal canal should also be plugged above and below. In Guleke's modification of Förster's operation the dura mater is not opened. Guleke separates the anterior and posterior roots, which may be differentiated from one another by their differing volume, the anterior root being about twice as thick as the posterior, and then resects the posterior root. This operation has the reputation of being a difficult one to perform, but the author employed it in the case he himself treated and found it easy. Another modification of Förster's operation is Fränke's method of attempting to reach the ganglion and the root without laminectomy by tearing the intercostal nerves. According to Sauvé and Tinel, the tearing of the nerves must be rough, not slow and progressive, in order to bring about a profound disturbance of the coils of origin. The author sees no reason to prefer the uncertain method of Fränke to the operations which directly attack the posterior roots, but Sauvé and Tinel's modified operation is worthy of trial. Of 13 cases treated by Fränke's method, 2 died as the result of the operation, 2 had immediate and 3 speedy relapses, 5 were dismissed from the clinic as cured, but were not followed up; 1 only was known to have remained eleven months without a relapse, and could be considered as cured. Gambier has collected records of 60 cases of Förster's operation or its modifications by Guleke, Sicard, and Dumarest; with the author's own case the total number is thus 61. Of these, 19 died, 2 of independent illnesses, the remainder as a result of the operation. Of the remaining 42, in 2 the crises were more severe after the operation, in 1 they were not influenced, in 2 they were slightly improved, in 5 the crises disappeared for a time but afterwards recurred, and in 1 (the author's) the condition was improved, but the patient was lost sight of; in 4 crises persisted, but were less severe; in 27 there was so great improvement that it might almost be regarded as a cure. Thus the results were: Deaths, 31.1 per cent.; unfavourable, 16.4 per cent.; good, 52.5 per cent. These results are not brilliant, but,

considering the previous hopelessness of the condition, they constitute real progress, and, in the author's opinion, it is infinitely preferable to run the risk of an operation than to leave the crises untreated. He considers Guleke's operation to be the best.

20. Traumatic Paralysis of Brachial Plexus without Fracture or Dislocation.

LEVISON (*Hospitalstidende*, September 8th, 1915) records the case of a workman, aged 34, who was a moderate drinker and had hitherto been well. Falling from a load of straw on to a stone, he struck his shoulder in trying to hold himself with his left hand. He was put to bed and fell asleep, but next day he noticed that his left arm was paralysed, swollen, and anaesthetic. On his admission to hospital, complete paralysis of the left arm, as well as anaesthesia of the hand, of the forearm, and of most of the outer side of the upper arm, were found. The arm was swollen, and the skin of the thumb gangrenous, and the reaction to degeneration was noticeable a week later. The fact that even the most careful examination did not disclose a fracture or dislocation was a most extraordinary feature of this case, in view of the completeness of the paralysis. The author assumes that the cause of the paralysis must have been a haemorrhage into the plexus itself, a view which was confirmed by the shortness of the interval between the accident and the development of the paralysis. Though the sensory disturbances were less, the paralysis was as complete as ever two months after the fall. The atrophy was most evident in the deltoid and in the supra- and infra-spinatus muscles. The paralysis affected the three main branches of the brachial plexus, as well as the musculo-cutaneous, axillaris, and supra-scapular nerves. The nerves to the rhomboids, to the pectoralis major and minor, as well as the subscapularis had escaped injury, in spite of the origin of the latter from the plexus being below that of the subscapularis, which was paralysed. It was proved by x-ray photographs of the diaphragm, instillation of adrenalin and cocaine into the eye, and the administration of pilocarpine, that the phrenic and sympathetic nerves were uninjured.

21. Limitations of the X Ray.

COTTON (*Amer. Journ. of Orthopaedic Surgery*, October, 1915) discusses the limitations of the x ray in the diagnosis of certain bone and joint diseases. While the x ray is invaluable as an aid in the diagnosis of many bone and joint conditions, and the roentgenogram is pathognomonic of some diseases, there are different diseases in which the roentgenograms are similar, and the diagnosis must therefore be made with the aid of clinical data. In the early diagnosis of certain pathological conditions of bones and joints—for example, tuberculosis and acute infectious osteomyelitis—the x ray is not of great value, because of the fact that changes in the structure and in the density of the bone have not been produced, and further the x ray cannot be relied upon always to give a true picture of the nature and extent of the pathological process. These limitations of the x ray in the diagnosis of diseases and extent of pathological processes are due to the fact that the roentgenogram does not show differences in the composition of substances of the same density.

OBSTETRICS.

22. Management of Placental Stage of Labour.

POLAK (*Surgery, Gynaecology, and Obstetrics*, November, 1915) strongly objects to any disturbance of the normal mechanism of the separation of the placenta. It will come away spontaneously if the normal mechanism be not impeded—by manipulation, for instance, of the uterus before the clinical evidences of separation are apparent. *Post-partum* haemorrhage is best avoided by respecting the physiological processes, while manipulation causes partial detachment and predisposes to flooding. The normal mechanism of placental delivery is that described by Schultze, and the Duncan mechanism only occurs in low implantation of the placenta and when untimely and vigorous manipulation has been practised. The placenta may be retained in the uterus for hours or days provided that it be attached or completely detached, which ensures that the bleeding will be negligible. Sepsis is dependent on penetration of the uterus by the hand or instrument through infected passages and not upon retention of the placenta. Manual extraction is only admissible in partial separation with haemorrhage. In retention without haemorrhage the cord should be cut off close to the cervix and the case watched until the signs of separation are

apparent, when the placenta may be expressed by Credé's method under anaesthesia. Invasion of the uterus through the vagina is fraught with danger from infection, and on exploration, should the placenta not be found presenting at the internal os, intrapelvic delivery should not be attempted, and the fetus should be extracted through sterile avenues by suprapubic extraperitoneal hysterotomy. When the adhesion is so great that its removal entails the digging out piecemeal of the placenta, then excision of the placental site or hysterectomy is demanded.

23. The Relation of Menstruation to Conception.

WITH a view to applying the peculiar conditions of the war to the study of the problems of conception, P. W. SIEGEL (*Deut. med. Woch.*, October 14th, 1915) has investigated the relation of menstruation to conception among pregnant women whose husbands had been mobilized. He assumed that when, for example, a married woman menstruated last on July 31st, 1914, and when her husband left her on August 6th for active service, and did not return to her till pregnancy was well advanced, it followed that conception had occurred between July 31st and August 6th. Similar opportunities for fixing the date of conception with considerable accuracy were given when a husband's leave at home lasted only two to eight days. At the Gynaecological Hospital of the University of Freiburg the author questioned 100 married women who had become pregnant under the mentioned conditions. He did not attempt to find out the dates on which coitus had actually taken place, and he confined his inquiries to the date of the last menstruation and of the husband's leave at this period. In all these cases the fruitful coitus could only have occurred within the first twenty-one days after the last menstruation. The author shows by a table that conception was most frequent on the sixth day after the beginning of the menstruation. From this day to the twelfth or thirteenth day after the beginning of menstruation the incidence of conception remained at a high level, but from the thirteenth to the twenty-first day it showed an abrupt fall, and from the twenty-first day onwards complete sterility supervened. The fall in the curve between the thirteenth and twenty-first day would probably have been still more abrupt had not the statistics included cases in which the husband lived with his wife from the tenth to the twenty-first day after the beginning of menstruation. In ten cases the husband's leave extended only from the twenty-second to the twenty-eighth day after the beginning of menstruation, and in none of these cases did conception occur. The author refers to another series of observations made during the last ten years at the Freiburg Gynaecological Hospital by Wohlers, who has collected all the cases of conception which had occurred within the first five weeks of marriage. He found only 160 primiparae fulfil this condition. In about 65 of these cases the marriage had been celebrated within the last eight days before the beginning of menstruation. In every one of these cases there was only one menstrual period before conception occurred. These cases, and the ten cases observed by the author, show that conception during the last eight days before the beginning of menstruation is a very improbable, not to say impossible, event.

GYNAECOLOGY.

24. Fatal Septicaemia Due to an Intrauterine Pessary.

To illustrate the dangers of the intrauterine pessary, and to warn his colleagues against their use, BRANDT (*Norsk Magazin for Laegevidenskaben*, October, 1915) records the case of a married woman, aged 43, who had undergone five normal confinements, and who had worn an intrauterine pessary for the past six years. It had been changed every six months by a medical man, the last change having been made three months before her admission to hospital. A fortnight before admission she began to suffer from rigors and headache but no abdominal pain. Later she became drowsy and deaf, and suffered from coughing and vomiting. On admission she was drowsy and deaf, the temperature was 40° C., the pulse was 136, and the respirations 40. The urine contained neither pus nor albumin. The lower abdomen was somewhat tender, as was also the uterus on bimanual examination. There was, however, no distension of the pelvic organs. The intrauterine pessary was removed, fomentations were applied, and morphine was given. Two days later she died, and the diagnosis of septicaemia was confirmed by the necropsy, which showed

endometritis, enlargement of the spleen, and parenchymatous degeneration of the internal organs. The pessary consisted of two thin springs secured to a plate. It was constructed so that when the springs were brought together and inserted into the uterus their outward pressure kept the pessary in place. In addition to preventing conception, which is its primary object, it irritates the lining of the uterus and provokes a more or less severe endometritis—in its turn a further hindrance to conception. The pressure exerted by the springs ultimately induces necrosis of the tissues in contact with them, and thus opens a channel to infection. The author has removed three similar pessaries from patients in whom they had provoked serious disease. In one case pyaemia and in two cases severe pelvic peritonitis were the sequel to this malpractice. All three patients recovered after a long illness. The author points out that the extensive misuse of this pessary in Germany has already provoked official condemnation from the Government, and the gynaecological societies. Owing to its use as an abortifacient as well as a preventive of conception its suppression by law has recently been mooted. Unfortunately this pessary has been popularized also in Norway, where the author has found it in use in country districts as well as in towns.

25. Hydatidiform Mole: Chorion-epithelioma: Bilateral Corpus Lutein Cyst.

FORD (*Amer. Journ. Obstet.*, August, 1915) reports an instance where these three pathological conditions followed each other in a very significant manner. A woman, aged 20, began to bleed in the fourth month of her first pregnancy, then the abdomen increased in size, and at the end of a week she seemed to have reached term. Under anaesthesia about a quart of hydatidiform cysts was removed and the uterus packed with plain gauze. Three weeks later the uterus had not undergone involution and haemorrhages continued; the curettings showed decidual reaction in strips of compact decidua, large masses of decidual cells surrounded by fibrous masses, and a small amount of trophoblast. Within five weeks after delivery of the mole the uterus and appendages were removed. The uterus was uniformly enlarged and the mucosa of the fundus showed large masses of syncytial cells invading the myometrium. Numerous syncytial giant cells were detected, isolated between the muscular fibres. Both ovaries were cystic and of about the size of a fist. The right ovary contained a clear serous fluid, the left held 500 c.c.m. of a highly albuminous fluid, clotting to a certain extent and mixed with small old blood clots; at one point on the cyst wall was a minute body, apparently a fairly fresh corpus luteum. On microscopic examination markedly hyperplastic lutein cells were detected in the cyst walls of both ovarian tumours. In a discussion on this case before a society there was difference of opinion expressed as to the causal relation of a mole and a lutein cyst. Vineberg noted that, according to trustworthy recent statistics, 16 per cent. of hydatidiform moles became chorion-epithelioma, and 50 per cent. of chorion-epitheliomas were preceded by hydatidiform moles.

THERAPEUTICS.

26. Typhoid Vaccination.

C. D. HAMILTON (*Journ. Amer. Med. Assoc.*, November 27th, 1915) says that since 1908 it has been observed that a positive Widal reaction always followed a prophylactic dose of typhoid vaccine. While it was now believed that this was not necessary for immunity, but that the patient might still be immune after the reaction had ceased, the presence of the reaction was of the greatest importance if typhoid was suspected. Since 1910, at the Springfield State Hospital, there had been 2,766 prophylactic doses of typhoid vaccine given, and at intervals the Widal test had been made. During the first eighteen months after the vaccination was adopted each patient received three doses at intervals of one week. Only the blood of patients who could give a clear history of never having had typhoid fever was examined. "Blood was taken from patients at the end of one month, six months, twelve months, twenty-four months, thirty-six months, and forty-eight months respectively, with the following results:—One month: ten specimens of blood all gave positive Widal reactions. Six months: ten specimens of blood all gave positive Widal reactions. Twelve months: ten specimens of blood all gave positive Widal reactions. Twenty-four months: ten specimens of blood gave seven positive and three negative Widal reactions. Thirty-six months: ten specimens of

blood gave six positive and four negative Widal reactions. Forty-eight months: ten specimens of blood gave three positive and seven negative Widal reactions. One patient inoculated fifty months ago still had a positive Widal reaction." Hamilton concludes that a positive reaction in any one who has ever been inoculated with antityphoid vaccine is of no value in diagnosing typhoid fever, and the only reliable means of ascertaining the cause of continued fever suspected to be typhoid is by the blood culture and leucocyte count.

27. Treatment of Gonorrhoea with Optoquin.

The failure of the ordinary antigonorrhoeal drugs in many cases led LEVY (*Berl. klin. Woch.*, October 18th, 1915) to try optoquin, which he gave in 25 cases of gonorrhoea. He was greatly impressed by the efficacy of this drug, which he injected six times a day, the strength of the solution being 1 per cent. Apart from a slight burning sensation, the injection caused no discomfort. Indeed, pain which had previously been troublesome on micturition soon ceased after the injections were begun, and the anaesthetic action of optoquin observed in cases of ulcer serpens of the eye is evidently, therefore, not confined to the eye. A further effect of the drug on the gonorrhoea was the marked diminution of the discharge, which quickly lost its purulent character, and became watery and transparent. Gonococci, which had previously been numerous, rapidly decreased in number, and were difficult to find after the injections had been given for four days. In no case did this treatment provoke complications. Some of the cases were acute, and had not previously been treated in any way. Other cases were chronic, and had undergone the most varied forms of treatment. The chronic cases reacted more satisfactorily to optoquin than the acute cases. In some cases the treatment with optoquin alone was inadequate, and though the discharge diminished and lost its purulent character, and though the gonococci disappeared almost completely, yet there was a little discharge in the morning from the urethra, and the first morning specimen of urine still contained threads. Cases in which an eight days' course of treatment with optoquin failed to effect a complete cure were subsequently treated with protargol, which in a short time completed the cure. One patient was a girl, aged 10 years, who suffered from acute gonorrhoea, and whose profuse discharge contained numerous gonococci. After three days' treatment with optoquin the discharge had diminished much and the number of gonococci was much reduced. After eight days the discharge had completely disappeared and gonococci were no longer demonstrable. A second patient was a non-commissioned officer who had been infected four days earlier, and who had suffered for a day from a profuse discharge which contained numerous gonococci. After two days of the treatment both the discharge and the number of the gonococci were much reduced. On the fourth day there was no longer any discharge but the urine passed in the morning still contained a few threads. A third patient was a young man who had been treated for four weeks by the author with strong solutions of protargol, which had failed to cure the gonorrhoea. After eight days' treatment with optoquin a complete cure was effected.

28. Treatment of Syphilis with Salvarsan Only.

R. KREFTING (*Deut. med. Woch.*, August 12th, 1915) disapproves of the present system of combining mercury with salvarsan in the treatment of syphilis. This blunderbuss pharmacy is the result of the mistakes made in the early days of salvarsan, when unbounded faith in the drug was rapidly followed by failures and accidents. Even Ehrlich had not the courage of his convictions and consented to this polypharmacy. Since 1910 the author has given 3,200 intravenous injections of salvarsan, the treatment, with only three exceptions, being ambulatory. Though his dosage was, as a rule, high, he never provoked alarming symptoms, and, with only very few exceptions, his patients were again fit for work on the day after an injection. The interval between each injection was seldom less than fourteen days. In no case did he observe true idiosyncrasy to the drug, but a few patients developed a scarlatiniform rash after an injection. In 4 cases of secondary syphilis he observed the so-called "nevrorezidiv," but this condition was only transitory, disappearing when the salvarsan was pushed. These nervous phenomena were, in his opinion, undoubtedly syphilitic. Of his 718 patients, 218 were suffering from primary syphilis when the treatment was instituted. Of these, again, 70 were given only one to two injections each,

while 148 were given at least three injections. The dosage was 0.5 to 0.6 gram for a man of normal weight, and 0.3 to 0.4 gram for a woman. In one group of 84 cases, in which Wassermann's reaction was negative, the disease was apparently cured, and in no case was a relapse observed. In another group of 61 cases, in which Wassermann's reaction was positive, the treatment was not followed by a single relapse. But there were 3 other cases in which slight relapses followed. Thus, in a total of 148 cases, in all of which at least three injections were given, there were only three relapses. Among the 70 patients who were given only one or two injections only four relapses were observed. The author found neo-salvarsan less potent and less capable of affecting Wassermann's reaction than salvarsan. Further proof of the curative effect of salvarsan alone was the fact that 10 of his patients were reinfected with syphilis. He concludes that salvarsan alone is quite as effective as a combination of salvarsan with mercury; and that in the early stages of the disease salvarsan alone, properly administered, almost invariably effects a radical cure. In secondary syphilis, however, salvarsan must be given for a long time, and must be continued even after Wassermann's reaction has become negative.

PATHOLOGY.

29. The Bordet-Gengou Test in Echinococcal Infections.

AFTER a long and detailed account of the various biological tests that have been employed for the diagnosis of echinococcal cysts in the human body, L. C. ZAPPELLONI (*Il Policlinico*, Rome, 1915, sez. chirurg., xxi) draws the following conclusions, supporting them in many instances by references to the extensive literature of the subject. The Bordet-Gengou test gave a positive result in 55 of his own 58 cases, and in 88 per cent. of 535 cases of echinococcal cyst collected from the literature. Positive reactions are obtained, apparently, indifferently in the common cases of infection by *Echinococcus hydatidosus* and the rare cases of *E. multilocularis*, as if these two varieties of echinococcal cysts were really but a single species. If the test fails to give a positive result, probably this is due to faulty technique in most cases, though not in all; it appears that in exceptional instances suppuration or calcification of a hydatid cyst may result in the disappearance of echinococcal antibodies from the circulating blood. On the other hand, a good many cases have been recorded by various authors in which a positive result was obtained in patients free from echinococcal infection; here again a faulty technique is generally responsible. Zappelloni concludes that in at least 6 cases, 2 of them his own, an erroneous positive reaction was obtained with an apparently faultless technique; he leaves these instances unexplained. He finds at least 1,600 instances in the literature in which patients apparently free from echinococcal infection gave a negative Bordet-Gengou reaction; and notes that the reaction usually remains positive for at least a month after the operative treatment of one of these cysts. As is well known, the blood of patients with echinococcal cysts usually shows eosinophilia; but this is observed in only 60 per cent. of the cases, and is also often present in a score of other diseases. The eosinophile cells form from 3 to 68 per cent. of the leucocytes, and their number varies widely from time to time in any given patient; hence, as Zappelloni points out, and as has often been stated by previous writers, eosinophilia is practically useless in the diagnosis of hydatid disease. The presence of a precipitin reaction in the blood is equally valueless here; and so is the meiostagmin reaction; the anaphylactic reaction (that is, the analogue of von Pirquet's or Calmette's tuberculin reaction) has proved a failure likewise. Zappelloni has studied the Bordet-Gengou reaction in hydatid disease for five years, and has examined the blood of 114 patients with the infection and 167 without it. He lays great stress on the employment of a proper technique, mentioning eight points of special importance that cannot be dealt with here but should be studied by all who have to apply the test in practice. The specific antibodies occur in the serum of practically all patients with hydatid cysts anywhere in their bodies; if the cyst is in the central nervous system the cerebro-spinal fluid also will contain these antibodies, otherwise it does not. The antibodies are not present in the patients' urine, or in pleural or peritoneal exudates.

AN EPITOME OF CURRENT MEDICAL LITERATURE.

War Number.

MEDICINE.

30. Scarlet Fever in the French Army.

At a meeting of the Réunion des Médecins de la IV^e Armée held on December 3rd, 1915 (*Paris méd.*, January 1st, 1916), FELIX RAMOND and GUSTAVE CHAMBAS read a communication on scarlet fever in the Fourth Army. From their own experience they were able to confirm the statement of the Swedish professor, C. Kling, as to the relative rarity and benignity of infectious diseases at the French front. They had treated 131 cases in nine months; all ended in recovery. Treatment consisted of the usual hygiene and diet, with sodium salicylate in doses of 3 to 6 grams daily, given for the reduction of the fever. Rheumatism occurred as a complication in 29 per cent. of the cases, and jaundice in 8 per cent. The rheumatism, which was not serious, presented the characters described by Trousseau; there was neither effusion nor oedematous redness round the joints, only pain about the insertion of the ligaments, and often in the periarticular muscles. Not many joints were affected; the knee and shoulder were most frequently attacked. The onset was sudden, the evolution rapid, and resolution was complete. The salicylate had an evident effect on the infection, and was well borne. On the other hand, antistreptococcic serum was useless. The jaundice, which in half the cases of rheumatism was a concomitant, was slight, lasting generally only ten to twelve days, and did not increase the gravity of the prognosis. MERKLEN, from his experience, agreed as to the frequency of rheumatism in men suffering from scarlet fever last summer, and its frequent association with transient disturbances in the rhythm and tone of the heart sounds. Scarlatinal albuminuria, having nothing to do with renal sclerosis, but due to slight acute simple nephritis, did not contraindicate the use of salicylate.

31. The Pulse in Scarlet Fever.

At a meeting of the Société Médicale des Hôpitaux on October 22nd, 1915 (*Paris méd.*, November 27th, 1915), NOBÉCOURT reported nine observations of scarlet fever, showing the frequency of tachycardia in convalescence from that disease. The acceleration of the pulse might be noted thirty to forty days after the disappearance of the eruption. This fact, he said, had a certain interest for the army medical officer called on to give an opinion as to the probable duration of convalescence in scarlatinal patients.

32. Nephritis in Soldiers in the Field.

At a meeting of the Académie des Sciences on November 8th, 1915 (*Paris méd.*, November 27th, 1915), PIERRE MARIE read, on behalf of G. PARISOT and F. AMEUILLE, a paper on certain acute forms of nephritis of abnormal type observed in soldiers in the field both French and British. These cases were of exceptional severity, and caused an enormous albuminuria coming on suddenly; sometimes also uraemic phenomena were observed which were all the more misleading as they coincided with a high degree of fever. They were certainly of toxic origin, although they could not be confounded with fatigue albuminuria. They were perhaps due to too carnivorous a diet, to insufficiency of diuretic beverages, and to immobility in the trench. Parisot and Ameuille drew two practical conclusions: (1) That an examination of all patients should be made systematically, and (2) that means should be found of supplying the combatant with abundance of vegetables.

SURGERY.

33. The Treatment of Septic Wounds.

THE *Polielino* (Sezione pratica, Fasc. 2, January 9th) contains a report of a discussion on the treatment of septic wounds held at Milan on November 11th in the group of medical war propaganda (Conversazioni castrensi promosse dal Gruppo di propaganda medica nella guerra). PEREZ of Pavia opened the debate by saying that as to the treatment of aseptic wounds there was general agreement. Simple protective aseptic medication, preceded by cleansing of

the skin of the part with benzine, alcohol, or tincture of iodine, with a good position of the injured limb, was sufficient to effect a cure. As for the treatment of infected wounds, while some insisted on the necessity of large incisions, opening up of tracks, free use of an antiseptic by irrigation, packing and drainage, others recommended more or less complete abstention with simple cleanliness of the part and immobilization in a convenient position. Perez thought abstention might easily be carried too far; in the treatment of war wounds the sound rules of general surgery should be adhered to. It was necessary to avoid or to reduce as far as possible the dangers to which the organism was exposed in defending itself against the processes with which the injured part had to contend. To-day the surgeon had at his disposal all the means of meeting these indications. Moist heat, favouring vasodilatation and diapedesis, hastened the natural evolution of the inflammatory process; hence very hot packs were of the greatest use, and had a sedative action on pain. Where inflammatory hypertension persisted and tended to increase, free incision was necessary in order to prevent or arrest gangrenous processes, bony necrosis, and infiltration of the cellular tissue. Moreover, such incisions, by reducing congestion of the tissues, opened up a free path for the elimination of toxic products and exudates, and obviated the risk of thrombosis consecutive to stasis in the vessels. As for circumscribed collections of pus, the best course was undoubtedly to open at the most dependent part. Perez went on to say that the abandonment of many antiseptics in the treatment of wounds was connected with the fact that many of those once considered very active not only did not possess a powerful and speedy bactericidal action, but injured the tissues, diminishing the power of defence, besides exerting a general toxic action in the organism. But if sublimate, carbolic acid, and other antiseptics were now discarded, that did not mean that antiseptics not having these drawbacks must be abandoned. Where the skin was unbroken, alcohol, either alone or in combination with iodine, was very efficacious. Among the antiseptics which might be applied to wounded tissues without disadvantage was oxygenated water, which, besides its antiseptic and oxidizing action, also promoted the clearing out of exudates and broken down tissues in the tracks and anfractuosités of wounds. There are also the preparations of iodine and chlorine. He insisted on the great efficacy of calcium hypochlorite, both on account of its antiseptic power (which it owed as much to the chlorine as to the calcium), and of the property which it possessed of destroying dead tissues without affecting living tissues. It thus exerted a very marked cleansing action on gangrenous wounds. Moreover, it was not toxic. Potassium permanganate might be very useful, especially in cases of putrid gangrenous wounds, and, owing to its very slight toxicity, had the advantage that it might be used for the prolonged immersion of limbs. In addition to local treatment it was well to use means to increase the resisting power of the organism by means of therapeutic serums and vaccines. In this way it was possible to save limbs which seemed doomed to amputation. MIRTO of Milan thought they should seek to restrain the great readiness of young surgeons to intervene for the extraction of projectiles in parts where they caused no inconvenience, and more especially for the removal of bony fragments, which if left might help the formation of osseous callus in some comminuted fractures. Disinfectants should be used only in suppurating wounds, and must be condemned when they injured cell vitality. He had got the best results from abundant irrigation of suppurating foci, which had the advantage of removing necrotic shreds and foreign bodies, and bringing the disinfectant to bear on surfaces already cleansed. For wounds he used oxygenated water and a solution of calcium hypochlorite, 3 per cent., with the addition of boric acid 4 per cent. That solution gave excellent results. The disinfecting irrigation was followed by washing with physiological solution to revive the tissues. In inflammatory infiltrations he used moist heat and packing with gauze steeped in alcohol, 60 to 70 per cent. By these methods he had treated some 250 cases of wounds without a single death or complication,

and with excellent functional result. PICCAGNONI of Busto Arsizio agreed with Perez that there was no scientific justification for the abstention now recommended in the treatment of septic wounds. It was only by seeking carefully to destroy the source of the infection by giving free exit to pus that grave consequences could be prevented. Abstentionism could be justified only if serum and vaccine therapy could be applied effectually. They were, however, still far from that consummation. A. BERTARELLI, without disputing the efficacy of sublimate as an antiseptic, could not forget the erythema and true dermatitis sometimes produced by the use even of a solution of 1 per 1,000 for washing the skin. Potassium permanganate, oxygenated water, and calcium hypochlorite, were better antiseptics and were free from disadvantages. He would like to see the use of sublimate reserved for the disinfection of things, and no longer applied to the human body. Iodoform he would also abandon on account of its irritating effects on the skin, and he would say the same thing of xeroform. PEREZ, in summing up the debate, said he recognized the efficacy of serum and vaccine therapy rationally carried out. But he believed that when the method was even in a more advanced stage than it was at present it would still be difficult, without surgical intervention, to prevent the consequences of accumulations of pus.

34. Localized Tetanus.

At a meeting of the Académie de Médecine on November 9th (*Paris méd.*, November 27th, 1915) SAMUEL POZZI reported a case of tetanus strictly limited to the wounded limb. The patient was a man who had been struck by a fragment of shell which pierced his foot, making a lacerated wound of no great size. He was dressed almost immediately, and after three days received an injection of antitetanic serum; he seemed in a fair way to recovery, but suddenly, on the fifth day, the temperature rose. He had convulsive movements of the wounded foot and the leg and thigh of the same side. The man complained of intolerable pain, which neither morphine nor other opiates nor chloral could relieve. He called loudly for amputation, and this was done, as there appeared to be no other means of saving his life. For a certain time the pain continued to be very severe; then, after some large injections of serum, it diminished in intensity. All these phenomena involved only the foot and leg of one side, only sometimes radiating to the other side. At the time of the report the patient was making an excellent recovery, the only symptom remaining being painful contraction of the leg and the thigh. The temperature had become normal and the infection had disappeared. ROUTIER said that he had had 5 cases similar to that reported by Pozzi.

35. Extract of Fragments of Projectile from the Lung.

At a meeting of the Société de Chirurgie on October 27th, (*Paris méd.*, November 27th, 1915) MAUCLAIRE discussed the indications for the extraction of projectiles embedded in the lungs. He said the surgeon must intervene if the respiratory movements caused great pain or if there were signs of a large abscess. If the projectile was deeply seated it was best not to intervene. The operative technique was facilitated by radioscopy and radiography, and by the use of Bergonié's electric vibrator. QUÉNU agreed with Mauclore, and pointed out as a contraindication of intervention the presence of a number of fragments. TUFFIER thought that some precise indication, such as the menace of a complication, should be awaited before intervention. At a meeting of the same society on November 10th, PIERRE DUVAL expressed the opinion that every foreign body in the lungs should be removed. He drew a distinction between (1) projectiles superficially or deeply seated, lodged in a piece of lung adherent to the chest wall, with or without cutaneous fistula, and (2) projectiles lodged in free lung not adherent to the thorax. In the former case the indication for operation was definite. In the second it was open to discussion, but Duval thought it was indicated, on account of symptoms which made the wounded man quite unfit for service, and in view of the possibility of a suppurating focus enveloping the projectile.

36. A Fragment of Shell in the Right Ventricle.

At a meeting of the Réunion des Médecins de la IV^e Armée on October 22nd (*Paris méd.*, November 27th, 1915) VOUELLE reported a case in which he had attempted to extract a fragment of shell from the right ventricle. On opening the thorax and pericardium, the fragment was seen lying free in the cavity, and could be seized with the fingers. Every attempt to remove the foreign body, how-

ever, was followed by alarming syncope, and the operation could not be completed. The patient died four days later of suffocation. The autopsy showed no visible lesion in endocardium.

37. Gaseous Bags as Dressings.

MORISOT (*Journ. de méd. et de chir. pratiques*, July 25th, 1915) recommends as a dressing for wounds the application of sachets or bags containing materials from which gases, especially carbonic acid gas or oxygen, will be generated and reach the wounds in the nascent state. He recommends that the outer covering of the bag should be of "tangepe," a perforated material with a mesh somewhat smaller than that of gauze, and that it should contain sterilized granulated cork. The bag will thus only touch the wound at points instead of lying wholly in contact with it, and air will circulate freely within the bag. As a dry dressing, when no gaseous element is introduced, this has an advantage over gauze in that it adheres less to the surface of the wound, and therefore cicatrization is not so much interfered with and is more rapid. In order that carbonic acid gas may be continuously in contact with the wound the cork is prepared in an acid solution, dried, and placed inside the bag, together with the desired amount of sodium bicarbonate. The addition of anhydrous sodium carbonate enables a certain quantity of heat to be generated when the bag is dipped in water, and so helps the nutrition of the tissues. When the dressing is needed for use the bag is soaked in boiled water and rapidly applied to the wound, when carbonic acid gas is slowly and continuously generated. The gas as thus produced is in no way irritating, and penetrates into all the recesses of the wound. To obtain oxygen in the nascent state, the bag should contain bicalcote, which in contact with nascent carbonic acid produces oxygen. For a dry dressing the wet bag is covered with cotton-wool, for a wet one with an impermeable covering. The advantages of this form of dressing are: (1) Cheapness; (2) simplicity of application, with no need for the preparation in advance of any solution; (3) ease of transport and of conservation; (4) non-adhesion to wound surfaces; (5) maintenance of a gaseous atmosphere round and within the wound; (6) analgesic action due to the carbonic acid and to the formation by the dressing of a tampon permitting of the support of the weight of the body. A patient with wounds of the foot, for example, no longer feels sharp pain, and can earlier begin active movements and walking.

38. Gas in the Tissues.

WOODBURN MORISON (*Archives of Radiology and Electrotherapy*, December, 1915) states that he has been able on many occasions, by x-ray examination, to demonstrate the presence of gas in the tissues in association with injuries caused by pieces of shell casing or metal with ragged edges. In all these cases the metal had carried into the tissues shreds of clothing, which were found in the track, and adherent to the ragged edges of the projectiles. The clothing of the men coming from the trenches was caked with earth in many places, and in this way anaerobic gas-forming bacilli were carried deep into the tissues. Gas was more rarely proved in wounds occurring in the face or hands and in wounds made by rifle bullets, which, with their pointed ends and smooth surfaces, carried no clothing and afforded no means of entrance to gas-forming bacilli. The author divides into two groups the cases in which gas was demonstrated: (1) True gas gangrene. Here the gas formation was exceedingly rapid, spreading along the muscle sheaths, and finally leading to complete disintegration of the muscles. The quantity of gas evolved was considerable, the part affected being swollen and so tense that the gas could be heard escaping when an incision was made. (2) Localized gas formation. Here the gas formed in the vicinity of the metal and collected in bubbles of varying size, gathering slowly and not exhibiting the same tendency to spread along the muscle sheaths. It was possible to demonstrate its presence in minute quantity long before it could be diagnosed otherwise than by x-ray examination. If gas is present, surgical interference is at once indicated; if absent, one point at least has been established in favour of leaving well alone.

39. X-Ray Images in Stereoscopic Relief on the Screen.

To see the image on the fluorescent screen stereoscopically has long been the desire of radiologists, but the necessities of the war, when large numbers of wounded have to be examined and the position of a projectile or the site of a fracture localized as quickly as possible, have given the matter a fresh importance. GIBON (*Compt. rend. Acad.*

des Sciences, No. 161, 1915) gives particulars of three methods. In the first of these, two x-ray tubes are employed (or one tube with two anticathodes), and the diaphragm is placed between the tubes and the subject. This diaphragm consists of the leaves of a metal impermeable to x rays save for an opening of variable width. Starting from the first tube, the rays pass through the opening of the diaphragm and the body of the patient, forming an image on the platinocyanide screen. The rays from the second tube form another image, and these two projections, slightly dissimilar, make a stereoscopic pair, which can be viewed with a Wheatstone stereoscope. The relief is proportional to the distance apart of the tubes, and the distance from the diaphragm to the screen. The maximum width of the diaphragm window must always be less than the separation of the two anticathodes. A second method involves the use of a special screen consisting of a plated or corrugated metallic sheet, again with two tubes in action. The rays from the tube to the left, after passing through the part to be examined, rendered fluorescent only the plaits or corrugations to the right, for they traverse perpendicularly only the minimum thickness of metal, whereas the rays from the same tube, before reaching the plaits to the left, have to meet obliquely a greater thickness of metal, and in consequence do not irradiate the platinocyanide. The same thing happens in the reverse sense in the case of the rays from the other tube, and thus a stereoscopic pair is formed of alternate bands of the separate images, which it is sufficient to observe in a mirror stereoscope. The mirrors reflect, one of them the plaits to the right and the other the plaits to the left, so that each image appears to be continuous, and on both being examined simultaneously they give the effect of relief. A small screen, sufficient for the examination of the limbs, may be constructed by taking a sheet of aluminium, 1 mm. in thickness, 50 cm. in length, allowing about 20 cm. for the plaiting or corrugation, the plaits being about 8 mm. in breadth. If the distance from the screen to the tube be 50 cm., and the separation of the anticathodes be 20 cm., the angle of the plaits of the screen should be about 30 degrees. A third method consists again of employing two tubes, but with double obturators, or shutters, so that each eye perceives only the projection of the tube to which it corresponds. By alternately masking each tube at a rapidity of about five times per second, and allowing each eye to see only its separate image, one may obtain the impression of an image in continuous relief, thanks to the persistence of the retinal image, and also to some persistence of the fluorescence of the platinocyanide screen. A useful obturator may be obtained by a number of methods, but the most efficient would be one by which the action of the obturators is controlled by the actual passing of the current alternately through each of the tubes.

40. Extension Apparatus for Fracture of the Humerus.

J. ABADIE (*Bull. et mêm. de la Soc. de Chir. de Paris*, July 6th, 1915) describes an extension apparatus for fractures of the humerus which gives results similar to those obtained by means of Delbet's apparatus, and has as an additional advantage that it can be quickly made out of materials which are possessed by every ambulance. The apparatus is made up of several parts. A wire-work or perforated splint or a piece of zinc of about 20 cm. by 6 cm. (7.8 in. by 2.3 in.) is bent into three parts at right angles to one another, one of the turned-up ends being twice as long as the other. Next a piece of hoop iron 50 cm. in length (19.5 in.) is taken, and at the end intended for the lower end of the splint a length of 6 cm. (2.3 in.) is bent at right angles to the stem, while at the other and upper end the iron is bent on itself twice so as to form a hook. The lower end of the iron is now inserted into the three-sided splint, so that the longer end of the small splint lies outside and parallel to the iron stem, and the shorter end of the small splint is doubled over the foot of the iron one. The two are fastened together by means of plaster-of-Paris bandage. Next are made two arches of iron wire; the lower one, which is well padded, is in the shape of a double crescent, and is intended to pass below the axilla; the upper arch, which can be hooked into the lower one, to pass above the shoulder. The points of application of the extending forces are the upper part of the forearm with the elbow bent at right angles and the axilla respectively. In applying the apparatus, the upper end of the forearm and lower end of the arm are well padded and the lower angle of the splint fitted well into the bend of the elbow, the splint being maintained in position by turns of bandage; the iron-wire arches are applied under the axilla and above the shoulder and hooked together. Continuous

elastic force for extension is then obtained by several turns of india-rubber tubing, which pass over the hook on the upper end of the iron stem and below the upper iron-wire arch; the amount of traction is easily regulated by the thickness of the india-rubber employed, the number of turns taken, and the amount of tension given initially to the india-rubber. Certain precautions need to be observed in applying the apparatus. The front of the shoulder should be well padded, or, better still, the iron stem bent so as to avoid undue pressure in this region. The direction of the hook at the upper end of the iron stem may need to be slightly incurved, in order that the direction of traction may be parallel to the long axis of the humerus. The time needed for the construction and application of the apparatus is from fifteen to twenty minutes, but if the necessary apparatus is made beforehand, as can easily be done, not more than five minutes is needed to put it in position. Compound fractures can easily be dressed without disturbing the splint, space is left between the iron stem and the arm and the part of the arm which is accessible comprises from 5 cm. (1.9 in.) above the bend of the elbow to the axilla and the acromion process. The results obtained are the same as those obtained from the use of Delbet's apparatus. Preliminary reduction of the fracture is unnecessary since coaptation takes place progressively. Pain ceases almost immediately. A special advantage of the method is the freedom of movement allowed to the arm without cessation of traction.

41. Wounds of Abdomen.

At a meeting of the Société de Chirurgie on December 1st, 1915, MARQUIS, of Rennes, presented statistics of 68 cases of abdominal wounds from the battle of the Marne which were almost of necessity treated by expectancy on account of conditions which made suitable intervention impossible (*Paris méd.*, January 1st, 1916). Of the whole number, 36 died and 32 recovered. A certain number of the wounds were not penetrating, and in 21 in which there was penetration the projectile was a bullet. He concluded that when a large number of wounded had to be dealt with, abstention from operation and placing the man in Fowler's position with injection of serum, and in certain cases rectal irrigation, gave satisfactory results. Speaking of 84 cases of penetrating wounds of the abdomen communicated by STERN, ROCHARD reviewed all the cases of intervention and abstention in such injuries which had been presented to the society since the beginning of the war. From his clinical records he concluded that laparotomy was the only treatment applicable to war wounds, as it was to those of civil life.

42. Wounds of the Spleen.

At a meeting of the Société de Chirurgie on October 27th, 1915 (*Paris méd.*, November 27th, 1915), WILLEMS of Ghent read a communication on wounds of the spleen. He had performed five splenectomies for rupture of the organ only a few hours after the infliction of the wound. All the patients died, doubtless, he thought, on account of the circulatory disturbances caused by the suppression of a healthy gland in full work and not compensated for. QUÉNU said he had also observed the gravity of wounds of the spleen caused by projectiles. ROUTIER thought the gravity of splenectomy was not due solely to the removal of an important organ. There must be an unknown factor, for he had operated in at least three cases for wound or rupture of the spleen, and all his patients got well. HARTMANN also mentioned several cases of successful removal of a healthy spleen. WILLEMS pointed out that the cases he had seen were instances of true bursting of the organ, not simple perforations.

43. War Deafness.

At a sitting of the Académie de Médecine on December 21st, 1915 (*Paris méd.*, January 1st, 1916), LANNOIS and CHAVANNE read a paper based on the observation of a thousand cases of war deafness treated at the oto-rhino-laryngological centre of the Fourteenth Region. The prognosis depended on two factors: (1) The previous condition of the auditory apparatus. Men suffering from chronic suppurative otitis media, or well-marked sclerosis, after commotion of the labyrinth by the bursting of shells, showed an incomparably greater proportion of deafness or impaired hearing than healthy subjects. Of 189 men sent back from the front for chronic suppurative otitis media, intensified by concussion caused by shell, only 43 per cent. were returned to the fighting line; 56 per cent. were passed into the auxiliary services; 1 per cent. was discharged as unfit. Of 134 cases of sclerosis sent back on account of defective hearing after some

months of campaigning, 48 per cent. were passed into the auxiliary services, while 52 per cent. were returned to the fighting line. (2) The existence or otherwise of a direct injury to the skull, deafness being almost the rule in traumatic mastoiditis (about 95 per cent.); frequent in traumatism of the branches of facial nerves distributed to the ear (about 30 to 40 per cent.); rare in fractures of the cranial vault. In such cases it was generally unilateral deafness that was produced. If there was no direct traumatism, concussion of the labyrinth was rarely followed by deafness. In 645 cases with and without rupture of the drumhead, the authors saw only 2 per cent. of cases of definitive bilateral deafness. This proportion was 5 per cent. among 262 cases of pure concussion without rupture, the rupture being, in fact, a factor making for mitigation of the effects of the injury owing to the immediate decompression which it caused. Acoustic exercises had no effect on definitive deafness due to concussion of the labyrinth. Recourse must be had to lessons in lip reading if the victims of such injury were to be kept in touch with social life. Great care must be taken before giving a prognosis, to exclude malingering. The authors had found simulation in 11 per cent. of their 262 cases of pure labyrinthine concussion. Simple deafness and deafness with dumbness from traumatic neurosis got well the more quickly the patient received suitable treatment.

At a meeting of the Académie des Sciences on November 15th (*Paris méd.*, November 27th, 1915) DELAGE read, on behalf of MARAGE, a paper describing the treatment employed by him in the case of soldiers who had been made deaf and dumb without apparent lesion by the bursting of high explosives. If hearing and speech are not recovered within a few weeks, they may be permanently lost. Marage applies mechanical vibratory massage to the larynx and the sides of the neck, thus calling into play both the intrinsic and the extrinsic muscles of the larynx. The patients treated in this way began to speak after a few days, and in three weeks completely recovered their speech. They had been deaf and dumb for four or five months, and all other methods of treatment had failed.

44. Chronic Traumatic Oedema of the Back of the Hand.

DISCUSSING the hard traumatic oedema of the back of the hand, first described in 1902 by Vulliet, L. LEVY (*Deut. med. Woch.*, August 12th, 1915) records 3 cases among about 1,000 patients treated in the orthopaedic department of a military hospital. The first patient crushed his hand between two pieces of wood in a railway accident; the second patient was struck on the back of the hand with the butt of a rifle. The third patient was a man, aged 31, healthy and powerfully built. A blow on the back of the right hand, given by the blunt end of a hatchet, provoked severe pain, which was soon followed by great swelling of the hand. Though no effusion of blood could be detected, the skin became livid, and it was very difficult for the patient to close his fist. Wet compresses were applied. He remained on active service after the accident, although he could not hold his rifle properly. Six weeks later he was given sick leave, and the swelling was then still firmer, and the fingers were more rigid than before. The condition was but little affected by massage and warm hand baths, and four and a half months after the accident the swelling was as hard as a pumped-up rubber tyre. Whilst the swelling tapered away over the backs of the first four fingers, it ceased abruptly at the back of the wrist and at the bases of the fifth finger and the thumb. The palmar aspect of the hand was not swollen. The skin over the swelling was livid and tense; it could not be pinched into folds and showed no pitting on pressure. On passive movement the fingers, which were extended, could be made to turn about an angle of 15 degrees; but the patient could not move them voluntarily. The *x* rays revealed marked atrophy of the bones, but showed no sign of fracture. Orthopaedic exercises have been found of little value in the treatment of these cases, and the author therefore confined the treatment to daily hot air baths at a temperature of 70° C. Later, eighteen injections of fibrolysin were given, and the patient was discharged more than half a year after the accident without any improvement having been effected. The pathology of this condition, which the author thinks is probably a trophoneurosis, is not fully understood, and no effective microscopic study of the tissues concerned has yet been made. But the author is certain that the atrophy of the bones, as shown by the *x* rays, is merely a secondary phenomenon, due to the

interference of the oedema with the nutrition of the bones. This atrophy is not characteristic of chronic idiopathic oedema; and it is also observed in cases of fracture of the metacarpal bones associated with oedema.

45. Localization of Foreign Bodies by Electro-vibration.

PHOCAS (*Arch. d'électr. méd.*, November, 1915) has described to the Société de Chirurgie a case in which a number of small fragmented foreign bodies were extracted under the guidance of the Bergonié electro-vibreur (an electro-magnet charged with alternating current, which sets up induced currents, and consequent vibration, in metal fragments within its field of influence). The case in question was that of a soldier who had received a splinter of shell on the external face of the thigh. The splinter encountered a knife which was in the man's pocket, and this it broke into several pieces, which were sent into the flesh, and it was itself broken into particles. Five of the fragments were extracted under local anaesthesia (cocaine), the electro-vibreur successfully making the localization, and confirming the *x*-ray localization which had previously been made. The largest of the splinters was of the size of a small nut. A month later a further operation took place, also under local anaesthesia, and six small splinters were extracted, some of which appeared to have formed the handle of the knife, and others the blade. Yet another operation, under chloroform, took place a fortnight later, and the remaining piece of metal was extracted. Cicatrization was obtained within two months of the first examination, which itself took place more than two months after the date of the wound. The author considers the method a valuable one in shell wounds where there has been much fragmentation.

THERAPEUTICS.

46. Treatment of Dysentery.

AT a meeting of the Réunion des Médecins de la IV^e Armée on December 3rd, 1915 (*Paris méd.*, January 1st, 1916), P. EMILE WEIL said he had, by the use of emetine hydrochloride in doses of 8 to 20 centigrams in the day administered by hypodermic injection, got far better results in dysentery and dysenteriform diarrhoea than those obtained with collargol, bismuth, or sodium salicylate. After the first injection the stools diminished in number by at least one-half. He found that the drug acted as well in ordinary dysentery as in the amoebic form. LEON GIROUX said that he had treated 172 cases of diarrhoea, two-thirds of which showed the characters of dysentery. He insisted on the value of the urinary crisis with free discharge of chlorides associated with bradycardia as signs of convalescence. He had only four deaths. The complications noticed were a febrile choluric jaundice; paratyphoid infection in three cases, in one of which the *B. dysenteriae* was found in the stools; joint and muscle pains in some cases accompanied by scarlatiniform erythema, herpes in two cases, paroxysmal tachycardia in two cases; four cases of transient albuminuria, one case of diaphragmatic pleurisy, and one of Raynaud's syndrome. He used antidysenteric serum in cases where the corresponding infection might be suspected. When this first treatment remained without effect, and in general in all cases of bloody diarrhoea, he used emetine in doses of 0.04 gram daily with excellent results. In choleric diarrhoea he recommended, besides cardio-tonic medication, morphinized serum for the muscular cramps. FÉLIX RAMOND, in dealing with glairy bloody frothy stools with very putrid smell but without *B. dysenteriae* or amoebae, recommended a carbohydrate diet and bactericidal medication of the colon by means of enemas of lactosed water, 50 per 1,000, to which laudanum might be added. These should be retained as long as possible, as they acted by the lactic acid which they produced in the intestine. From six to eight hours after the lactose enema a litre to a litre and a half of oxygen could be injected. After two or three days of carbohydrate diet it was advisable to give raw or underdone meat and milk. Whilst the diarrhoea lasted acids and bile given by the mouth were of some value. Opiates were indicated in painful forms.

At a meeting of the Société Médicale des Hôpitaux on October 22nd, 1915 (*Paris méd.*, November 27th, 1915) MILIAN reported that for two or three years he had used arseno-benzol with success in the treatment of amoebic dysentery.

AN EPITOME OF CURRENT MEDICAL LITERATURE.

War Number.

MEDICINE.

47. Cerebro-spinal Meningitis.

JEAN PIGNOT, médecin aide-major de réserve, and JEAN TERRASSE, médecin auxiliaire (*Paris méd.*, November 27th, 1915) were entrusted with the establishment of a station for the treatment of cerebro-spinal meningitis some kilometres from the French front. During a period of four months twenty-six patients were admitted to the huts; of these twenty-two were completely cured. The authors attribute this successful result to the fact that the majority of the cases were discovered at the very beginning of the disease, and that a special service working night and day prevented any delay in administering the first injection of serum. The patients, almost all of whom were found either in the trenches or the cantonments, were for the most part sent to them within the first twenty-four hours by special automobile, and the first lumbar puncture was performed immediately on their arrival. Speaking generally, even when the symptoms of meningeal reaction were but slightly marked, the presence of a cerebro-spinal liquid even slightly opalescent was judged to be a sufficient indication for an immediate massive injection of serum. The clinical diagnosis was always verified within a few minutes of puncture by microscopic examination. After the injection the patient was immediately placed with his head lower than his feet; after lying in this position for three-quarters of an hour he was put to bed in the normal position. The morphology and abundance of the meningococci were taken as guides in fixing the second dose injected the next day. The injections were given in decreasing doses till the liquid returned was almost normal and the pathogenic agent had almost completely disappeared. The quantity of serum injected varied from 200 to 300 c.cm. As there was little facility for bathing, tepid affusions were used instead. To all the patients was administered urotropine in solution, in a dose of 1 gram a day during the febrile period; those among them in whom the flow of urine was insufficient received on several consecutive days a hypodermic injection of 250 grams of artificial serum, to which 10 to 15 cg. of spartein sulphate were added. Vegetable soup and milk, condensed or otherwise, was the only food allowed in the acute stage. On the fifteenth day they were allowed to get up. After a few weeks, during which the rhino-pharynx was disinfected with gomenol [said to be a distilled essence of *Melaleuca viridiflora*, a plant indigenous to New Caledonia] and menthol oil, they were sent back to the interior to complete their convalescence. The authors point out that although the clinical forms of cerebro-spinal meningitis are extremely varied, those in the adult which came under their hands almost all presented the same evolution. The symptoms of onset were for the most part violent headache, nausea, pains in the limbs, and high fever. The onset was so sudden that most patients were able to tell the exact hour at which they began to feel ill. The most trustworthy symptom was stiffness or simply painful discomfort in the nape of the neck; this was so constant that it was often taken as an indication for lumbar puncture. Of all the pains complained of, headache, chiefly in the frontal and occipital regions, was the most violent. Vomiting was rarer, although nausea occasionally persisted for some time. Constipation, though not obstinate, was more frequent than diarrhoea. In no case was the photophobia so often met with in other forms of meningitis, especially the tuberculous, observed; the authors were struck by the clear brilliant look of the eyes. There was generally no loss of consciousness, and even those who had become comatose recovered their intellectual faculties with fair rapidity after the serum treatment. Hyperaesthesia and hyperalgesia of the skin were unfailing symptoms. Sometimes true tonic convulsive crises, with opisthotonos like to that seen in patients with tetanus, were observed. This made the injections very difficult. The pulse, which was taken very regularly, showed great instability, but was generally well marked

and not slow. Albumin was never found in the urine. Several patients presented a well-marked herpetic eruption on the face, lips, chin, and the lobes of the ear, never on the rest of the body or the mucous membrane. Sero-toxic rashes, however, were seen in some patients from the eighth to the twelfth day after the first injection. The authors never observed any sign of anaphylaxis when injections were begun again in cases of relapse. They conclude by emphasizing the importance of recognizing a meningeal reaction at the earliest possible moment. When a cerebro-spinal fluid of suspicious aspect is found an injection of antimeningococcus serum should be given forthwith.

48. Typhoid and Paratyphoid Mortality.

AT a meeting of the Réunion Médico-Chirurgicale de la IV Armée held on January 14th, 1916 (*Paris méd.*, February 19th, 1916), BORDIN read a communication in which he stated that, according to his own observations, the mortality of typhoid conditions had diminished to a considerable extent since the autumn of 1914, when it was 18 per cent., till the summer and autumn of 1915, when it was only 1.6 per cent. This diminution, he said, was due to the progressive and almost absolute disappearance of Eberthian enteric, which now accounts for only 5 to 6 per cent. of all typhoid conditions. The result is due to anti-typhoid vaccination, the fever only exceptionally attacking those protected by that method. On the other hand, paratyphoid attacks those vaccinated against typhoid in the proportion of 87 per cent. The paratyphoid mortality is very low in the hospital in which he works. Whilst the typhoid mortality varies from 14 to 17 per cent., that of paratyphoid B is 6 per cent., and that of paratyphoid A only 1.4 per cent.

49. Submarine Casualties.

AT the annual meeting of the American Association of Military Surgeons, held at Washington in September, 1915 (*Military Surgeon*, January, 1916), W. H. HALSEY, Past Assistant Surgeon U.S. Navy, read a paper on submarine casualties. He says diphtheria, the exanthemata, cerebro-spinal meningitis, tuberculosis, and all communicable diseases, including gonorrhoea and syphilis, are a menace to the efficiency of the submarine, and injuries, however slight, may hold most serious potentialities. An illness or injury occurring on a battleship, which would hardly keep a man from performing ordinary duty, if occurring on a submarine would necessitate the immediate removal of the man to the sick bay of the tender or to a hospital. As the number of men is limited this could not happen many times without serious consequences. The problem before the medical officer, therefore, is mainly that of prevention. Halsey classifies the incidence of conditions which may endanger the health or life of the crew as follows: (a) *When the submarine is on the surface, either stationary or under way:* (1) Gasoline poisoning (in the gasoline type of boat) due to unburned gas coming from breaks in the supply line. (2) Gasoline poisoning due to back fires in the exhaust, which fill the boat with partially burned gas. (3) Gasoline explosions. (4) Trauma due to falls from deck through hatches. (5) Drowning; men may fall or be swept overboard. (b) *Submarine on surface and under way:* (1) Sea-sickness. (2) Drowning; men may be washed overboard either from deck or from temporary bridge, from which place the submarine is frequently navigated while cruising. (3) Ramming or being rammed by another submarine or destroyer, or striking an obstruction to navigation. (4) Trauma due to violent shifting of the boat or to being struck by heavy objects adrift inside the boat. (c) *Submarine awash or submerged:* (1) Leaks in watertight body of boat. (2) Leaks into battery tanks and generation of HCl gas. (3) Battery explosions (explosive combination of free battery hydrogen and the oxygen of the air). (4) Ramming or being rammed. (5) Vitiating of air. (6) Noxious gases from ballast tanks after long disuse, notably marsh gas. (7) Inability to regain positive buoyancy owing to submergence at too great a depth. (8) Inability to right the boat and bring her

to an even keel at the proper depth; boat has down rudder and engines are giving the downward impetus. (9) Leakage of compressed air, so that not enough is left to blow the tanks or to revitalize the air in the boat. (10) Explosion of torpedo in tube. (11) Torpedo stuck in tube and its engines running. Friction generated intense heat. (12) Terrific cold in northern waters in winter. (13) Explosives dropped from aeroplanes. Among the phobias and psychasthenias exhibited in members of submarine crews, Halsey says the fear of submerging is rare, but the dread of submerging to too great a depth is often present. This latter fear may affect one individual or the whole crew, so that every man in range is covertly watching the depth gauge as soon as it begins to register. The fear of striking the keel of a passing ship in rising has been noted several times. Psychasthenia and neurasthenia must be constantly watched for, for an excitable individual in a submerged boat may destroy the moral of the crew in a moment. Dealing with the casualties more in detail, Halsey says the ever-impending danger to the crew both in peace and war is death by suffocation. The asphyxiating gas may be CO_2 , HCl , Cl , gasoline or the fumes from the oil which has burnt in the oil-burning type of boat. If the mechanism which allows the replacement of water by air in the submarine ballast tanks fails to work when a boat is submerged beyond a certain depth, the men in the submarine must make the most of the few hours of life left to them. Death from carbon dioxide poisoning is inevitable. Another possibility of asphyxiation by vitiated air lies in too long submergence when eluding an enemy or manoeuvring in position to attack. Then there is a certain depth beyond which a boat cannot go and again regain the surface. This point is determined by two factors: the amount of pressure which the sides of the boat will stand without collapsing, and the air pressure available to overcome the water pressure in the ballast tank. When the depth is too great there is an increased pressure, the plate seams begin to give, the submarine continues to go down, and suddenly collapses like an eggshell. The generation of chlorine or hydrochloric acid gas and its diffusion throughout the boat may occur through salt water leaking into the battery tank. The acid electro light reacts with NaCl to produce free hydrochloric acid gas and free chlorine. The effect of breathing these gases in such small dilution as the air in a submarine can afford is readily imagined. The vapours of gasoline, burnt or unburnt, are much less deadly—first, because the gasoline engines are used only on the surface, and secondly, because these gases are much less irritating to the lungs and mucous membrane. The insidious onset of gasoline intoxication, however, and its violent nerve manifestations make it a formidable possibility. The nervous phenomena run the gamut from wild delirium to profound coma. The crew become more or less used to the continuous odour of gasoline, and thus are not conscious of the impregnation of the atmosphere with the fumes until one of them drops to the deck unconscious or raves about in delirium. All the men in a compartment may be affected in quick succession, and speedy ventilation of the boat becomes imperative. The crew of a submarine is subject to the benumbing effects of cold in winter and to the oppressive effects of heat in summer. The heat is especially felt in tropical waters. The men are almost always in a state of high nervous tension, and it can never be said that they are comfortable as comfort is ordinarily known. Dangers from within and without threaten them continually, yet, says Halsey, a more cheery, uncomplaining, courageous set of officers and men would be hard to find.

50. War Psychoses.

A. B. GERVER (*Russkii Vrach*, xiv, No. 36, abstracted in the *Military Surgeon*, the organ of the military surgeons of the United States, January, 1916) divides war psychoses into three classes: (1) Those arising in men without hereditary taint and due solely to the war environment and to violent emotions caused by battles; (2) psychoses which would develop in ordinary peace circumstances, but the onset of which is precipitated by the war; (3) dementia praecox, manic-depressive insanity, paranoia, paralytic dementia; to this class belong traumatic psychoses caused by wounds and contusions. The psychoses of the first category do not differ in any way from the old type, but may be subdivided into those caused by battles, by trench life, and rearguard psychosis. Clinically they belong to the acute mental disorders, amnesia and asthenic psychoses. They often develop in the form of neurasthenic insanities. The specific character of all three classes consists in the peculiar

colouring and nature of the hallucinations, illusions, delusions, and conduct. The hallucinations and delusions take their special character from the experiences of war life; another feature is depression, often followed by excitement and confusion of consciousness. The nature of the fighting (artillery, infantry, bayonet attacks, etc.), the duration of the war, life at the front, the course of military events (offensive or defensive), victory or defeat, and the general moral of the army determine the larger or smaller proportion of the psychoses. Gerver holds that in the present war the proportion of psychoses is relatively small, being only about 1 per 1,000, whereas in previous wars it was 2 or 3 per 1,000. The main cause of the decreased rate is the absence of alcoholism, which in the Russo-Japanese war was responsible for one-third of all the psychoses. In the present campaign not a single case of alcoholic insanity has been observed in the Russian army.

SURGERY.

51. Wounds by Small Projectiles.

H. ROULLAND (*Paris méd.*, January 29th, 1916) states that three things characterize wounds by small projectiles—the insignificant appearance of the lesions; the depth of penetration of the projectile, and the rapidity and gravity of the infectious phenomena. This special septicity seems to be due to the smallness of the aperture of entry and the passage through the tissues—the muscular fibres come together behind the projectile, forming a closed chamber, a circumstance eminently favourable to the growth of germs carried in by fragments of cloth, hairs, etc. The man comes to the ambulance as a *petit blessé* with a very small wound, sometimes already covered by a dark-red crust; the aperture of entry varies in size from a pea to a franc piece, and one would often be tempted to believe that this represents the whole extent of the injury. But in the great majority of cases the projectile has penetrated. If the crust is removed a reddish muddy liquid, sometimes mixed with gas, flows out; a hollow probe introduced into the small hole goes to the projectile if that has remained embedded under the skin, or lies buried in a part where the muscles are not very thick (hand, foot, head). It stops at the aponeurosis if it is among thick muscles or in a tendinous region (thigh, leg, arm, buttock, back), and the surgeon may think that the projectile has not penetrated deeper. If the probe goes through the aponeurosis, an artificial intramuscular passage sometimes far removed from that of the projectile will easily be made. That often strikes obliquely from below upwards, and makes tortuous passages sometimes of ten or twelve centimetres in depth. All shell wounds are greatly contused owing to the irregularity of the projectiles, to the force of propulsion, perhaps also to high temperature causing a true burn. Even when the wound involves only the skin and cellular tissue, it produces a special mortification of the tissues which take on a greyish aspect with red border in which repair takes place with difficulty. These wounds are always infected. When the projectile has penetrated into a muscular mass it causes either a localized infection in the form of a small abscess which is easily emptied, or a more extensive infection with microbic agents of special virulence which cause a true gas phlegmon. These infections develop with astonishing rapidity, stripping the muscles along the aponeurosis; Roulland has seen this occur within six, eight, or ten hours of the infliction of the injury. Infection may spread over a whole region or limb and end in septicæmia of great gravity. When a projectile of at least 1 cm. square strikes a short bone (carpus, finger, tarsus) it pulverizes it or splits it lengthwise; in a long bone it embeds itself on the external surface. Every bone lesion gives rise to great pain which is sometimes worst when the wound is smallest. It is extremely intense at the point of fracture or embedding, and is often accompanied by local oedema or ecchymosis. Lesions of the bones of the skull have special characters, according as the projectile remains embedded under the skin, buries itself in the bone or passes entirely through it. If it only strikes the bone it sometimes produces a small star-shaped crack of the outer table. This slight injury is to be distinguished from tangential wounds which almost always cause injury of the brain and hæmorrhage. When the projectile buries itself in the outer table it causes fracture of the inner table, which is driven in over a considerably larger surface than the orifice made by the projectile. In every case in which Roulland has seen the

small metal fragments embedded in the thickness of the bone he has found damage of the inner table. When the projectile traverses the bones of the skull it produces meningeal or cerebral lesions, which are always serious and quickly become infected (abscess of the dura or the brain). Even very small projectiles may cause such lesions; therefore all wounds of the head should be examined with the greatest care. As an example, Roulland cites the case of a soldier sent to the ambulance with the diagnosis of superficial abscess of the scalp. It was found that he had been wounded twenty-five days before by a very small fragment of shell which penetrated at the level of the upper part of the squamous portion of the left temporal. The medical officer of his battalion, believing the wound to be of no importance, kept him seven days under observation, and, the skin wound being then healed, sent him back to the trench. The man continued to suffer from slight general discomfort, till suddenly, eleven days after the infliction of the wound, total aphasia came on, with nausea, vomiting, and violent headache. He was kept at rest, and the aphasia disappeared in two days, but the general phenomena persisted. A few days later there was violent pain in the cicatrized wound, and a subcutaneous abscess formed. He was then sent to the ambulance, where Roulland freely incised the abscess and discovered a small hole, which allowed the introduction of the end of a hollow probe, and led to a subdural abscess. Trephining showed that there was a shirt-stud abscess, caused by a penetrating projectile which had not been recognized. The operation was followed by the relief of all the symptoms, and the man at the time of report was convalescent. In joints, especially the knee and shoulder, and in the abdomen, the smallest projectile causes serious injuries. When one lodges within the sheath of a blood vessel, lesions of the coats are produced, which cause secondary haemorrhage and the formation of aneurysms. Roulland has found in several cases the projectile lying in the very centre of the aneurysmal sac; speedy extraction generally prevents serious consequences. In the case of an infected wound a free incision should be made, the foreign body should be sought for generally in the centre of the focus of infection, free drainage should be provided, and the wound should be irrigated with oxygenated water. In bone lesions the seat of fracture should be exposed, especially in wounds of the hands or feet, which are often complicated by tendinous lesions. Adherent splinters if they are of any size should be left, but the foreign body should always be removed. After careful cleansing free drainage should be provided. Wounds of the skull should be operated on at the earliest moment, and it is essential as far as possible to avoid sacrifice of bony substance. If the dura is injured careful cleansing and drainage are required; if it is intact it should be incised only if there is no longer any visible pulsation. Roulland thinks that the crucial incision should be avoided, as it gives rise to great loss of substance and is repaired with difficulty. Simple puncture with the bistoury has always given him the best results. He drains with a strip of gauze steeped in alcohol. In wounds of joints early operation is required; the foreign body should be found, the sac cleansed, bony splinters removed, and free drainage provided. Every articular intervention should be done under the most rigorous antiseptics. Roulland says that in war surgery hot water applied to the injured part in the form of local baths, wet dressings, or sprays, has given him excellent results; it has a very salutary trophic action on the mortified tissues. He uses it together with lavages and dressings of oxygenated water. The moist dressing should be discontinued as soon as the inflammatory phenomena have disappeared. The neighbouring skin should be carefully washed with alcohol at every dressing. Antisepsis must be used in dealing with these infected wounds, but it must always be remembered that contused tissues have a lowered vitality and nothing must be done to injure the living cell. On this account Roulland very seldom uses tincture of iodine, which he has known in many cases to cause burns, sometimes of considerable extent, without advantage to the patient. For some time he has used the Carrel-Dakin method of disinfection. He finds sodium hypochlorite 0.5 per cent. decidedly better than the old wet dressing, but its use must not be too prolonged, as it seems to encourage oozing of the blood-stained surfaces and to prevent epidermization. In extensive wounds, which are only slightly infected, or which are cicatrizing, the application of compresses soaked in warm physiological serum gives excellent results. He prefers the Locke-Ringer formula: Sodium chloride 9 grams, potassium chloride 0.42 gram, calcium chloride 0.24 gram, sodium bicarbonate 0.15 gram, distilled water

1,000 grams; sterilize. Use as a dressing this solution increases the phagocytic properties of the white corpuscles, and clinically one sees rapid disappearance of suppuration and more rapid granulation and cicatrization than under any other dressing. Locke's serum has also shown itself superior to the ordinary physiological solution in subcutaneous or intravenous injections. Roulland has also used helio-therapy with advantage. He exposes wounds that are only slowly cicatrizing directly to the sun's rays for a period varying from one minute to twenty. The susceptibility of the integuments must always be taken into account and the time of exposure must be graduated according to the intensity of the sun's rays. Hot air judiciously used proved successful in anfractuons wounds which did not heal. Roulland thinks a projectile which has penetrated deeply without causing infection should always be extracted if it can be reached, unless it is absolutely insignificant in size. If it gives no trouble now it is likely at some future time to cause a fistula which will not close, or will encapsule itself in a shell of thickened tissue which may imprison nerve endings, causing neuralgia and painful points in muscles. It will also interfere with the function of certain muscles such as the masseter (trismus), the temporal, the gluteals, and biceps. The foreign body should never be sought for without the help of the x ray. He concludes by insisting on the importance of quickly curing men wounded by small projectiles as they can be sent back to the firing line. On speedy extraction depends speediness of definitive cure.

52. Gunshot Wounds of the Abdomen.

SURGEON-GENERAL PROFESSOR DR. KRASKE (*Muench. med. Woch.*, September 28th, 1915; abstract in the *American Journal of Surgery*, February, 1916), reports the results of 39 cases of bullet wounds of the abdomen met with in the course of six weeks. In general he urges the earliest possible intervention in every case; he has never seen a spontaneous cure. Of the cases in which he operated, 9 came under treatment within twelve hours of the injury; 2 died and 7 were discharged cured. Of 21 cases seen within twenty-four hours, 10 died and 11 were discharged cured. In a third series of 8 cases seen within thirty-six hours, 6 died and 2 were saved. The fourth series consisted of one case, which died. The injuries were for the most part multiple, and were situated as follows: In the small intestine eighteen times, in the stomach five times, in the caecum and ascending colon eleven times, in the transverse colon once, and in the descending and pelvic colon four times. In several cases the projectile passed through the liver into the lung, injured the bones of the pelvis, and in one instance even shattered the humerus. The openings into the gut or stomach varied from a pin point to one admitting the finger tip. In the large majority of the cases there was free air; fluid and alimentary contents were present in the peritoneal cavity. All wounds were stitched, care being taken to provide against stricture. In a number of instances portions of the gut had to be resected. In others the imperilled portion was everted and dealt with at a later stage. Whenever possible the abdomen was sewed tight, even in cases where the peritoneum was inflamed. Irrigation was practised in every case; Kraske lays much stress on the value of this measure. In a number of cases tube and gauze drainage to suspicious areas was provided. His results were 51.3 per cent. cures, which he holds to be not unfavourable considering all the circumstances in this class of emergency surgery.

53. Lupus in the Austrian Army.

DR. LUDWIG SPITZER, in charge of a new hospital erected near Vienna by the society "Lupushellstätte," has lately reviewed the conditions under which civilians and soldiers suffering from lupus have been placed by the war (*Wien. med. Woch.*, November 6th, 1915). His hospital was originally intended only for civilians suffering from lupus, but 160 beds were set apart for soldiers. More than one hundred of these were suffering from dysentery, but there was also a fair sprinkling of men suffering from lupus. More than forty soldiers were thus invalided, and the actual number of patients suffering from lupus who had been passed by the military doctors was considerably greater. Many patients who had been discharged from the hospital as cured had joined the army after war was declared, and in some cases had suffered no harm from the strenuous life. The open air life and abundance of exercise have been healthier than the life of a mechanic in an insanitary workshop. But the

majority of patients suffering from lupus are weakened by other tuberculous infections—for example, enlarged glands or phthisis—and are therefore incapable of the physical strain of military duties. The risk of infection from one soldier to another was of itself sufficient to warrant the exclusion of every subject of lupus from the army. In the slight cases the disease might have been overlooked during the medical examination, but this excuse did not hold good for the more advanced cases; and Dr. Spitzer did not see a single case in which the disease was so slight that radical operative treatment was indicated. The war had, however, been the cause of many patients receiving treatment who would otherwise have been left untouched. Crowds of civilian patients had attended the hospital who, in time of peace, would never have found their way to Vienna. The military authorities had helped neglected patients in the remotest parts of the country to reach Vienna, where skilled treatment was available. Dr. Spitzer saw in this shuffling of patients by the war a prospect of an appreciable reduction in the incidence of the disease.

51. War Deafness.

At a meeting of the Académie des Sciences on November 16th, 1915 (*Paris méd.*, November 27th, 1915), ANDRÉ CASTEX said he had observed 27 cases of deafness following the bursting of large shells at close quarters. In some no direct injury was caused to the auditory centres or apparatus; in others, especially after violent shocks, rupture of the tympanum or labyrinth was seen. Between such patients and malingerers there is a vast category of deaf, dumb, and deaf-and-dumb. These were curable by re-education and persuasion when their functional trouble was of recent origin.

THERAPEUTICS.

55. Ethyl Chloride as an Anaesthetic in War Surgery.

JACQUES CARLES, physician, and A. CHARRIER, surgeon, to the Bordeaux hospitals, report (*Journ. de méd. de Bordeaux*, January, 1916) that they have used ethyl chloride for a year as a general anaesthetic in major surgery in the military hospital to which they are attached. They have employed it in 1,200 cases of laminectomy, amputation, resection, probing for projectiles, etc. In some cases the anaesthetic has been given for three-quarters of an hour and an hour without the slightest ill effect. Its advantages have been so conspicuous that its use has become general among their colleagues of the 4th Army. To realize the superiority of ethyl chloride as an anaesthetic in operations for serious wounds it must be remembered that in all cases the men were suffering from traumatic shock so severe as to threaten life during the two or three hours following admission. It often happened that the shock was prolonged during twenty-four or forty-eight hours, leaving the patients cold, collapsed, almost pulseless, and generally in such a condition that the slightest touch of a bistoury seemed likely to cause death. Evidently an anaesthetic having the least possible toxic effect was the only one that could be given. The quickness with which ethyl chloride is eliminated pointed to it as the most suitable agent. Sometimes the administration was followed by nausea and a little vomiting, but this was never violent and did not last long; as a rule, the patient was able to take food freely some hours—in some cases a few minutes—after the operation. Albuminuria was exceptional, and when it occurred it was slight and transient. There was no ill effect on the lungs, such as is caused by ether. Another advantage is that the administration of ethyl chloride can be entrusted to a person of little or no experience. The patient is put to sleep in a few seconds, and this saving of time may lead to a corresponding saving of life. The wounded man recovers full consciousness from a few seconds to two minutes after the discontinuance of the inhalation. This is of great importance when the hospital personnel is reduced to the lowest figure and may be inexperienced. The authors consider ethyl chloride safer than any other agent. In nearly 500 cases there was only one death, and that was in a patient with an enormous purulent effusion in the left side of the thorax, pushing the heart to the right, in whom the least movement in bed caused collapse. Usually no heart failure is to be feared. They admit that ethyl

chloride does not always produce such complete relaxation of the muscles as ether and chloroform; hence for delicate and prolonged abdominal operations these are preferable.

56. Treatment of Syphilis in War.

At a meeting of the Réunion Médico-Chirurgicale de la IV^e Armée, held on January 14th, 1916 (*Paris méd.*, February 19th, 1916), GOUBEAU read a communication on the treatment of syphilis in war. In primary syphilis he uses simultaneously arsenobenzol (giving four intravenous injections of 0.30, 0.40, 0.50, and 0.60 gram respectively) and mercury (0.30 to 0.40 gram in intramuscular injections, plus one injection of grey oil), then potassium iodide 3 grams a day during forty days. In secondary and tertiary cases he gives at first arsenic and mercury simultaneously, then potassium iodide during six weeks. Patients in the secondary and tertiary stages remain in his ambulance on the average twenty-two to twenty-five days; those in the primary stage thirty days. LACAPÈRE said he found arsenobenzol alone sufficient to effect a rapid cure in a large number of cases. He thought there was no advantage, and some disadvantage, in the systematic association of mercury and iodide with it; these remedies should be used in response to special indications. LENGLET also criticized the method of triple combined treatment, which he said imposed on the emunctories a work of excessive elimination, and had no definite advantage.

57. Magnesia Hypochlorite as an Antiseptic.

CHARLES MAYER (*Paris méd.*, February 19th, 1916) says that he has been led to seek for a substitute for sodium hypochlorite, which has certain disadvantages, owing to its caustic properties. He has found that magnesia hypochlorite gives satisfactory results. He has used solutions made by causing 190 grams of magnesia sulphate, first dissolved in 2 litres of water, to act on 100 grams of calcium chloride, also dissolved in 2 litres of water, then filtering the precipitate of sulphate of lime thus formed. To get a clear solution care must be taken to let the liquid stand until the precipitate is entirely deposited; then decant. Magnesia hypochlorite has an antiseptic potency slightly less than Labarraque's solution (chlorinated soda). To make various cultures used for experiment inactive 7 to 9 per cent. more was required. But as it is perfectly tolerated by the tissues twice as large a dose can be used without causing irritation of the wound. Generally speaking, with magnesia hypochlorite cicatrization proceeds as rapidly as with other antiseptics under the best conditions or even by operating aseptically. The tolerance of the tissues with regard to magnesia hypochlorite is not surprising, for whereas with sodium or calcium hypochlorite it is necessary to avoid all excess of alkalinity—for instance by the addition of boric acid—with magnesia hypochlorite not only is an excess of free magnesia not to be feared, but it should even be sought for. The advantages of magnesia hypochlorite are, briefly, its great antiseptic power, its non-causticity in useful doses, and its cheapness and facility of preparation.

58. Disinfection of the Meningococcal Carrier.

At a meeting of military surgeons in Cologne (*Deut. med. Woch.*, Sept. 9th, 1915) E. KÜSTER gave an account of his experiences of the treatment of diphtheria and meningococcus carriers. Early in 1915 a few cases of cerebrospinal fever were observed among the troops quartered in Cologne, and an investigation made at the bacteriological institute showed that 50 to 60 per cent. of the troops among whom these cases had occurred were carriers. As there was little prospect of sterilizing these carriers by individual treatment they were treated in an inhalatorium, 100 men at a time. The disinfectant used contained a hypochlorite which gives off chlorine on contact with acids or easily oxidized organic substances. Cultures of various micro-organisms, including meningococci, exposed to the action of this disinfectant were killed within an hour. After three visits to the inhalatorium on three successive days the carriers were no longer found to harbour meningococci in the nose and throat. Only in a few cases was a further course of inhalation necessary. The same results were obtained with diphtheria carriers. Although the inhalatorium smelt strongly of chlorine, which was without doubt present in the free state, no ill effects were observed.

AN EPITOME OF CURRENT MEDICAL LITERATURE.

War Number.

MEDICINE.

59. Influence of War on Skin Affections.

BROcq (*Bull. méd. No. 3; Journ. de méd. et de chir. prat.*, March 10th, 1916), after a passing reference to the terrible increase in the prevalence of venereal diseases since the outbreak of hostilities, discusses the modifications which the war has produced in pruriginous dermatoses, psoriasis, and certain fistulous wounds. In almost all the civilians who before the war had suffered from pruriginous affections of neuropathic and autotoxic origin the symptoms returned or increased in intensity. When they have the opportunity of changing their abode for a time and avoiding crowded places, the skin lesions become milder or disappear. In large towns or in places where there is much bustle the symptoms return. Among the troops in the field, on the other hand, many who had previously suffered from urticaria, eczema, or pruriginous lesions, when forced to give up their usual occupations and live a life of strenuous exertion in the open air, found that the disease became milder or disappeared, without change of diet or local treatment. In some cases, however, a prolonged period of service at the front caused the outbreak of pruritus, urticaria, or papulo-vesicular eczema. These observations at first sight seem to be contradictory, but Brocq holds that in the majority of cases they are not so, because the patients have been submitted to altogether different conditions. The change in the mode of life, which in some men has had a favourable influence, has been prejudicial in others who have been exposed to excessive fatigue or violent emotions. Brocq calls special attention to the increased prevalence and severity of psoriasis among soldiers at the front, especially those in the trenches. He thinks the two chief causes of the "epidemic" are the almost exclusively flesh diet and nervous shock. Similar phenomena have been observed in peace time after great emotional disturbance or severe injury. Brocq also notes the occurrence of a number of cases of dermo-epidermitis in fistulous tracks in men who have been long under surgical treatment for bone injuries; in these cases a peculiar dermatosis developed around the wound.

SURGERY.

60. Lesions of the Larynx and Trachea in War.

GHERARDO FERRERI, Director of the Oto-Rhino-Laryngologic Clinic of the University of Rome (*Il Policlinico*, Sez. Pratica, January 23rd and February 6th, 1916), says that lesions of the larynx, trachea, and neighbouring parts are incomparably more frequent in modern warfare than in that of past times, owing to the increase in instruments of destruction, and to the use of asphyxiating gases and bombs containing poisonous vapours. Moreover, numerous inflammatory lesions are spread by contagion among the enormous masses of men in modern armies. Contributory causes are the prolonged stay in trenches, damp, want of ventilation, and defective light in the dug-outs, in which the virulence of all micro-organisms is increased. In addition to these factors must be reckoned the want of opportunity for regular change of clothing; thus the skin becomes covered with germs, which may easily have a mischievous action on a weakened body. Again, there are the dangers of transport in open railway carriages, automobiles, motor cycles, and bicycles, which expose the men to rapid changes of temperature and altitude, to irritation by dust and smoke—all circumstances likely to cause respiratory troubles in those who have any nasal obstruction. Hence, after a certain period of service soldiers are liable to haemoptysis and primary tuberculous lesions of the larynx from which in normal conditions they would not have suffered. Men in the secondary stage of syphilis suffer from rapid aggravation of throat lesions. In some predisposed to haematuria *a frigore*, or peliosis rheumatica, bleeding from the nose, trachea, and bronchi of an alarming extent often occurs. In albuminurics fatigue and cold are apt to bring on glomerulo-nephritis, a not infrequent symptom of which

is acute oedema of the glottis. Chondro-perichondritis, especially of the epiglottis, with partial necrosis caused by a common pyogenic agent, is not rare in soldiers attached to trains or doing automobile work. Injuries of the laryngo-tracheal tube hold a high place in the statistics of wounds of the upper part of the body. The so-called humanitarian bullet of modern warfare causes extensive lesions in the region of the neck, especially about the larynx and trachea, which cannot be immobilized like a fractured limb. Military life, especially on campaign, exposes soldiers suffering from faulty conformation of the naso-pharynx or predisposition of the adenoid tissue—palatine, lingual, pharyngeal, tonsillar, etc.—to inflammatory, hypertrophic and hyperplastic processes, which form a favourable soil for the development of pyogenic or infective germs, or for the lighting up of latent specific disease, such as tuberculosis and syphilis. In the examination of recruits care should be taken to weed out germ carriers, so as to avoid the development of grave epidemics—for instance, cerebro-spinal meningitis—among combatants. It used to be believed that adenoid growths were very rare in soldiers, but further observation has shown that they are fairly common, as in many men between 20 and 22 years of age the period of regression of the pharyngeal tonsil has not yet begun. In the treatment of inflammatory conditions caused by the irritation of cold air, asphyxiating gases, and smoke from guns Ferreri recommends inhalations, for which the ordinary mess tin can be used. This is filled with hot water, into which are poured some drops of a 5 per cent. alcoholic solution of balsam of Peru, 10 per cent. of tincture of benzoin, 5 per cent. of eucalyptus, 0.25 per cent. of menthol, 0.50 per cent. carbolic acid, 10 per cent. of laurel water, either separately or in combination. Sprays of solutions of sulphate of alum and potassium may be applied; or the following formula may be used: Sodium benzoate 2 grams, cocaine hypochlorate 20 cg., menthol 5 cg., pure alcohol 10 grams, distilled water 120 grams, laurel water 20 grams. Spraying should not be prolonged when the patient is fasting, as it is apt to cause cardiac disturbances and other reflex phenomena. Insufflations of powders into the larynx are useful because no complicated apparatus is required. Iodoform deodorized with essence of mint in the proportion of 5 drops per 1 gram may be used; tannin, aristol, or calomel may also be employed. For dysphagia and neuralgia medicated baths of the hypopharynx are preferable to ordinary gargles. The substances used may be official chloroform water or the following solution: Thymol 10 cg., basic cocaine 20 cg., menthol 20 cg., pure alcohol 100 grams, one coffeespoonful in a tumbler of tepid water; or salol 10 cg., basic cocaine 20 cg., menthol 10 cg., pure alcohol 100 grams, a coffeespoonful as before. Some of this is taken into the mouth and the head is bent backwards so that the occiput almost touches the upper part of the vertebral column; the liquid thus remains for some time in contact with the part. With a little practice this can be done without interference with the respiration. Soldiers should be told to avoid excess in alcohol, tobacco, hot or iced drinks, shouting and singing on the march; the exchange of glasses, tins, and other objects of personal use should be forbidden, and the mouth should be washed out from time to time with aniseed water. The affection to which soldiers are most subject is diffuse hyperaemia of the laryngeal mucosa, caused by breathing irritating vapours and powders, or by cold and rapid change of temperature. Men with chronic affections of the naso-pharynx and those exhausted by gastro-intestinal disturbance are most susceptible. Oedema of the larynx often occurs after fatigue or exposure to irritating inhalations or taking very hot food, and it may be so acute as to threaten life within a few hours. It has sometimes been observed as a premonitory symptom of acute infections—crystalpelas, typhoid, scarlatina. The prompt use of astringent sprays will generally give relief, but tracheotomy may be required. The author does not approve of intubation in such cases. In the way of general treatment bleeding, diuretics, and milk diet may be called for. Inflammation of the epiglottis, characterized by dysphagia, with pain shooting to the ear,

and a sense of a foreign body in the throat and some alteration in the voice, is a condition frequently observed in soldiers. The treatment is the same as for acute laryngitis. Abscess may follow either of these conditions, or may be the result of infection spreading from lesions of neighbouring parts. In mild cases the treatment is tepid antiseptic inhalations, revulsive applications to the neck and opening of the abscess, but if asphyxia seems to be impending tracheotomy will be required. Among other conditions that are apt to spread among troops are erysipelatos laryngitis and non-diphtheritic laryngitis with false membranes, in which the exudate is caused by the staphylococcus or pneumococcus. Treatment is the same as for acute inflammations of the throat; tracheotomy or intubation is seldom required and is best avoided, as these conditions are often followed by broncho-pulmonary disturbances. As regards diphtheria there is nothing special to soldiers. Tuberculosis of the larynx is frequent owing to fatigue and contagion. On the first suspicious sign the bacteriological diagnosis should be made, the patient should be speedily placed apart, and provisional local disinfection should be carried out by swabbing with a saturated solution of iodoform and ether after anaesthesia with cocaine. Perichondritis and chondro-perichondritis due to latent tuberculous processes are not uncommon. These may suddenly give rise to symptoms of asphyxia calling for tracheotomy. Specific syphilitic lesions are comparatively common, and are aggravated by cold, alcohol, smoke, etc. The spread of infection is facilitated by exchange of glasses and so forth. Under the influence of irritation by street dust, gas and smoke, the lesions of secondary syphilis are apt to ulcerate and become oedematous so as to simulate tuberculosis. Tertiary forms are less frequent. In secondary forms the object is to get rid of the contagious elements as quickly as possible; in tertiary to arrest the destructive process. The best way of doing this is by injections of neo-salvarsan and of calomel, 5 cg. in vaseline oil once a week, or of grey oil, three to four drops. If mercury is ill borne, biniodide or benzoate, 1 to 4 cg. per day, should be given. Locally the mouth should be disinfected with a solution of potassium chlorate. Tertiary cases, especially if tuberculosis accompanies the syphilis, should be sent to hospital.

61. Direct Laryngoscopy in War Wounds.

GUISEZ reported to the Académie de Médecine (*Bull. de l'Acad. de Méd.*, February 8th, 1916) that during eleven months of work as chief of the Oto-Laryngological Centre of the Tenth Region he had seen 32 cases of wound of the laryngo-tracheal tube—26 of the larynx and 6 of the trachea. In six cases there were well-defined oesophageal lesions, with foreign bodies lying immediately under the mucous lining. Direct laryngoscopy with the help of the tube spatula was of the greatest use in making possible diagnosis and effective intervention, as the larynx in all its parts was under the operator's hands. Under local anaesthesia the patient's head is placed in a position of forced extension, so that the axis of the larynx and that of the mouth are in the same straight line; the tube, the end of which pushes back the epiglottis and fixes it against the base of the tongue, is then introduced. The method is most useful in cases in which the sides of the pharynx fall inwards, and when the injury is situated at the anterior commissure. In two cases a portion of a vocal cord had been cut away, and in one of them the wound, which was altogether in the fore part, was hidden by a large epiglottitis. Aphonia and dyspnoea are sometimes caused by scars, which deform the cords or bind them together, principally at the re-entering angle. In five cases there was a true web; in one case the scar, which was part of a vocal cord, extended to the subglottic region of the opposite side, where it lost itself in a very thick cicatricial tissue. These conditions could only have been discovered by direct examination, and by that method alone was it possible to see the subglottic lesions and fibro-cicatricial bands at the level of the cricoid ring. In one case the cause of a persistent dysphagia was discovered to be a large polypus resulting from a fungating wound made by a shell in the right supra-arytenoid region. In another case serious dyspnoea was due to a fungating tumour connected with the right subglottic region and caused by a fragment of shell which had fractured the left half of the cricoid cartilage. In both cases it was possible to remove these inflammatory tumours with straight punch-forceps. Direct examination further allowed the recognition in a patient with dyspnoea of a large fistulous intralaryngeal abscess immediately below the left vocal cord, due to rupture of the thyroid cartilage by shell. The man was cured by laryngostomy. The same method showed that this procedure was indicated in two cases in which there

was serious stenosis of the glottic and crico-tracheal regions. Among lesions of the larynx paralysis was not rare. In four cases there was complete paralysis due to division of the trunk of the recurrent nerve and in two to division of the superior laryngeal nerve. The terminal expansions of these nerves were also injured in some cases. Direct examination with the help of the tube spatula offers the only means of recognizing such forms of paralysis and differentiating them from traumatic arytenoid ankylosis. The trachea may also be the seat of scars from perforating bullet wounds, sometimes with loss of substance due to shell injury, giving rise to very serious dyspnoea. Direct tracheoscopy enabled the author to make a precise diagnosis in three cases. In two of these there were started cicatrices of one of the walls and in the other a true cicatricial valvular ring. Tracheoscopy allowed dilatation by circular electrolysis and exact localization indicating where tracheotomy should be done when necessary, or showing whether it was possible to act directly on the lesion by enervative laryngo-tracheostomy. Direct examination of the oesophagus made it possible to recognize wounds of the gullet in five cases. In one patient on whom tracheotomy had to be performed for serious spasm of the glottis there was a phlegmon of the mouth and oesophagus, caused by a small fragment of shell embedded beneath its lining membrane. In three others there was grave cicatricial stenosis of the tube, in two in the upper, and in another in the lower third, caused by a bullet which had gone through the chest. In three others there was spasm of the oesophagus, in two at the upper, and in one at the lower end, all three due to irritation of the pneumogastric nerve, in the neighbourhood of which the projectile was lodged. In all these cases dilatation was carried out and treatment applied with the aid of the tube. In a few cases the endoscopic localization of foreign bodies was used to supplement the *x* rays. In one case a fragment of shell projected into the cavity of the gullet on the left wall a little below the upper end. In another it was lying between the oesophagus and the trachea at the level of the second ring, where it made a round projection on the posterior wall of the trachea. Intervention for the removal of foreign bodies was made easy by the use of the tube.

62. Transplantation of Cartilage in Plastic Surgery.

At a meeting of the Paris Surgical Society on October 27th, 1915 (*Bull. et mém. de la Soc. de Chir.*, November 2nd, 1915), H. MORESTIN read a paper on the use of cartilage for the repair of deformities caused by wounds. The method, he said, had for some time been employed in rhinoplasty, but had found a larger application in the surgery of the present war. Cartilage taken from any part would serve, but in practice the costal cartilages, particularly those of the sixth, seventh, and eighth ribs, were the most readily available. Resection of those cartilages was never followed by any ill effect if the intercostal musculo-aponeurotic layer was accurately reconstituted by means of deep and superficial sutures. The cartilage is easily trimmed with the bistoury to any shape that may be required. The transplanted fragments are grafted without difficulty, and adapt themselves with great rapidity to their new conditions of life. Not only is an immediately successful result the rule, but it is lasting. The grafted cartilage lives indefinitely without suffering absorption or appreciable diminution. Cartilage taken from another subject forms grafts as solid as those from the patient himself. But in this case Morestin is not quite sure that after a time they may not undergo some reduction. He grouped his cases in three categories: the filling in of breaches in the skull, of frontal depressions, and reconstitution of the upper orbital arch; reconstitution of the malar bone and the lower and outer parts of the orbit; and the repair of loss of substance in the lower maxillary bone. Morestin gave details of 23 cases in which the method was used, in most with gratifying success. In a later communication (*ibid.*, February 15th, 1916) Morestin reported that he had repaired breaches in the skull with grafts of cartilage in a large number of cases. Some instances may be given by way of illustration. (1) An officer was wounded on October 1st, 1915, by a fragment of shell which struck the upper part of the frontal and the neighbouring part of the parietal bone on the right side. On the same day he was trephined. At the end of December he was admitted to the Rothschild hospital. The wound had then healed, but there was a loss of bone substance about the size of a two-franc piece at the site of which the scar, thin and depressed, was adherent to the brain. On January 3rd the author operated, using pieces of cartilage taken from a young soldier on whom he had performed rhinoplasty. Under local anaesthesia he excised the cicatrix, detaching

the scalp for some distance around the wound. The breach in the bone was filled up with bits of cartilage placed in apposition, and the integument brought together and sutured over them. Cure was complete at the end of a week; the breach remained firmly closed and the surface of the skull was regular. The grafted part could be pressed on, even forcibly, without causing any pain. (2) A soldier, aged 22, was wounded on November 2nd, 1915, by the bursting of a hand grenade, which struck the skull a little to the left of the middle line, at the junction of the occipital and parietal bones. He was trephined in an ambulance, when the foreign body and a number of splinters were removed. When admitted to the Val-de-Grâce hospital on November 23rd the wound was healing well, but there was a loss of substance in the skull nearly five centimetres in length by two and a half in breadth. It was oval in shape, the long axis running from before backwards. On January 18th Morestin operated under local anaesthesia, using the same procedure as in the first case. He filled up the breach with a large piece of cartilage taken from another patient, which had been preserved in sterilized milk for twenty-four hours. It was trimmed to fit the wound, and was not fixed except by the soft parts brought over it and hermetically stitched. At the end of a week no further dressing was needed. At the date of report scarcely a trace of the operation wound could be discovered among the hair, and the skull was smooth and offered a uniform resistance. Pressure over the site of the graft was painless. (3) A man wounded by a shrapnel bullet a little below the left frontal eminence was admitted to Val-de-Grâce on September 3rd, 1915. There was then a curvilinear scar at the lower part of the forehead, left by an operation performed soon after the infliction of the wound. At the inner part of the scar there was a fistula communicating with the left frontal sinus. There was a large loss of substance at the lower part of the frontal bone, with a corresponding deep depression where the pulsation of the brain could be felt and seen. The sight of the left eye was destroyed, although the eyeball looked normal. Radioscopy showed the projectile lodged in the left maxillary sinus. On September 17th it was extracted by Morestin, through an incision into the front wall of the sinus made through the vestibule of the mouth. The projectile was lodged in the lower part of the sinus. It was easily seized and drawn out with forceps. The vestibular wound was then completely reunited. The results were excellent, but the frontal fistula remained. Through it the left frontal sinus, or what was left of it, communicated with the exterior and a small drop of mucus or muco-purulent liquid was discharged every day. On November 22nd the inner part of the frontal cicatrix was removed, the fistulous track incised, and the sinus opened up and at once closed again by bringing the soft parts together and suturing them. This was followed by healing of the fistula. On December 21st the frontal scar was extirpated and the integuments mobilized. A considerable piece of cartilage taken from another subject and suitably trimmed was used to make an upper orbital arch exactly adapted to the edge of the breach. The wound was then closed hermetically. In a few days cicatrization was complete, and the deformity, except for slight mobility of the grafted piece on the neighbouring bone, has been completely corrected. (4) A soldier wounded by a shell on the right part of the forehead was brought to Val-de-Grâce on October 16th with a wound healing normally. It was like an irregular V in shape, the point being directed towards the eyebrow, which was divided into two unequal parts. There was an important loss of substance in the skull, and a cerebral hernia of the size of a large nut was seen in the centre of the wound. At the beginning of January there was a large irregular scar in the right half of the brow depressed in its centre and adherent to the brain. The scar was excised, the surrounding integuments widely mobilized, and the breach, which measured 4 by 5 cm., filled with pieces of cartilage from another subject. The results were satisfactory, the deformity being corrected except for the line of the scar, which was gradually disappearing at the date of report. (5) A soldier, aged 24, struck by a fragment of shell, was admitted to the Rothschild Hospital on March 22nd, 1915. Among other wounds he had a large one of the forehead with fracture and loss of substance in the skull. The wound had long healed, but there was a frightful scar with deep depression on the middle of the forehead. On January 22nd Morestin operated, filling in the breach, which was about the size of a two-franc piece, with cartilage. The scar was strongly adherent to the brain, and in dissecting it off the subarachnoid spaces were opened and a little cerebro-spinal fluid escaped. The breach was filled in with pieces adapted as accurately as possible to the

wound, which was sutured hermetically. The result was excellent; the forehead was smooth and the natural shape. The strongest pressure could be made on the grafted part without causing any trouble. At a later meeting (*ibid.*, February 29th, 1916) Morestin showed two other cases in which he had successfully corrected a large loss of substance in the frontal bone by the transplantation of cartilage.

63. Fractures of the Patella in War.

RENÉ LE FORT (*Bull. et mém. de la Soc. de Chir. de Paris*, August 3rd, 1915) has had under observation at base hospitals nine cases of fracture of the patella. He groups them in three categories—(1) simple fracture, (2) compound isolated fracture, (3) compound fractures accompanied by fractures of the condyles or the tibia. There was only one case of simple fracture, and in that one more serious injuries led to the fracture being overlooked at first. When discovered, operation was postponed because of the presence of severe septic wounds close to the knee, and when the operation had been performed these wounds interfered with the after-treatment, and prevented early movements of the joint being carried out. The operation was finally performed on the thirty-sixth day when the temperature was still 38.4° C. (101.1° F.) to 38.5° C. (101.3° F.); but in spite of all these drawbacks, and of there having been separation of the fragments of bone to the extent of two fingerbreadths, the patient when last seen was apparently on the way to complete recovery. There were three cases of compound isolated fracture. In one the patella was broken transversely into two main fragments, separated only by a few millimetres; each fragment was broken into several smaller pieces, held together by fibrous tissue. In view of the small separation and the relative integrity of the peri- and pre-patellar fibrous tissues suture was considered unnecessary. In another case there was little infection, and the wound healed rapidly, and operative treatment of the fracture could then be undertaken under conditions almost as satisfactory as in simple fracture. A peculiarity of the case was that the fractured ends of bone were found to be of almost double the normal thickness as a result of violent separation of the bony lamellae by the force of the projectile. The surfaces were brought together again by pressure with the fingers. In the third case a ball had passed through the patella and the knee-joint. Splint treatment was employed, and the patient apparently made a quick recovery. The case was seen by the author five weeks after the infliction of the wound, and movements of the joint were begun. It was then found that the functional loss of power was very great, and the condition was perhaps made worse by the fact that the patient accidentally received a blow on the knee on the second day of getting up. A radioscopy examination a month later showed a multiple fracture of the patella, with the interposition of an osseous fragment between the condyle and the posterior surface of the bone. At the operation a small amount of liquid was found in the joint. Some adhesions had formed which were easily detached by the finger, and a large osseous plaque 1.18 to 1.37 inches across, 0.39 to 0.47 inch in height, and 0.07 to 0.11 inch in thickness, was removed in three pieces from the anterior surface of the condyle by means of scissors. Movements were begun forty-eight hours after the operation, and when the patient was last seen complete recovery seemed probable. Thus in all three cases complete restoration of function was expected. All three were cases of comminuted fracture. None suffered from acute arthritis; in two cases the wounds were infected, but the joint did not react, clinically at any rate; in the third there was a certain amount of plastic arthritis, perhaps connected with the secondary traumatism. In five cases compound fracture of the patella was accompanied by fracture of the condyles or the tibia. The first was not seen by the author until seven weeks after the injury, and a few days later it was necessary to amputate for an acute arthritis. In each of the remaining four cases the limb was preserved. One patient underwent total resection of the patella seventeen days after the accident and ten days before coming into hospital. The immediate results of the operation were unsatisfactory, but cure with ankylosis was almost obtained when the patient, who suffered from phthisis, developed meningitis and died. In each of the three remaining cases a certain amount of movement at the knee was preserved. There was a suppurating arthritis in the first two cases, and each of these was treated by a classical arthrotomy. The third case was less seriously infected, and splint treatment, instead of operative treatment, proved to be sufficient.

64. Shrapnel Bullet in the Heart.

RICHARD FREUND and CARL CASPERSOHN (*Muench. med. Woch.*, August 31st, 1915; abstract in *Amer. Journ. of Surgery*, February, 1916) report a case of bullet wound of the heart. The patient was a soldier, aged 20, who was struck by a shrapnel bullet in the region of the left lobe of the liver while bending forward. When he came under the care of the authors, a fortnight later, he seemed to suffer no distress referable to interference with the action of the heart. His pulse was 72 and regular; there was no dyspnoea, and no cyanosis. An x-ray examination showed that the bullet was lodged 7 cm. from the front wall of the chest in the region of the right ventricle; it followed the motions of the heart in all positions assumed by the patient, but had no independent motion. Deep inspiration caused it to move upward somewhat and on expiration it moved downward and seemed to lodge in the deepest part of the right ventricle near the septum. As the right ventricular wall averages from 3 to 6 mm. in thickness, and the shrapnel bullet 13 mm., the authors were led to the conclusion that the bullet must have lodged within the right ventricle. On operation they found this to be the case. The chest wall was opened by flap wound, and an incision 8 cm. long was made into the pericardium, the left pleura being separated gently and retracted with a gauze compress. The heart was held with the left hand and brought forward; the bullet was located in the right ventricle. A small incision was made immediately over it, and at the depth of 4 mm. the knife touched the bullet. It was displaced with the blunt end of the knife and extracted. The bleeding, which was free, was immediately controlled with the left hand, and four sutures were rapidly passed through the opening to the endocardium and the knot tied by an assistant. The pericardium was also sewn up with silk stitches (ten in number), a small opening being left at the lower angle for drainage, and the chest flap restored in typical manner. There was no haemorrhage. The rubber drain was removed after three days, as it caused irregular action of the heart. The bandage was removed on the fourth day. After this the pulse again became irregular, breathing was more difficult, and there was oppression of the chest. This was found to be due to an accumulation of serum within the pericardium, which was relieved by reintroduction of the drain. Convalescence went on uninterruptedly except for an attack of suppurative parotitis on the left side, for which incision and drainage were required. In four weeks the patient was able to leave his bed, and in two months was quite well.

65. X-Ray Picture of Gas Phlegmons.

B. DÖHNER (*Muench. med. Woch.*, September 21st, 1915; abstract in *Amer. Journ. of Surgery*, February, 1916) found dark spots in the x-ray picture of gunshot wounds, indicating the presence of gas phlegmons. He cites the case of a soldier wounded in the thigh, in whom twenty hours afterwards the x-ray revealed two dark shadows. Operation revealed a deep-seated foul-smelling gas phlegmon, and fragments of clothing surrounding the bullet close to the femur. The wound had presented no alarming phenomena, nor was the track made by the bullet particularly unhealthy. The man made a good recovery. In view of the dangerous course of gas phlegmons Döhner recommends the early use of the x-ray for diagnosis in every case of gunshot wound. This, he holds, is quite as important as early antitetanus inoculation.

THERAPEUTICS.**66. Treatment of Nervous Disorder in Soldiers.**

CHAVIGNY (*Paris méd.*, January 1st, 1916) deals with the treatment of mental and nervous disorders in men on active service. Early treatment is an essential condition of success. Cases of mental confusion, deaf-mutism, and paralysis treated within four or five days of onset are generally cured in twelve or twenty-four hours. On the other hand, in men who have been kept under observation without active treatment for several weeks, recovery was much slower. Whenever any objective lesion coexists with the subjective disturbance, both conditions must be treated at the same time. For instance, if a patient with hysterical paralysis of a limb suffers also from dyspepsia, the digestive disorder should be energetically treated as well as the nervous trouble. In all cases of hysterical paralysis progressive re-education is the basis of treatment. But medicine should also be given to act on the mind; for this purpose a draught containing 1.50 gram of eucalyptol is recommended by Chavigny. When the nervous trouble is accompanied by anaesthesia,

re-education of the sensibility of the skin or special sense is called for. Hysterical coxalgia and hysterical paralysis of limbs get well unfailingly as soon as sensibility is restored in the anaesthetic areas adjoining the affected part. This is effected by means of the faradic current. Among the first cases treated Chavigny noted some in which the strongest faradization produced no effect. He has since applied the current in the following manner: Following indications given by the patient, the boundary line separating the part towards the root of the limb in which sensation is intact from the anaesthetic zone is determined and marked out with ink on the skin. The electrodes are then carried towards the line, sometimes encroaching on the sensitive area, sometimes being brought down over the anaesthetic patch. In a few minutes sensibility becomes normal over a band measuring some centimetres. The new limit of sensibility is then marked off, and the treatment is repeated either in the evening or on the following day. Progress is regularly recorded, and after a few sittings it is found that the anaesthesia has disappeared. This is invariably followed by disappearance of paralysis or hyperaesthesia in the limb. Chavigny, while admitting the possibility of the effect being due to suggestion, insists that the method is "efficacious, invariably efficacious, rapidly efficacious." He has treated deafness when it seemed to be of nervous origin by re-education. The apparatus employed is a large tuning-fork with strong vibrations. This is applied to the vertex or the mastoid process. Two or three daily sittings of vibratory massage by this method usually bring about rapid improvement. Musical re-education with the aid of a harmonium or other instrument with loud vibrations is employed at the same time. At the first sittings the patient applies his ear directly to the case and tries to perceive the vibrations. As hearing improves he gradually increases the distance from his ear. By this method of re-education Chavigny claims to have cured cases of relatively old standing which have been treated in other ways without success. In cases of dumbness the movements of speech have been forgotten and must be learnt anew. The doctor, placing himself in front of the patient, asks him in writing or by word of mouth, according as the man is deaf or not, to make with him the movements necessary for the production of the sound *a*. At the moment when he gives the signal for this effort he passes a faradic current of medium intensity through the front of the patient's neck in the prelaryngeal zone. After this other vowel sounds are attacked; then syllables, such as *ba*, *bo*, for the production of which very visible movements of the lips are required. The success of the method is said to be "absolute," and most patients can speak distinctly after one or two sittings. If a faradic battery is not available, the procedure which goes by the name of Garel of Lyons can be employed. At the moment when the patient attempts to imitate the movements of the doctor's lips, the latter presses his closed fist firmly on the man's epigastrium. This sudden and unexpected pressure almost invariably leads to the production of the sound *a*. Stammering of emotional origin requires special gymnastic treatment—rhythmic breathing, vocal sounds produced in measured time, combined with movements of the arms or trunk, lastly singing with musical accompaniment. In paralysis of limbs re-education of movement is carried out by re-education of sensibility. This should be combined with gymnastics progressive in range, the handling of weights of increasing heaviness, etc. Tics, tremors, and chorea, hystero-traumatic in origin, are successfully dealt with by gymnastic exercises. The patient executes carefully measured movements directed to antagonize the involuntary movements. He also practises immobility, trying before a glass to keep himself at rest, at first for short periods which are gradually prolonged. Psychological disturbances following great explosions occur mainly in the form of mental confusion and delusions. In 95 per cent. of cases those conditions are rapidly curable. Of 60 cases treated by Chavigny, only 2 had to be placed in confinement. All the others got well in six days at the outside; this fact he regards as an argument in favour of the treatment of such cases in a hospital ward rather than an asylum. The treatment consists in keeping the patient quiet in bed, with purgation when there is constipation or diarrhoea, and tepid or cold douches. When the mental disturbance is passing off the cure may be accelerated by subjecting the patient to a slight emotional shock, as by speaking to him about his family. By this means Chavigny has several times seen men roused from a state of almost absolute indifference to surprising lucidity. The change was due to the effort they were induced to make to write or dictate a few words home.

AN EPITOMÉ OF CURRENT MEDICAL LITERATURE.

War Number.

MEDICINE.

67. Acute Nephritis in Soldiers on Active Service.

M. GAUD and P. MAURIAC (*Paris méd.*, April 15th, 1916) record their observations on acute nephritis as seen in a large number of patients brought to an evacuation hospital from three army corps between September and November, 1915. There were 130 cases in a total of 2,000 patients, not including men suffering from chronic nephritis or from albuminuria developed in the course of paratyphoid, pneumonia, diphtheria, or other infectious states. The number of cases of acute nephritis observed daily increased in a marked degree in January and February, 1916. They never observed atypical cases; with differences of gravity the patients presented a uniform symptomatology and the same essential features. In general a soldier who had previously been in good health began to complain of fatigue, obstinate headache, pains in the loins, and a slight feeling of oppression. In two cases there were digestive phenomena—anorexia and vomiting. This prodromatous stage lasted from three to six days. Suddenly, in a few hours, oedema supervened. In many cases, as the general phenomena were not well marked, it was the infiltration of the limbs or face which made the patient apply for treatment; often attention was first called by comrades to the swelling of the face. When the disease was established, in almost all cases the general condition remained very good even when the symptoms were strongly marked. Fever was the rule in the first days, varying from 37.5° to 38.5° C., the maximum figure. The oedema was almost constant, and often invaded the face, the upper and lower limbs and the scrotum. It was most marked on the face. The authors never observed ascites or hydrothorax. Except for slight pains in the loins at the outset, clinical examination of the urinary apparatus was most often negative, but as regards the urine itself in the early stage there was oliguria, the patient passing from 500 to 800 grams of urine thick, often muddy, and of high colour. This rapidly passed away, a fact which explains that it seemed to be wanting in subjects who had come rather late to hospital. Chemical examination showed albumin from 2 to 5 grams in the litre on the average, but frequently from 10 to 15 grams. In one case there were 45 grams to the litre and 67 in the twenty-four hours, although there were no pus globules, and red corpuscles were rare. Microscopic examination showed epithelial cells, epithelial and granular cylinders, and some red corpuscles. In three cases the corpuscles were abundant and the urine distinctly haemorrhagic. The pulse was regular, rather fast and weak. On auscultation the *bruit de galop* was sometimes noticed in the graver cases. In the respiratory apparatus there was generally nothing of note, but in some patients fine râles were noticed at the two bases without expectoration. There was no pleural effusion. In only one case was vomiting noticed, and that rapidly ceased. The anorexia of onset was transient, and after one or two days of rest all the patients demanded food. Stools were normal, but in one case there was blood in the faecal matter as well as in the urine. No symptom referable to the liver. The organs of the senses showed nothing noteworthy. Under the influence of rest and milk diet the evolution of the disease was rapid, its course being a fortnight on the average. Fever subsided in five or six days, but in several cases the fall of temperature was interrupted by slight rises, constantly accompanied by an increase of albumin. Oedema rapidly vanished, the face being the last to clear. The amount of urine increases progressively, and the patient passes 2 to 2½ litres in the twenty-four hours. The albumin diminishes gradually, passing in a week from 5.6 grams to 0.75, 0.50, 0.25. Several times it disappeared altogether. In cases of massive albuminuria the evolution is somewhat longer; but, setting these exceptional cases aside, all the patients were discharged with less than 0.25 gram of albumin notwithstanding a partial return to ordinary diet. Arterial tension showed a decreasing curve, returning to normal in a few days. With regard to the classification of

clinical forms, the authors would only retain that marked by serious and somewhat dramatic onset, with considerable oedema and marked dyspnoea, cyanosis, and slight pulmonary congestion and oedema. But these cases are differentiated from the normal type only by exaggeration of the symptoms, and none of the cases observed by them resisted a milk diet for more than four weeks—milk diet and rest, and the administration of 0.50 gram of theobromine in twenty-four hours. This was the only remedy used in all their cases. There were practically no complications with the exception of grave uraemia. In one the patient was brought in comatose with very severe convulsive crises. There were 8 grams of albumin in the litre of urine. Two venesections brought about an immediate improvement, and four days after admission the man was clamouring to rejoin his regiment, that he might eat and smoke. He was discharged in two weeks in very good condition but with traces of albumin in the urine. In a second case, with the same symptoms, the patient died in thirty-six hours in spite of free venesection. This is the only case of death in the series. The authors conclude from their experience that the disease, at least in the phase in which they saw it, has a relatively favourable prognosis. But they hesitate to pronounce whether the patients would remain permanently free from albuminuria or become chronic nephritics. They bear strong testimony to the benefit derived by their patients from early treatment and rest. They hold that the men should not be exposed to chills and fatigue from long transport. They think their favourable results were due to the proximity of their hospital to the front. They sum up as follows: In troops on campaign there is a type of acute nephritis remarkable by its frequency, the considerable amount of albumin in the urine, the infectious course, and rapid evolution which is most often mild from the first. Fatigue, overwork, and defective food seem to create in soldiers a favourable soil, and in particular to make the kidney a frail and badly defended organ. The proof of this is the high proportion of men who have albuminuria without suffering any inconvenience till an infection comes which at once strikes the weak point—namely, the kidney. There are, perhaps, many germs to be held responsible. In the blood of two patients and the urine of three others the authors isolated bacilli approximating in character to the organisms of typhoid and paratyphoid. Their researches, though not allowing them to consider these germs as constant factors, seem to them to prove that at the outset there is, at least in certain cases, an infectious cause.

68. Extrasystoles after Injury by Shrapnel.

O. JOSUE and JEAN HERTZ (*Arch. des mal. du coeur, des vaisseaux et du sang*, 1915) have made a careful study of a case of attacks of extrasystoles in a soldier who was wounded by a shrapnel bullet in the neck. The wound appeared to involve the ninth, tenth, eleventh, and twelfth cranial nerves on the left side, and gave rise to different paralyses—pharyngeal, laryngeal, spinal, and labial—and to disturbances of the pupil, in addition to the cardiac symptoms. The man was first seen by the authors eight months after the infliction of the wound. The respiratory system, and, in repose, the heart also, appeared to be normal; the pulse-rate was 76 to 80. The maximum arterial tension varied from 9 to 13.5 by the Riva-Rocci method. The special troubles of rhythm were only caused by exercise, as when the patient walked a little quickly or walked upstairs. With exercise, the pulse-rate rose to 120 or more. If the patient then sat or lay down, the rate fell progressively to 90 and 80, and at the end of three or four minutes intermittence developed. This phenomenon occurred constantly after exercise following on a period of rest, but it could not be provoked if the exercise were at once repeated, though on one or two occasions, if the exercise were repeated a few minutes after the disappearance of the extrasystoles, there was a slight return of the attack in a modified form. As a rule, the crises last only from one and a half to two minutes. On two occasions a crisis was prolonged to six or six and a half minutes by pressure on the ocular globes. Inhalation of amyl nitrite brought the crises instantaneously to an end.

and the injection of atropine beforehand greatly shortened the attacks. The Wassermann reaction was positive, but there was no obtainable history of syphilis nor any signs of it, and a course of treatment by injections of biniodide of mercury had no influence upon the extrasystolic crises. A number of tracings were taken with Mackenzie's apparatus. Two of these showed that the pulsations which followed the extrasystoles were equal in height to the others, and that there was a complete absence of the post extrasystolic alternance seen when the myocardial function is sensibly altered. Electro-diagrams gave important results. The extrasystoles were shown to be, for the most part, different forms of the diphasic type, the first variation being directed upwards and the second one, much less pronounced in height, directed downwards. Extrasystoles of this type are held to originate from the base of the right ventricle. Other extrasystoles, which were distinguished by their reduced height and shorter duration, approach very nearly those obtained by Lewis from excitation of the anterior surface of the right auricle. At intervals tracings were obtained of extrasystoles which originated from the lower part of the auriculo-ventricular bundle. Two tracings showed a combination of extrasystoles of all origins separated by shorter or longer intervals, but with no normal systole, ventricular or auricular, interposed amongst them. The result is therefore as if there existed in the myocardium different small areas, distributed from above the auriculo-ventricular bundle to the middle part of the right ventricle, from which the extrasystoles originated. With regard to causation, syphilis is negated by the history of the case, and by the absence of any stigmata, of any result from antisyphilitic treatment, and of post extrasystolic alternance. If it be accepted that the extrasystoles were of nervous origin, excitation of the sympathetic fibres or of the vagus might be held responsible. Physiological experiments have shown that extrasystoles of the type met with in this case can be produced by excitation of the sympathetic fibres. On the other hand, the effect of amyl nitrite, atropine and ocular compression is principally upon the vagus nerve, while recent workers have shown that the left vagus acts more especially on the auriculo-ventricular bundle and the ventricle. But although two or three isolated cases appear to point to a different conclusion, orthodox opinion does not accept the production of extrasystolic crises as among the consequences of excitation of the vagus; and in this case, although ocular compression prolonged a crisis, the crises were regularly produced and only produced by exercise. During the earlier stages of the illness the patient had suffered from nocturnal attacks of dyspnoea and cardiac disturbance apparently similar to those seen by the authors. This fact is of interest, since it is recognized that during sleep disturbances of the cardiac function are experienced which are similar to those caused by fatigue during the day. The prognosis in this case is guarded because of the extent of the irritable zone existing in the myocardium.

69. Tremor in Soldiers.

At a meeting of the Medical Society of Leipzig N. v. MAYENDORF (*Muench. med. Woch.*, February 29th, 1916) drew attention to the frequency with which different kinds of tremor were found in military hospitals. He recognized three classes of tremor showing distinctive clinical features. In the first there was tremor of the right arm when the elbow was flexed to a right angle or when the arm hung freely down; it was characterized by rhythmic oscillations with wide excursions. This form of tremor was sometimes the only symptom; at other times it was accompanied by well-defined hysterical phenomena, the arm in such cases being anaesthetic. There was no limitation of movement of this arm, no contractions, and no increase of the tendon reflexes. In the second class also the tremor showed wide excursions. It affected both legs, increasing and decreasing in intensity, and being usually accompanied by analgesia extending upwards as far as to the upper border of the patella. When the patellar reflexes were increased there was no corresponding increase of the Achilles reflexes or accentuation of Babinski's sign. The apparent limitation of movements about the knee-joints on passive movement was due to muscular contractions. The tremor diminished on walking, and was least when the legs were flexed at the knee to a right angle, when the patient sat on the edge of his bed, or when he stood up. To tremor of this variety might be applied the term "static tremor." In the third class there was general clonus, which either persisted as such or developed into tremor, limited to certain extremities, when the patient was subjected to severe exertion or other stimuli. The clonus of the right arm

exceeded in intensity the contractions of any of the other groups of muscles. In every case in this class the mental condition was much affected. Mayendorf had also seen one case of isolated tremor of the muscles of one side of the neck and one case of isolated tremor of one side of the face. In both these cases the affected parts were also analgesic. Discussing the etiology of these tremors, he suggested that there were many contributory factors, such as shell concussion, standing in water for hours, falls from horseback or carts, projectile wounds, etc. In only very few cases was there a psychogenetic basis to account for these symptoms, and on this account they should be regarded rather as a commotion neurosis due to physical concussion of the central nervous system than as an hysterical manifestation. As for the teaching that these tremors could be cured by suggestion, he had found that the results of this treatment were only transitory, the basic disease being unaffected by hypnosis. Accordingly he was very doubtful as to the wisdom of sending back to active service patients "cured" by this method. All these forms of tremor could easily be imitated. To distinguish between the true sufferer and the malingerer it was not enough to rely on certain trick tests, but every factor in the case, including the patient's personality, should be carefully analysed. It was, however, possible at once to exclude malingerers when the tremor was continuous for several hours.

SURGERY.

70. Extraction of Projectiles from Lung.

At a meeting of the Paris Surgical Society on September 8th, 1915 (*Bull. et mèm. de la Soc. de Chir.*, September 21st, 1915), G. MARION presented a soldier from whom he had extracted a bullet lodged in the lung at the depth of 9 cm. including the chest wall, and lying in contact with the left auricle. The case showed that the removal of projectiles from the lungs was easy, and not a severe procedure. Marion, who at first shared the general opinion as to the danger of the operation, was led gradually to the belief that all cases without exception could be dealt with. At first he operated only in cases in which the foreign body had produced foci of suppuration with adhesions to the chest wall. Later, after having removed projectiles lodged at a depth of 1 or 2 cm. in the lung substance, he went on to extract them at a depth of 7 cm., and he found that the operation was neither more difficult nor more serious. Discussing the risks caused by a foreign body embedded in the lung, Marion says that in two cases in which the patients only complained of some difficulty in breathing, he found the projectile encysted in an abscess from which pus escaped when the lung was incised. The technique is simple. Having localized the projectile, an incision is made parallel to the nearest rib above or below it; the rib is resected for a length of 4 or 5 cm.; the lung is next stitched to the chest wall with a Reverdin needle and three or four threads of catgut over the area of the rectangle which forms the field of operation bounded above and below by a rib and laterally by the ends of the resected rib. The lung is then incised, and the finger is pushed in, no heed being taken of bleeding or air bubbles. When the projectile is reached, it is seized with the finger bent to the form of a hook, and pulled out, regardless of tearing the lung; if it cannot be caught with the finger, the parenchyma is drawn out with Kocher's forceps while the projectile is pushed out with the index finger; when brought to the chest wall it is removed with the help of a grooved director or a bistoury. Finally the wound in the lung is plugged with a compress soaked in strong carbolic solution, and an ordinary dressing is applied to the one in the chest wall. In no case has the operation caused any trouble except some coughing with expulsion of a small amount of blood; this soon ceased. The patients were generally able to leave their beds in three or four days. The plug is removed from the lung wound on the fourth or fifth day; according to its depth it takes from a fortnight to a month to cicatrize completely. Marion said he had operated in twenty-seven cases, in only one of which he was unable to extract the projectile; this failure he attributes to his not having fixed the lung before opening the pleura, as he has always done since. Of the twenty-six projectiles removed seventeen were bullets, five fragments of shell, and five shrapnel bullets. In seventeen cases the projectile was encysted in the lung, free from any adhesion, and lying at a depth varying from one to seven centimetres. In four cases there were adhesions between the lung and the pleura, and the foreign body was in the middle of them; in three

it lay in an encysted purulent focus, the existence of which nothing in the patient's condition led the surgeon to suspect. In a further communication Marion (*Ibid.*, December 1st, 1915) said he had then operated in forty-three cases, and had never seen serious bleeding. In no case up to the date of report had the operation been followed by any ill effect. He had never had to deal with multiple projectiles, but if he met with such a case, and if all the foreign bodies were lodged in the same lobe, he would try to remove them by drawing out the lung. If they were scattered about in the parenchyma, he would take into account their size, the symptoms produced by them, and the lesions disclosed by radiology. In a paper read before the same society on November 10th, 1915, PIERRE DUVAL (*Ibid.*, November 16th, 1915) stated that he removed projectiles from the lung in fourteen cases. He agreed with Marion that such foreign bodies should always be extracted, but he used a different technique. The projectile might lie in a portion of lung adherent to the chest wall with or without a cutaneous fistula; or it might be lodged in non-adherent lung. In the latter case the patients complained of persistent deep-seated pain in the chest, which did not always correspond with the situation of the foreign body. The respiratory movements were short and jerky; both the pain and the dyspnoea were aggravated by effort. These symptoms made the men unfit for military service. Duval criticized Marion's technique, especially the thrusting of the finger into the lung, which he thought not only caused laceration of the parenchyma but extensive haemorrhagic infiltrations. In three cases he deliberately opened the pleura, produced a total progressive pneumothorax, drew the pulmonary lobe out of the chest, palpated and found the projectile, cut down on it through the part where there was least lung substance to traverse, extracted the foreign body, sutured the wound in the lung, which was replaced in the thorax, completely stitched up the chest wall and aspirated the intrapleural air by puncture. In a week the patients were able to leave their beds, and in a fortnight cure was complete. Auscultation and percussion showed an absolutely normal state of things. In twenty odd cases he had one death from double pneumonia following the operation; the projectile was lodged in a piece of lung adherent to the chest wall. Full details of the cases were given. At a meeting of the same society on January 26th, 1916 (*Ibid.*, February 1st, 1916), PL. MAUCLAIRE showed five cases in which removal of projectiles from the lung had been followed by haemoptysis, serous effusion into the pleura or extensive pneumothorax. These complications were not severe, but this might not always be the case. For that reason he thought that surgical intervention was called for only when the foreign body caused great pain, repeated effusion, or pulmonary congestion. Patients should be kept under observation for some time. With regard to the operative procedure, Maucclair said that if the incision of the pleura were small, pneumothorax might be avoided. The expansion of the lung could be helped by directing the patient to make long expirations while pinching his nose; this closed the glottis, and pushed the lung towards the chest wall.

At a meeting of the Société de Médecine et de Chirurgie de Bordeaux on January 21st (*Gaz. hebdom. des sci. méd.*, April 2nd and 16th, 1916) PETIT DE LA VILLÉON read a communication in which he stated that in a surgical service in the principal naval hospital at Brest under his direction he had among 1,700 wounded men treated by him about 80 cases of penetrating wound of the chest. In a large proportion of these fragments of projectiles were lodged in the lung. During the first year of the war he acted on the doctrine of non-intervention, but further experience led him to change his mind. His first operation for extraction of the foreign body was done on June 3rd, 1915. At that time Marion was the only surgeon in France who had extracted projectiles from the lung, and his results were still unpublished. Petit de la Villéon operated in 10 cases, in all with a successful result. He employed two different procedures—thoracotomy with resection of ribs and incision into the lung, removal of the projectile, followed by pleuropulmonary suture, and restoration of the chest wall; and extraction under the radioscopic screen. While each of these procedures has its advantages, the author prefers the screen operation on account of its simplicity, safety, and rapidity; it takes only a few minutes, more often only a few seconds. The local post-operative reaction was almost insignificant, and all the patients were able to leave their beds on the fourth or fifth day. Petit de la Villéon's experience has convinced him that the lung is a very tolerant organ, which with proper precautions can be freely operated on without danger.

71. Extraction of Projectile from the Heart.

A. BEAUSSÉNAT reported to the Académie de Médecine (*Bulletin*, May 6th, 1915; *Il Morgagni*, March 31st, 1916) the case of a young sergeant operated on for a wound of the heart caused by a projectile which had remained free in the right ventricle, and was extracted four months and a half after the infliction of the wound. The patient was struck on October 1st, 1914, by a fragment of grenade which, passing through the diaphragm, the pericardium, and the whole thickness of the cardiac muscle, penetrated into the right ventricle. It measured one and a half centimetres in length by one and a half in breadth and three millimetres in thickness; it weighed 15 grams. It was extracted on February 17th, 1915. The heart was opened and the projectile was seized, not without difficulty, with forceps and removed. The heart was immediately sutured. In three days intense dyspnoea came on with grave symptoms of collapse. There was moderate fever with slight pulmonary symptoms, which disappeared in a few days. A month after the operation the patient could be regarded as absolutely cured, and at the date of report the heart's action was normal and the cure seemed to be definitive. Two similar cases are, says Beaussehat, on record, one published in 1909 the other in 1910. These showed the prolonged tolerance by the heart in regard to metallic foreign bodies, as in one the patient died after four months and a half, the second after seven months. In these cases, however, no operation was done, and the projectiles were only found at the autopsy. [In the *EPITOME* of January 29th, 1916, par. 36, there is a short account of an unsuccessful attempt to remove a fragment of shell from the right ventricle; and in the number for April 8th there is a report of a case in which a shrapnel bullet was extracted from the same cavity.]

72. Gas Gangrene.

V. MARCONI reports (*Giornale di Medicina Militare*, October, 1915; *Il Morgagni*, April 5th, 1916) seventeen cases of gas gangrene treated in an Italian field hospital. Among them were three cases of comminuted fracture of the femur caused by hand grenade, rifle bullet, and shrapnel. In four other cases, in addition to compound fractures of the bones of limbs, there was injury to blood vessels, which had necessitated the application of the elastic bandage for periods varying from four to six hours; these were also grenade and gunshot wounds. In one case there was a fracture of the tibia by a shrapnel bullet; in another a joint was injured by grenade. In three other cases vessels had been seriously injured by gunshot or shrapnel and had been treated at the dressing station with the elastic bandage, which had been kept on for periods varying from three to eight hours. In the remaining five cases there were lesions of soft tissues by projectiles without damage to bone or vessels. The symptoms were of all degrees of severity, the gravest being in cases of large lacerated wounds with extensive separation of tissue caused by fragments of grenade or shrapnel, which always carried much infective material. The phenomena of gas infection were always most violent in cases in which the elastic bandage had been left on for a long time. On the other hand, in the case of wounds of soft parts, the infection was limited and easily neutralized. The greatest virulence was caused by fragments of grenade; next came shrapnel, which almost always carried into the body all the bits of clothing it might meet. In the case of men who have lived in trenches for months it may readily be conceived that these are not aseptic. Bullet wounds play a large part in the production of infection when there is smashing of bone and shock. The elastic ligature applied for many hours causes a lessened vitality in the tissues, thus facilitating the attack of pathogenic germs, which, on the other hand, with a good supply of blood, by the rapid establishment of collateral circulation, would be overcome. Marconi holds that the surgeon should not wait for attenuation of the process by mild measures. If improvement is not obtained quickly, there should be no hesitation about energetic intervention, because the saving of life or its loss is often a question of a few hours. If the process is limited, the thermo-cautery should be freely applied, together with disinfectants which can penetrate throughout the windings of the wound. In severe wounds, even when important vessels have been injured, it is not necessary always to apply the "fatal haemostatic ligature." Efficient plugging with a compressive bandage is in most cases sufficient. The elastic ligature should be used only in extreme cases and for a short time, never more than two hours, otherwise the patient is in danger of losing his limb by gas gangrene. When the gangrene develops there ought to be no hesitation about amputation.

GIOVANNI TIENGO (*Il Policlinico*, sez. pratica, April 16th, 1916) reports three cases of gas gangrene, two of which were cured, and one died. All the cases presented the characteristic local symptoms—emphysema, yellowish-red discoloration of the skin, fetor and reddish tint of the discharge, necrotic muscular foci, and great pain, with crepitus on palpation. At first this is the only symptom that reveals emphysema, but if no intervention is made within the first two or three days, a great increase in size takes place, which in the limbs is almost uniform and symmetrical, and not partial, such as might be due to a purulent accumulation or to an emphysema of different origin; this extends progressively to the root of the limb or to the abdomen, buttocks, and loins, up to the ribs. Whilst on the abdomen it is not very manifest, it may assume large dimensions on the buttocks and loins. This diversity of development of the emphysema is due to the fact that on the buttocks and loin there are large muscular masses. The formation of gas occurs in the necrotic foci produced in the substance of the muscles, and from these the gas, separating the fibres, escapes, together with liquid products, into the area of the wound, from which they may be seen to issue, sometimes with a gurgling sound. Longitudinal incisions should be made from the wound or above it if the emphysema extends up to the root of the limb and in the gluteal region down to the muscles. Then with the finger or a blunt instrument the muscular fibres or bundles should be separated so as to penetrate into the various foci of gangrene. These should be freely opened, scraped, and irrigated with calcium hypochlorite and drains of gauze or tubes inserted. In this way the progress of the disease is arrested without having recourse to amputation or other disabling operation.

At the Royal Medical Academy of Rome on February 27th, 1916 (*Ibid.*, April 16th, 1916) N. LEOTTA insisted on the importance of the elastic bandage in cases of gas gangrene. But it should not be applied unreasonably, and the surgeon should always be ready to take it off at once if necessary. On the basis of his own experience, Leotta showed that the number of gangrenous foci could be notably reduced by early and free opening up of the wound at the first sign of septic complication. Among the patients brought to his hospital the percentage of gangrene had been less than 1 per cent. When gangrene does occur and is quickly diagnosed, it is always possible to save life and limb by cauterization with the red-hot iron. He recalled how recently Querci had recourse to cauterization with a current of hot air of 600° by means of Gaiffe's apparatus, which acts in a way identical with that of the hot iron. But Querci's results were inferior to those obtained by himself in his field hospital. He had never performed an amputation for gas gangrene and had not lost a single patient attacked by the disease. In nine cases he obtained a cure without amputation. In the discussion DURANTE said that he had long used the red-hot iron for the cure of gas gangrene. The results had always been satisfactory.

Captain L. B. CANE, R.A.M.C., records (*St. Bart's Hospital Reports*, March, 1916) the case of a soldier, aged 22, admitted to H.M.S. *Devanha* on August 29th, 1915, from Suvla Bay with "pyrexia of uncertain origin." On September 22nd he complained of pain in the right forearm, which showed the typical symptoms of gas gangrene, extending to about 2 in. above the elbow-joint. There was no trace of any wound or abrasion. Circular amputation was performed at the level of the insertion of the deltoid, some frothy serum escaping at one point where the involved area was encroached upon. The brachial artery was not blocked. No sutures were applied. The patient died about six hours later. An incision made into the amputated limb liberated much gas and frothy serum, not particularly offensive, and there was no pus. There was no other case of gas gangrene on the *Devanha* at the time, nor did any case develop afterwards.

PATHOLOGY.

73. Gas Bacillus Infection.

FAUNTLEROY (*Annals of Surgery*, January, 1916) points out that the *Bacillus perfringens* is practically always present in the discharges and tissues of all wounds in the present war, and being also present in the soil-stained clothing its access to the wounds is easily understood. A fatal case of gas bacillus infection passes through the stages of injury, infection, localized necrosis, progressive gas production, circu-

latory disturbance, increased virulence, and septicaemia, and it is essential for the growth of the organism that there should be a certain amount of devitalized tissue in the wound, the toxins formed exerting a selective action on the planes of connective tissue, travelling most rapidly along the fascial planes. In the earlier stages there is usually nothing to indicate the gravity of the process, but in from two to five days a small degree of swelling develops, and palpation elicits the presence of gas in the tissues, and some loss of tissue elasticity resembling induration. A slowly progressive copper-coloured mottling of the skin adjacent to the wound follows, and a characteristic fetid odour resembling dead fish becomes noticeable, the discharge being of a thin, sero-sanguineous character, with later the development of crops of vesicles varying from the size of a pea to several inches in diameter. Although in the earlier stages of the infection a pulse may be present in one of the arteries distal to the wound it becomes progressively weaker, and in the last stage is always absent. A rising pulse-rate, usually out of proportion to the degree of fever, is highly suggestive of the first grade of infection in view of the usual febrile response to other wound infections in which the pulse-rate is usually in direct proportion to the degree of fever. Large ragged and deep wounds afford the most ideal condition for rapid infection, especially if important blood vessels and nerves have been injured so as to interfere seriously with nutrition and to produce rapid necrosis. The thoroughness of early surgical intervention is a most important factor in the progress of the infection. Prophylaxis consists in the usual precautions against wound infection, together with special considerations arising from the nature of trench warfare and the ease of infection with the organism responsible for progressive emphysematous necrosis. Covering the floor of the trench with wood faggots, and whitewashing thickly and repeatedly the sides of the trench, are measures suggested, as well as the adoption of a less porous and more easily cleanable material for clothing, and rigid attention to trench hygiene. Abortive treatment presupposes the possibility of being able thoroughly to treat the wound within twelve hours after the receipt of injury, and the prompt and complete removal of all foreign bodies or splinters of bone, under x-ray guidance if possible. In large wounds long fenestrated rubber tubes should be placed in the depth of the wound and its diverticula, and the wound packed with gauze saturated with Dakin's fluid, over which is placed a layer of non-absorbent cotton through which the tubes pass, so that every hour or two the fluid may be injected through them in order to keep the gauze thoroughly saturated. At the end of one or two days, according to the size and character, the wound will be sterilized, and the patient can then be moved to the rear hospital on a moulded splint or plastic dressing. The curative treatment has especially to do with the second grade of the infective process, which is usually treated in the large base hospitals of the interior. While it is considered that Wright's treatment with salt solution may be satisfactory in selected cases the great majority of progressive cases appear to require more radical treatment, such as not only a thorough opening up of the wound, but also the continuous use of an active antiseptic. A few others have advised and reported favourably upon a subcutaneous introduction of oxygen under pressure into the tissues above the wound. In order to prevent or limit skin retraction after operation the following method was devised to pull constantly upon the skin during the period of after-treatment; A wide piece of Canton flannel material is glued on its hairy side to the skin about 2 in. above the wound. Sewn to this are four narrow pieces, 2 in. apart, each having a short piece of narrow webbing attached. This should not be used until three or four days have elapsed after the operation, so that nothing may interfere with the keeping the wound wide open. Narrow strips of rubber cover the raw surface, and over this are placed the wide gauze pads, secured in place by a narrow strip of gauze surrounding the dressings at the end of the stump. The extension straps are now brought over the end of the stump and buckled to corresponding webbing on a cross piece of wood attached to a cord passing over a pulley and secured to a bag weighing 5 to 7 lb. By keeping up such extension for a month, the dressings being renewed daily, the skin usually comes down over the stump sufficiently to allow the apparatus to be dispensed with. When once the septicaemic grade is reached all methods of treatment by serums, etc., are useless, and the only hope is to prevent the onset of this stage by prompt amputation in the latter part of the second grade and before the patient is too weak to stand the shock of the operation.

AN EPITOME OF CURRENT MEDICAL LITERATURE.

War Number.

MEDICINE.

75.

War Psychiatry.

AT a meeting of the Royal Medical Academy of Genoa ARTURO MORSELLI, consulting neurologist to the First Army of Italy, presented a communication on war psychiatry which he called a new chapter in mental pathology. He excluded from his purview all the common forms of psychosis which the circumstances of warfare had forced from a condition of latency into active development, and those such as alcoholism, epilepsy, and dementia praecox, which had already existed when the patients were mobilized. Dealing only with mental aberrations due directly to the war, he said these mostly occurred in an acute form; they were brought on by the emotional excitement of battle, and, in his experience, had a basis of asthenia. He divided them into seven groups: (1) Acute nervous asthenia, mostly in the form of neurasthenia and psychasthenia; (2) hysteria, of which there were many varieties manifesting themselves in dumbness, stammering, tremor, paralysis, convulsions, catalepsy, or somnambulism; (3) depression, showing itself sometimes as simple sadness, at others as delirium with ideas of suicide; (4) stupor, sometimes simple, sometimes accompanied by catatonic phenomena recalling those of dementia praecox; (5) hallucinations, coming on in a transient form after emotion; (6) confusional states, having the characters of amnesia; (7) in rare cases, maniacal excitement. All forms of war psychosis in the strict sense are, in Morselli's experience, curable within a short period if treated early; it is important, therefore, that the diagnosis should be made at once within the war zone. It is better that a soldier whose mind has been deranged by the conditions of military service should not be sent to a lunatic asylum unless the case proves refractory to early treatment. The author points out the difficulties presented by more or less conscious simulation. It is in dealing with such cases that the experience of the psychiatrist is most useful, as, without special knowledge, mistakes are easily made. Once the doctor has made up his mind that the soldier is shamming, the best plan is to send him back to the fighting line. The results of treatment in the psychiatric stations within the war zone are very satisfactory. In some forms of psychosis the proportion of cures within the first ten days is 60 per cent.

CHAVIGNY (*Paris méd.*, January 1st, 1916) says that soldiers on active service are peculiarly liable, under the strain of the number and variety of the duties imposed upon them, to show mental breakdown by "reactions" which expose them, if their nature is not recognized, to be punished for breaches of discipline. Temporary loss of memory may make a man forget that he is a soldier and leave the trenches, with the result that he is court-martialled; the same thing may happen in cases of deaf-mutism from shock. The reactions of real insanity are shown by desertion, abandonment of post, refusal to obey, breaking of arms and destruction of equipment, burning of buildings, mutiny, and acts of violence. These offences include almost all those which under military law are visited with increased penalties in time of war. Chavigny relates several illustrative cases in which an expert examination saved men from death, and obtained for them a recognition of unfitness for military service. Chavigny insists that simulation is relatively rare, and he strongly urges the doctor, even when a case looks most suspicious, not to allow himself to be carried away by a first impression. He should carefully observe the man, not letting him, or any one about him, know that he is under suspicion. The expert must remember that a mistaken diagnosis of simulation justly exposes him to the severest criticism. But having made up his mind that the case is one of malingering, he should act without hesitation. The author relates a curious case of what he calls super-simulation. A censor of correspondence from the front intercepted a letter from a soldier to his wife, in which he told her not to worry about him when she was informed that he was in hospital, as in order to get away from the firing line, where he ran too much risk, he was shamming deaf-mutism. He instructed her how she was to

answer all questions in case of inquiry, so as to give a convincing history of hereditary and personal antecedents. The man at this time had been under Chavigny's care, and was being treated for typical deaf-mutism caused by shell shock. All the classical symptoms were present—local anaesthesias peculiar to such cases, persistent cough, etc., besides loss of speech and hearing. Examination after cure of the deaf-mute condition showed a very marked state of mental instability. But more typical than this, inquiry of the man's family doctor confirmed the absolute reality of the hereditary and personal history which, in his letter to his wife, he had described as invented to suit the requirements of his case. The wife, on close examination, confessed that her husband was the victim of his imagination, as it often happened that he could not distinguish his own inventions from what he had actually seen. He was, in fact, a mythomaniac, who doubtless in order to give himself some importance had invented a disease from which he really suffered. Ravaut, as the result of a series of puncture experiments in cases of mental disturbance caused by the war, had pointed out the frequent presence either of abundant albumin or blood in the cerebro-spinal fluid in men who for the lack of objective symptoms might have been put down as simulators. Chavigny thinks this may be a useful help in diagnosis, but only if the result is positive. He has seen it negative in cases as to the genuineness of which there could be no doubt. Furrowing of the nails, dating from the appearance of nervous or mental disturbance, may be important in cases of late or retrospective examinations.

75.

Simulated Disease in Soldiers.

EDGARD BLUM and GASTON DIMIER (*Gaz. hebdom. des sciences méd.*, May 21st, 1916) discuss the etiology and treatment of simulation. The determining causes are first, the wish to avoid exposure to new dangers, and secondly, to get a pension. The predisposing causes are often an illness or a wound, or it may be the nervous overstrain after a wound. Occasional causes are found in the organization of the medical staff and in the therapeutic measures employed. Full advantage had not been taken of the services of the neurologists and medical psychologists called to active service; such specialists played an important part in discovering and checking at the beginning any exaggeration by the wounded of their condition. Again, the organization of hospitals left much to be desired. If in the important military centres there were sanitary formations having at their disposal all modern therapeutic agents and a specially skilled staff, in the smaller centres there was often only one civilian doctor and the most rudimentary therapeutic equipment. Simulators had a wholesome dread of the army doctor, but in these centres his visits were made at too long intervals. Infirmarians and lady volunteers were also responsible for much exaggeration by the wounded. Their very devotion tended to encourage morbid sentimentality in the men. Other causes of simulation were excess in medical treatment and the supply of useless prosthetic apparatus. The authors quote the case of a soldier who complained of having received a contusion in the lumbar region which made him unable to stand straight. He had been given a splendid corset worth several hundreds of francs, and professed to be unable to do without it. He was a man of herculean build, and the authors were convinced that he was shamming. They took away his apparatus in spite of his protest, and a week later he walked straight and asked for his discharge. The wearing of the corset had fixed in his mind the idea of incapacity. A number of wounded were led to exaggerate their disability by the very care bestowed upon them, such as wearing a dressing too long or immobilization in plaster-of-Paris. In addition to the interference of the circulation and the stiffness of joints thus caused, the idea of disability became crystallized in the brain of the wounded man. Electricity applied with small batteries, often by persons unskilled in their use, might be another cause of simulation by giving the wounded man the notion that the failure in treatment was due to the gravity of the hurt. The authors agree with Dejerine and Bergonié that if the functional activity

was sooner brought into play; if doctors were less liberal in ordering walking sticks and crutches; if, in short, there was less treatment of a kind tending to fix the attention of the wounded man on his hurt, there would be less exaggeration. "Firing" they think particularly harmful, as the marks left gave a sort of stamp of authenticity to the hurt which helped simulation. Discussion in the presence of the patient of the symptoms and diagnosis, and criticism of what had been done encouraged exaggeration. The authors have often heard men on the strength of these criticisms attribute the aggravation of their state to wrong treatment. They have often known wounded men refuse to submit to examination on the ground that a doctor under whose care they had been had recommended them to avoid any kind of movement under penalty of formidable complications. Medical boards were also responsible for a good deal of simulation. Overworked, and not always taking into account the reports furnished them, they often granted too long leave without sufficient reason. That was an encouragement to the simulator, especially in view of the fact that the truly brave and deserving were rewarded only with the regulation seven days. There were, according to the authors, two classes of simulators. One invented diseases; detection was generally easy. The exaggeration of their disability and the *floriture* with which they described their suffering at once enlightened the experienced physician. Others perpetuated the affection from which they suffered, and instead of getting well in the ordinary time exploited their troubles. This kind of simulation might be conscious or unconscious. Among the unconscious were certain patients with exaggerated emotivity. Some were neurasthenics and naturally exaggerated their hurt. As Duprez says, there are persons who pass rapidly from suggestion to simulation. "The psychopathic process generally follows a course which may be summed up in the following words: Commotion, emotional suggestion, exaggeration, simulation and claim for compensation." A similar evolution is seen in workmen who suffer from accidents. These cases were the easiest to cure. Then there are conscious malingerers who set their wits against the doctor's; with them it was necessary to use coercive measures.

FORGUES (*Caducée*, No. 10, 1915; *Il Morgagni*, April 10th, 1916) gives from his own experience some illustrations of simulation by soldiers. Inflamed glands in the groin may be produced by scratching the foot with a needle steeped in faecal matter. The regular outline of the lesion distinguishes it from an excoriation due to footwear. Sores of the leg may be caused by rubbing the field blanket against the skin at points where the bones are superficial (tibia, knee, malleoli, etc.). At the first visit the lesions look trifling. The next day they are reddened and extended, and if faecal matter is applied they take on an alarming phagedaenic appearance. Purulent conjunctivitis may be produced with a little tobacco juice, a particle of lime, or the juice of some euphorbiaceous plant. The absence of the gonococcus and careful watching will reveal the trick. Mucous patches are imitated by cauterization with a lighted cigarette; the size and form of the patches, which are alike in all cases, should beget suspicion. Haematuria is simulated by the ingestion of a very concentrated decoction of carrot which gives the macroscopic appearances of bloody urine. Haemoptysis can be simulated by a small cut on the tonsils or pillars of the fauces; blood is then brought up by coughing. Tonsillitis is produced by gargles of hot alcohol or petrol or a decoction of euphorbiaceous plants; in these cases the diagnosis of simulation is almost impossible. Malaria may be simulated by means of aloes applied by punctures on the flanks, or better by an infusion of laurel water; simulation cannot be proved except by examination of the blood. The author reports in detail an epidemic of dysentery caused by one of his orderlies with enemas of a saturated solution of alum, followed by the introduction into the anus of pledgets of cotton steeped in the same solution. This is retained, and the progressive irritation thus produced caused bloody diarrhoea with tenesmus perfectly simulating dysentery. He has seen fainting fits produced by enemas of a decoction of tobacco in alcoholized water; and dog bites simulated by forks thrust in opposite directions into the hand or arm, the effect being completed by contusion by striking with a stick. A comparison of the lesions with the soldier's fork, and the fact that the wounds produced by a dog's teeth are unequal in depth, whilst those produced with a fork are all equal, will serve to reveal the fraud.

76.

War Mutism.

At a meeting of the medical society of Parma in November, 1915, L. RONCORONI reported four cases of war mutism (*Il Morgagni*, May 10th, 1916). Two of the patients

had an evident predisposition to mental disease, one of them having attempted suicide some years before, while the other at the age of 16, after seeing an apparition of a woman clothed in white in his room at night, remained three days without being able to utter a word. The affection also occurs in non-combatants; one of the patients was an orderly; and another a chauffeur employed in collecting wounded. Although the condition is known as war mutism, in the author's cases there were other phenomena—sensory and motor, organic and psychic—besides the loss of speech. One man was the subject of automatic motor symptoms with rhythmical movements of the head—flexion, extension, and from side to side—and twisting of the trunk, which lasted four days consecutively. Two had some muscular hypertonia, especially in the lower limbs; in three there was definite diminution in sensitiveness to pain. In one there was exaggeration of reflexes superficial and deep, and immobility of the eyeballs, so that the man seemed to be always staring at one point. There was an arrest of all the higher psychomotor functions. In the first days the patients were motionless, and incapable of reacting to external stimuli, or manifesting a spontaneous activity except in regard to taking food and emptying the rectum and bladder. In most cases sleep was not disturbed. The power of writing was always recovered before that of speech. In three cases the more important symptoms disappeared after three to ten days, and in a fortnight or three weeks cure was complete, except in the case of the man who had previously attempted suicide. In him the psychic disturbance was prolonged for a couple of months, and he left the hospital before recovery was complete; in his case, however, the condition was not so much a psychomotor arrest caused by the war as a common paraphrenic form of mutism. In all the cases there was some loss of hearing, although examination of the ears gave negative results. This was attributed to a disturbance of perception of sound which ceased with the return to normal psychical conditions. In all the cases there was loss of memory, which lasted some days. Roncoroni holds strongly that war mutism is not hysterical in nature.

77.

War and Skin Disease.

MILIAN, chief of the dermato-syphiligraphic service of the French armies (*Paris méd.*, May 6th, 1916), says that skin diseases among soldiers on active service present a number of variations from the ordinary types seen in time of peace. Before the war the most common affections in the Paris skin clinics were eczema, itch, psoriasis, and tuberculosis, lupoid or warty. To-day eczema and tuberculides are relatively rare, but itch, which was also rare, has lately shown an increase corresponding to that of syphilis; this is explained by the fact that it is generally contracted by sexual intercourse. On the other hand, phthiriasis, ecthyma, and trichophytosis are common, but present some special features. Impetigo of the face and non-parasitic scycosis, particularly of the subnasal variety, are often met with. Milian attributes the infrequency of tuberculosis to the vigilance of recruiting officers in looking for the morbid condition, and to the open-air life and good feeding of the men at the front. Alopecia areata, generally common among French soldiers, has so far been little in evidence since the beginning of the war, possibly because men suffering from the affection have not been sent to hospital. The few cases seen by Milian seemed to have no connexion with emotional shock. Phthiriasis occurs in a very acute form, the whole body being invaded; the skin is covered with small oedematous papules of the size of a pin's head. The excoriated papules with small brown crusts of ordinary pediculosis and the dark discoloration characteristic of the chronic form are exceptional. This is due to prompt treatment of the condition. Milian points out that the oedematous papules have a seat of predilection not mentioned in textbooks; that is the region just below the posterior border of the axilla where the sleeve of the vest touches it. Itch lesions, on the other hand, are seen on the front of the axilla. The phthiriasis of war is almost always complicated by ecthyma of the lower limbs caused by scratching. Sometimes the lesions are in the form of straight lines as broad as the finger and several centimetres in length; they are seen in groups of two, three, or more on the front of the thigh and the outer part of the leg. They are bright red in colour, and are absolutely identical in appearance with the wounds left after the removal of strips of skin for grafting by Thiersch's method. So closely do they resemble artificial lesions that Milian at first sight was inclined to believe that they were voluntary mutilations. But their arrangement in parallel lines, their situation within reach of the hands, their direction and breadth, convinced him

that they were infected scratches. These lesions usually get well quickly under wet antiseptic dressings. A more severe form complicating phthiriasis in worn-out and dirty men is characterized by large and deep ulcers left by the separation of black eschars, which heal very slowly. The treatment is careful cleansing of the limb, painting with tincture of iodine and pure oxygenated water, and dressing with picric acid, 1 per cent. Milian says that picric acid is an excellent remedy for pyodermitis, but unfortunately its use is forbidden in military hospitals, as by taking it internally soldiers have been able to simulate jaundice. Artificial dermatitis has been rare. Milian has seen only three cases, in all of which the lesion was a pustular eruption produced by thapsia juice. Trichophytosis has been unusually frequent; Milian attributes this to the great herds of cattle collected for the feeding of the troops. In the winter of 1914-15 the animals near Verdun were packed close together in stables and barns. This was the cause of an epidemic, in which two animals out of three were attacked and the disease was communicated to the men in charge of them. Last winter it spread among the troops, who caught it from their horses, among whom the disease was very rare.

GAUCHER and Mlle. RENEE KLEIN (Ibid.) say that the influence of emotion and shock in the production of psoriasis is well known. They have been struck by the increase of the disease since the outbreak of the war, and they have especially noted the frequency of its occurrence as a sequel of wounds. Often it developed on the scar. They do not think that this is to be explained by irritation, but rather that the wound is a place of least resistance to attack. An objection to this view is the late development of the disease on scars.

SURGERY.

78. Syphilis in War Time.

AT a meeting of the Paris Académie de Médecine on March 28th (*Paris méd.*, April 8th, and *Journ. de méd. et de chir. prat.*, May 10th, 1916) GAUCHER, chief physician to a number of hospitals of the regional camp of Paris, read a paper on syphilis in war time. His observations had convinced him that in France and in the other belligerent countries syphilis was much more prevalent than before the war. In a total number of 2,295 patients treated in his service at the Saint Louis Hospital from January 1st to July 31st, 1914—that is to say, in the seven months immediately preceding the outbreak of hostilities—there were 276 cases of recent syphilis, or in round numbers 300 in 3,000. From August 14th, 1914, to December 31st, 1915, he admitted to the same service 4,912 patients, civilians and soldiers, of whom 793 were cases of recent syphilis, or in round numbers 800 in 5,000. The prevalence of the disease had therefore increased by nearly one-half since mobilization. The proportion of cases among soldiers and civilians was about equal, and the increase in numbers about the same in both classes. Many more chancres were seen in quite young people and in elderly men, and it would seem that those unfit for military service had, in regard to the contraction of syphilis, taken the place of men on active service. According to Vaillard, general inspector of the sanitary service, the 1935, 1936, and 1937 classes were threatened with contamination from birth. Gaucher, feeling that much of the evil was due to ignorance, organized courses of popular lectures on syphilis and its prevention. His communication led to the appointment of a committee consisting of Landonzy, Gaucher, Balzer, Pierre Marie, Pinard, and Vaillard, to study the best means of dealing with the situation.

79. War Injuries.

C. A. MCWILLIAMS, of New York (*Journ. Amer. Med. Assoc.*, April 8th, 1916) reports a case that is of interest on account of the number of wounds received, the way in which they were treated, and the recovery after numerous plastic operations. The man received the first attention ten hours after the infliction of the wound, and was admitted to hospital after four days. The injuries comprised: (1) Wound at the level of the eleventh rib in the midscapular line. (2) Wound in the face involving the right half of the lower mandible, where there was a defect of at least an inch in the bone which had been blown away, the whole lower part of the cheek and right half of the mouth, which involved both upper and lower lips, and the tip of the nose and the right ala. This wound was infected with maggots, and was indescribably foul. (3) Shell wounds on the buttocks which were superficial and suppurating. (4) Shell wound

just below right clavicle, with partial paralysis of right arm. Pulse was present on that side. (5) Wound of right great toe. (6) Simple Pott's fracture of both bones of the right leg, apparently involving the ankle-joint, probably caused by falling. The fractured leg was put up in a Cabot splint. The mouth wound was cleaned, and a number of plastic operations performed, some of which are illustrated. The four wounds of the nose, cheek, and chest were all made by a single missile, and were in direct line. The course of the bullet was from the nose to the cheek to the lower jaw, where it had its exit; it entered again just below the clavicle, and penetrated through the axilla, where it injured the brachial plexus, finally making its exit beneath the middle of the scapula behind, or its course may have been in the reverse direction. The injury of the brachial plexus was not a complete division of any of its branches, as the movements of the arm could be carried on, though greatly weakened. The jaw was repaired with grafts from the tibia.

80. Radiography in Gunshot Wounds of the Skull.

VILVANDRE (*Arch. radiol. et élec.*, February, 1916) says that to trephine a skull for a depressed fracture, the clinical signs of which are obvious or even urgent, without first ascertaining the presence or absence of a missile by x rays, is irrational. The relief of decompression may be obtained within a few hours, but if the patient still has a bullet or piece of shrapnel in his brain the prognosis is not really improved. At the same time, while recognizing the importance of radiography previous to operation in skull cases, there are cases, in which x rays apparently fail. Even a good radiogram may be negative when the clinical symptoms point to the presence of a depressed fracture, and the failure is still more obvious in the case of a small linear crack or fissure. Damage to the skull, furthermore, is, as a rule, more extensive than can be shown in the radiograph, probably owing to the incidence of the rays on a round body. The author has noticed, in operating theatre and wards, that skulls with long comminuted fractures—even skulls in which the depression is great—do well provided no foreign body is present. The connexion between extensive fracture and good recovery has impressed the author, and he suggests that long fractures may be more efficient in relieving pressure than localized small trephining of one inch or so in diameter. A widespread decompression of a moderate degree may perhaps be better than decompression of a greater degree in a smaller area. In the cases of which he is thinking the bone remains in place, being only lifted up through intracranial pressure. The natural juxtaposition of the bone to the dura, and of the latter to the grey matter, persists to a great extent in such cases, and tends to prevent hernia cerebri and its sequelae of brain destruction and sepsis. The author wonders whether the lifting up of a large area of bone, and replacing it after the necessary cleaning of clot and removal of loose bodies is not to be preferred to the trephining and removal of bone by the ordinary method. Future callus may entail further compression, but many fractured skulls, untouched by the surgeon, do well, and the sufferers go through life without further symptoms, except some slight headache.

81. Night Blindness in Soldiers.

IN a communication to the Paris Académie de Médecine, Dr. WECKER, lecturer at the University of Liège (*Journ. de méd. et de chir. prat.*, May 10th, 1915), called attention to the occurrence of hemeralopia in soldiers, a fact which he said did not appear to have been noted in former wars. Men who see quite well in daylight lose their vision at night, so that they fall into ditches, and into craters often full of water, and require to be helped on their way by their comrades. Often these men, though very brave, dread being put on duty as sentries at advance posts, feeling themselves unequal to the responsibility thus thrown upon them. If they are drivers of vehicles they are unable to do the work at night. Of 3,977 patients in an ophthalmological service at the front, 409, or about 10 per cent., presented very distinct symptoms of hemeralopia. In all the fundus was normal. The principal causes of night blindness—nervous exhaustion, overstrain, want of sleep—are found in abundance among soldiers. A well known form of the disease is that which occurs in endemic form in penitentiaries and orphanages, and in ships, owing to insufficient or improper nourishment. During the seven weeks just before Easter, in Russia, hemeralopia is very common. But among Wecker's patients there was no question of underfeeding. The treatment which he found successful was care of the general health and rest; decided improvement followed the wearing of smoked glasses. If any myopia, presbyopia, or astigmatism were present, those conditions were dealt with by appropriate glasses.

82. Extraction of Intracranial Projectiles under Fluorescent Screen.

ROUVILLOIS (*Arch. d'électr. méd.*, No. 401, 1916) practises the extraction of intracerebral foreign bodies directly under the control of the fluorescent screen. He first takes two radiographs (a front and a profile view), and decides from this information upon a datum point as precise as possible. The patient is then taken to the operating theatre, and trephining is practised according to the ordinary technique, care being taken afterwards to dilate the entrance of the tract in the general direction indicated by the preliminary radiography. This little manoeuvre frequently permits of the evacuation of clot and débris, and prepares the way for the forceps. The patient is then returned to the radiographic couch, and, a screen inspection showing that the projectile is still in the same position, extraction is practised there and then. For this purpose the author uses forceps bent at the junction of the blades at an angle of about 45 degrees, similar to that used for foreign bodies in the external ear passage. Holding the fluoroscope in the left hand, he introduces the forceps with the right, working under the control of the screen image, and knowing already the general direction of the foreign body from the previous x-ray examination. After extraction, he introduces immediately into the intracerebral passage a drainage tube of sufficient calibre, but penetrating not more than 1 or 2 cm. By means of this drain he injects, under pressure, with a syringe, an antiseptic liquid. He claims that this technique permits one, with a little practice, to extract even small and deeply situated intracerebral projectiles with the minimum of operative damage, and in a time varying from thirty seconds to one and a half minutes.

83. Treatment of Wounds by Hyperaemia.

E. SEHRT (*Muench. med. Woch.*, March 7th and 14th, 1916), says that the treatment of wounds of limbs by Bier's method of hyperaemia has given eminently satisfactory results. He found that, provided the treatment was begun within the first twenty-four to sixty hours of the infliction of the wound, both the local and general reaction to infection was reduced to a minimum, infection being in many cases completely aborted. Since he had begun, in May, 1915, to use this method in severe wounds of the limbs he had never seen a case of gas gangrene originating in such an injury. Severe shell wounds of the trunk he still treated with free incisions. By avoiding the use of the knife in severe wounds of the limbs, and relying mainly on treatment by hyperaemia, he had prevented the occurrence of troublesome post-operative scars. After giving details of many cases, he concludes by insisting on the importance of the treatment being instituted at the earliest possible date.

LINBERGER (*Ibid.*, February 29th, 1916) gives details of several cases treated by continuous hyperaemia, which was found to be applicable even in the field. Indeed, after the first days, this treatment required no more time than any other treatment of severe wounds. The method was particularly useful in projectile wounds of the knee-joint, practically all of which were infected, and it was mainly due to this treatment that suppuration of this joint was seldom seen by him. Even when it did occur, it was kept in check by the hyperaemia which rendered extensive operations superfluous. The fever, which was invariably present at the commencement of the treatment, soon abated; and the pain, which was often severe, decreased under the treatment, and usually ceased after twenty-four to thirty-six hours. The ultimate results were also satisfactory.

84. Sling Atrophy.

ROCHARD and STERN (*Journ. de méd. et de chir. prat.*, May 25th, 1916) call attention to the evil effects of the too prolonged wearing of arm slings, which they say tends to transform wounded men into chronic invalids. In a typical case the whole limb is wasted; the muscles from the deltoid to the interossei are atrophied; the skin of the hand is thinned, damp, violet blue in colour, and so cold that the patient often wears a warm glove. The joints of the shoulder, elbow, wrist, and fingers are stiffened as if by rust; and passive movement causes pain and resistance. If the limb is allowed to hang free, it retains the same position as when carried in the sling; the arm is fixed to the trunk, the forearm flexed, the hand and fingers point downwards. The falling of the fingers towards the ulnar side is the characteristic sign that the sling has been worn too long; it is caused by the weight of the unsupported end of the limb, and in inveterate cases corresponds to a true inward subluxation—slow, progressive, and often irreducible—of

the hand and especially of the fingers. Active movements are awkward, jerky, weak, and limited; they are often accompanied by slight quick tremor. The authors insist that *écharpés*, as they call them, are neither true simulators nor really functionally disabled; they have lost the habit of movement, and the condition is one of atrophy and ankylosis produced by too long immobilization. A wounded limb is forthwith put in a sling, and kept thus supported for an indefinite time. The man finds it relieves him while the hurt is painful; afterwards it gives him the agreeable sensation that everyone gets from holding on to the side strap in a railway carriage. Insidiously the limb wastes and stiffens, and the man becomes a confirmed invalid. The first thing to be done is to dispense with the sling, notwithstanding the protests of the patient and sympathetic friends. Then if there be no definite contra-indication, such as false joint or arthritis, passive movement and massage should be employed. The treatment should at first be carried out by the doctor, who by gentleness and persuasion will gain the confidence of the patient and encourage him to put his will power in action. Of course, in cases where there is an anatomical lesion a sling is necessary; it is the abuse of it that is condemned.

THERAPEUTICS.

85. Prophylactic Inoculation against Dysentery.

ACCORDING to G. SEIFFERT and O. NIEDIECK (*Muench. med. Woch.*, February 29th, 1916), most cases of dysentery in Germany among soldiers and prisoners are due to the relatively harmless bacteria associated with the names of Lentz and Kruse. Accordingly, prophylactic inoculation has mainly been undertaken against these bacteria, whereas inoculation against the Shiga-Kruse bacteria has hitherto seldom been required. The outbreak of a small epidemic in the camp to which the authors were attached gave them the opportunity of studying the effect of inoculation in about 2,000 cases. The reactions of the serum to this inoculation were noted in several cases, and the constant development of antibodies was interpreted as evidence of acquired immunity. The cessation of the epidemic coincided with the change in the weather from severe heat to cold and rain; and it was therefore doubtful whether this or the inoculations were responsible. The authors conclude that there is at present insufficient material on which to base a final judgement on the results of inoculation against dysentery. It is also uncertain how long the immunity lasts, but probably it is short-lived, and it may therefore be necessary under certain conditions to repeat the inoculation after a few months.

86. Fibrolysin in Recent Cutaneous Scars.

HENRI TOUSSAINT (*Bull. et mém. de la Soc. de Chir. de Paris*, August 17th, 1915) has made trial of subcutaneous injections of fibrolysin for the loosening of recent scars. A six weeks' course of injections of thiosinamine did no good in a case in which the urethra was occluded from pressure by cicatricial tissue the result of a wound inflicted four months before. Injections of fibrolysin gave encouraging results in two cases in which there was an adherent cutaneous scar prolonged by an indurated cord, in each case caused by a wound from a fragment of shell received about a month before the injections were begun. The wound was situated in one case above the knee close to the internal saphenous nerve, in the other on the latero-external aspect of the neck. Both patients complained of excessive pain, especially at night. In both Wassermann's reaction was negative; 4 c.cm. of fibrolysin were injected every other day, the needle being pushed deeply along the indurated cord. Even in the case of the patient wounded in the neck, who was a very nervous subject, the injections caused no pain, although he had been unable to bear the rubbing of a collar on the site of the wound. Suggestion was used to further the cure, and the patient was assured that pain would cease as soon as the skin was freed from its adhesions. Massage was used with the injections, and the patient was told to massage the scar himself at odd times. At the end of six weeks the scar was free from the subjacent tissues and the hyperaesthesia had disappeared. The author suggests that in cases similar to those described it is advantageous to free the cutaneous and subcutaneous tissues in order to liberate the nerve fibres which give rise to the pain; also where a quite recent cutaneous scar is threatening to imprison a tendon or a sensory or mixed nerve fibrolysin may prove of great benefit. Treatment must, however, be begun early, it being useless to try the method three or four months after the infliction of a wound which has been accompanied by more or less prolonged suppuration.

THE
British Medical Journal.

THE JOURNAL OF THE BRITISH MEDICAL ASSOCIATION.

SUPPLEMENT

CONTAINING

PROCEEDINGS OF COUNCIL

REPORTS OF STANDING COMMITTEES

MEETINGS OF BRANCHES AND DIVISIONS

PROGRAMME OF ANNUAL MEETING

MEDICAL BILLS IN PARLIAMENT

PROCEEDINGS OF THE GENERAL MEDICAL COUNCIL

ETC.

VOLUME I, 1916.

London :

PRINTED AND PUBLISHED AT THE OFFICE OF THE BRITISH MEDICAL ASSOCIATION,
429, STRAND, W.C.

INDEX TO SUPPLEMENT FOR VOLUME I, 1916.

A.

Abortion in cattle, contagious (W. Robertson), 66
 Accidents, proposed abolition of reports on by certifying factory surgeons. *See* Factory surgeons
 Acts, Military Service, 141 (*see also* Military service and War emergency)—*Approved Societies Handbook for*, 31
 Army, British, medical service of, 3, 7, 11, 15, 19, 23, 27, 31, 36, 39, 43, 47, 55, 59, 63, 67, 71, 75, 107, 115, 123, 131, 139, 148, 155
 Army, British: Army Medical Service 3, 7, 11, 15, 19, 23, 27, 31, 36, 39, 47, 55, 59, 63, 67, 71, 75, 107, 115, 131, 139, 148, 155
 Army, British: Australian Army Medical Corps, 72
 Army, British: British West Indies Regiment, 15, 55
 Army, British: Canadian Army Medical Corps, 15, 23, 31, 55, 59, 68, 72, 108, 139, 155
 Army, British: Colonial Medical Services, 24
 Army, British: General Reserve of Officers, 55, 107
 Army, British: Oversea Contingents, 15, 23, 31, 55, 59, 68, 72, 108, 139, 155
 Army, British: Royal Army Medical Corps, 3, 7, 11, 15, 19, 23, 27, 31, 39, 43, 47, 55, 59, 63, 67, 71, 75, 107, 115, 123, 131, 139, 148, 155
 Army, British: Royal Malta Artillery, 24
 Army, British: South African Medical Corps, 55
 Army, British: Special Reserve of Officers, 15, 19, 24, 28, 31, 39, 55, 59, 68, 72, 108, 139
 Army, British: Territorial Force Medical Service, 4, 7, 11, 16, 19, 24, 28, 32, 40, 47, 55, 59, 63, 68, 72, 76, 108, 124, 131, 140, 155—Army Medical Services, 28, 47, 68, 76, 108, 124—Royal Army Medical Corps, 4, 7, 11, 16, 19, 24, 28, 32, 40, 47, 55, 59, 63, 68, 72, 76, 108, 124, 131, 140, 155
 Army, British: Territorial Force Reserve, 8, 24, 56, 60, 72, 140
 Army, British: West African Medical Staff, 24
 Army, Indian, 23, 31, 55, 131, 139
 Association, British Medical: Annual Representative Meeting, 1916, provisional agenda, 77
 Association, British Medical: Changes of boundaries, 47, 65
 Association, British Medical: Council election, 153
 Association, British Medical: Council proceedings, 21, 25, 102—Annual report of Council, 79—Balance sheet, 81
 Association, British Medical: Members elected, 103
 Association, British Medical: Retrospect of the finances of, 73

B.

BARTON, Henry Thomas: Reduction of notification fees, 105
 Belfast Division: Annual meeting, 137—Election of officers, 137
 BELL, Dr.: Work of panel practitioners, 19
 Berkshire Panel Committee, 47
 Birmingham Panel Committee, 6, 23, 31, 66—Expenses of members, 23, 31—Pharmacopoeia Subcommittee's report, 6
 Birmingham: Conference of Local Medical War Committees, 57
 Bombay Branch: Annual meeting, 70—Election of officers, 70—Annual report, 71—Vote of condolence, 71—Clinical records, 71—Cases, 71
 BONALLO, William, disciplinary case of, 147
 BOOTH, F. Handel: Panel system or a State Service, 27
 Border Branch, South Africa: Annual meeting, 66—Election of officers, 66
 Bristol: Conference of Local Medical War Committees, 57
 British army. *See* Army
 British Guiana Branch: Meeting, 71—Surgical complications and sequelae of typhoid fever (Dr. Miller), 71—Election of officers, 71
 British Medical Association. *See* Association
 Buckinghamshire Division, 66—Recruiting for the Military Service, 66—The Insurance Acts, 66

Buckinghamshire Local Medical and Panel Committee, 53, 67
 Burnley Division: Annual meeting, 152—Election of officers, 152—Local War Committee, 152—Tariff fees, 152

C.

Caithness and Sutherland Division, and the war emergency, 102
 Cape of Good Hope, Eastern Province Branch: CALLENDER, T. M.: National Insurance: Clerical work and war work, 59, 67
 CAMPBELL, A.: Payments under the Insurance Act (1914), 154
 Election of officers, 66—Contagious abortion in cattle (W. Robertson), 66
 Carnarvon, North, and Anglesey Division: Annual meeting, 151—Election of officers, 151—Notification fees, 151—Model rules, 151—Record cards, 151—Treatment of dependants of soldiers and sailors, 151
 City Division: Central Medical War Committee, 152—Notification of pregnancy, 152—Interests of the profession, 152
 Committees. *See under title*—Finance, Journal, etc.
 Compulsion. *See* War emergency
 Contract practice, 137

COUNCIL, GENERAL MEDICAL:

Alleged covering of uncertified midwives, 127
 Apothecaries' Hall examinations, 119
 Constitution of committees, 147
 Dental business, 135
 Dental disciplinary cases, 147
 Disciplinary cases, 127, 146
 Education in medical ethics, 145
 Election of committees, 119
 Executive Committee, 45
 Finance, 146
 Number of medical students, 129
 Pharmacopoeia Committee, 145
 Practice of dentistry by unqualified persons, 135
 President's address, 117
 Proposed warning notice, 128
 Public health, 136
 Reciprocity with Canada, 119
 Report by Examination Committee, 145
 Restoration to Register, 147

CULVER, J.: Payments to panel practitioners, 36

D.

Derbyshire Insurance Committee: Treatment of panel practitioners, 18
 Derbyshire Panel Committee: "Rep. mist.," 53
 Devonshire, sanatorium benefit in, 69
 Doctors on active service, scheme for attendance to their practices, 37
 Dorset and West Hants Branch: Annual meeting, 136, 151—Annual report and financial statement, 136—Summer meeting, 136—Presidential address, 136—Clinical cases, 136—Luncheon, 136—Tea, 136—Election of officers, 151—Work for absent colleagues, 151
 DOWLING, Casper Denis, restoration to Register, 147
 Dumfries and Galloway Division: Annual meeting, 150—Election of officers, 150—Financial statement, 150—Annual Representative Meeting, 150—Notification of births, 150—Petrol supply, 150—Memorial to the late Dr. Bird, 150—The late Dr. Gilroy, 150
 Dundee—National Insurance: Annual general meeting of practitioners, 54—Morning consultations, 107
 Durham County Panel Committee, 54, 139

E.

Edinburgh and Leith Division: Annual meeting, 123—Reduction of notification fees, 123—War matters, 123—Maternity service and

child welfare, 123—Annual report, 123—Election of officers, 123—Annual Representative meeting, 123

ELLIS, H. A.: Treatment of tuberculosis, 70
 England and Wales and the war emergency, 61

Enrolment. *See* War emergency

Essex, North-East, Division: Annual meeting, 151—Election of officers, 151—Annual Representative Meeting, 151—Membership of the Association, 151—Vote of thanks, 151

Essex Panel Committee, 30—Practitioners away on service, 30

Essex, South-West, Division: Attendance on dependants of soldiers, 37—Enrolment, 38
 Ethical Committee, 25

Exeter Division: Annual meeting, 152—Election of officers, 152—Vote of congratulation, 153

F.

Factory surgeons, proposed abolition of reports of, 110, 119

Fees, notification: Reduction of, dissatisfaction in Manchester and district, 69—Scotland, 75—Correspondence on, 75, 105, 110, 113, 123, 129, 139. Resolutions of Edinburgh and Leith Division, 123; of Lambeth Division, 137

Fife Panel Committee, 58

Finance Committee, accounts, 21

Finances of the Association. *See* Association
 FLETCHER, T. J.: How is the insurance system working? 130

Forfar County: Local Medical Committee, 23—Panel Committee, 23—Payments to practitioners, 23

FRASER, Alex. G.: National Insurance—sur-charges, 59

FULLER, Dr.: Work of panel practitioners, 19

G.

General Medical Council. *See* Council

GENT, W. Conway: Payments to panel practitioners, 38

Glasgow Insurance Committee, "Rep. mist.," 107

Glasgow panel doctor, action against, 54

Glasgow and West of Scotland Branch: Annual meeting, 151—Annual report and financial statement, 151—Election of officers, 151—Treatment of dependants of soldiers and sailors, 151

Gloucestershire Local Medical and Panel Committee, 53

GREGSON, Arthur H.: Reduction of notification fees, 105

H.

Hampshire Panel Committee, 113—"Rep. mist.," 113

Hampstead Division: Annual meeting, 152—Annual Representative Meeting, 152—Executive Committee, 152—Vote of thanks, 152—Local Medical Panel Committee, 152—Branch organization, 152—Election of officers, 152

HARFORD, M. S.: "Rep. mist.," 63

HAWTHORNE, C. O.: Reduction of notification fees, 139

HEARD, R. L.: Some aspects of general practice, 149

Hertfordshire Panel Committee: Pricing and checking prescriptions, 53—"Rep. mist.," 53

HODGSON, C.: Reduction of notification fees, 69

Holland Division: Motor lighting restrictions, 27—Panel practitioners and war work, 25—Annual meeting, 137—Annual report, 137—Election of officers, 137

Horsham Division, election of officers, 27

HUDSON, T. S. Finch: Reduction of notification fees, 69

I.

Insurance, National:

Action against a Glasgow panel doctor, 54
Approved societies, finance of: interim report of Departmental Committee, 129
Approved Societies, Handbooks for, 31
Approved societies and Irish doctors, 75
Certificates for chronic invalids, 22
Charges against practitioners, inquiries of the Insurance Commissioners into: Nottinghamshire, 22 Third parties and, 138
Civil Service Estimates, 62
Complaints against panel practitioners by persons who are not authorized by the patient, 119

CORRESPONDENCE:

Clerical work and war work, 59, 67
How is the insurance system working? 130
Pay under the Insurance Act for year 1914, 106, 115, 131, 154
Payment of arrears, 62
Payments to practitioners, 36, 38
Proposed emergency settlement of panel practitioners' accounts for 1915, 138
"Rep. mist.," 63
Surcharges, 59, 67

Deferred payments for the certification of sickness benefits, 138
Dental treatment, 138
Deprivation of benefit, appeal from referee's decision, 111
Derbyshire Insurance Committee and panel practitioners, 18
Domiciliary treatment of tuberculosis, 154
Draft regulations affecting Panel and Pharmaceutical Committees, 54
Drug Fund Regulations, 14

INSURANCE ACTS COMMITTEE:

Conference of Local Medical and Panel Committees, 25
Drug tariff, 17
Effect of the war on the medical side of the Insurance Acts, 25
Payments to practitioners, 18
Stock mixtures, 17
Surgery accommodation, 17
Suspension of right of transfer, 18
Use of salvarsan, vaccines, serums, etc., 18

Insurance finance inquiry, 22, 31
Insurance funds, 35
Insurance practitioners, meetings of, 136
Letter to Local Medical and Panel Committees, 119
Maternity benefit, 59
Medical referees, 151
Medical service, range of operations, 46
Military census of Scottish chemists, 59
Non-panel doctor and National Insurance certificates, 70, 107
Panel practitioners and war work, 27
Panel practitioners, work of, 10, 19

PARLIAMENTARY QUESTIONS ON:

District Insurance Committees, 35
Drug tariff, 3
Enlistment of members of approved societies, 130
Maternity benefit, 59
Number of approved societies, 70
Retrenchment Committee, 15
Treasury Committee, 35
Tuberculosis treatment, 7
Unclaimed contribution cards, 3

Payment of arrears, 62
Payment for temporary residents. *See* Temporary

Payments under the Insurance Acts, 137
Payments to practitioners, 38
Pricing of prescriptions, 14, 18—Draft scheme of Manchester and Salford Insurance Committees, 18

Procedure in inquiries by Insurance Committees, 121—Complaints by insured persons, 121—Allegations of excessive prescribing, 121—Range of medical treatment, 122

Range of medical service. *See* Medical service

Record cards for the year 1915, 2
"Rep. mist.," use of the term of, 113

Repeat prescriptions, 54, 58, 63; in the Lancashire county area, 54

Recruiting of panel chemists, 54
Scope of service under medical benefit: Sight testing, 113

Settlement of 1914 accounts, 6
Stock mixtures, 51, 112, 119

Surcharges: Decision of Insurance Commission for England in certain cases, 50
Temporary residents, payment for, 31
Third parties and complaints against panel practitioners, 138

Travelling expenses of Panel Committees, 115, 130

Tuberculosis administration: Sanatorium benefit in Devonshire, 69—Home and dispensary treatment, 70

Tuberculosis, domiciliary treatment, 154
Tuberculosis, treatment in Midlothian, 154

War emergency, circular from the Insurance Commissioners, 5

Ireland—National Insurance: Amendment of the Insurance Act, Ireland and medical benefit, 46—Deferred payments for the certification of sickness benefits, 138—Medical certification of sickness benefits, 3, 6—Payment of medical certificates, 130

Ireland and the war emergency, 2, 9, 14, 17, 29, 61

Irish Committee, 25
Irish Medical War Committee. *See* War emergency

Isle of Ely Division: Balance sheet, 37—Examination of school children, 37—Reduced lighting order, 37

Isle of Ely Local Medical and Panel Committee, 67

J.

Journal Committee, report on the paper crisis, 21

JUBB, George: Notification fees, 75

K.

Kincardineshire Local Medical and Panel Committees, 106

L.

Lambeth Division: Election of officers, 137—Payments under the Insurance Acts, 137—Fees for notification of infectious diseases, 137

Lanark County Local Medical and Panel Committee, 10

Lanarkshire Division: The late Dr. Macpherson, 102—Appointment of Chairman and Vice-Chairman, 102—War Emergency Committee, 102

Lancashire Local Medical and Panel Committee, 30, 54—Provision of proper and sufficient medicines, 30—"Rep. mist.," 54

Leeds and the war emergency: Conference of representatives of Local Medical War Committees, 49

Leinster Branch: Annual meeting, 149—Election of officers, 149—Rules, 149—President's address, 149

Lighting restrictions, the new, 9

Lincoln Division: Annual meeting, 137—Annual report, 137—Election of officers, 137—Annual Representative Meeting, 137

Liverpool—National Insurance: Domiciliary treatment, 30—Panel Committee, 23, 30, 66—Stock mixtures, 23

Local Government Board of England and Wales: Circular to county councils, etc., re war emergency, 34—Circular to Poor Law authorities re war emergency, 134—Circular to the tribunals, 134

Local Government Board of Ireland: Circular to boards of guardians re war emergency, 2, 9, 14

London—National Insurance: Analysis of drugs and appliances, 106—Arrangements with deputies, 39—Complaints against panel practitioners, 39—Emergency settlement of accounts, 105—Excessive prescribing, 27—Local Medical and Panel Committees, 15, 39, 55—Local Medical War Committees, 105—Measles, treatment and care of, 39, 53—Panel Committee, 27—Reinstatement of persons removed from lists by enlistment, 53—Safeguards against excessive prescribing, 15—Stock mixtures, 15—Supply of serums and vaccines, 53—War and the position of panel practice, 10

London Insurance Committee: Commercial drug tariff, 6—Extravagant prescribing, 6—Fines imposed on panel practitioners by the Insurance Commissioners, 105—Protest by the Insurance Committees, 105—Panel practitioners and war service, 6—Position of panel practitioners' deputies, 27—Reinstatement of persons removed from lists, 53—Sanatorium benefit and practitioners' remuneration, 38

London and the war emergency: Conferences of Local Medical War Committees, 50

M.

McGOWAN, R. G.: National Insurance—surcharges, 67

McKANE, W. O.: Work of panel practitioners, 19

MACKEITH, A. A.: Reduction of notification fees, 129

Manchester and Salford Insurance Committees, pricing of prescriptions (draft scheme), 18

Marplebone Division: Annual meeting, 126—Election of officers, 126—Annual report, 126

Marplebone and the war emergency, 149

Massage establishments, 58

Maternity and child welfare, 123

Matters referred to Divisions: Retrospect of the finances of the Association, 73—Annual Representative Meeting (1916) provisional agenda, 77—Annual Report of Council (1915-16), 79—Balance sheet, 81—Notices of motion, 125

Medical students, number of, statistics from President of General Medical Council, 30, 129

Medical students and military training. *See* War emergency

Medico-Political Committee, 25—Proposed abolition of reports on accidents by certifying factory surgeons, 119

Metropolitan Counties Branch, massage establishments, 58

Middlesex—National Insurance: Certification rules, 30—Panel Committee, 30

Midlothian: Treatment of tuberculosis, 154

Military Service Acts, position of medical men under, 141—Letter from the Director-General A.M.S., 141—Memorandum on the national organization of the medical profession, 142

Motor licences, increase of, 114

N.

National Association of Trade Union Approved Societies, panel system or a State service (F. Handel Booth), 27

Navy, Royal, medical service of, 3, 7, 11, 15, 19, 23, 27, 31, 36, 39, 43, 47, 55, 59, 63, 67, 71, 75, 107, 115, 123, 139, 148, 155

Navy, Royal, Royal Naval Reserve, 7

Navy, Royal, Royal Naval Volunteer Reserve, 7, 11, 19, 23, 27, 31, 39, 43, 47, 55, 59, 63, 67, 71, 75, 107, 115, 123, 155

Notification fees. *See* Fees

Nottinghamshire: Inquiries by the Insurance Commissioners into charges against practitioners, 22

O.

Organization Committee, 25

Oxford Panel and Medical Committee, 53

P.

Petrol, supply of to doctors, 113, 125

Poor Law officers in naval or military service, 134. *See also* War emergency

Portsmouth Division: Annual meeting, 152—Election of officers, 152—Annual Representative Meeting, 152—Conference of secretaries, 152

POWELL, Daniel Evans, disciplinary case of, 127

POWERS, C. H.: Pay under the Insurance Act for year 1914, 106

Practices of men accepting commissions, 9. *See also* War emergency

R.

Recruits, examination of, 30

REEVE, Herbert Midgley, disciplinary case of, 127

Renfrew County Panel Committee, 23, 54, 58, 106—Prescriptions, 23—Central Checking Bureau, 58

ROBERTSON, W.: Contagious abortion in cattle, 66

ROBSON, F. W. Hope: Payments under the Insurance Act (1914), 154

Rochdale Division: Annual meeting, 114—Annual report, 114—Election of officers, 114—Ethical rules, 114

ROSS, B. J.: Reduction of notification fees, 105

Royal colleges in London, appointment of a joint advisory committee on the war emergency, 49

RYAN, William Joseph, disciplinary case of, 147

S.

St. Pancras and Islington Division: Annual meeting, 126—Election of officers, 126

Scotland—National Insurance: Address by Chairman of Scottish Commissioners, 35—Domiciliary treatment of tuberculosis, circular from Scottish Commissioners, 154—Medical benefit regulations, 2—Number of insured persons, 35

Scotland and the war emergency, 2

SCOTT, G. Brebner: Medical recruiting and the alleged waste of medical officers, 29

Scottish Committee, 25, 38

Scottish Medical Service Emergency Committee, 1, 13, 21, 65, 145

SHAW, Kenneth Ram Gujral, disciplinary case of, 146
 Sheffield Division: Annual meeting, 137—Election of officers, 137—Contract practice, 137
 Shropshire Panel Committee, 54
 Somerset County Local Medical and Panel Committee, 66
 Southampton Panel Committee, 66
 Southampton and the war emergency, 149
 South-Eastern Counties Division: Annual meeting, 150—Treatment of dependants of soldiers and sailors, 150—Election of officers, 150—Vote of thanks, 150—Annual Representative Meeting, 150—Reports, 151—Legislation and medical work, 151
 South-Eastern of Ireland Branch: Ordinary meeting, 71—Vote of condolence, 71—Power testimonial, 71—Annual meeting, 114—Election of officers, 114
 Southport Division: Annual meeting, 126—Annual report and financial statement, 126—Election of officers, 126—Annual Representative Meeting, 126—Election of Direct Representatives to the General Council, 126—Presidency of the Branch, 126
 Staffordshire Panel Committee, 54
 STEVENSON, C. M.: Pay under the Insurance Act for year 1914, 131
 Stirling Branch: Annual meeting, 151—Election of officers, 151—Medical referees under the Insurance Act, 151—Treatment of dependants of soldiers and sailors, 151
 Suffolk, East, Panel Committee, 27, 39—Rep. mist., 27
 Surrey County—National Insurance: List of insured persons on panel, 23—Local Medical Committee, 113—Medical cards, 23—Panel Committee, 23, 106—Scope of service under medical benefit, sight testing, 113
 SURRIDGE, E. E. N.: Notification fees, 67
 Sussex, East—National Insurance: Drugs and appliances, 139—Local Medical and Panel Committee, 53, 139—Mileage fees, 53—Payments to practitioners, 53—Petrol duty, 139
 Swansea and the war emergency, 17

T.

TAYLOR, C. Louis, resignation of from Assistant Editorship, 22
 THOMPSON, James Andrew Baird, disciplinary case of, 146
 THORNELY, William: War emergency, the plea for compulsion, 109
 Tipperary, North, Local Medical Committee, 70
 TOWNSEND, Francis E.: Pay under the Insurance Act for year 1914, 115
 Tuberculosis treatment, 69, 70
 Tyrone, County—National Insurance: Meeting of Medical Committee, 58

V.

Venereal diseases, report of Royal Commission on, 113—National Council for combating, 136, 147
 Victoria, the profession in, 30
 Vital statistics: Health of English, Scottish, and Irish towns, 4, 8, 12, 16, 19

W.

Wakefield, Pontefract, and Castleford Division: Colliery clubs, 11—War emergency, 11

WAR EMERGENCY:

Caithness and Sutherland Division, 102
 Central Medical War Committee: Letter to practitioners, 13—Letter to Council
 British Medical Association from Sir Alfred Keogh, 25—Men of military age employed on home service, 26—Question of more economical use of medical men in military service, 26—Circular (W. 22) to Local Medical War Committees, 33—Circular to canvassers: Why the enrolment scheme must be made a success, and answers to common objections, 41—Special canvassing committees, 43—Recognition of, 149
 Circular to tribunals by the Local Government Board, 134
 Commissions for medical men between 45 and 55, 149
 Compulsion, the plea for, 109
 Conferences of representatives of Local Medical War Committees: At Leeds, 49; in London, 50; Birmingham, 57; Bristol, 57; England and Wales, 61; Ireland, 61
 Doctors on active service: Scheme for attendance to their practices (Partick and District Medical Society), 37
 Eligibility of enrolled medical practitioners for army duty, irrespective of age, 42
 Enrolment, need and purpose of, 29—Army Council instruction, 43—Applications for, 57, 61, 65
 Enrolment forms, character of, 34
 Enrolment scheme, conferences, 45—War Office statement and appeal, 61
 Insurance Commissioners, circular from, 5
 Ireland: Circular by the Local Government Board to boards of guardians, 2, 9, 14—Recognition of Irish Medical War Committee, 17—Conditions of leave to Poor Law medical officers joining the R.A.M.C., 17—Irish Medical War Committee, 25, 29, 37, 149
 Lanarkshire Division, 102
 Letter from the Director-General A.M.S., 141
 Letter to Royal College of Surgeons and Royal College of Physicians, 114
 Local Government Board of England and Wales: Circular to county councils, etc., 34—Circular to Poor Law authorities, 134—Circular to Tribunals, 134

WAR EMERGENCY (continued)

Marylebone, 149
 Medical recruiting and the alleged waste of medical officers, 29
 Medical students and military training, 5, 9
 War Office intimation to President of General Medical Council, 9
 Need for resident surgical officers at hospitals, 57
 Order in Council, 133
 Poor Law medical officers joining the Royal Army Medical Corps, conditions of leave to (Abbeyleix Union, Queen's co.), 17
 Poor Law medical officers in naval or military service, 134
 Position of medical men under the Military Service Acts, 133, 141—Letter from the Director-General A.M.S., 141—Memorandum on the national organization of the medical profession, 142
 Practices of men accepting commissions, 9
 Profession in Victoria, 30
 Recruits, examination of, 30
 Regulations for professional committees in respect of duly qualified medical practitioners, 133
 Royal Colleges in London: Appointment of Joint Advisory Board, 49
 Scottish Medical Service Emergency Committee, 1, 13, 21, 65, 145
 Southampton, 149
 Swansea: Formation of Medical War Committee, 17
 Work for absent colleagues, 71—Document prepared by Central Medical War Committee, 71
 War Office: Statement and appeal re war emergency, 61
 WARD, Captain Gordon: National Insurance, proposed emergency settlement of panel practitioners' accounts for 1915, 138
 Warrington Division: Annual meeting, 55
 WEST, Henry William, disciplinary case of, 146
 West Ham Insurance Committee and stock mixtures, 51
 Wexford—National Insurance: Meeting of practitioners, 58
 Wiltshire Panel Committee: Pharmacopoeia, 27—"Rep. mist.," 27
 Work for absent colleagues. See War emergency
 WRIGHT, A. M. St. John: Reduction of notification fees, 105

Y.

York Local Medical and Panel Committee, 10, 39, 106—Local pharmacopoeia, 106—Stock mixtures, 106
 Yorkshire, West Riding, Local Medical and Panel Committee, 10, 53

SUPPLEMENT TO THE BRITISH MEDICAL JOURNAL.

LONDON: SATURDAY, JANUARY 1st, 1916.

CONTENTS.

	PAGE		PAGE
RECRUITING FOR THE NAVAL AND MILITARY MEDICAL SERVICES:		INSURANCE:	
SCOTLAND: SCOTTISH MEDICAL SERVICE EMERGENCY COMMITTEE ...	1	THE RECORD CARDS FOR THE YEAR 1915 ...	2
IRELAND: CIRCULAR BY THE LOCAL GOVERNMENT BOARD TO BOARDS OF GUARDIANS ...	2	SCOTLAND: MEDICAL BENEFIT REGULATIONS, 1915, No. 2 ...	2
ASSOCIATION INTELLIGENCE:		IRELAND: MEDICAL CERTIFICATION OF SICKNESS BENEFITS ...	3
THE HALF-YEARLY INDEXES TO THE "JOURNAL" FOR 1915 ...	1	INSURANCE ACT IN PARLIAMENT ...	3
MEETING OF COUNCIL ...	2	VACANCIES AND APPOINTMENTS ...	4
NAVAL AND MILITARY APPOINTMENTS ...	3	BIRTHS, MARRIAGES, AND DEATHS ...	4
VITAL STATISTICS ...	4	DIARY FOR THE WEEK ...	4
		DIARY OF THE ASSOCIATION ...	4

THE HALF-YEARLY INDEXES FOR 1915.

The usual half-yearly indexes to the JOURNAL, to the EPTOME, and to the SUPPLEMENT have been prepared and will be printed. They will, however, not be issued with all copies of the JOURNAL. Any member or subscriber who desires to have one or all three of the indexes can obtain a copy of what he wants, post free, by sending a post-card notifying his desire to the Financial Secretary and Business Manager, British Medical Association, 429, Strand, W.C. Such copies will be dispatched shortly after the middle of January.

RECRUITING FOR THE NAVAL AND MILITARY MEDICAL SERVICES.

SCOTLAND.

SCOTTISH MEDICAL SERVICE EMERGENCY COMMITTEE.

The Scottish Medical Service Emergency Committee has issued the following memorandum setting out in concise form the recruiting scheme which it has drawn up for Scotland:

MEDICAL RECRUITING SCHEME, 1916.

Some months ago, by desire of the various professional executives in Scotland, we undertook as a Committee the duty of bringing under the notice of practitioners the need of the army for more medical men. At the request of the War Office we agreed further to deal with applications by practitioners for commissions in the Royal Army Medical Corps. The outlines of our policy, and the procedure which we proposed to follow, were set out in our memorandum of June 28th last,¹ a copy of which was sent to all Scottish practitioners. With the help of local War Committees—to whom we are much indebted—the plans so laid down were carried out, and a satisfactory response was made by the profession to our recent calls upon them.

Since the period in question, however, there has come into being the general recruiting scheme promoted by Lord Derby, which has impressed all men of military age with an increasing sense of their obligations towards the country, and we are now in consequence requested by the Director-General of Army Medical Services, with the concurrence of Lord Derby, to continue and expand our work in such a manner as to form a link with the general arrangements of the recruiting scheme. It is intended that the duty of dealing with members of the medical profession in Scotland, so far as the medical service of the army is concerned, shall, subject to the instructions of the Director-General, continue to be discharged by us, and we are authorized to state that medical men who have been approached by agents of local recruiting organizations on the ground that they are of military age, under Lord Derby's scheme for the lay population, should apply to us for guidance.

In drawing up a new scheme to meet these new conditions, we require in the first place to ascertain what service or services each practitioner resident in Scotland will be prepared to render if called upon. The War Office has decided (1) that no man under 45 years of age will be employed as a commissioned officer in the Army Medical Service unless he undertakes general service obligations for a year, and is found to be physically fit for duty at home and abroad; and (2) that no man over 55 years of age will be accepted for home service. In accordance with this decision practitioners are divided into three groups, and the services appropriate to each group are noted in the following schedule:

Group.	Age.	Service.
A.	Under 45	Lieut., R.A.M.C. (<i>general service</i>).
B.	45 to 55	Lieut., R.A.M.C. (<i>home service</i>). Part-time home military work. <i>Locum tenens</i> away from home (for practitioner absent on service). Part-time home civil work (in carrying on practice or part of practice of neighbouring practitioner absent on service).
C.	56 and upwards	Part-time home military work. <i>Locum tenens</i> away from home (for practitioner absent on service). Part-time home civil work (in carrying on practice or part of practice of neighbouring practitioner absent on service).

As regards these services, attention is drawn to the enclosed registration form, which should be filled in by all practitioners resident in Scotland who do not hold a commission in a branch of the Royal Army Medical Corps or in the Medical Department of the Navy. As it is our duty not only to obtain applications for commissions, but also to safeguard the interests of the general public by preventing undue depletion of any district, offers by practitioners to serve with the army or to act as whole-time locum tenentes will be held as subject to the condition that arrangements can be made to have their present civil work carried on during their absence.

In organizing medical effort throughout Scotland generally, we propose to act as heretofore in co-operation with the local War Committees which we have recognized for each Division of the British Medical Association. When the results of our registration inquiry have been ascertained and collated, we shall confer with these local committees and determine the number of practitioners who should be expected to go on service from each area. The local committees, acting on our instruction, will, after timely notice, as occasion demands, call upon selected practitioners to give the service appropriate to their age group.

In making a call for whole-time military service, the local War Committee will issue to practitioners the army form of application for a commission in the Royal Army Medical Corps, and these forms, when filled in, should be returned to the secretary of the local War Committee, and the subsequent arrangements should be made through him. In making calls for other services, the secretary of the local War Committee will provide practitioners with all necessary information. These calls, which will be

¹ BRITISH MEDICAL JOURNAL, July 3rd, 1915, p. 20.

successive, will begin to be made in the month of January, 1916. Precise dates for calls succeeding the first cannot now be stated. We shall, in instructing local Committees, be guided by our knowledge of the needs of the army as intimated to us from time to time by the Director-General.

On any question of duty which may arise in consequence of such calls or otherwise, practitioners are at liberty to refer to us as a body duly appointed and empowered to issue letters of excuse. Notice of this must be given on the appropriate form (Form Q), which may be obtained from the secretary.

Questions of physical fitness or unfitness are expressly excluded from our province, and can be decided only by a regular officer of the Royal Army Medical Corps following an application for a commission as lieutenant. Men so decided to be physically unfit should offer for one or more of the remaining services in the schedule.

The memorandum is signed by the members of the Committee, who are the Presidents of the Colleges of Physicians and Surgeons of Edinburgh, the President of the Royal Faculty of Physicians and Surgeons of Glasgow, the Deans of the Faculty of Medicine of the Universities of St. Andrews, Glasgow, Aberdeen, and Edinburgh, the Professors of Pathology and Medicine in the University of Glasgow, the Chairman and Vice-Chairman of the Scottish Committee of the British Medical Association, the President of the Aberdeen Branch and the Secretary of the Edinburgh Branch of the British Medical Association, by the Deputy-Chairman and a medical officer of the Insurance Commission, Scotland, and by the convener of the Committee, to whom, at the Royal College of Physicians, Edinburgh, all communications should be addressed.

The memorandum is accompanied by a series of forms:

1. *The Registration Form* to be filled in by a practitioner not holding a commission, giving his name, qualifications, address, and age. In addition, it affords spaces for a statement of the nature of the work at present being done, and for intimating the group in which the practitioner is prepared to render service and the following pledge:

At the call of the local War Committee for my area, as instructed by the Scottish Medical Service Emergency Committee, I am prepared to render the service or services marked above. This offer is subject to the condition that, in the event of such service requiring me to leave my present work, I am enabled to make arrangements for having it carried on during my absence.

2. *The Intimation Form* for the case of a practitioner holding a commission to be filled in by himself.

3. *An Application Form* for a commission R.A.M.C., signed by the secretary of the local War Committee for the Division, and stating that the Committee is of opinion that the arrangements made for carrying on his work during his absence in the event of the practitioner obtaining a commission, are satisfactory, and specifying their nature.

4. *Whole-time or Part-time Service.*—This form, which is to be signed by the secretary of the local War Committee for the Division, is to be used to intimate that a practitioner has undertaken whole-time or part-time service under the medical recruiting scheme, 1916, and in the case of a practitioner undertaking whole-time service will state the nature of the arrangements made for carrying on his work during his absence, and that the committee is of opinion that these arrangements are satisfactory.

5. *An excuse form (Q)* on which, when any question of duty has arisen, in consequence of calls to join the R.A.M.C. or otherwise, practitioners may refer to the committee as a body duly appointed and empowered to issue letters of excuse.

6. *Letter of Excuse.*—This form is provided with a counterfoil, and is in the following terms:

LETTER OF EXCUSE.

No.

Dr.

Address.

The Scottish Medical Service Emergency Committee is of opinion that it is meantime undesirable in the public interest to call on the above-mentioned medical practitioner to undertake military service.

This Letter is valid till.

Secretary.

Convener.

Royal College of Physicians, Edinburgh. 19.....

Either a registration or an intimation form—but not both—should be filled in in respect of each practitioner.

The appropriate form, duly filled in, should be returned

to the Secretary, Scottish Medical Service Emergency Committee, Royal College of Physicians, Edinburgh, before December 31st, 1915.

IRELAND.

CIRCULAR BY THE LOCAL GOVERNMENT BOARD TO BOARDS OF GUARDIANS.

THE following is the text of the letter sent to Boards of Guardians throughout Ireland:

Local Government Board, Dublin,
November 26th, 1915.

Sir,

The Local Government Board for Ireland desire to bring under special notice the fact that a large number of Irish medical practitioners are at present on temporary service with the Army and Navy—that, in consequence, there has been, since the outbreak of the war, a marked dearth of candidates for Poor Law medical appointments. Furthermore, the making of these permanent appointments during the continuance of the war appears to the Board to be inequitable to the doctors who, out of motives of patriotism and humanity, have placed their services, for the time being, at the disposal of the Government. The Local Government Board would, therefore, suggest that the Board of Guardians should defer filling up any further vacancies that may occur, and should wait and make the best temporary arrangements possible, pending the return of normal conditions on the termination of the war.

I am, Sir, your obedient Servant,
A. R. BARLAS.

Secretary.

Association Notices.

MEETING OF COUNCIL.

THE next Meeting of Council will be held on Wednesday, January 26th, in the Council Room, 429, Strand, London, W.C. The hour will be notified later.

By order,

GUY ELLISTON,

Financial Secretary and Business Manager.

January 1st, 1916.

INSURANCE.

THE RECORD CARDS FOR THE YEAR 1915.

It may be well to remind practitioners of the circular which presumably will have been received ere this by every panel practitioner from the Commissioners with reference to the filling up and forwarding of the record cards for the year 1915.

For the purpose of computing in the future what would be a fair remuneration for panel practitioners, it is most important that every attendance given to panel patients should be carefully filled in. It is by no means impossible that some attempt may be made on the score of economy, or for other reasons, to reduce the amount at present provided for medical benefit, and if the record cards are carelessly filled in and only show a much smaller number of attendances than have actually been necessary, the cards themselves may furnish an argument in favour of a reduction of payment which the profession could hardly explain away by saying that many attendances had not been recorded. The instructions given by the Commissioners should be most carefully carried out, as the keeping of the cards and forwarding the two halves to the Commissioners and the Insurance Committees respectively are conditions attached to the payment of the additional grant of 2s. 6d. per insured person provided by the Exchequer towards the cost of medical benefit; failure to carry out the instructions may lead to a deduction from the amount otherwise payable to any defaulting practitioner. It will be noticed that the following instruction is additional to last year's circular:

(j) Where a doctor is acting as deputy for a colleague who is absent with H.M. Forces, care should be taken to forward separately the records relating to the latter's patients. These records should, of course, bear the name of the absent doctor.

SCOTLAND.

MEDICAL BENEFIT REGULATIONS, 1915, No. 2.

THE National Health Insurance Joint Committee, acting jointly with the Scottish Insurance Commissioners, have issued regulations, dated November 11th, 1915, which provide:

1. That the modifications made in 1914 of Articles 16, 17, 18, 19 of the Medical Benefit Regulations of 1913 shall continue in operation during 1916.

2. That on and after January 1st, 1916, every agreement between insurance committees and practitioners shall be read and have effect as if the following provisions were inserted:

(a) The Committee may, after consultation with the Panel Committee, at any time require that, subject to such exceptions and qualifications, if any, as may be agreed between the Committee and the Panel Committee, or, in default of agreement, may be determined by the Commissioners, the practitioner shall not give any order for any drug or appliances in such a form as to necessitate a reference on the part of the person supplying the drug or appliance to a previous order.

(b) The Committee shall give not less than fourteen days' notice to the practitioner of their intention to bring the foregoing provision into operation.

3. The following provisions shall be substituted for Article 3 of the National Health Insurance (Medical Benefit) Regulations (Scotland), 1915, which is hereby revoked:

(1) An insured person whose name is included in the list of a practitioner on the panel who is at any time during the month of November, 1915, holding a commission in the Naval or Military Forces of the Crown shall not be entitled to select another practitioner or method of treatment at the end of the medical year ending on December 31st, 1915, unless, in addition to giving notice to the committee in the manner and within the period required by paragraph (1) of Article 30 of the National Health Insurance Medical Benefit Regulations (Scotland), 1913, he satisfies the Medical Service Subcommittee of the Committee that he has reasonable grounds for desiring to be removed from the list of the practitioner holding a commission as aforesaid, and paragraphs (1) and (2) of Article 30 shall be modified accordingly.

(2) Nothing contained in this article shall affect the right of an insured person under Articles 26 and 45 of the last-mentioned regulations to be transferred to the list of another practitioner on the panel subject to the conditions contained in those regulations.

IRELAND.

MEDICAL CERTIFICATION OF SICKNESS BENEFITS.

At a meeting of the County Cavan medical practitioners on December 16th, 1915, when Dr. Acheson was in the chair, the following resolutions were unanimously passed:

(a) That the best thanks of the co. Cavan doctors be tendered to Dr. T. Hennessy for his untiring exertions on behalf of the Irish medical profession in connexion with the medical certification question under the Insurance Act, and we feel confident that it was owing to the skill and ability of Dr. Hennessy, ably assisted by the Irish Medical Committee, that so satisfactory an arrangement has been concluded.

(b) That all the co. Cavan doctors be recommended to sign the Insurance Commissioners' agreement pending the issue of the memorandum as promised by the National Health Commission.

(c) That the action of the Local Government Board in preventing Poor Law medical officers in the interests of the sick undertaking the certification of other doctors' patients resident in their own and adjoining districts has the support and approval of the co. Cavan doctors.

At a meeting of the medical profession, held at the Royal College of Physicians last week, to consider the proposed agreement sent by the Commissioners for National Health Insurance for Ireland to all the doctors of Ireland, a resolution was unanimously passed recommending the members of the medical profession in and around Dublin to sign the agreement, as the meeting was of opinion that it was an honest attempt to settle the question of medical certification.

INSURANCE ACT IN PARLIAMENT.

DRUG TARIFF.

In reply to a question by Mr. Booth, on December 21st, Mr. Charles Roberts said that the duty of pricing prescriptions had been transferred to Insurance Committees by regulations recently framed in accordance with the recommendations of the Departmental Committee on the Drug Tariff, and it was the statutory duty of committees to make administrative provision for the purpose of calculating the payments due to chemists under the agreements already entered into for 1916. The Commissioners had been in communication with the Committee as to the arrangements, necessitated by this duty, which they understood were in course of preparation by the Committee. Committees had already been informed that special provision would be made for meeting any additional expenditure properly incurred by them on this work out of sums released in consequence of the new tariff arrange-

ments. Any such estimate as that suggested by Mr. Booth—£4,000—of the additional cost involved appeared to be greatly in excess of any reasonable anticipation. Mr. Booth retorted that the estimate had been formed in conjunction with the officer and staff of the Insurance Commissioners, and added that pressure was being brought to bear on the London Committee to employ girls fresh from school in cellars in Chancery Lane to read thousands of Latin prescriptions by artificial light. Mr. Roberts admitted on these matters want of information, and Mr. Booth promised that it should be supplied.

UNCLAIMED CONTRIBUTION CARDS.

In reply to Mr. Haydn Jones, who asked on December 22nd why the number of unclaimed insurance cards bearing stamps in the hands of the Commissioners for Wales was as high as 39,000, Mr. C. Roberts said that he was informed that nearly half the cards referred to consisted of cards recovered from insured persons who had enlisted, and of emergency cards received from certain large employers who had now discontinued the use of such cards except in the appropriate circumstances.

Naval and Military Appointments.

ROYAL NAVAL MEDICAL SERVICE.

THE following announcements are made by the Admiralty: Surgeons J. F. McQueen to the *Victory*, additional, for disposal; J. B. Martin, M.B., M.A., to the *President*, additional, for R.N.A.S.; A. V. J. Richardson to the *Harrier*; C. D. Bell, M.B., to the *Europa*, additional; Temporary Surgeons J. D. Milligan, M.B., to the *Victory*, additional, for disposal; F. J. F. Barrington, M.B., to the *Victory*, for R.N. Division; H. S. Libby to the *Vind*, additional, for Plymouth Hospital; C. E. Jenkins, H. S. Jeffries, B.A., T. S. Gibson, J. D. Murphy, M.B., B.A., C. Gardiner-Hill, A. O. Gray, H. F. Stephen, F. T. Grey, M.B., and J. R. Simpson, M.B., to the *Victory*, additional, for Haslar Hospital; A. G. McKee to the *Commonwealth*, vice Rothwell; J. S. Jobson, M.B., F.R.C.S., to the *Victory*, additional, for R.N. Division, vice Lauderdale; E. M. Lauderdale to the *Victory*, additional. To be temporary Surgeons: O. H. Gotch, M.B., M.A., C. M. Williams, H. S. Libby, W. H. Edmunds, H. F. Stephen, M.B., H. M. Oddy, M.B., M.A., J. Duffin, M.B., F. T. Grey, M.B., A. C. Brown, M.B., G. W. M. Findlay, M.B., J. B. Simpson, M.B.

ARMY MEDICAL SERVICE.

Temporary Colonel G. L. Gulland, M.D., relinquishes his commission. Major (temporary Lieutenant-Colonel) J. G. Bell, M.B., relinquishes his temporary rank on vacating the appointment of Assistant Director of Medical Services.

ROYAL ARMY MEDICAL CORPS.

Temporary Lieutenant-Colonel Sir Ronald Ross, K.C.B., F.R.S., F.R.C.S., relinquishes his commission.

Lieutenant-Colonel D. Macauley, South African Medical Corps, to be temporary Lieutenant-Colonel.

Major H. Hemsted, South African Medical Corps, to be temporary Major.

Temporary Captain W. P. Morgan, M.B., relinquishes his commission.

Temporary Lieutenants to be temporary Captains: W. L. G. Davies, N. E. Hallows, M.B., A. Gibson, M.B., F.R.C.S., C. Wace, F.R.C.S., E. B. Smith, M.D., R. W. Gemmell, M.B., F. B. McArthur, M.B. To be temporary Captains: F. W. Twort, H. Dickie, M.D., T. G. Moorhead, M.D.; temporary Captain G. Beley, from York and Lancaster Regiment.

Temporary Lieutenants relinquish their commissions on the dates shown against their names, and not as stated in the *Gazette* of September 11th, October 1st, and November 11th, 1915, respectively: D. Morrow, August 24th, 1915; R. Bright, September 12th, 1915; J. W. Littlejohn, M.D., October 11th, 1915.

Temporary Lieutenant J. Brewer is placed temporarily on retired pay on account of ill health (substituted for the notification which appeared in the *Gazette* of November 17th, 1915).

The notification regarding temporary Lieutenant A. E. F. L. Forbes which appeared in the *Gazette* of December 3rd, 1915, is cancelled.

The appointment to a temporary Lieutenantancy of C. D. Halcombe, M.B., is antedated to September 4th, 1915.

To be temporary Lieutenants: J. R. Boyd, M.D., J. Anderson, M.B., E. Sutcliffe, J. Unsworth, M.B., O. D. B. Mawson, W. Bannerman, M.B., H. P. Gibb, M.B., F.R.C.S., G. F. Bird, M.B., C. H. Edwards, M.B., C. E. A. Boddart, E. B. Austin, M.B., W. E. Hills, J. S. Taggart, M.B., T. Ewing, M.B., D. M. Dickson, R. Anderson, R. H. Shepard, I. F. MacKenzie, W. Parker, M.B., W. Bligh, M.D., J. R. Craig, M.B., T. C. Harks, R. J. Bethune, M.D., N. H. Austin, J. F. MacLeod, M.B., T. H. Oliver, M.B., B. E. Spurgin, M.B., W. Strling, M.B., M. G. Pettigrew, J. G. Gray, R. H. Bremridge, M.B., R. H. Urwick, M.D., A. E. Fiddian, W. M. Penny, M.D., J. Bowen-Jones, W. E. Barker, M.B., H. R. S. Walford, R. J. Vernon, M.B., A. J. Beadel, J. A. Lowry, M.D., A. Campbell, M.B., J. C. Padwick, J. A. K. Griffiths, M.B., S. E. Dudley, A. W. Senior, O. H. G. Ross, M.B., W. W. Stacey, M.B., L. M. Smith, G. B. Buckley, G. Stowell, M.B., T. H. Clarke, P. Verdon, P. L. Moore, M.B., J. W. Jackson, M.B., T. M. Boddy, C. O. Twort, M.D., A. G. Peter, M.B., H. L. Askham, A. W. Wilcox, M.D., G. D. E. Tullis, M.B., C. H. Ferguson, M.B., W. Crabtree, M.B., J. W. Tocher, M.B., J. R. Ross, G. D. Grippen, T. W. E. Moreton, C. H. Phillips, M.D., J. A. Marsden, H. C. W. Allott, W. Allan, M.D., J. Welsh, J. Pender, M.B., H. Miller, M.B., T. Surby, M.B., W. J. Edgar, F. J. Strachan, M.B., H. Hargreaves, M.B., A. Davidson, M.D., H. E. Dyeon, M.D., F. P. Young, M.D., D. Kennedy, M.D., E. Hesterlow, M.B., A. L. McCreey, M.B., W. Darlington, M.B., H. O. Gough, J. D. Cooke, M.B., F.R.C.S., R. G. Brown, W. B. Tannabill, M.B., K. Pretty, M.B., J. Ross, M.D., O. V. Burrows, M.B.

The undersigned relinquish their temporary honorary commissions on ceasing to be employed with No. 7, British Red Cross (Allied Forces Base) Hospital: Lieutenant-Colonel W. E. Miles,

F.R.C.S., Major H. D. Gillies, F.R.C.S., Captains R. G. Murray, A. E. Forester, J. S. Burn, M.B., J. E. Adler, F.R.C.S., Quartermaster and honorary Lieutenant D. Rose. Temporary honorary Lieutenant B. G. Klein, M.D., having ceased to be employed with the Welsh Hospital, Netley, relinquishes his commission.
H. A. F. Wilson to be temporary honorary Lieutenant whilst serving with the British Red Cross Hospital, Netley.
To be temporary honorary Lieutenants: P. H. Wells, E. G. Dingley, J. N. Deacon, M.B., G. C. Berg, O. H. C. Byrne.

TERRITORIAL FORCE.

ROYAL ARMY MEDICAL CORPS.

East Anglian Casualty Clearing Station.—Lieutenant W. J. Delghan to be Captain.

East Anglian Field Ambulance.—Lieutenant S. J. Fielding, M.B., to be Captain.

Eastern General Hospital.—Lieutenant E. F. Ballard, M.B., to be Captain.

East Lancashire Field Ambulance.—C. W. Fort, M.B., and A. W. Berry, M.B., to be Lieutenants. Lance-Corporals T. H. Calverley, from Manchester Regiment, and J. M. Lowe to be Quartermasters, with the honorary rank of Lieutenants.

East Lancashire Casualty Clearing Station.—Lieutenant E. A. Williams to be Captain.

Highland Field Ambulance.—Lieutenants B. J. Alcock, M.B., and J. G. Anderson to be Captains.

Home Counties Field Ambulance.—Captain J. E. Ryan, M.D., from London Field Ambulance, and Lieutenant M. C. Hayward to be Captains.

London Sanitary Company.—D. Porter, M.B., to be Lieutenant.

Lowland Field Ambulance.—Lieutenant W. B. Stewart, M.B., to be Captain.

Northern General Hospital.—The following announcement is substituted for that which appeared in the *Gazette* of December 2nd, 1915: Lieutenant-Colonel Joseph F. Dobson, M.B., F.R.C.S., is placed on temporary retired list on account of ill health. Lieutenants W. A. Slater, M.B., H. D. Pickles, M.B., and T. S. P. Parkinson, M.B., to be Captains.

South Midland Casualty Clearing Station.—G. H. Kirby to be Lieutenant.

South Midland Field Ambulance.—F. A. J. Mayes to be Lieutenant.

South Midland Mounted Brigade Field Ambulance.—Lieutenant F. Smith to be Captain.

Southern General Hospital.—Lieutenant A. Radford, M.B., to be Captain. T. S. Stafford (late temporary Lieutenant R.A.M.C.) and A. N. Worsley, M.B., to be Lieutenants.

South-Western Mounted Brigade Field Ambulance.—Lieutenant J. H. Cumming to be Captain.

Superannuary for Service with the O.T.C.—Lieutenant J. P. Kinlock, M.D., to be temporary Captain whilst serving with the Aberdeen University Contingent, Senior Division, O.T.C.

Western General Hospital.—Lieutenant F. Chadwick, M.B., to be Captain.

West Lancashire Casualty Clearing Station.—D. F. Hunter, M.D., to be Lieutenant.

West Lancashire Field Ambulance.—Lieutenants to be Captains: J. P. Thierens, M.B., and W. F. Young, M.B. A. H. Pinder and A. V. Glendenning, M.B., to be Lieutenants.

Attached to Units other than Medical Units.—Lieutenant G. J. M. Trotter to be Captain. J. B. Smith, M.B., and J. M. Orr, M.D., to be Lieutenants.

Vital Statistics.

HEALTH OF ENGLISH TOWNS.

IN the ninety-six largest English towns 7,577 births and 5,954 deaths were registered during the week ended Saturday, December 11th, 1915. The annual rate of mortality in these towns, which had been 15.9, 16.7, and 18.5 per 1,000 in the three preceding weeks, fell to 17.1 per 1,000 in the week under notice. In London the death-rate was equal to 17.9, while among the ninety-five other large towns it ranged from 7.4 in Ilford, 7.7 in Enfield, 8.1 in Acton, 9.8 in Aberdeen, 10.2 in Willesden, and 10.5 in Wimbledon and in Leyton, to 22.7 in Burnley, 22.8 in Huddersfield, 23.7 in Barrow, 23.9 in Middlesbrough, 24.2 in Preston, and 25.8 in Wakefield. Measles caused a death-rate of 1.7 in Stockport, 1.9 in Cardiff, 2.0 in Dudley, 2.1 in Gloucester, 2.2 in Leicester, and 2.3 in Burnley; whooping-cough of 1.3 in Preston and 1.5 in West Bromwich; and diphtheria of 1.2 in Middlesbrough, 1.3 in Coventry, and 2.1 in St. Helens. The mortality from the remaining infective diseases showed no marked excess in any of the large towns, and no fatal case of small-pox was registered during the week. The causes of 67, or 1.1 per cent., of the total deaths were not certified by a registered medical practitioner or by a coroner; of this number, 12 were recorded in Liverpool, 9 in Birmingham, 4 in London, and 3 each in St. Helens, Warrington, and Gateshead. The number of scarlet fever patients under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital, which had been 3,027, 2,927, and 2,811 at the end of the three preceding weeks, further fell to 2,738 on Saturday, December 11th; 282 new cases were admitted during the week, against 336, 318, and 278 in the three preceding weeks.

Vacancies and Appointments.

NOTICES REGARDING APPOINTMENTS.—Attention is called to a Notice (see Index to Advertisements—Important Notice re Appointments) appearing in our advertisement columns, giving particulars of vacancies as to which inquiries should be made before application.

VACANCIES.

BIRKENHEAD BOROUGH HOSPITAL.—House-Surgeon and Junior House-Surgeon. Salaries, £200 and £170 respectively.

BOLINGBROKE HOSPITAL, Wandsworth Common, S.W.—House-Surgeon (male ineligible for military service, or female). Salary, £200 per annum.

BRISTOL ROYAL INFIRMARY.—(1) House-Physicians; (2) House-Surgeons. Salary, £120 per annum in each case.

BURTON-ON-TRENT COUNTY BOROUGH.—Assistant Medical Officer (ineligible for military service). Salary, £300 per annum.

BURY INFIRMARY.—Junior House-Surgeon (ineligible for military service). Salary, £150 per annum.

BURY INFIRMARY.—(1) Senior House-Surgeon; (2) Junior House-Surgeon (both ineligible for military service). Salary for (1) £250 per annum, and for (2) £150 per annum.

CROYDON GENERAL HOSPITAL.—House-Surgeon (male, ineligible for military service, or female).

DERBYSHIRE HOSPITAL FOR SICK CHILDREN.—Lady Resident Medical Officer. Salary, £200 per annum.

HEREFORD COUNTY AND CITY ASYLUM.—Assistant Medical Officer (ineligible for military service). Salary commencing at £250 per annum.

LEEDS PUBLIC DISPENSARY.—Lady Resident Medical Officer. Salary, £130 per annum.

MANCHESTER NORTHERN HOSPITAL FOR WOMEN AND CHILDREN, Cheetham Hill Road. — Lady House-Surgeon. Salary, £120 per annum.

NORTH STAFFORDSHIRE INFIRMARY, Hartshill, Stoke-on-Trent.—House-Physician (male or female). Salary, £200 per annum.

NORWICH POOR LAW INFIRMARY.—Lady Resident Medical Officer. Salary, 5 guineas weekly.

OXFORD EYE HOSPITAL.—House-Surgeon (British, man—ineligible for military service—or woman). Salary, £100 per annum.

PLYMOUTH: SOUTH DEVON AND EAST CORNWALL HOSPITAL.—House-Physician (male, ineligible for military service, or female). Salary, £240.

ROYAL EYE HOSPITAL, Southwark, S.E.—House-Surgeon (ineligible for H.M. Forces). Salary at the rate of £150 per annum.

SHEFFIELD: ROYAL INFIRMARY.—House-Surgeon (male, ineligible for military service, or female). Salary, £100 per annum.

WELSH METROPOLITAN WAR HOSPITAL, Whitechurch, near Cardiff.—Resident Physician (ineligible for military service).

WIGAN: ROYAL ALBERT EDWARD INFIRMARY AND DISPENSARY.—Lady House-Surgeon. Salary, £150 per annum.

To ensure notice in this column—which is compiled from our advertisement columns, where full particulars will be found—it is necessary that advertisements should be received not later than the first post on Wednesday morning. Persons interested should refer also to the Index to Advertisements which follows the Table of Contents in the JOURNAL.

APPOINTMENTS.

FRASER, D. H., M.A., M.D., B.C.Camb., Medical Officer of the St. Marylebone Parish Workhouse.

EDINBURGH ROYAL INFIRMARY.—The following appointments have been made:—Resident Physician: John McGarrity, M.B., Ch.B., to Professor Russell. Resident Surgeon: John Bennet (final year student) to Surgical Out-patient Department.

BIRTHS, MARRIAGES, AND DEATHS.

The charge for inserting announcements of Births, Marriages, and Deaths is 5s., which sum should be forwarded in Post Office Orders or Stamps with the notice not later than the first post on Wednesday morning in order to ensure insertion in the current issue.

BIRTHS.

DAVIDSON.—On the 22nd December, 1915, at Keith House, Bicester Road, Aylesbury, Bucks, the wife of Norman Davidson, F.R.C.S.E., Lieutenant R.A.M.C.—a son.

ROSEWARNE.—On November 2nd, 1915, at 16, St. Stephen's Road, Bow, London, the wife of D. D. Rosewarne, Lieut. R.A.M.C., of a son.

DEATH.

WORSLEY.—On December 23rd, 1915, at "Heath Royd," Coventry, after a short illness, Carrie, the dearly loved wife of Reginald Carmichael Worsley, M.R.C.S.Eng., L.R.C.P.Lond., aged 49.

DIARY FOR THE WEEK.

TUESDAY.

THE RÖNTGEN SOCIETY, Institution of Electrical Engineers, Victoria Embankment, 8.15 p.m.—The President, Mr. J. H. Gardiner, F.C.S.: Some Observations upon the Occurrence of Uranium. Demonstrations of apparatus.

POST-GRADUATE COURSES AND LECTURES.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.

THE POST-GRADUATE COLLEGE, West London Hospital, Hammer-smith, W.—Clinical work; graduates only.

DIARY OF THE ASSOCIATION.

Date.	Meetings to be Held.
JANUARY.	
5 Wed.	London: Journal Committee, 2 p.m.
7 Fri.	London: Central Ethical Subcommittee, 2 p.m.
11 Tues.	London: Grants Subcommittee, 2.15 p.m. (provisional). London: Organization Committee, 2.45 p.m. (provisional).
19 Wed.	London: Finance Committee, 2 p.m.
26 Wed.	London: Council Meeting.

SUPPLEMENT

TO THE

BRITISH MEDICAL JOURNAL.

LONDON: SATURDAY, JANUARY 8TH, 1916.

CONTENTS.

	PAGE		PAGE
RECRUITING FOR THE NAVAL AND MILITARY MEDICAL SERVICES:		INSURANCE:	
MEDICAL STUDENTS AND MILITARY TRAINING ...	5	SETTLEMENT OF 1914 ACCOUNTS ...	6
(CIRCULAR BY INSURANCE COMMISSIONERS...	5	IRELAND: MEDICAL CERTIFICATION OF SICKNESS BENEFITS ...	6
ASSOCIATION INTELLIGENCE: MEETING OF COUNCIL ...	6	LOCAL MEDICAL AND PANEL COMMITTEES...	6
NAVAL AND MILITARY APPOINTMENTS...	7	LONDON INSURANCE COMMITTEE ...	6
VITAL STATISTICS ...	8	INSURANCE ACT IN PARLIAMENT ...	7
VACANCIES AND APPOINTMENTS ...	8	BIRTHS, MARRIAGES, AND DEATHS ...	8
		DIARY ...	8

RECRUITING FOR THE NAVAL AND MILITARY MEDICAL SERVICES.

MEDICAL STUDENTS AND MILITARY TRAINING.

We are told that some medical students in the fourth and fifth years are in doubt whether they ought to attest. As has very frequently been stated, it is officially recognized that their duty is to finish their studies, and to obtain a qualification at the earliest possible date, so as to be in a position to take a commission in the Royal Army Medical Corps. Any student who is in a position of doubt or difficulty should consult the dean of his medical school; but the point is again made plain, and the obligation on them to obtain military training during the period clearly stated, in the following letter received by the Senate of the University of London at its meeting on December 15th. It has been published in the *London University Gazette* and circulated to the medical schools of the University.

7th November, 1915.

An impression appears to have obtained credence among medical students in their fourth and fifth years that it is unnecessary for them to undergo any military training while engaged in the study of their profession. This view has doubtless arisen because, owing to the great demand for medical men and the shortage of supply, many who have received no military training have been given commissions in the Royal Army Medical Corps.

From the experience of the past year it has been clearly shown that men who have had previous military training are of infinitely greater value as officers of the Royal Army Medical Corps than those who have had no military experience.

Students in their fourth and fifth years have been advised that it is best for them to continue their medical studies in order to qualify for commissions in the Royal Army Medical Corps, but this does not in the least exempt them from using all the means available for obtaining military instruction.

The medical units of the various Officers' Training Corps are organized so that men may obtain this instruction without disturbance of their medical studies, and all senior students, who have not already done so, are strongly urged to become cadets in the medical units of their University Officers' Training Corps.

M. W. H. RUSSELL, Surgeon-General,
for Director-General, Army Medical Service.

CIRCULAR BY INSURANCE COMMISSIONERS.

The Commissioners have recently issued to Insurance Committees in England and Wales a circular (Memo. 219 I.C.) dealing with the relations that should exist between Insurance Committees and the Medical War Committees and Panel Committees in the task of obtaining the necessary supply of medical men for the service of the army, and co-ordinating the needs of the army and those of the civil population so as to avoid any undue depletion of the medical service of particular areas. A copy of the circular of the Central Medical War Committee on the co-ordination of recruiting for the naval and military medical services and the needs of the civilian population, published in the SUPPLEMENT of December 18th, p. 221, is enclosed with their circular by the Commissioners for the information of the Insurance Committees.

The Commissioners point out that Insurance Committees are the authorities primarily responsible for the maintaining of the medical service of the insured, but express their anxiety that no unnecessary obstacle should be placed in the way of panel practitioners joining the army where they can be spared from their civil duties.

The Commissioners claim to have taken a very important step towards securing to an absent practitioner the goodwill of his panel practice by the Regulation recently made with regard to the transfer of insured persons from doctors' lists. But the greater the facilities afforded to practitioners desiring to join the army, the greater, they consider, becomes the necessity for guarding against any undue depletion of the panel in particular areas. It is possible that the needs of the medical service of the army may lead in the future to the necessity for some modification of the full contractual liability of the doctors on the panel, but for the present that liability exists, and it is only by making clear and definite arrangements for its fulfilment during his absence that a doctor who goes on military service can remain on the panel and have the remuneration accruing under his agreement secured to him. The Commissioners think it essential that the arrangements made should be submitted to the Insurance Committees for approval before a doctor undertakes military service, and state that failure to do this has already in some cases put committees to inconvenience and trouble. The Commissioners advise that when a request to be released for military service is received from a panel doctor the Committee should be satisfied on two main points before giving its consent: first, that there is no likelihood that the absence of the doctor will make the panel service less efficient, and, secondly, that satisfactory arrangements are made for carrying out the absentee's duties. Where the Committee, having consulted the Panel Committee, is not satisfied on either of these two points, it must withhold its consent, pending a consultation with the Local Medical War Committee and possibly a reference to the Central Medical War Committee or the Commissioners. To meet possible cases where questions may arise as to the proper discharge of his duties by the deputy or deputies of an absent practitioner, it is suggested that the departing practitioner should give authority to the Panel Committee to amend his arrangements if they should prove unsatisfactory. The Commissioners entirely concur with the suggestion of the Central Medical War Committee that there should be the fullest co-operation between the local Medical War Committees and the Panel Committees. On the Panel Committees, by virtue of their special knowledge, special responsibility falls. At some future date it may be necessary to call for some sacrifices from the community at large which would be incompatible with the maintenance of the panel standard, but that position has not yet been reached, and the Panel Committees are asked to give timely warning not at the point when the withdrawal of one or two more practitioners would bring the service over the verge or even to the verge of inadequacy, but while still an appreciable margin remains above that which the Panel Committee regards as the minimum necessary for the maintenance of an adequate service in every part of the area which it represents. The Commissioners suggest that, in order to avoid delay in meeting contingencies, the Insurance Committees should delegate authority to their chairman or clerks, or both jointly, and the Panel Committee might be well advised to do the same.

The Commissioners finally express their readiness to advise further on any difficulties that may arise, and to consult with the Central Medical War Committee.

Association Notices.

MEETING OF COUNCIL.

The next Meeting of Council will be held on Wednesday, January 26th, in the Council Room, 429, Strand, London, W.C. The hour will be notified later.

By order,

GUY ELLISTON,

Financial Secretary and Business Manager.

January 1st, 1916.

INSURANCE.

SETTLEMENT OF 1914 ACCOUNTS.

THE following communication was addressed by the British Medical Association to the Commissioners concerning the above question on December 7th last:

Sir,

I am instructed by the Executive Subcommittee of the Insurance Acts Committee to state that many representations continue to be made as regards the delay of the settlement of the accounts of panel practitioners for the year 1914, and the Subcommittee fears that unless something is done very soon to meet these very legitimate complaints, serious disaffection will result. The Insurance Acts Committee has already informed Panel Committees of its previous inquiries of the Commissioners as to this point, and of your replies. But panel practitioners are evidently disinclined to accept much longer the statement that moneys due "as soon as may be after the expiration of a year" can on any reasonable grounds be withheld until the end of the year following, and with no immediate prospect of settlement even then.

The Subcommittee would be glad to know whether there is any reason why another payment on account should not be made. There seems nothing in Regulation 37 to prevent this being done, and it might be possible by means of such a payment on account to make such payments as would be very useful indeed to many panel practitioners. At the same time, however, it is important that as soon as possible some definite statement should be made as to the probable date of the final settlement. If this final settlement is likely to be long deferred the Subcommittee will be glad to know whether the Commissioners have considered the possibility or desirability of an emergency settlement being made with panel practitioners such as was made with panel chemists for the year 1914. If the Commissioners consider an emergency settlement to be within the range of practical politics and to be likely to give general satisfaction, the Association would be glad to have as full information as possible as to whether such an emergency settlement can be offered, and if so, the basis on which it could be made.

I am, yours faithfully,

ALFRED COX,
Medical Secretary.

A reply was received, dated December 30th, 1915, forwarding a copy of the circular letter which had been issued by the English Commissioners on December 2nd, 1915, to all English Insurance Committees, with reference to the final settlement of the 1914 accounts of insurance practitioners.

I.C.L. 143.

National Health Insurance Commission (England),
Buckingham Gate, London, S.W.

2nd December, 1915.

Settlement with doctors, etc., in respect of 1914.

Sir,

I am directed by the National Health Insurance Commission (England) to inform you that they have had again under their consideration the question of the practicability of effecting a settlement at an early date with doctors, etc., in respect of 1914.

The settlement for that year has, as the Committee are aware, been necessarily postponed owing to (*inter alia*) the unavoidable delay in the issue by approved societies of notifications of the enlistment of their members. From an examination, however, of the return recently furnished by committees in response to the Commissioners' circular letter, I.C.L. 137, the Commissioners are satisfied that the 1914 counts of the Index Register have now been adjusted in respect of the notifications already received to an extent which renders it unnecessary to defer any longer a settlement in respect of that year, so far as concerns the apportionment between committees of the General Medical Benefit Fund. As, moreover, the Commissioners have now been placed in a position to overcome the difficulties which have hitherto precluded them from completing the computation of the amount of that Fund, it is proposed to proceed forthwith with a final settlement for 1914, upon the ordinary lines; and as this will enable committees to make final payments to doctors of any balances outstanding under their agreements, it will not be necessary to have recourse to any expedient in the nature of an emergency settlement with doctors such as it might otherwise have been felt incumbent to entertain.

For the purpose of the ordinary settlement it will of course be necessary, as hitherto, to apportion, in accordance with the Regulations, the Committee's Medical Benefit Credit amongst the various funds of the Committee—Practitioners' Fund, Institutions Fund, Special Arrangements Fund, etc. As in the case of the 1913 apportionment, the Commissioners will be prepared to undertake the necessary calculations if the Committee so desire. To enable the Commissioners to do so, however, they will require to have certain information. A form has accordingly been proposed (copies of which are enclosed) on which the necessary information may be forwarded, and, if the Committee desire the Commissioners to undertake the apportionment, a copy of the form should be completed and forwarded to the Commissioners as soon as possible. In view of the foregoing, it will no longer be necessary for the Committee to record on Form 142 I.C. notifications of enlistments affecting the count as on October 12th, 1914. A record should, however, still be kept on the form of adjustments which will require to be made in subsequent counts taken prior to the receipt of the notifications.

I am, Sir, your obedient Servant,
(Signed) S. P. VIVIAN.

The Clerk to the Insurance Committee.

IRELAND.

MEDICAL CERTIFICATION OF SICKNESS BENEFITS.

WE are informed that practically all the doctors in Ireland concerned with the treatment of insured persons have accepted the agreement arranged with the Insurance Commissioners for the certification of sickness benefits.

At a meeting of the practitioners of co. Wexford, when the agreement was accepted, a cordial vote of thanks was adopted to the honorary secretary, Dr. W. W. Murphy (Coolgreany).

At a meeting of the Connaught Branch at Galway on December 21st, the Irish Medical Secretary of the British Medical Association (Dr. Hennessy) attended and explained the agreement, which was accepted by the meeting. A vote of thanks to Dr. Hennessy was accorded. The ethical rules were adopted at this meeting.

LOCAL MEDICAL AND PANEL COMMITTEES.

BIRMINGHAM.

At a meeting of the Panel Committee held on December 14th a report was presented by the Pharmacopoeia Subcommittee on the scrutiny of prescriptions issued during the first quarter of the year. Cases in which unreasonable prescribing was evident were comparatively few and the delinquents were divided into three classes:

1. Those who appeared to be issuing an unnecessary number of prescriptions.
2. Those whose prescriptions in some cases appeared to be excessive in cost.
3. Those whose prescriptions showed evident extravagance.

Appropriate letters were written to those in classes (1) and (2) drawing their attention to the various methods in which economy could without interference with efficiency be practised, and those in class (3) were invited to interview the members of the Subcommittee. In all cases gratitude was expressed that attention had been drawn to apparent extravagance.

INSURANCE COMMITTEES.

LONDON.

Commercial Drug Tariff.—At its meeting on December 16th the Committee considered the arrangements for the pricing, etc., of prescriptions in accordance with the new regulations for 1916. It was stated that a large additional establishment expenditure would be necessary. The proposals were very strongly criticized by various members, who denounced the "rushing" methods of the Commissioners, and the motion that the report be received was negated by a large majority. Some action had to be taken, however, in view of the fact that the new medical regulations were shortly becoming operative, and a special subcommittee was appointed, representative of the various interests concerned, to consider the arrangements for pricing and checking prescriptions.

Extravagant Prescribing.—It was announced that as under the new arrangements the chemists would no longer be affected by the results of any extravagance on the part of practitioners in their prescribing, the Pharmaceutical Committee would cease to discharge its functions in this respect. The Panel Committee would continue to be responsible for investigating and, in co-operation with the Insurance Committee, controlling extravagant prescribing.

Panel Practitioners and War Service.—Dr. H. H. MILLS reported that, in spite of enlistments, the number of

insured persons remained at a very high figure, and it was becoming a vital necessity, in considering the recruiting of medical men, to safeguard the requirements of the civil population. Mr. HANDEL BOOTH stated that complaints had been made by insured persons with regard to the locumtenents, who in some cases, when approached on the matter, would reply that they were responsible only to the absent practitioner. The practitioners who had already undertaken military service were responsible for an aggregate of some 10,000 insured persons. On the motion of Dr. MILLS, a subcommittee was appointed to consider the position of panel practitioners who undertook military service and the arrangements made by them with deputies.

INSURANCE ACT IN PARLIAMENT.

TUBERCULOSIS TREATMENT.

IN reply to a question by Sir E. Cornwall as to the amount contributed under the Insurance Act in respect of the treatment of tuberculosis cases in the four years ending March, 1915, Mr. Roberts has made the following printed statement: Subject to some slight adjustment, the amount available under Section 16 (2) of the National Insurance Act, 1911, in respect of the period 15th July, 1912, to 31st December, 1914, for defraying the expenses of sanatorium benefit in the United Kingdom is £2,125,000. Further, a sanatorium benefit grant of £100,000 was voted in the Supplementary Estimates for 1914-15, £50,000 being paid into the special account for credit to the four National Health Insurance Funds, and the balance being revoted in the Estimates for 1915-16; and may I add that these figures do not include sums of £125,000, £180,000, £480,000, and £385,000 voted in the Estimates (Original and Supplementary) for 1913-14, and in the Estimates for 1914-15 and 1915-16 respectively, as provision for statutory grants under Section 17 of the National Insurance Act, 1911, for the special grants towards the cost of schemes undertaken by local authorities (or combinations of local authorities), with the approval of the departments administering the grants, for the treatment of tuberculosis generally.

Naval and Military Appointments.

ROYAL NAVAL MEDICAL SERVICE.

THE following announcements are made by the Admiralty: Surgeon H. C. Devas to the *Victory*, additional, for disposal. Temporary Surgeons A. G. Simmons to the *Victory*, additional, for Haslar Hospital; L. S. Fry to the *Bellerophon*; G. MacL. Blair, M.B., to the *Huke*; T. J. T. Wilnot, M.D., to the *Pembroke*; G. W. M. Findlay, M.B., and H. W. Scott to the *Pembroke*, additional, for Chatham Hospital; J. Pratt, to the *Victory*, additional, for disposal; G. Linfo, M.B., to the *Conqueror*; R. K. Shaw, M.B., to the *Wulfrey*, additional, to be lent for duty at R.N.A.S. Training Establishment; T. W. Drummond to the *Dougal*; J. T. E. Evans to the *Pembroke*, additional, for disposal; E. G. B. Carpenter to the *Victory*, additional, for Portland Hospital; W. McH. Binning to the *Pembroke*, additional, for Chatham Hospital; R. K. Kerr, M.B., to the *Victory*, additional, for Haslar Hospital. To be temporary Surgeons: D. M. P. Whitcombe, M.B., E. P. L. Hughes, W. M. Binning, R. R. Kerr, M.B., R. Arken, M.B.

ROYAL NAVAL RESERVE.

Surgeon-probationers A. T. Harrison, E. G. T. Holden, W. Michael, J. C. Sleight, T. Anderson, D. T. Watt, A. R. Forbes, A. C. Fowler, D. M. Blair, and A. C. Lindsay to the *Victory*, additional, for Royal Naval Hospital, Haslar.

ROYAL NAVAL VOLUNTEER RESERVE.

Surgeon G. R. Mill to the *Fred*. Temporary Surgeon F. W. Willway to the *Pembroke*, additional. Surgeon-probationers A. W. McElroy to the *Cockatrice*; P. M. Ferguson to the *Llewellyn*, vice Drury; J. M. Redpath to the *Victory*, additional, for Royal Naval Division Depot, Crystal Palace; P. R. Mitchell to the *Archer*; A. G. Bee and J. B. Clark to the *Swift*; J. H. Gilruth to the *Meteor*. To be Surgeon-probationers for temporary service: E. J. Bilecliffe, T. F. Brodenek, T. G. Campbell, S. J. Nealy, G. A. Henderson, G. D. F. Macfadden, S. Acheson, J. Skinner, M.A., H. Paul, J. D. Brown, J. M. Ritchie, M.A., G. A. O. White, L. P. St. J. Story, W. J. Lytle, A. S. Bisset, J. F. Kerr, A. M. Mackintosh, C. Griffith-Jones, N. S. Nairne.

ARMY MEDICAL SERVICE.

Colonel J. Maher is retained on the active list, under the provisions of Articles 120 and 522, Royal Warrant for Pay and Promotion, and to be supernumerary.

Lieutenant-Colonel G. W. Brazier-Creagh, C.M.G., to be temporary Colonel whilst Assistant Director of Medical Services of a Division.

ROYAL ARMY MEDICAL CORPS.

Colonel P. B. Giles, C.B., late T.F., to be temporary Lieutenant-Colonel.

Lieutenant-Colonel E. Brodrick is placed temporarily on the half-pay list on account of ill health.

Temporary Captains to be temporary Majors: E. K. Martin, F.R.C.S., J. Dalrymple, T. R. Elliott, M.D.

Temporary Captain E. F. W. Buckell relinquishes his commission on account of ill health.

Temporary and honorary Captain W. P. S. Branson, M.D., F.R.C.P.,

to be temporary honorary Major whilst serving with No. 1 British Red Cross (Duchess of Westminster's) Hospital.

Temporary Lieutenants to be temporary Captains: C. G. H. Moore, M.B., G. W. Twigg, M.D., J. T. McCullagh, M.B., J. D. Yule, M.B., F. A. R. Hacker, J. Keenan, F.R.C.S.I.

F. R. Seymour, M.D., to be temporary Captain.

Temporary Lieutenant R. H. R. McKean is dismissed the service by sentence of a general court-martial.

Temporary Lieutenant N. E. M. Home-Hay, M.B., relinquishes his commission on account of ill health.

Temporary Lieutenants relinquishing their commissions: A. R. Douglas, J. Hegarty, H. V. Swindle, W. W. Woods, M.B., T. Perrin, M.D., F.R.C.S., G. W. Clark, M.B., D. H. Collingham, B. Francis, M.D.

The date on which the undermentioned temporary Lieutenants relinquished their commissions is November 1st, 1915, and not as stated in the *Gazette* of December 4th, 1915: R. W. Davies, M.B., A. S. Allan, M.B.

To be temporary Lieutenants: G. H. Simpson, A. T. Thompson, M.B., T. S. Brook, A. Barratt, M.B., J. A. Harper, M.B., J. Appleyard, C. H. Mossop, J. N. J. Hartley, M.B., B. P. Campbell, M.D., F.R.C.S. Edin., C. G. H. Campbell, M.B., C. B. Jones, M.B., R. Sinclair, M.B., W. Leslie, M.B., M. W. Talbot, M.B., J. P. Lambie, M.B., S. D. Bridge, F. W. Bartlett, A. O. Evans, M.B., P. Davies, M.B., J. G. Hell, M.B., C. Berry, F. H. Young, A. P. Fry, M.B., E. Purcell, R. C. Lowe, M.B., F. M. Bishop, J. A. Venning, M.B., R. A. MacNeill, M.B., R. T. Slinger, M.B., F.R.C.S., H. Mather, W. A. Berry, M.D., W. A. Paterson, M.B., J. C. Wilson, M.B., J. C. Wadmore, W. H. Broughton, G. B. Salmund, M.B., R. B. Taylor, M.B., J. T. Griffiths, D. C. Adam, M.B., P. D. Scott, A. E. Clark, M.B., H. A. Watney, M.B., W. B. Loveless, G. Ellis, C. J. Pentland, M.D., J. T. O'Boyle, T. B. Lloyd, M.B., G. E. Potter, V. K. Sadler, D. I. Anderson, M.B., H. J. Cooper, M.B., W. T. Brown, M.B., G. Kee, E. R. Grieverson, M.B., W. J. Spearling, G. A. MacFarland, J. C. Mead, M.B., F.R.C.S., J. M. Hermon, M.D., C. D. Holdsworth, M.D., H. J. Keane, M.D., C. W. J. Dunlop, W. J. Mel, Baird, M.B., W. H. Hodgson, M.B., J. C. Forbes, H. M. Mills, M.B., E. W. Kirk, M.B., R. M. Lang, M.B., J. W. Hilliard, M.D., R. C. Cooke, J. W. Harvey.

To be temporary honorary Lieutenants: E. J. Clark, M.B., C. F. MacLachlan, M.B., R. B. Eadie, M.B., T. C. Bowie, M.B., B. Graves, W. H. Marshall.

To be temporary Quartermasters, with the honorary rank of Lieutenant: C. F. Tyson, H. Miller, E. G. J. Curling, T. F. Evans, F. L. Harsant, W. Richardson, S. Francis, W. Pearson, N. H. Brown, G. F. N. Taylor, J. Dods, E. A. Beattie, J. H. Turner, H. Maffey, T. H. Griggs, A. Seates, J. Stone, A. Willden, J. Davis, R. G. Johnston, J. Flint.

TERRITORIAL FORCE.

ROYAL ARMY MEDICAL CORPS.

East Anglian Field Ambulance.—Lieutenant A. E. Tait, M.B., to be Captain.

East Lancashire Field Ambulance.—Major T. Holt, M.D., from *West Lancashire Field Ambulance*, to be Major.

Highland Casualty Clearing Station.—Lieutenants J. A. Innes, M.B., and J. Dow, M.B., to be Captains.

Highland Field Ambulance.—Lieutenant A. B. Jamieson, M.B., to be Captain.

Home Counties Divisional Sanitary Section.—F. T. H. Wood, M.B., to be Lieutenant.

London (City of London) General Hospital.—Quartermaster-Sergeant F. J. E. Carter to be Quartermaster, with the honorary rank of Lieutenant.

London (City of London) Sanitary Company.—H. Duguid, M.B., to be Lieutenant.

London General Hospital.—Lieutenants L. L. Preston, M.B., and C. H. J. Fagan, to be Captains. To be Captains, whose services will be available on mobilization: C. Goulesbrough, M.B., J. P. Hedley, Z. Mennell, M.B., E. M. Corner, M.B., F.R.C.S., J. E. Adams, M.B., F.R.C.S., M. A. Cassidy, H. J. Marriage, M.B., F.R.C.S., E. F. Buzzard, M.B., H. B. Weir, E. W. Hedley, M.D. To be Lieutenants: H. M. Harwood, H. A. Philpot, M.D.

London Sanitary Company.—Lieutenants F. G. Rose and A. G. Whitfield to be Captains. The date of appointment of Lieutenant B. Williamson is November 15th, 1915, and not as stated in the *Gazette* of November 26th, 1915. The date of the appointment of Lieutenant M. S. Briggs is December 4th, 1915, and not as stated in the *Gazette* of December 11th, 1915.

Northern General Hospital.—Lieutenant-Colonel H. Littlewood, F.R.C.S., from the list of officers whose services are available on mobilization, is temporarily placed on the permanent personnel. Lieutenant J. A. Menzies, M.D., to be Captain.

North Midland Field Ambulance.—Major A. E. Hodder, M.B., to be temporary Lieutenant Colonel. The following announcement is substituted for that which appeared in the *Gazette* of October 22nd, 1915: Captain Arthur E. Tait, M.B., from *East Anglian Field Ambulance*, to be Captain.

Northumbrian Field Ambulance.—The following announcement is substituted for that which appeared in the *Gazette* of November 24th, 1915: Captain Wilson H. Morrison, M.B., from Attached to Units other than Medical Units, to be Captain.

Southern General Hospital.—Major R. L. Rutherford, M.D., resigns his commission on account of ill health. Captains to be Majors: C. E. Bean, F.R.C.S. Edin., F. G. Aldous, F.R.C.S. Edin.

South Midland Divisional Sanitary Section.—Lieutenant W. H. Davison, M.B., to be Captain.

South Midland Field Ambulance.—Lieutenant W. M. Cox, from Attached to Units other than Medical Units, to be Lieutenant. Lieutenant W. M. Cox to be Captain (substituted for the announcement which appeared in the *Gazette* of November 19th, 1915, under the heading of Attached to Units other than Medical Units).

South Midland Mounted Brigade Field Ambulance.—Lieutenant W. V. Wood to be Captain.

Welsh Border Mounted Brigade Field Ambulance.—Captain J. A. Eytton-Jones relinquishes his commission on account of ill health.

Wessex Field Ambulance.—The date of appointment of Captain H. J. Pechell, M.B., is August 2nd, 1915, and not as stated in the *Gazette* of October 1st, 1915. Lieutenant S. R. Gibbs, from Attached to Units other than Medical Units, to be Lieutenant. Lieutenant H. R. Gibbs to be Captain. Quartermaster and honorary Lieutenant G. D. C. Stokes resigns his commission.

Attached to Units other than Medical Units.—The date of appointment of Major A. B. Harris, M.B., is October 2nd, 1915, and not as stated in the *Gazette* of November 2nd, 1915. Captain W. G. Macfee to be Major. Lieutenants G. S. Hughes, M.B., F.R.C.S., and W. H. Morrison, M.B., to be Captains. F. M. Hughes, E. M. de Jong, and J. P. Clarke to be Lieutenants.

TERRITORIAL FORCE RESERVE.

ROYAL ARMY MEDICAL CORPS.

Major (temporary Lieutenant-Colonel) W. T. Blackledge, M.B., from West Lancashire Field Ambulance, to be Major.
General List.—The date on which Captain H. J. Pechell relinquished his commission on appointment to R.A.M.C. is August 2nd, 1915, and not as stated in the *Gazette* of October 1st, 1915. H. Nash to be Lieutenant.

Vital Statistics.

HEALTH OF ENGLISH TOWNS.

In the ninety-six largest English towns 6,960 births and 5,462 deaths were registered during the week ended Saturday, December 18th, 1915. The annual rate of mortality in these towns, which had been 16.7, 18.5, and 17.1 per 1,000 in the three preceding weeks, fell to 15.7 per 1,000 in the week under notice. In London the death-rate was equal to 16.3, while among the ninety-five other large towns it ranged from 5.1 in Edmonton, 6.6 in Coventry, 6.9 in Swindon, 8.1 in Willesden and in Swansea, and 8.2 in Hornsey, to 20.0 in Liverpool, 20.1 in Dudley and in Blackpool, 20.6 in Bootle, 21.5 in Sunderland, and 21.7 in Leicester. Measles caused a death-rate of 1.1 in Bristol, 1.3 in Swansea and in Grimsby, 1.8 in Bury, 1.9 in Burnley, 2.0 in Swindon, 3.8 in Leicester, and 4.1 in Gloucester, and whooping-cough of 1.1 in West Ham and 1.3 in Gateshead. The mortality from the remaining infective diseases showed no marked excess in any of the large towns, and no fatal case of small-pox was registered during the week. The causes of 36, or 0.7 per cent., of the total deaths were not certified by a registered medical practitioner or by a coroner; of this number, 9 were recorded in Birmingham, 6 in Liverpool, and 2 each in Bootle, St. Helens, Preston, and Gateshead. The number of scarlet fever patients under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital, which had been 2,927, 2,811, and 2,738 at the end of the three preceding weeks, further fell to 2,582 on Saturday, December 18th; 245 new cases were admitted during the week, against 318, 278, and 282 in the three preceding weeks.

In the ninety-six largest English towns 6,019 births and 5,183 deaths were registered during the week ended Saturday, December 25th, 1915. The annual rate of mortality in these towns, which had been 18.5, 17.1, and 15.7 per 1,000 in the three preceding weeks, further fell to 14.9 per 1,000 in the week under notice. In London the death-rate was equal to 15.5, while among the ninety-five other large towns it ranged from 5.7 in Ilford, 6.8 in Enfield, 7.3 in Acton, 7.4 in Leyton, 7.7 in Barnsley, and 7.9 in Wimbledon, to 21.1 in West Hartlepool, 21.2 in Wolverhampton and Dewsbury, 21.6 in Stoke-on-Trent, 21.8 in West Bromwich, 22.7 in Middlesbrough, and 23.4 in Lincoln. Measles caused a death rate of 2.0 in Ipswich, in Swindon and in Leicester, 2.1 in Gloucester, and 3.8 in Burnley; whooping-cough of 2.6 in Lincoln; and diphtheria of 1.8 in Coventry. The mortality from the remaining infective diseases showed no marked excess in any of the large towns, and no fatal case of small-pox was registered during the week. The causes of 50, or 1.0 per cent., of the total deaths were not certified by a registered medical practitioner or by a coroner; of this number 19 were recorded in Birmingham, 7 in Liverpool, and 2 each in Stoke-on-Trent, Southend, Southport, Preston, Bradford, Darlington, South Shields, and Gateshead. The number of scarlet fever patients under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital, which had been 2,811, 2,738, and 2,582, at the end of the three preceding weeks, further declined to 2,464 on Saturday, December 25th, 1915; 206 new cases were admitted during the week, against 278, 282, and 245 in the three preceding weeks.

HEALTH OF SCOTTISH TOWNS.

In the sixteen largest Scottish towns 995 births and 841 deaths were registered during the week ended Saturday, December 11th, 1915. The annual rate of mortality in these towns, which had been 17.6, 22.7, and 22.4 per 1,000 in the three preceding weeks, fell to 18.7 in the week under notice, but was 1.6 per 1,000 above the rate in the ninety-six large English towns. Among the several towns the death-rate ranged from 10.3 in Perth, 12.4 in Ayr, and 12.7 in Kilmarnock, to 20.7 in Leith, 23.6 in Coatbridge, and 27.4 in Greenock. The mortality from the principal infective diseases averaged 1.7 per 1,000, and was highest in Greenock and Hamilton. The 401 deaths from all causes in Glasgow included 13 from scarlet fever, 8 from measles, 7 from diphtheria, 6 from infantile diarrhoea, and 1 from whooping-cough. Seven deaths from diphtheria, 3 from measles, and 3 from scarlet fever were recorded in Edinburgh; 6 deaths from measles in Hamilton and 5 in Greenock; and from scarlet fever, 2 deaths in Aberdeen.

In the sixteen largest Scottish towns 990 births and 888 deaths were registered during the week ended Saturday, December 18th, 1915. The annual rate of mortality in these towns, which had been 22.7, 22.4, and 18.7 per 1,000 in the three preceding weeks, rose to 19.7 in the week under notice, and was 4.0 per 1,000 above that recorded in the ninety-six large English towns. Among the several towns the death-rate ranged from 12.7 in Kilmarnock, 12.9 in Clydebank, and 13.8 in Motherwell, to 26.6 in Perth, 28.0 in Greenock, and 28.9 in Falkirk. The mortality from the principal infective diseases averaged 1.4 per 1,000, and was highest in Greenock and Hamilton. The 394 deaths from all causes in Glasgow included 6 from scarlet fever, 5 from measles, 3 from whooping-cough, 3 from infantile diarrhoea, and 1 from diphtheria. Six deaths from measles and 4 from diphtheria were recorded in Edinburgh; 3 deaths from scarlet fever and 3 from diphtheria in Aberdeen; and from measles, 6 deaths in Greenock and 5 in Hamilton.

HEALTH OF IRISH TOWNS.

During the week ending Saturday, December 18th, 1915, 508 births and 516 deaths were registered in the twenty-seven principal urban districts of Ireland, as against 494 births and 464 deaths in the preceding period. These deaths represent a mortality of 22.2 per 1,000 of the aggregate population in the districts in question, as against 20.0 per 1,000 in the previous period. The mortality in these Irish areas was therefore 6.5 per 1,000 higher than the corresponding rate in the ninety-six English towns during the week ending on the same date. The birth-rate, on the other hand, was equal to 21.8 per 1,000 of population. As for mortality of individual localities, that in the Dublin registration area was 24.9 (as against an average of 23.7 for the previous four weeks), in Dublin city 27.3 (as against 25.2), in Belfast 23.0 (as against 20.1), in Cork 23.8 (as against 22.1), in Londonderry 21.5 (as against 18.0), in Limerick 9.5 (as against 14.9), and in Waterford 22.8 (as against 20.4). The zymotic death-rate was 2.0 as against 1.6 in the preceding period.

Vacancies and Appointments.

NOTICES REGARDING APPOINTMENTS.—Attention is called to a Notice (see Index to Advertisements—Important Notice re Appointments) appearing in our advertisement columns, giving particulars of vacancies as to which inquiries should be made before application.

VACANCIES.

- BIRKENHEAD BOROUGH HOSPITAL.**—House-Surgeon and Junior House-Surgeon. Salaries £200 and £170 respectively.
- BOLINGBROKE HOSPITAL,** Wandsworth Common, S.W.—House-Surgeon (male ineligible for military service, or female). Salary, £203 per annum.
- BRISTOL ROYAL INFIRMARY.**—(1) House-Physicians; (2) House-Surgeons. Salary, £120 per annum in each case.
- BURY INFIRMARY.**—(1) Senior House-Surgeon; (2) Junior House-Surgeon (both ineligible for military service). Salary for (1) £250 per annum, and for (2) £150 per annum.
- LEEDS PUBLIC DISPENSARY.**—Lady Resident Medical Officer. Salary, £130 per annum.
- MANCHESTER NORTHERN HOSPITAL FOR WOMEN AND CHILDREN,** Cheetham Hill Road.—Lady House-Surgeon. Salary, £120 per annum.
- NORTH STAFFORDSHIRE INFIRMARY,** Hartshill, Stoke-on-Trent.—House-Physician (male or female). Salary, £200 per annum.
- PLYMOUTH: SOUTH DEVON AND EAST CORNWALL HOSPITAL.**—House-Physician (male ineligible for military service, or female). Salary, £240.
- ST. MARYLEBONE INFIRMARY.**—Two Temporary Assistant Medical Officers.
- WIGAN: ROYAL ALBERT EDWARD INFIRMARY AND DISPENSARY.**—Lady House-Surgeon. Salary, £150 per annum.
- WORCESTER COUNTY AND CITY ASYLUM,** Powick.—Junior Assistant Medical Officer (male ineligible for military service, or female). Salary, £250 per annum.
- CERTIFYING FACTORY SURGEONS.**—The Chief Inspector of Factories announces the following vacant appointment: Baldock (Hertford).

To ensure notice in this column—which is compiled from our advertisement columns, where full particulars will be found—it is necessary that advertisements should be received not later than the first post on Wednesday morning. Persons interested should refer also to the Index to Advertisements which follows the Table of Contents in the JOURNAL.

APPOINTMENTS.

- MACKEITH,** John, M.B.Glasg., Medical Officer to the Tuberculosis Department of the Central London Throat, Nose, and Ear Hospital.
- TAYLOR,** P. C. P., L.R.C.P., L.R.C.S. Edin., L.R.F.P.S. Glasg., District Medical Officer of the Tenterden Union.
- WALSH,** E., L.R.C.P., L.R.C.S. Edin., L.A.H. Dubl., District Medical Officer of the Pontardawe Union.

BIRTHS, MARRIAGES, AND DEATHS.

The charge for inserting announcements of Births, Marriages, and Deaths is 5s., which sum should be forwarded in Post Office Orders or Stamps with the notice not later than the first post on Wednesday morning in order to ensure insertion in the current issue.

MARRIAGE.

WALKER-KURZ.—On December 2nd, 1915, Cranston Walker, M.D., Ch.B., B.Sc., and Lena Kurz, M.D., Ch.B. The latter takes the style of Dr. Lena Walker, 103, Pershore Road, Edgbaston, Birmingham.

DEATH.

MORRISON.—On December 17th, at Clifton, Bristol, C. S. Morrison, L.R.C.P., L.R.C.S. (Edin.), L.F.P.S. (Glasgow), Physician-Superintendent of the County and City Asylum, Burghill, Hereford, aged 55 years. R.I.P.

DIARY FOR THE WEEK.

WEDNESDAY.

HUNTERIAN SOCIETY, Royal Society of Medicine, 1, Wimpole Street, W., 9 p.m.—Second Hunterian Society Lecture by Mr. T. H. Openshaw, C.M.G.: Amputations: Their Prevention and After-treatment.

POST-GRADUATE COURSES AND LECTURES.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.

THE POST-GRADUATE COLLEGE, West London Hospital, Hammer-smith, W.—Clinical work; graduates only.

DIARY OF THE ASSOCIATION.

Date.	Meetings to be Held.
JANUARY.	
11 Tues.	London: Grants Subcommittee, 2.15 p.m. London: Organization Committee, 2.45 p.m.
12 Wed.	London: Central Medical War Committee, 2 p.m.
13 Thur.	London: Insurance Acts Committee.
19 Wed.	London: Finance Committee, 2 p.m.
26 Wed.	London: Council Meeting.

SUPPLEMENT TO THE BRITISH MEDICAL JOURNAL.

LONDON: SATURDAY, JANUARY 15TH, 1916.

CONTENTS.

	PAGE		PAGE
RECRUITING FOR THE NAVAL AND MILITARY MEDICAL SERVICES:		ASSOCIATION INTELLIGENCE:	
MEDICAL STUDENTS AND MILITARY SERVICE	9	THE HALF-YEARLY INDEXES FOR 1915	9
THE LOCAL GOVERNMENT BOARD IN IRELAND	9	MEETINGS OF BRANCHES AND DIVISIONS	11
PRACTICES OF MEN ACCEPTING COMMISSIONS	9	MEETING OF COUNCIL	11
THE NEW LIGHTING RESTRICTIONS—CORRESPONDENCE BETWEEN THE BRITISH MEDICAL ASSOCIATION AND THE HOME OFFICE...	9	NAVAL AND MILITARY APPOINTMENTS	11
INSURANCE:		VITAL STATISTICS	12
THE WORK OF PANEL PRACTITIONERS	10	VACANCIES AND APPOINTMENTS	12
LOCAL MEDICAL AND PANEL COMMITTEES	10	BIRTHS, MARRIAGES, AND DEATHS	12
		DIARY	12

THE HALF-YEARLY INDEXES, 1915.

THE usual half-yearly indexes to the JOURNAL, to the EPITOME, and to the SUPPLEMENT have been prepared and printed. Any member or subscriber who desires to have one or all three of the indexes can obtain a copy of what he wants, post free, by sending a post-card notifying his desire to the Financial Secretary and Business Manager, British Medical Association, 429, Strand, W.C.

RECRUITING FOR THE NAVAL AND MILITARY MEDICAL SERVICES.

MEDICAL STUDENTS AND MILITARY SERVICE.

THE President of the General Medical Council has received from the War Office the following intimations relating to medical students:

- I. Students who at or before the close of the present winter session will be qualified for entry to one of the examinations for third-year students in medicine, and duly enter for the examination for which they are studying, will not be attested until after its conclusion; and if they are successful will be included in the class of fourth-year students (under Lord Derby's scheme).
- II. Directions have been sent to all Commands in England and Scotland, instructing them to inform military representatives [on recruiting tribunals] that in cases where students, attested in Army Reserve, Section B, appeal for their calling-up to be postponed until after they have taken an examination, this request may be granted provided the examination will be held before March 31st, 1916.

The President will be grateful if steps are taken by the authorities of each medical school to call attention to these official intimations, which have special reference to students of the first, second, and third years of the professional course.

DONALD MACALISTER,
President.

General Council of Medical Education
and Registration of the United Kingdom,
44, Hallam Street, London, W.1.
January 10th, 1916.

THE LOCAL GOVERNMENT BOARD IN IRELAND.

THE Local Government Board (Ireland) wrote recently to the Swinford Board of Guardians acknowledging replies to queries respecting Dr. Martin Sweeney, recently elected by the board of guardians to the medical officership of the Lowpark Dispensary District, and drawing attention to its circular letter of December 26th, 1915, and to suggest, in view of the fact that Dr. Sweeney is 27 years of age, and qualified in that respect for employment with the forces of the Crown, that the guardians might endeavour to make some temporary arrangement whereby Dr. Sweeney would be enabled to volunteer for active service until the termination of the war. The guardians could keep the post open until Dr. Sweeney's return, and the Board would then accord their sanction to his permanent appointment. The guardians made an order informing the Local Govern-

ment Board that the appointment of Dr. Sweeney was made before the issue of the circular referred to, and requiring them to sanction his appointment at once, as the Lowpark Dispensary District was one of the largest in the union and had a population of over 9,000, and a temporary arrangement for the discharge of the duties was therefore not desirable. Owing to the number of Irish doctors who have, since the war broke out, joined the R.A.M.C., several large dispensary districts have been left without medical officers.

PRACTICES OF MEN ACCEPTING COMMISSIONS.

UNDER the auspices of the City Division of the British Medical Association a meeting of medical practitioners resident in the boroughs of Stoke Newington, Hackney, Bethnal Green, Shoreditch, Finsbury, and City was held at the Hackney Town Hall on January 7th. Dr. Durno, chairman of the Division, who presided, said that the meeting was delayed so that every medical man might have the opportunity of attending. The following resolutions were carried:

1. That in case of men who join or rejoin the R.A.M.C. after the date of this meeting the following fees should be paid to men who do their work at home: (1) In panel cases 50 per cent. should go to the man who does the work. (2) In private practice, if the dispensing is done by the representative, he should receive three-fifths of the fees. (3) All midwifery fees should be paid in full to the representative. All the above to be subject to private arrangements made by individuals. Territorials to be treated as other volunteers.
2. That the War Emergency Committee should conduct any business on the lines of this meeting.

THE NEW LIGHTING RESTRICTIONS.

THE new order as to lights on vehicles, made by the Home Secretary under the Defence of the Realm Regulations, came into force on January 10th.

It extends to the whole country outside the metropolitan area provisions which already applied in many areas, fixing the lighting-up time for all vehicles as half an hour after sunset, and requiring all vehicles to carry a red lamp in the rear. A separate lamp at the rear is required for all except hand vehicles. The last requirement does not come into force until February 10th. These regulations are considered necessary for the public safety, because of the reduction of street lighting and the general increase of naval and military motor traffic on the roads at night. The remainder of the order deals with the reduction of lights in those areas where bright lights might serve to guide hostile aircraft (Part II). Lists of these areas are given in a schedule. The order defines the restrictions, and makes them uniform in all the areas affected. In them the use of headlights is prohibited, but sidelights are allowed of sufficient brightness to afford a reasonable driving light for ordinary speeds. It is found that sidelights which can be allowed on country roads are a source of danger in towns where the large number of lighted vehicles makes the lights of the main streets visible to aircraft, and it has therefore been necessary (Part III) to require sidelights to be further reduced in large towns in the eastern counties set out in a second schedule. The order prescribes the standards of maximum size and power, and method of obscuring different types of lamps.

A number of letters have been received at the offices of the British Medical Association pointing out the inconveniences and dangers which may arise owing to the fact that it is necessary for medical practitioners to go about the country at night, and the following correspondence

has passed between the British Medical Association and the Home Office:

December 31st, 1915.

Sir,

Representations have been made to this Association from various quarters as to the great inconvenience and possible danger that will be caused by the new lighting restrictions which come into force on January 10th when applied to the motor cars of doctors. Practitioners in rural areas state that under the new order it will be almost impossible for them to get about in the country at night, and they have asked that the British Medical Association should make representations in favour of some relaxation of the order being made as regards the motor cars of doctors when in use for professional purposes. I shall be glad to know whether there is any possibility of such a relaxation. The difficulties as regards procedure are obvious, but if, without prejudice to public safety, some arrangement could be made which would enable rural doctors to get about the country at night time with expedition and with safety to themselves and the public, it would clearly be to the advantage of their patients as well as to the members of the profession concerned who are at present being very seriously overworked and harassed.

I am, yours faithfully,

ALFRED COX.

Medical Secretary.

The Secretary of State,
Home Office, Whitehall, S.W.

300,000,61.

Home Office, Whitehall,
10th January, 1916.

Sir,

With reference to your letter of the 31st December on the subject of the Lights (Vehicles) Order, I am directed by the Secretary of State to say that the Order was framed with special regard to the needs of medical practitioners and others who have to travel by road at night; and, though it prohibits the use of headlights in certain parts of the country, it permits the use on country roads of side lamps giving a brighter light than has been allowed in many areas under the existing Orders, and will be found to allow sufficient light for safe driving at ordinary speeds, even on narrow and winding roads.

The restrictions under Part III of the Order apply only in certain towns where sidelights of the maximum brightness allowed by Part II of the Order are unnecessary, and might, in the event of the approach of hostile aircraft, be a source of danger.

In some cases motorists may be unable to obtain the full illumination the Order allows with the lamps they already possess, but, on the whole, a better driving light is permitted under this Order than under the Orders previously in force.

If there is at first a difficulty in complying with the requirements of the Order on account of local shortages in the supply of lamps, reasonable latitude will be allowed by the police, but the Secretary of State regrets he cannot authorize any general exceptions from its provisions.

I am, Sir, your obedient Servant,
EDWARD TROUP.

The Medical Secretary,
The British Medical Association,
429, Strand, W.C.

INSURANCE.

THE WORK OF PANEL PRACTITIONERS.

The Medical Secretary of the British Medical Association, 429, Strand, would be glad to have from panel practitioners a note as to their work in 1915 stating:

- Number of insured persons on his list.
- " of patients seen.
- " of visits.
- " of surgery attendances.

Dr. Legge Pauley (Pulham Market, Norfolk) has forwarded us the following figures of his work under the Insurance Act during 1915:

	1914.	1915.
Average number of patients on list	750	700
Record cards opened for	354	348
Number of attendances	3,100	2,850

LOCAL MEDICAL AND PANEL COMMITTEES.

LONDON.

The War and the Position of Panel Practice.—At the meeting of the London Panel Committee on December 21st, 1915, Dr. H. J. CARDALE reported that in the course of the interview a deputation had had with the Central Medical War Committee the Central Committee stated that it might be necessary to approach the Government with a view to a modification of the requirements on practitioners under agreement with Insurance Committees. In reply to a suggestion from the Central Committee that the percentage of non-panel men in London who were serving with His Majesty's Forces was higher than that of panel men so serving, the deputation pointed out that the figures mentioned in respect of non-panel men included men who

had never been in practice, but who had left appointments or gone straight from hospitals. It was suggested by the Central Committee that the formation of "clinics" in certain congested areas would be useful from the point of view both of doctors and patients. The Central Committee took the opportunity also of pressing the desirability of close co-operation between Panel Committees and the British Medical Association, and with regard to the representation of panel practitioners on the Central Committee, pointed out that it was a national committee, and that the London Panel Committee would be better advised to seek representation on the War Emergency Committee of the Metropolitan Counties Branch. Dr. Cowie, while admitting that the military requirements must have precedence; doubted whether the authorities were making full use of such material as they had already, and mentioned that he had met men home from different fronts who said that they had virtually been doing nothing, and when he asked whether he should join up, they replied that he should do so by all means if he wanted a holiday. He trusted that the Central Committee would respond to the appeal to widen its representation. Dr. B. A. RICHMOND said that the Central Committee had asked the War Office to refuse applications for commissions from practitioners in such boroughs as Poplar, Stepney, Shoreditch, and Finsbury, until the Committee had been consulted. If all the medical men of military age were to join the forces there would be left in

Shoreditch	1 medical man to 18,000 population.
Bethnal Green	" " 12,000 "
Stepney	" " 9,000 "
Poplar	" " 8,000 "
Finsbury	" " 6,700 "

Dr. J. GALLOWAY, in reply to a question as to the origin of the Central War Committee, said that actually it had been evolved from the British Medical Association, and was subsequently enlarged and made to include every medical interest. Although the Committee wanted one more member the place could hardly in justice be allocated to a representative of one particular panel committee. The panel point of view was very ably represented, and panel practice would be amply safeguarded.

A large amount of the business on the Panel Committee's agenda fell through owing to the absence of a quorum.

WEST RIDING OF YORKSHIRE.

At a meeting of the Local Medical and Panel Committees on November 3rd it was decided to accept the proposed alterations set out in Memorandum 217/I.C., relating to the arrangements for the administration of medical benefit for 1916. It was also decided to discontinue the practice of using the formula "Rep. mist." and to call the attention of the Commissioners to the great discontent existing among panel practitioners in the area owing to the prolonged delay arising from the non-payment of the balance due to them for the year 1914.

YORK.

At a meeting of the Local Medical and Panel Committees on December 22nd, 1915, it was reported that the Pharmaceutical Committee had appealed to the Commissioners with reference to the decision of the Panel Committee against the use of aqua destillata by the chemists in all cases, and that the Commissioners had upheld the Panel Committee's decision.

It was decided to support the suggested payment of the travelling expenses of members of Panel Committees out of the statutory grant from the Medical Benefit Fund.

A letter was read from the Commissioners to the Clerk of the North Riding Insurance Committee supporting the contention of the York Insurance Committee that the treatment afforded to insured persons resident in the Scarborough Cottage Hospital cannot be regarded as given under the Insurance Act.

It was decided to nominate Dr. Lyth as one of the representatives of the medical practitioners on the York Insurance Committee, vice Dr. Craig on military service.

COUNTY OF LANARK.

At a meeting of the Local Medical and Panel Committees on December 8th a resolution was adopted placing on record the great loss the Committee had sustained through the lamented death of Dr. Thomson of Uddingston, and its appreciation of his valuable services.

A letter received from the Panel Medico-Political Union was allowed to lie on the table.

It was decided to recommend practitioners to particularize the quantity of wool, rolls of plaster, elastic web bandages, etc., required, and to inform the bureau that all bandages should be priced at the white rate unless grey is specially prescribed.

Meetings of Branches and Divisions.

YORKSHIRE BRANCH:

WAKEFIELD, PONTEFRAC, and CASTLEFORD DIVISION.
At a meeting held on December 23rd, 1915, a local Medical War Committee was appointed.

A resolution with regard to colliery clubs, identical with one previously adopted by the colliery surgeons in the Doncaster district, was carried as follows:

That in the area of this Division a flat rate of 3d. per week per worker should be the minimum rate of pay at all collieries, and no medical practitioner should hold any appointment in connexion with a colliery sick club at a lower rate of remuneration.

Association Notices.

MEETING OF COUNCIL.

The next Meeting of Council will be held on Wednesday, January 26th, in the Council Room, 429, Strand, London, W.C., at 12 noon.

By order,

GUY ELLISTON,

Financial Secretary and Business Manager.

January 1st, 1916.

Naval and Military Appointments.

ROYAL NAVAL MEDICAL SERVICE.

The following appointments are notified by the Admiralty: Fleet Surgeons J. Martin to the *Vind*; C. H. J. Robinson to the *Gibraltar*, additional, for disposal; L. E. Dartnell to the *Victory*, additional, for disposal. Staff Surgeons G. H. Ross, M.B., to the *Victory*; E. R. T. Worsley to the *Vind*, additional; G. E. Hamilton to the *Vind*, additional, for disposal. Surgeons A. E. P. Cheesman, J. T. D. S. Higgins, M.B., to the *Pembroke*; D. P. H. Pearson to the *Egmont*, additional. Temporary Surgeons H. M. Mather to the *Vind*, J. Cameron, M.B., to the *Egmont*, additional; R. Aiken, M.B., to Chatham Hospital; J. P. Fehly, M.B., to the *Heslar* Hospital; J. C. Sinclair to the *Vind*, additional; W. Taylor, M.B., to Plymouth Hospital; M. Vester, M.B., to the *Victory*, additional, for disposal. To be temporary Surgeons: E. J. Cook, R. K. Ford, J. M. Hiddleston, A. M. Dunlop, M.B., A. B. G. Underwood, M.B.

ROYAL NAVAL VOLUNTEER RESERVE.

Surgeon Probationers H. Poston to the *Lunet*, D. Rankin to the *Hunt*, C. A. Kirtan to *Acheron*, H. H. Baily to the *Ruby*. To be Surgeon Probationers: B. F. Niblock, V. R. O'Connor, S. A. Galley, R. L. Stewart, F. H. Smith, W. F. Attwater.

ARMY MEDICAL SERVICE.

Lieutenant Colonel M. J. Greig to be temporary Colonel whilst Assistant Director of Medical Services of a Division.
Lieutenant Colonels to be temporary Colonels whilst Assistant Directors of Medical Services: F. R. Bushwell, P. Evans, C.M.G., M.B.

ROYAL ARMY MEDICAL CORPS.

C. M. Wemyss, M.B., to be temporary Lieutenant Colonel.
Temporary honorary Major M. H. Gordon, M.D., to be temporary honorary Lieutenant Colonel.
H. W. Bruce, M.D., F.R.C.S., to be temporary Major whilst employed at the Southwark Military Hospital.
Temporary Major A. L. Smith, M.D., relinquishes his commission.
Temporary Captain W. S. Dickie, F.R.C.S., to be temporary Major.
The name of temporary honorary Captain Martin W. Black, M.B., is as now described, and not as stated in the *London Gazette* of November 14th, 1915.
Temporary Lieutenants to be temporary Captains: S. Fleming, M.B., A. P. Woolfright, W. H. Neil, H. Dunsterley, H. E. G. Noyes, M.B., B. J. Meller, R. A. Scames, M.B., W. A. Teap, M.B., C. H. Mills, M.Foulkes, J. N. Griffiths, M.B., C. H. Harbison, M.B., J. H. Wilson, R. W. Wilcocks, M.B., N. I. Sinclair, M.B., W. S. Evans, H. M. Joseph, M.B., T. R. H. Blake, M.B., O. P. N. Pearn, J. A. N. Scott, M.B., J. F. McG. Sloan, M.B., D. B. Williams, H. H. Whaley, M.B., T. I. Bennett, M.B., H. B. Waller, J. J. Dwyer, T. Meagher, M.B., A. H. R. Duncan, W. B. Davy, R. D. Forbes, F.R.C.S., R. H. Lucas, A. W. Rattice, E. Marjoriebanks-Murray, R. B. Roe, F. Garratt, D. D. Josan, M.D., J. E. M. Brown, M.B., L. S. O'Grady, E. B. Mather, M.B., J. A. Cameron, M.B., J. Jardina, M.D., F.R.C.S. Edin., R. S. Miller, M.D., W. McFarlane, M.B., J. T. Kirkland, M.B., H. A. Harris, M. P. Power, H. H. Prentiss, M.B., J. V. Fiddian, J. A. K. Brayton, L. W. Mortimer, C. L. Williams, C. E. Dukes, M.B., J. M. Land, W. H. Alderton, B. R. G. Russell, M.D., W. B. Bullock, M.D., H. R. McIntire, M.D., H. M. Stephenson, A. J. H. Rackham, N. F. Graham, M.B., A. B. Cluckie, M.B., J. MacArthur, H. M. Gilmour, A. Edwards, M. H. Whiting, M.B., C. King, M.B., D. Duff, F.R.C.S. Edin., F. Hartley, M.B., T. E. Amyot, M.B., F. W. Hird, M.B., J. R. Rigg, M.B., W. J. Ronan, M.B., E. J. Stubbs, M.B.,

H. H. White, M.D., L. A. Walker, M.D., E. P. Chennells, R. Sherman, M.B., A. L. George, J. Mca. Hill, M.B., J. S. English, M.B., F. A. Murray, M.D., M. du B. Ferguson, M.D., F. R. Dougan, M.B., I. A. Dowling, S. Campbell, M.B., J. C. P. Bayley, G. W. Fleming, E. C. A. Smith, J. W. C. Gunn, M.B., H. Thwaites, L. D. Saunders, S. Murray, M.B., J. Craig, M.B., E. D. Wortley, T. Duncan, J. Lamb, M.B., J. D. Harmer, M.B., F.R.C.S., C. J. Buchheim, M.B., J. A. Ireland, A. V. Stocks, M.B., J. R. Kemp, G. Matthews, M.B., J. D. C. Swan, M.B., W. L. Hodge, A. V. J. Harrison, M.B., R. M. Greig, M.B., D. H. D. Wooderson, M.B., C. O. Stallybrass, M.D., P. J. S. O'Grady, M.B., R. C. Monnington, M.D., T. B. McKendrick, S. J. Simpson, M.B., F.R.C.S. Edin., W. H. Steele, M.B., V. Vesselovsky, W. Morris, C. A. Boyd, M.D., N. E. Rawson, M.B., C. B. Von Braun, A. C. S. Courts, M.D., E. L. Z. Fickling, J. McK. Ferguson, M. Italian, S. Nockolds, M.B., W. Brown, M.B., W. B. Pagen, H. P. Shackleton, M.B., A. H. M. Robertson, M.B., B. V. Powell, J. Jack, M.B., E. S. Johnson, M.D., W. J. Henry, M.B., H. Wachter, M.B., E. H. Worth, H. R. Ford, M.B., J. B. Low, M.B., A. Mearns, M.B., W. W. Hallchurch, M.B., E. S. Chapman, M.D., F.R.C.S. Edin., M. J. Johnston, M.B., R. B. Jackson, F. J. O. King, M.B., E. P. H. Vickery, M.B., E. A. Lumley, M.B., J. G. Moseley, W. E. Graves, O. A. Gee, M.B., G. Macleod, M.B., J. J. Sinclair, M.B., S. B. B. Campbell, M.B., D. H. Griffiths, D. W. Jones, W. F. Gibson, M.B., J. Allan, G. E. George-Andrews, E. F. Hobson, M.B., J. E. Phum, G. R. Hoard, J. B. McCabe, M.B., E. Evans, M.B., E. O. Fawcett, M.B., J. Chisholm, M.B., F. H. Rawson, G. Richardson, M.D., W. G. Thompson, M.D., F.R.C.S. Edin., J. S. Hall, M.B., H. L. Aphorpe, M.D., E. Forbes, M.B., H. O. Godding, F. G. Crockshank, M.D., A. G. Caldwell, M.D., W. Miller, M.D., H. G. Massy-Miles, A. G. Phumley, M.B., K. D. Beap, M.B., P. J. A. Seccombe, M.B., W. S. Dickie, F.R.C.S., J. Graham, M.B., F. W. Lawrence, M.B., G. Philp, M.B., S. G. Heath, M.D., J. H. B. A. O. W. Knox, M.B., A. M. B. Martin, F.R.C.S. Edin., C. Sand, M.B., H. H. Raw, G. L. Brunton, M.D., D. O. Riddell, A. W. S. Christie, M.B., F.R.C.S. Edin., J. E. Cook, M.B., L. O. Johnston, G. Mitchell, M.D., A. Langwill, M.B., L. Bathurst, M.B., L. C. Somervell, W. Ormsby, E. W. Adcock, M.B., A. R. Fraser, M.B., A. H. James, R. C. Robertson, M.B., S. G. Askey, J. M. Clements, M.D., W. H. Brodie, M.B., H. Caplan, M.B., C. G. Whorlow, N. Booth, M.B., J. N. Dobbie, M.B., S. G. Billington, M.B., F.R.C.S. Edin., J. A. Hendry, M.B., P. A. Cooke, M.D., A. J. O. Wigmore, M.B., F. S. Rowland, J. H. H. Pearson, M.D., E. L. Middleton, M.B., S. Lyle, M.B., J. Lee, M.D., T. J. Burton, M.D., G. B. Richardson, R. J. Jones, F. De S. McMenamin, M.B., J. Warwick, R. A. S. Sunderland, M. Hynes, M.B., N. G. Thornley, M.B., J. S. Martin, M.D., H. McL. Veitch, M.D., E. Mansfield, M.B., D. O. Hanson, M.B., W. de M. Peyton, M.B., M. M. Cruickshank, M.B., H. J. Pickering, D. Haig, A. E. Taylor, M.B., E. C. Myott, M.D., H. Stanger, H. Faulkner, M.D., J. Allison, M.B., J. Gaston, M.B., C. O. K. White, A. K. Cosgrave, M.B., W. N. Watson, M.B., L. D. Roberts, M.B., S. R. Richardson, M.D., H. H. Carter, M.B., H. C. Mulkern, F. O'Neill, G. T. Mowat, M.B., M. H. Pearson, M.B., J. S. Martin, J. Gibson, M.B., R. B. Macfie, M.B., F.R.C.S. Edin., R. G. Brown, D. G. M. Munro, M.D., G. Schofield, M.D. (late Captain, Hampshire Regiment).

To be temporary Captains: H. H. Scott, M.D., J. H. Connolly, M.D., F.R.C.S., M. A. H. McCarthy, M.B., B. Arnold, M.D.

To be temporary honorary Lieutenants: G. S. Graham, M.B., A. T. Edwards, F.R.C.S., E. L. Davies.

Lieutenants of the Canadian A.M.C. to be Lieutenants: V. K. O'Gorman, G. Cooper, M.B., R. C. J. Stevens, M.B., E. F. Nivin, C. A. Dupont, M.D.

TERRITORIAL FORCE.

ROYAL ARMY MEDICAL CORPS.

London Casualty Clearing Station.—Lieutenant H. Drummond, M.B., late Lieutenant Northumberland (Hussars) Yeomanry, to be Lieutenant.

London (City of London) Sanitary Company.—Captain C. J. D. Gair is returned to the establishment.

London Sanitary Company.—John Tate to be Lieutenant. The following Lieutenants (temporary Captains) to be Captains: F. G. Caley, W. J. M. Sloman, M.D.

Home Counties Field Ambulance.—J. J. C. Hamilton to be Lieutenant.

Southern General Hospital.—Captain John W. Gill to be Major, December 30th (substituted for announcement in the *London Gazette* of December 20th).

Wessex Casualty Clearing Station.—Captain A. E. Huxtable, from *London Field Ambulance*, to be Captain.

Western General Hospital.—Lieutenants to be Captains: T. R. Bowen and G. L. Strachan, M.D.

South Wales Mounted Brigade Field Ambulance.—Lieutenant A. W. W. Hayles to be Captain.

Welsh Field Ambulance.—E. W. Griffith (late temporary Lieutenant R.A.M.C.) to be Captain; J. S. Wallace to be Lieutenant.

East Anglian Casualty Clearing Station.—Lieutenant J. Green, M.D., to be Captain.

East Anglian Field Ambulance.—R. J. R. Meurdy to be Lieutenant Colonel, and seconded for duty with a provisional Field Ambulance.

South Midland Field Ambulance.—Captain F. E. Franco, M.B., relinquishes his commission on account of ill health.

North Midland Casualty Clearing Station.—To be Lieutenants: J. W. Archibald, M.B., C. B. J. Kearney.

Notts and Derby Mounted Brigade Field Ambulance.—Lieutenant G. W. Miller to be Captain.

Northern General Hospital.—Lieutenants to be Captains: B. McKean, M.D., and R. P. Anderson, M.B. Captains H. J. Smith, M.B., and B. H. C. Lea-Wilson are seconded for duty with East Anglian Field Ambulance.

East Lancashire Field Ambulance.—To be Lieutenants: C. H. Hibbert, M.D., F. W. Schofield, M.B., E. Hulme, M.B.

West Lancashire Casualty Clearing Station.—Lieutenant T. H. Somervell to be Captain.

Northumbrian Field Ambulance.—Lieutenant O. Rogers, M.B., to be Captain.

Scottish General Hospital.—Lieutenant P. T. Catto, M.B., to be Lieutenant.

Highland Divisional Sanitary Service.—A. F. MacBean, M.B., to be Lieutenant.

Supernumerary for Service with the O.T.C.—Lieutenants to be temporary Captains whilst serving with the Medical Unit of the University of London Contingent, Senior Division, O.T.C.: Wm. Gillatt and R. D. Maxwell, M.B.

Attached to Units other than Medical Units.—Lieutenant Colonel C. G. Grant, from the Territorial Force Reserve, to be Lieutenant Colonel. Lieutenants to be Captains: W. L. Griffiths, M.D., F.R.C.S., W. N. P. Williams, N. P. Laing, M.B., R. B. Reed, M.B., A. Stewart, M.B., to be Lieutenant.

Vital Statistics.

HEALTH OF ENGLISH TOWNS.

In the ninety-six largest English towns 6,824 births and 5,784 deaths were registered during the week ended Saturday, January 1st. The annual rate of mortality in these towns, which had been 17.1, 15.7, and 24.9 per 1,000 in the three preceding weeks, rose to 16.6 per 1,000 in the week under notice. In London the death-rate was equal to 17.4, while among the ninety-five other large towns it ranged from 7.5 in Southend, 8.7 in Wimbledon, 9.4 in Tottenham, 9.7 in Ilford, 9.8 in Merthyr Tydfil, and 10.2 in Wallasey, to 22.3 in Stockport and in Gateshead, 22.6 in Blackpool, 22.9 in Leicester, 23.3 in St. Helens, 24.5 in Bath, and 24.7 in Carlisle. Enteric fever caused a death rate of 1.3 in Southampton; measles of 1.2 in Nottingham, 2.0 in Grimsby, 2.1 in Gloucester, 2.3 in Bristol, 2.9 in Stockport, and 3.4 in Leicester; whooping-cough of 1.3 in Coventry, 1.4 in Warrington, and 1.7 in Darlington; and diphtheria of 1.6 in St. Helens, and 1.8 in Cambridge. The mortality from scarlet fever showed no great excess in any of the large towns, and no fatal case of small-pox was registered during the week. The causes of 71, or 1.2 per cent., of the total deaths were not certified by a registered medical practitioner or by a coroner; of this number, 18 were recorded in Birmingham, 10 in Liverpool, 4 in Preston, and 3 each in London, Bootle, Southport, and Ro-hdale. The number of scarlet fever patients under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital, which had been 2,738, 2,582, and 2,462 at the end of the three preceding weeks, was 2,464 on Saturday, January 1st; 254 new cases were admitted during the week against 282, 245, and 206 in the three preceding weeks.

HEALTH OF SCOTTISH TOWNS.

In the sixteen largest Scottish towns 964 births and 765 deaths were registered during the week ended Saturday, December 25th, 1915. The annual rate of mortality in these towns, which had been 22.4, 18.7, and 19.7 per 1,000 in the three preceding weeks, fell to 17.0 in the week under notice, but was 2.1 per 1,000 above that recorded in the ninety-six largest English towns. Among the several towns the death-rate ranged from 10.8 in Hamilton, 11.5 in Kirkcaldy, and 12.4 in Ayr, to 18.9 in Coatbridge, 23.5 in Perth, and 25.4 in Greenock. The mortality from the principal infective diseases averaged 1.1 per 1,000, and was highest in Hamilton and Coatbridge. The 352 deaths from all causes in Glasgow included 5 from infantile diarrhoea, 4 from measles, 2 each from scarlet fever and diphtheria, and 1 each from enteric fever and whooping-cough. Four deaths from measles were recorded in Coatbridge, and 3 each in Greenock and Hamilton; from scarlet fever, 4 deaths in Aberdeen, and 2 each in Edinburgh and Dundee; and from diphtheria, 2 each in Dundee and Paisley.

Vacancies and Appointments.

NOTICES REGARDING APPOINTMENTS.—Attention is called to a Notice (see Index to Advertisements—Important Notice re Appointments) appearing in our advertisement columns, giving particulars of vacancies as to which inquiries should be made before application.

VACANCIES.

BIRKENHEAD BOROUGH HOSPITAL.—House-Surgeon and Junior House-Surgeon. Salaries £200 and £170 respectively.
BRISTOL ROYAL INFIRMARY.—(1) House-Physicians; (2) House-Surgeons. Salary, £120 per annum in each case.
BURY INFIRMARY.—Senior House-Surgeon. Salary, £250 per annum.
CHESHIRE COUNTY COUNCIL.—Lady Assistant Medical Officer. Salary, £350 per annum.
CHESTER COUNTY ASYLUM.—Junior Assistant Medical Officer. Salary, £200 per annum.
CHESTERFIELD AND NORTH DERBYSHIRE HOSPITAL.—Second House-Surgeon. Salary, £150 per annum.
DERBYSHIRE ROYAL INFIRMARY.—House-Physician and Casualty Officer. Salary, £200 per annum.
GRAVESEND HOSPITAL.—House-Surgeon.
LEAMINGTON SPA: WARNEFORD GENERAL HOSPITAL.—Second Resident Medical Officer. Salary, £150 per annum.
LEEDS PUBLIC DISPENSARY.—Lady Resident Medical Officer. Salary, £136 per annum.
MANCHESTER NORTHERN HOSPITAL FOR WOMEN AND CHILDREN.—Cheetham Hill Road.—Lady House-Surgeon. Salary, £120 per annum.
MANCHESTER: ST. MARY'S HOSPITAL FOR WOMEN AND CHILDREN.—(1) Resident Surgical Officer at the High Street Hospital. (2) Junior Resident at the Whitworth Street West Hospital. Salaries, £150 per annum.
NEW HOSPITAL FOR WOMEN. Euston Road, N.W.—Pathologist (female). Salary, £125 per annum.
NORTH STAFFORDSHIRE INFIRMARY. Hartshill, Stoke-on-Trent.—House-Physician (male or female). Salary, £200 per annum.
OLDHAM COUNTY BOROUGH.—Assistant Schools Medical Officer. Salary, £325 per annum, rising to £400.
PRESTON: COUNTY ASYLUM. Whittingham.—Locumtenent. Salary, £7 7s. per week.
WIGAN: ROYAL ALBERT EDWARD INFIRMARY AND DISPENSARY.—Lady House-Surgeon. Salary, £150 per annum.
CERTIFYING FACTORY SURGEONS.—The Chief Inspector of Factories announces the following vacant appointments: Finton (Tyrone), Hoddesdon (Hertford).

To ensure notice in this column—which is compiled from our advertisement columns, where full particulars will be found—it is necessary that advertisements should be received not later than the first post on Wednesday morning. Persons interested should refer also to the Index to Advertisements which follows the Table of Contents in the JOURNAL.

APPOINTMENTS.

DUNN, J. E., I.R.C.P. Edin., M.R.C.S., Certifying Factory Surgeon for the Preston (West) District, co. Lancaster.
GRAVES, A. J., M.R.C.S., I.R.C.P., Certifying Factory Surgeon for the Cleator District, co. Cumberland.
GROVES, T. C., M.B., B.S. Lond., Medical Superintendent of the Hereford County and City Asylum, vice Dr. Morrison, deceased.
WEBBER, W. W., I.R.C.P. Edin., M.R.C.S., Certifying Factory Surgeon for the Crewkerne District, co. Somerset.
WYSE, T. F., I.R.C.P. I.R.C.S., L.M. Incl., Assistant Medical Officer of the Whitechapel Union Infirmary.

BIRTHS, MARRIAGES, AND DEATHS.

The charge for inserting announcements of Births, Marriages, and Deaths is 5s., which sum should be forwarded in Post Office Orders or Stamps with the notice not later than the first post on Wednesday morning in order to ensure insertion in the current issue.

BIRTHS.

BERTRAM WATSON.—On January 6th, at 2, Ripon Road, Harrogate, to Dr. and Mrs. W. Bertram Watson, a son.
MACKINNON.—On January 9th, at Nairobi, British East Africa, the wife of Murdoch Mackinnon, M.D., D.P.H., of a daughter. (By cable.)

MARRIAGES.

BARRETT-HANCOCK.—On January 11th, at Christ Church, Surbiton, by the Rev. J. C. Barrett, Rector of S. Denys (father of bridegroom), the Rev. T. C. F. Barrett, Vicar of Halseston, to Mary Deborah Hancock, M.A.T.C.D., I.R.C.P., L.R.C.S. Edin., L.F.P.S. Glasg., daughter of E. H. Hancock, Esq., Alfriston, Surbiton.

COFFIN-STUART-MURRAY.—On January 10th, at the Church of St. Jude on the Hill, Hampstead Garden Suburb, by the Rev. Basil Bourchier, C.F., Lieutenant Stephen W. Coffin, R.A.M.C., son of Harold L. Coffin, to Iris, only daughter of the late Frank Stuart-Murray.

DIARY FOR THE WEEK.

MONDAY.

MEDICAL SOCIETY OF LONDON, 11, Chandos Street, W., 8.30 p.m.—Discussion on Gunshot Wounds of the Chest, to be introduced by Colonel Sir John Rose Bradford, M.D., F.R.S., A.M.S., Captain Hubert Henry, R.A.M.C., and Captain Morrison Davies, R.A.M.C.T. Lieutenant-Colonel W. Hale White, M.D., R.A.M.C.T., Dr. Samuel West, Dr. Murray Leslie and others will take part in the discussion.

TUESDAY.

ROYAL SOCIETY OF MEDICINE:
SECTION OF THERAPEUTICS AND PHARMACOLOGY, 4.30 p.m.—A discussion on the Soldier's Heart, to be opened by Sir James Mackenzie, F.R.S.

WEDNESDAY.

ROYAL METEOROLOGICAL SOCIETY, Surveyors' Institution, 12, Great George Street, Westminster, 7.30 p.m.—The President, Major H. G. Lyons, F.R.S.: Winter Climate of the Eastern Mediterranean.

ROYAL SOCIETY OF MEDICINE:
SECTION OF HISTORY OF MEDICINE, 5 p.m.—Dr. Arnold Chaplin: Mortality in the British Army 100 Years Ago. Dr. H. Selig Bennett: Joshua Ward.

THURSDAY.

ROYAL SOCIETY OF MEDICINE:
SECTION OF DERMATOLOGY, 4.30 p.m.—Exhibition of cases.
SECTION OF BALNEOLOGY AND CLIMATOLOGY, 5.30 p.m.—Dr. J. Campbell McClure: Hydrological Treatment of Gastro-intestinal Stasis.

FRIDAY.

ROYAL SOCIETY OF MEDICINE:
SECTION OF ELECTRO-THERAPEUTICS, 8.30 p.m.—Sir James Mackenzie Davidson will demonstrate a "commutator break" for utilizing the current at "make" as well as the current at "break," and will show a localizing couch. Dr. E. P. Cumberbatch: The use of the "Simpson Light," with a description of the apparatus. Dr. Russ will give an account of the physical properties of the light. The apparatus for the production of the light will be shown.

SOCIETY OF TROPICAL MEDICINE AND HYGIENE, 11, Chandos Street, W., 5.30 p.m.—Paper: The Etiology of Typhus, by Dr. W. J. Fenfold.

WEST LONDON MEDICO-CHIRURGICAL SOCIETY, West London Hospital, 8 p.m.—Clinical meeting, cases.

POST-GRADUATE COURSES AND LECTURES.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.

THE POST-GRADUATE COLLEGE, West London Hospital, Hammersmith, W.—Clinical work; graduates only.

DIARY OF THE ASSOCIATION.

Date.	Meetings to be held.
JANUARY.	
14 Fri.	London: Medico-Political Committee, 2.15 p.m.
15 Sat.	Scottish Committee, Caledonian Railway Station Hotel, Edinburgh, 12.30 p.m.
19 Wed.	London: Finance Committee, 2 p.m.
26 Wed.	London: Council Meeting, 12 noon.
27 Thur.	Mid-Cheshire Division, Annual Meeting at Altrincham, 4 p.m.

SUPPLEMENT

TO THE

BRITISH MEDICAL JOURNAL.

LONDON: SATURDAY, JANUARY 22ND, 1916.

CONTENTS.

	PAGE		PAGE
RECRUITING FOR THE NAVAL AND MILITARY MEDICAL SERVICES:		INSURANCE:	
SCOTTISH MEDICAL SERVICE EMERGENCY COMMITTEE ...	13	DRUG FUND REGULATIONS ...	14
ENGLAND AND WALES: CENTRAL MEDICAL WAR COMMITTEE ...	13	THE PRICING OF PRESCRIPTIONS ...	14
LOCAL GOVERNMENT BOARD IN IRELAND ...	14	LONDON PANEL COMMITTEE ...	15
ASSOCIATION NOTICES ...	15	INSURANCE ACT IN PARLIAMENT ...	15
NAVAL AND MILITARY APPOINTMENTS ...	15	VACANCIES AND APPOINTMENTS ...	16
VITAL STATISTICS ...	16	BIRTHS, MARRIAGES, AND DEATHS ...	16
		DIARY ...	16

RECRUITING FOR THE NAVAL AND MILITARY MEDICAL SERVICES.

SCOTTISH MEDICAL SERVICE EMERGENCY COMMITTEE.

NOTICE.

The Scottish Medical Service Emergency Committee urgently requests those doctors who have not filled in their registration forms to do so without any further delay, and to forward them to the Secretary of the Committee at the Royal College of Physicians, Edinburgh.

Jan. 15th, 1916.

MEETING OF THE COMMITTEE.

A MEETING of the General Committee was held in the Royal College of Physicians of Edinburgh on January 15th, Dr. Norman Walker (convener) in the chair. There were present: Dr. A. H. F. Barbour, President of the Royal College of Physicians; Mr. James Hodsdon, President of the Royal College of Surgeons; Dr. Ebenezer Duncan, President of the Royal Faculty of Physicians and Surgeons of Glasgow; Professor J. A. Kynoch, Dean of the Faculty of Medicine, University of St. Andrews; Professor T. H. Bryce, Dean of the Faculty of Medicine of the University of Glasgow; Professor Harvey Littlejohn, Dean of the Faculty of Medicine, Edinburgh University; Dr. John C. McVeil, Deputy Chairman, National Health Insurance Commission, Scotland; Professor R. Muir, University of Glasgow; Professor T. K. Monro, University of Glasgow; Dr. J. R. Hamilton, Chairman, Scottish Committee, British Medical Association; Dr. John Adams, Vice-Chairman, Scottish Committee, British Medical Association; Dr. John Playfair, President of the Edinburgh Medical Guild; Dr. John Stevens, Secretary, Edinburgh Branch, British Medical Association; Dr. J. R. Currie, Medical Officer, National Health Insurance Commission, Scotland; Mr. T. H. Graham, Secretary. Sir Donald MacAlister, K.C.B., President of the General Medical Council; and Dr. Alfred Cox, Medical Secretary, British Medical Association, were also present.

The Convener, in reporting upon the progress of the Medical Recruiting Scheme for 1916, stated that about 25 per cent. of the registered practitioners in Scotland had not yet made a return as requested in the Committee's memorandum which was circulated in December last, and he pointed out that in order to be fully prepared to meet any further demands which the War Office may make upon the profession it was essential that the committee should possess a complete conspectus of the whole position of medical service in Scotland. This was the object of the Registration Scheme, and it was most desirable that those practitioners who had not yet answered the inquiry should do so without further delay.

The Presidents of the Royal Colleges of Physicians, the Royal College of Surgeons, and the Royal Faculty of Physicians and Surgeons of Glasgow, and the Deans of the Faculties of Medicine in the Universities of St. Andrews, Glasgow, Aberdeen, and Edinburgh, were appointed, with the Convener, to deal with all applications for letters of excuse, and to report to the committee.

ENGLAND AND WALES.

THE CENTRAL MEDICAL WAR COMMITTEE.

THE Central Medical War Committee has sent a copy of the following letter to every medical practitioner of military age in England and Wales who has not hitherto accepted a commission in the R.A.M.C., and to the Secretaries of all the Local Medical War Committees:

January, 1916.

Dear Sir,

You are no doubt aware through the columns of the medical journals and the agency of your Local Medical War Committee of the plan of the Central Medical War Committee for enrolling all medical men of military age for service, if and when required, in the R.A.M.C. or the medical service of the Royal Navy.

The end of the war is not yet in sight. The country is greatly increasing its army, and Lord Derby's scheme has provided an immense number of potential soldiers who will be drawn upon as required. It is clear, therefore, that many more medical officers will be wanted, and members of our profession will, we are convinced, be at least as alive to the military necessities of the country as other members of the community.

Medical practitioners were not expected to attest under Lord Derby's scheme, because it was recognized that they could better be dealt with by a committee representative of their profession.

The Central Medical War Committee, originated by the British Medical Association, but including members who do not belong to the Association, is working with the full consent and authority of the Director-General of the Army Medical Service. The Committee is recognized by him as the medium for providing medical men needed by the War Office for the army, and at the same time protecting the needs of the civil population.

The Central Medical War Committee now confidently appeals to you as a medical man of military age to assist our national military organization by enrolling yourself for service in the R.A.M.C. when required, and to justify the confidence placed in the profession, which has been asked to organize itself for the service of the country. To enable you to do this, we enclose Forms W. 7 and W. 8, which should be completed and returned to this office with as little delay as possible.

The Committee hopes to enrol every medical man of military age (in the case of our profession up to the age of 45) so that as further calls are made by the Director-General of the Army Medical Service these calls may be promptly met with due regard to the necessity of the services, to the needs of the civilian population, and to the circumstances of individual medical practitioners. Unless all are enrolled it will be very difficult for the Central Medical War Committee to make its calls throughout England and Wales in a manner which will minimize the inconvenience suffered by the community and by individual medical practitioners.

It must be remembered that the enrolment of all medical men of military age does not mean that all enrolled will be called upon to take a commission. The number called upon will depend entirely on the demands of the services. The calls will be made in consultation with the local committees, and due regard will be given to (1) the system of classification adopted as a guide by the Central Medical War Committee (see Appendix A), (2) the circumstances of the individual practitioners, and (3) the opinion of the

Local Medical War Committees as to which practitioners can be most easily spared. The local Committee will advise and co-operate with a view to safeguarding the work and interests of the absent practitioners so far as it is able.

The Central Medical War Committee hopes that all practitioners to whom this is addressed will believe that some months' experience in dealing with this question has made the Committee thoroughly conversant and deeply sympathetic with the difficulties which most practitioners experience in leaving their work. But some thousands of medical men have now made the sacrifice, and what they have done others may fairly be asked to do. The Committee believes also that those who are not able, or are not required, to undertake military service will, so far as opportunity offers and their ability permits, contribute to the military strength of the country by placing their services at the disposal of the Local Medical War Committees for the purpose of arrangements that may be necessary for the conservation of the practices of men of military age to enable them more easily to enrol.

On enrolment you will receive a numbered certificate, and this will be taken as equivalent so far as the medical profession is concerned to attestation under Lord Derby's Scheme. If you have been attested under that scheme, you should at once enrol with this Committee. Your attention is drawn to the official communiqué issued by the Army Council on January 13th, 1916 (see Appendix B).

It is to be specially noted that one great privilege is given to the medical profession that does not apply to any other section of the community, namely, that a medical man can enter the R.A.M.C. on a contract for one year's service, whereas every one else must join the services for the duration of the war. It cannot be assumed, however, that the same privilege will be accorded to those practitioners who fail to enrol with our Committee.

It has been urged frequently that the army does not require so many medical officers as are now being requisitioned. On this point we would impress upon you that at present no one is in a position to say how many medical officers may be required; that we are in close communication with the War Office; and that the question of economy of personnel is continually under discussion, and rearrangements are continually being made to obtain the most economical service. We are convinced that the War Office, the Local Government Board, and the National Health Insurance Commissioners, as well as this Committee, are fully alive to the needs of the civilian population, and are doing their utmost to adjust the requirements of the military and civilian medical services to the existing conditions.

We are, yours faithfully,
N. BISHOP HARMAN,
ALFRED COX,
Secretaries.

* * Form W. 7 is a form on which a civil surgeon desirous of service with the R.A.M.C. enters particulars as to name, qualification, address, etc., and as to appointments and previous service, if any. Form W. 8 authorizes the Central Medical War Committee to forward the signatory's application for a temporary commission in the R.A.M.C. to the War Office whenever, in the opinion of the Committee, the time has arrived for his services to be placed at the disposal of the military authorities, on the understanding that at least one month's notice will be given before his services are required.

Appendix A gives the system of classification of practitioners issued by the Central Medical War Committee on December 8th (SUPPLEMENT, December 11th, p. 214). Appendix B reproduces the official communication issued by the Army Council on January 13th and published in the last issue of the JOURNAL, p. 102.

LOCAL GOVERNMENT BOARD IN IRELAND.

At the last meeting of the Enniscorthy Board of Guardians a letter was read from the Local Government Board refusing to sanction the appointment of the senior house-surgeon, Mater Hospital, Dublin, as medical officer of the Enniscorthy Dispensary District, on the grounds that, being 23 years of age, he was eligible for employment with the army or navy. The chairman protested against the decision of the Local Government Board on the grounds that the doctor who was doing temporary duty at 4 guineas a week was also eligible for military service, and if the new appointment were sanctioned it would mean a saving to the ratepayers. It was therefore decided to insist on the Local Government Board sanctioning the appointment.

INSURANCE.

DRUG FUND REGULATIONS.

THE Commissioners for England and Wales have now issued in their final form for official use the additions and amendments of the Medical Benefit Regulations which purport to embody the various matters in connexion with the Drug Fund which have been under discussion for the last few months. There is a wonderful amount of padding and intricate meandering round the different subjects which make many of the paragraphs most difficult to unravel; the new regulations deal with the accounts of the chemists under the new system of the commercial tariff, the adjustment between the Drug Fund and the Practitioners' Fund, the payment of capitation fees to practitioners for the supply of drugs and appliances, and other adjustments of the Drug Fund following on the new arrangements.

The obnoxious Article 40 of the principal regulations is definitely revoked and replaced by the new arrangements which are to guide the Panel Committees in investigating the prescribing of panel practitioners. Some adjustment is also made of the Central Medical Benefit Fund relating to the supply of drugs and appliances to temporary residents. Insurance Committees are authorized, after due notice, to forbid the use of the term "Rep. mist.," and a special provision is inserted that all drugs and appliances shall be of a grade or quality costing the chemist as nearly as possible the price allowed by the tariff. Apparently the new regulations carry out fairly well the alterations which have already been foreshadowed, but the unnecessarily complicated verbiage will involve almost endless references to the Commissioners as to the exact meaning, and probably necessitate fresh explanatory memorandums. The regulations came into operation at the beginning of the present year.

THE PRICING OF PRESCRIPTIONS.

THE Commissioners have issued, in Memo. 220 I.C., a full account of the administrative procedure in connexion with the drug supply arrangements for 1916 and the pricing of prescriptions.

According to the regulations chemists have to furnish an account of drugs and appliances supplied at such dates as may be required, and it is now provided that the accounts must be sent in monthly not later than the fourth of each month for the preceding month. It will not be necessary, under the new system, for the chemists to take the trouble to price their scripts, as that will be done by the Pricing Committee on behalf of the Insurance Committee. Special forms of invoices will be provided on which the chemists will have to state the number of scripts dispensed on the order of each doctor separately, each doctor's prescriptions being sent in in separate bundles, and a duplicate invoice will be required. The arrangements for pricing made by Insurance Committees are to be such as will enable a month's prescriptions to be dealt with in a month—that is to say, before the end of any month the scripts of the previous month must all have been priced. This will enable a payment to be made to the chemists not later than the fifteenth of the second month following that to which the prescriptions relate—for example, March 15th for the January prescriptions. Several provisions are also made to lessen the amount of correspondence necessary and to facilitate the payment of accounts without unnecessary delay. In anticipation of the actual process of pricing, an advance payment will be made on the number of scripts sent in, and at a given rate per script. It is hoped that after a few months' experience it will be possible to pay as much as 90 per cent. on the average cost per script. At first, however, advances will be based on the average cost per script for 1915 under the old system, and the Commissioners think that not over 80 per cent. should be paid. The regulations provide for the exercise by or on behalf of the chemists of the right of scrutiny of the Insurance Committee's pricing, and further regulations will provide that the Insurance Committee must furnish the following statistics to Panel Committees:

1. Total cost of prescriptions for the area.
2. Total number of prescriptions for the area.
3. Total cost of prescriptions for each doctor.
4. Total number of prescriptions for each doctor.
5. Average cost per insured person on lists for whole area.
6. Average number of prescriptions per insured person on lists for whole area.
7. Average cost per insured person on each doctor's list.
8. Average number of prescriptions per insured person of each doctor's list.
9. Average cost per prescription for whole area.
10. Average cost per prescription of each doctor's prescribing.

These statistics are to be sent gratis to each Panel Committee monthly and also at the end of the year for the whole year, in order to assist the Panel Committee in reviewing the prescribing of each doctor in the area. In addition to the detailed pricing of scripts according to the new tariff for the purpose of payment of the chemists, and to assist the Panel

Committee in checking excessive prescribing, it will also be necessary to assess the prescriptions in accordance with the old tariff for the purpose of determining what amount, if any, of the floating 6d. is to be transferred to the practitioners' fund. For this purpose it will not be necessary to price out the prescriptions a second time in detail, and methods of calculation are suggested by which it will be possible to make a proper assessment without a second detailed pricing, but the Commissioners promise to deal more in detail with this in a future memo. Model forms of invoice, advice note, and register will be supplied, and committees are instructed that to facilitate the new system there should be as much uniformity as possible in the shape and size of their prescription forms. At present the sums allotted for the expenses of Pharmaceutical Committees are chargeable rateably on the amounts credited to the panel chemists, and the Insurance Committees are reminded that these cannot under the new system become chargeable on any funds which would otherwise be available for practitioners. The memo. is accompanied by copies of the new forms of invoice and register to be used by chemists and by the pricing committees.

LOCAL MEDICAL AND PANEL COMMITTEES.

LONDON.

Safeguards against Excessive Prescribing.—At a special meeting of the London Panel Committee held on December 28th, 1915, a report on the administrative expenses in connexion with the scrutiny of prescriptions, etc., was submitted by the Finance Subcommittee, in which it was pointed out that an expenditure of 2 per cent. of the Drug Fund (that is, £2,500) in connexion with special investigations and advice would prevent any burden in connexion with the expenses of the Panel Committee in future falling on the practitioners' shoulders, and if, as a result, the drug bills were reduced from £160,000 to £105,000, the average cost would be reduced from 2s. 8d. to 1s. 9d. per insured person, and the doctors would receive 3d. of the divisible 6d. Dr. ALFRED SALTER moved an amendment to the effect that all such administrative expenses should be provided out of some fund other than the Practitioners' Fund. If the Commissioners wanted elaborate machinery for surcharging purposes and for regulating the Drug Fund they should provide the money. Dr. Salter's views were supported by several speakers, one of whom compared the position of the panel practitioner unfavourably with that of the Poor Law medical officer, who was not subject to such inquisition with regard to his drugs. Eventually, however, it was resolved that the Panel Committee should do everything in its power to render effective the safeguards against excessive prescribing, any reference to administrative expenditure being omitted.

Stock Mixtures.—The Committee agreed to the selection of ten preparations from the London insurance pharmacopoeia in respect of which a reduced dispensing fee of 2.3d. per prescription should apply as from January 1st.

INSURANCE ACT IN PARLIAMENT.

RETRENCHMENT COMMITTEE.

On January 18th Mr. Currie asked a question as to the allegations of the town council of Edinburgh regarding waste of money on sanatorium treatment. The Chancellor of the Exchequer stated, in reply, that the Retrenchment Committee was considering the whole question of insurance administration, and would shortly present a further report.

Association Notices.

MEETING OF COUNCIL.

The next Meeting of Council will be held on Wednesday, January 26th, in the Council Room, 429, Strand, London, W.C., at 12 noon.

By order,

GUY ELLISTON,

Financial Secretary and Business Manager.

January 1st, 1916.

Naval and Military Appointments.

ROYAL NAVAL MEDICAL SERVICE.

The following appointments are announced by the Admiralty: Honorary Deputy Inspector-General E. Concoran to the *Victory*, additional; Fleet Surgeons H. L. Norris to the *Triad*, additional, for disposal; J. W. Craig, M.B., to the *Victory*, additional, for disposal; F. R. Mann to the *Agamemnon*; W. Brett, M.V.O., to the *Excellent*; J. A. Moon to the *Bombay*; H. Huskinson, M.B., to the *Pomone*, additional, for Dartmouth College, vice Moon; W. H. O. Garde to the *Thunderer*; J. W. O. Underhill, M.B., to the *Wildfire*,

for Barracks and Sheerness Yard, temporary; J. Andrews, M.D., to the *Triad*, for Truro Auxiliary Naval Hospital; P. H. Boyden, M.D., to the *Pembroke*, additional, Staff Surgeons E. R. Townsend to the *Chatham*; J. M. Gordon, M.B., to the *Pactolus*; H. R. H. Denny to the *Collingwood*; F. H. Holt to the *Royalist*, Surgeon J. A. O'Flynn, M.B., to the *Triad*, additional, for disposal, Temporary Surgeons A. M. Dunlop, M.B., to the *Pembroke*, additional, for Chatham Hospital; H. B. Lawrie, M.B., H. C. Jennings and C. M. Williams to the *Triad*, additional, for Plymouth Hospital; J. Duffin, M.B., A. G. Brown, M.B., J. M. Hiddleston, and R. Aitken, M.D., to the *Victory*, additional, for Haslar Hospital; A. G. Taylor, M.B., and W. H. Steel, M.B., to the Royal Marine Light Infantry Division, Portsmouth; J. McFarlane to the *Cormorant*; J. Allen, M.B., and J. B. Simpson, M.D., to the *President*, additional; S. N. Wright to the *Racer* for Osborne College, vice Allen; C. P. G. Wakeley and T. J. Thomas to Haslar Hospital, H. E. K. Fretz to the *Pembroke*, additional; T. S. Harrison to the *Victory*, for Royal Naval Depot, Crystal Palace. To be temporary Surgeons: S. P. Mort, J. A. Prendergast, and T. G. Russell.

ARMY MEDICAL SERVICE.

Lieutenant-Colonel J. F. M. Kelly, M.B., to be temporary Colonel whilst employed as Assistant Director of Medical Services of a Division.

Major W. M. B. Sparkes to be temporary Lieutenant-Colonel whilst acting as Assistant Director of Medical Services of a Division.

ROYAL ARMY MEDICAL CORPS.

Temporary Lieutenant Colonel L. S. Dudgeon relinquishes his commission.

Temporary Major C. S. Myers, M.D., to be temporary Lieutenant-Colonel.

Temporary Captain R. J. D. Irvine, M.B., to be temporary Major.

Temporary Captain C. N. Binney, M.B., relinquishes his commission.

Temporary Lieutenants relinquishing their commissions: J. W. O'Farrell, J. W. Richardson, F.R.C.S.E., F. K. Kerr, M.B., D. G. Haisted, M.B., M. C. Turiansky, M.B., C. W. Hamilton, M.D., J. E. Barnes, M.B., R. Cope, A. N. Leeming, M.B., J. G. Macquoen, M.B., A. T. Ross, M.D., F.R.C.S.E., J. F. Gibbons, W. J. F. Mayne, M.B., M. Douglas, M.D., J. C. L. Day, B. W. Clark, J. G. McDougall, M.B., W. G. Heisby, J. Potter, O. C. Holman, M.B., F.R.C.S., V. Borland, M.B., J. C. McConaghey, M.D., E. A. Campbell, M.D., H. Fleming, M.B., W. H. W. Atlee, M.D., A. B. Wilson, M.D., J. Anderson, M.B., R. T. Worthington, M.B., W. J. Harper, W. F. Dunlop, M.B., H. E. H. Tracy, G. B. Horrocks, G. J. B. Candier-Hope, M.B., W. Readman, M.B., O. T. Bishop, M.B., E. G. Wheat, M.D., J. Duffin, M.B., E. H. A. Pask, M.D., D. Elder, M.B., B. M. Bone, M.B., F.R.C.S.E., W. McH. Binning, G. R. Phillips, M. Sullivan, J. H. Douglas, M.D., S. D. Farvesher, M.B., H. D. Robertson, M.B., B. E. Sedgwick, M.D., W. Taylor, M.B., J. B. Askew, F.R.C.S., H. F. McKendrick, M.D., I. P. Kelly, R. MacCarthy.

Temporary Lieutenants to be temporary Captains: N. K. Wilson, M.B., W. J. G. Gayton.

Temporary honorary Lieutenants to be temporary Lieutenants: G. C. Linder, G. S. Terry, D. H. Derry.

To be temporary Lieutenants: D. Mackay, M.B., J. H. Cooke, M.B., J. G. Craig, M.B., F.R.C.S.E., B. S. Harvey, M.B., C. F. Rumsey, H. J. Nightingale, M.B., F.R.C.S., H. G. Smith, L. Fraser, W. Duffy, M.B., L. D. I. Graham, M.B., J. E. Cheesman, D. M. Clements, M.B., J. Cameron, M.B., N. Navar, H. Harrison, W. H. Blakemore, F. M. Murray, W. S. Melville, M.B., L. Levene, M.B., P. Stocks, M.B., P. A. B. Clark, M.B., D. W. Daniel, M.D., F.R.C.S., V. Colmer, S. E. T. Shaan, M.B., T. H. Twigg, M.B., T. A. Mayo, M.B., F.R.C.S., T. L. Price, H. M. Vickers, M.B., D. M. Moffatt, M.D., H. Goodman, W. J. Ashby, M.D., W. Hamilton, M.D., G. Thomson, H. F. Johns, M.D., H. W. M. Storer, M.B., P. E. B. Barrow, M.B., M. Chadwick, J. S. Dunn, M.D., C. B. Joyce, M.D., B. A. Johnston, W. J. Logie, M.B., D. G. MacArthur, M.D., W. G. Macdonald, M.B., H. E. Blosome, F. Hannigan, H. F. Brice-Smith, O. Carlyle, M.D., F.R.C.S.E., J. J. O'Kelly, P. N. Allman, G. W. Spencer, M.B., C. S. Vartan, M.B., J. K. Davies, F. M. Byrne, G. T. Baker, J. McIntyre, M.B., H. A. G. Hadden, D. K. MacDougall, M.B., B. S. Dollard, S. A. D'Arcy, P. A. Nighinvalle, M.D., H. Coppock, M.D., A. Chance, M.D., F.R.C.S., W. C. Mence, H. H. Flisk, G. C. Adeney, M.B., F.R.C.S., A. T. Gibb, M.B., W. Wilson, M.D., J. Smith, M.B., J. B. Mackay, M.B.

To be temporary Lieutenants: E. P. Evans, M.D., J. C. A. Ridgway, M.D., H. G. Haynes, M.B., H. C. Watson, M.D., F. G. Thomson, M.D., H. Stewart, M.B., J. P. O'Connor, M.B., J. D. Robertson, M.B., H. Catling, S. L. Haslett, M.B., H. S. Sims, M.B., R. M. Moore, M.B.

Lieutenants of the Canadian Army Medical Corps to be temporary Lieutenants: H. E. Brown, M.B., F. L. Hill, M.D., W. A. E. Michell, M.B., J. H. Egbert, T. G. H. Drake, M.B., M. A. Kenny, M.D.

Temporary honorary Lieutenant A. M. Crabtree, F.R.C.S., relinquishes his commission on ceasing to serve with the New Zealand War Contingent Hospital.

SPECIAL RESERVE OF OFFICERS.

ROYAL ARMY MEDICAL CORPS.

The date of the promotion of Lieutenant J. Cameron, M.B., to the rank of Captain is antedated to April 1st, 1915 (but not to carry army pay or allowances prior to May 4th, 1915).

Lieutenants (on probation) confirmed in their rank: W. H. A. D. Sutton, W. S. Sharpe, and J. B. Cavenagh.

Captain S. Wright is placed temporarily on retired pay on account of ill health (substituted for the notification which appeared in the *Gazette* of September 18th, 1915).

Lieutenant A. C. Cassels, M.B., is placed temporarily on retired pay on account of ill health.

Ex-Cadet Sergeant G. T. Ginetle, M.B., University of London Contingent, O.T.C., to be Lieutenant on probation.

OVERSEA CONTINGENTS.

CANADIAN ARMY MEDICAL CORPS.

Lieutenant-Colonel J. T. Fotheringham, Assistant Director of Medical Services, to be temporary Colonel.

Lieutenant-Colonel J. A. Roberts to be temporary Colonel.

Major E. B. Hardy to be temporary Lieutenant-Colonel.

Major E. B. O'Reilly, Canadian Militia, to be temporary Major.

Captains to be temporary Majors: J. D. McQueen, P. G. Brown, H. Jones.

The name of Captain James Wells Ross is as now described, and not as stated in the *Gazette* of November 17th, 1915.

To be temporary Captains: D. A. Clark, N. H. Ferguson, H. MacLaren, J. Donald, T. A. Mallock, A. W. Trefrey, E. Goulder, C. W. Waldron.

BRITISH WEST INDIES REGIMENT.

A. J. Clark, M.B., to be Surgeon-Captain; W. S. Mitchell and A. G. Carpey to be Surgeon-Lieutenants.

TERRITORIAL FORCE.

ROYAL ARMY MEDICAL CORPS.

Northern General Hospital.—Captain C. Mears, M.B., from the Northumbrian Casualty Clearing Station, to be Captain. Captain G. B. Simpson is seconded whilst holding a temporary commission as Major in the R.A.M.C. The following are seconded: Majors A. S. F. Leyton, M.D., A. J. Hall, M.D., and A. E. Naish, M.B.; Captains W. H. Nutt, M.D., E. A. Hepworth, F.R.C.S. Lieutenants to be Captains: J. Stokes, M.D., W. W. N. King, M.B., F.R.C.S.E., T. A. Len, M.B.

Home Counties Field Ambulance.—Lieutenant G. Hislop, M.B., to be Captain.

South-Western Mounted Brigade Field Ambulance.—Lieutenant W. S. Soden to be Captain.

Vital Statistics.

HEALTH OF ENGLISH TOWNS.

In the ninety-six largest English towns 8,241 births and 4,990 deaths were registered during the week ended Saturday, January 8th. The annual rate of mortality in these towns, which had been 15.7, 14.9, and 16.6 per 1,000 in the three preceding weeks, fell to 14.3 per 1,000 in the week under notice. In London the death-rate was equal to 13.3, while among the ninety-five other large towns it ranged from 5.9 in Hornsey, 6.3 in Rhondda, 6.9 in Ilford and in Reading, 7.8 in Willesden, 8.5 in Walthamstow, and 9.1 in Portsmouth, to 21.1 in Dudley and in South Shields, 22.6 in Gloucester, 22.9 in Tynemouth, 23.3 in Blackburn, and 26.2 in Hastings. Measles caused a death-rate of 1.4 in Burnley, 1.5 in Bath, 2.1 in Stockport, and 2.2 in Bristol; scarlet fever of 1.6 in St. Helens; and diphtheria of 2.6 in Hastings. The mortality from the remaining infective diseases showed no marked excess in any of the large towns, and no fatal case of small-pox was registered during the week. The causes of 44, or 0.9 per cent., of the total deaths were not certified by a registered medical practitioner or by a coroner; of this number 9 were recorded in Liverpool, 7 in Birmingham, 3 in London, and 2 each in West Bromwich, Dudley, Southport, Blackburn, Preston, Barrow, and South Shields. The number of scarlet fever patients under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital, which had been 2,582, 2,462, and 2,464 at the end of the three preceding weeks, fell to 2,325 on Saturday, January 8th; 225 new cases were admitted during the week, against 245, 206, and 254 in the three preceding weeks.

HEALTH OF IRISH TOWNS.

During the week ending Saturday, December 25th, 1915, 383 births and 396 deaths were registered in the twenty-seven principal urban districts of Ireland, as against 508 births and 516 deaths in the preceding period. These deaths represent a mortality of 17.0 per 1,000 of the aggregate population in the districts in question, as against 22.2 per 1,000 in the previous period. The mortality in these Irish areas was therefore 2.1 per 1,000 higher than the corresponding rate in the ninety-six English towns during the week ending on the same date. The birth-rate, on the other hand, was equal to 16.5 per 1,000 on population. As for mortality of individual localities, that in the Dublin registration area was 17.0 as against an average of 24.4 for the previous four weeks, in Dublin city 18.7 (as against 25.8), in Belfast 18.1 (as against 20.8), in Cork 17.7 (as against 22.9), in Londonderry 20.2 (as against 19.3), in Limerick 19.0 (as against 13.9), and in Waterford 20.9 (as against 20.4). The zymotic death-rate was 1.6, as against 2.0 in the preceding period.

Vacancies and Appointments.

NOTICES REGARDING APPOINTMENTS.—Attention is called to a Notice (see Index to Advertisements—Important Notice re Appointments) appearing in our advertisement columns, giving particulars of vacancies as to which inquiries should be made before application.

VACANCIES.

BIRKENHEAD BOROUGH HOSPITAL.—House-Surgeon and Junior House-Surgeon. Salaries, £200 and £170 respectively.

BRIDGWATER HOSPITAL.—House-Surgeon (male). Salary, £125 per annum.

BRISTOL ROYAL INFIRMARY.—(1) House-Physicians; (2) House-Surgeons. Salary, £120 per annum in each case.

BURY INFIRMARY.—Senior House-Surgeon. Salary, £250 per annum.

CHESTERFIELD AND NORTH DERBYSHIRE HOSPITAL.—Second House-Surgeon. Salary, £150 per annum.

DERBYSHIRE ROYAL INFIRMARY.—House-Physician and Casualty Officer. Salary, £200 per annum.

DUNROSSNESS PARISH.—Medical Officer and Vaccinator.

GRAVESEND HOSPITAL.—House-Surgeon.

GREENWICH UNION.—Assistant Medical Officer of Infirmary and Workhouse. Salary, £175 per annum.

HOLBORN UNION.—Temporary Resident Medical Officer at the Institution, City Road, N.

LEAMINGTON SPA: WARNEFORD GENERAL HOSPITAL.—Second Resident Medical Officer. Salary, £150 per annum.

LEEDS PUBLIC DISPENSARY.—Lady Resident Medical Officer. Salary, £130.

LIVERPOOL ROYAL INFIRMARY.—Gynaecological Surgeon.

MANCHESTER NORTHERN HOSPITAL FOR WOMEN AND CHILDREN.—Cheetham Hill Road.—Lady House-Surgeon. Salary, £120 per annum.

MIDDLESBROUGH: NORTH ORMESBY HOSPITAL.—House-Surgeon. Salary, £150 per annum.

NORTH STAFFORDSHIRE INFIRMARY.—Hartshill, Stoke-on-Trent.—House-Physician (male or female). Salary, £200 per annum.

PRISTON: COUNTY ASYLUM, Whittingham.—Locumtenent. Salary, £7 7s. per week.

SHEFFIELD CITY.—Assistant Medical Officer to the Tuberculosis Dispensary (female). Salary, £350 per annum.

VICTORIA HOSPITAL FOR CHILDREN, Tite Street, S.W.—Senior Resident Medical Officer. Salary, £250 per annum.

WIGAN: ROYAL ALBERT EDWARD INFIRMARY AND DISPENSARY.—Lady House-Surgeon. Salary, £150 per annum.

CERTIFYING FACTORY SURGEONS.—The Chief Inspector of Factories announces the following vacant appointments: Barrow-in-Furness (Lancaster); Staplehurst (Kent).

To ensure notice in this column—which is compiled from our advertisement columns, where full particulars will be found—it is necessary that advertisements should be received not later than the first post on Wednesday morning. Persons interested should refer also to the Index to Advertisements which follows the Table of Contents in the JOURNAL.

APPOINTMENTS.

GALT, H. M., B.Sc., M.B., D.P.H., Captain R.A.M.C.(T.F.), additional Examiner in Medical Jurisprudence and Public Health for Degrees in Science and Medicine at Glasgow University.

GRAVES, T. C., M.B., B.S. Lond., F.R.C.S., Medical Superintendent of the Hereford County and City Asylum (incorrectly printed last week as Groves).

SLOAN, Samuel, M.D., Examiner in Midwifery and Diseases of Women to the University of Glasgow.

BIRTHS, MARRIAGES, AND DEATHS.

The charge for inserting announcements of Births, Marriages, and Deaths is 5s., which sum should be forwarded in Post Office Orders or Stamps with the notice not later than the first post on Wednesday morning in order to ensure insertion in the current issue.

BIRTH.

ANDERSON.—At Newholme, Pitlochry, on January 18th, the wife of John Anderson, M.B., C.M. Edin., of a daughter.

MARRIAGE.

MORLEY-SIMON.—On January 12th, at Stowmarket, John Morley, Ch.M., F.R.C.S., Captain R.A.M.C.(T.), 1st E. Lanes. Field Ambulance, to Mary Ogilvy Simon.

DEATHS.

PARNELL.—On January 9th, at Sydenham, suddenly, the result of an accident, Mary Emily Langston, the wife of Gerald Crisp Parnell, M.R.C.S. Eng., etc., of Bodowen, Honer Oak Road, Forest Hill, S.E.

STUART.—On January 10th, at Burnopfield, co. Durham, John George Stuart, M.B., C.M. Aberd., aged 49 years.

WILLIAMS.—On January 16th, 1916, Herbert Williams, M.D. Lond., of 7, Ulundi Road, Blackheath, Medical Officer of Health for the Port of London, son of Algernon T. H. Williams, J.P., of Weymouth. Interred at Melcombe Regis Cemetery, Weymouth.

DIARY FOR THE WEEK.

MONDAY.

ROYAL SOCIETY OF MEDICINE:
SECTION OF ODONTOLOGY, 8 p.m.—Paper: Mr. W. Courtney Lyne: The Significance of the Radiographs of the Pitted Teeth. Professor Arthur Keith, Professor A. S. Underwood, and Dr. Smith Woodward will take part in the discussion. Mr. Rushton: Absent Dentition.

TUESDAY.

ROYAL SOCIETY OF MEDICINE:
SECTION OF PSYCHIATRY, 8.30 p.m.—Discussion on the Functional Neuroses without Visible Sign of Injury caused by Shell Fire. To be opened by Dr. Mott, F.R.C.S.
MEDICO-LEGAL SOCIETY, 11, Chandos Street, W., 5 p.m.—Exhibition. Short Account of a Criminal Case: Was the plea of "qualified responsibility" justifiable? by Sir John Collier, M.D.

WEDNESDAY.

HUNTERIAN SOCIETY, Guy's Hospital, 4 p.m.—Cases of clinical interest will be shown by members of the staff.

THURSDAY.

ROYAL SOCIETY OF MEDICINE:
SECTION OF NEUROLOGY, 8.30 p.m.—Adjourned discussion on the Functional Neuroses without Visible Sign of Injury caused by Shell Fire (see above). Dr. Batten, Dr. Farquhar Buzzard, Dr. J. S. Collier, Dr. E. G. Fearnside, Dr. Wilfred Harris, and Dr. Campbell Thomson will speak.

FRIDAY.

ROYAL SOCIETY OF MEDICINE:
SECTION OF STUDY OF DISEASE IN CHILDREN, 4.30 p.m.—Cases and specimens. Paper: Dr. J. Porter Parkinson: Nephritis without Albuminuria.

POST-GRADUATE COURSES AND LECTURES.

LONDON SCHOOL OF TROPICAL MEDICINE, Royal Albert Dock, E.
NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.
THE POST-GRADUATE COLLEGE, West London Hospital, Hammer-smith, W.—Clinical work; graduates only.

DIARY OF THE ASSOCIATION.

Date.	Meetings to be Held.
JANUARY.	
21 Fri.	London: Executive Subcommittee of Central Medical War Committee, 3.15 p.m.
26 Wed.	London: Council Meeting, 12 noon.
27 Thur.	Mid-Cheshire Division, Annual Meeting at Altrincham, 4 p.m.
FEBRUARY.	
2 Wed.	London: Central Medical War Committee, 2 p.m.

SUPPLEMENT TO THE BRITISH MEDICAL JOURNAL.

LONDON: SATURDAY, JANUARY 29TH, 1916.

CONTENTS.

	PAGE
RECRUITING FOR THE NAVAL AND MILITARY MEDICAL SERVICES:	
RECOGNITION OF IRISH MEDICAL WAR COMMITTEE...	17
FORMATION OF MEDICAL WAR COMMITTEE AT SWANSEA	17
NAVAL AND MILITARY APPOINTMENTS...	19
VITAL STATISTICS	19
VACANCIES AND APPOINTMENTS	20

	PAGE
INSURANCE:	
INSURANCE ACTS COMMITTEE ...	17
THE PRICING OF PRESCRIPTIONS ...	18
DERBYSHIRE INSURANCE COMMITTEE ...	18
THE WORK OF PANEL PRACTITIONERS ...	19
BIRTHS, MARRIAGES, AND DEATHS	20
DIARY FOR THE WEEK ...	20
DIARY OF THE ASSOCIATION	20

RECRUITING FOR THE NAVAL AND MILITARY MEDICAL SERVICES.

IRELAND.

RECOGNITION OF IRISH MEDICAL WAR COMMITTEE.

The Secretary to the Department of Recruiting for Ireland has issued the following statement to the Press:

Following on representations which have been made to him by the Irish Medical War Committee, the Lord Lieutenant, as Director-General of Recruiting for Ireland, has sanctioned the recognition of that Committee as the official channel of recruiting for the medical profession.

The Committee have undertaken to give every possible assistance to the military authorities in the provision of medical officers for the army.

With this object in view, they are prepared to facilitate the release of the younger members of the profession by endeavouring to provide acceptable substitutes, and, if so desired, by helping to reorganize the medical service in neighbourhoods from which practitioners are willing to join the service.

Members of the medical profession who wish to apply for commissions in the Army Medical Service are accordingly recommended to write in the first instance to the Honorary Secretary of the Committee, care of the British Medical Association, 16, South Frederick Street, Dublin.

CONDITIONS OF LEAVE TO POOR LAW MEDICAL OFFICERS JOINING THE ROYAL ARMY MEDICAL CORPS.

Three out of the four Poor Law medical officers in the Abbeyleix Union (Queen's County) applied to the board of guardians for leave of absence to join the Royal Army Medical Corps. After considerable discussion leave of absence was granted providing the doctors joining the R.A.M.C. would relinquish their salaries as Poor Law medical officers.

WALES.

SWANSEA.

A local Medical War Committee has been formed consisting of the Executive Committee of the Swansea Division of the British Medical Association together with other practitioners so that each area of the Division is adequately represented. Steps were taken to safeguard the practices of men called up for active service by asking every practitioner in the Division to sign the usual undertaking. All medical men under 46 years of age have been canvassed to volunteer for whole-time general military service if, and when, required. The results of the canvass, which was very thoroughly conducted, gave the following results for the districts in the area of the Division:

Number of practitioners before the war	141
On active service	19
Number not signed undertaking	9
Number of military age	50
Enrolled	40

Of the number of military age 34 were under 41, and 25 had enrolled; there were 16 over 41 and under 46, all of whom had enrolled. Of the 9 whose enrolment was not definitely reported 3 had attested under the general Derby scheme, 1 had previously been rejected, 1 was on home service, 1 had not definitely confirmed his enrolment, and 2 were employed by medical aid associations. The popula-

tion of the Division is roughly 313,000, and the number of general practitioners at the present time is 99, giving a ratio of 1 doctor to 3,161 people. This ratio was found to be fairly constant in the different districts. If all the doctors of military age were called up 62 general practitioners would be left, giving a ratio of 1 doctor to 5,050 people. After some correspondence with Lord Derby as to the doctors who had attested under his scheme, it was arranged that when an attested medical man was called up he would not be taken as a combatant, provided he produced to the recruiting officer a certificate of enrolment under the scheme of the British Medical Association. The Committee recommends that applications for commissions should be retained by the local War Committee, and all subsequent arrangements made through that Committee.

INSURANCE.

INSURANCE ACTS COMMITTEE.

A MEETING of the Insurance Acts Committee was held at the office of the British Medical Association on Thursday, January 13th, when Dr. J. A. MACDONALD, LL.D., was in the chair. The other members present were:

England and Wales: Dr. T. Ridley Bailey (Bilston), Dr. H. B. Brackenbury (London), Dr. T. Campbell (Wigan), Dr. Olive Chydon (Oldham), Dr. J. Divine (Hull), Major A. C. Farquharson (Newcastle-upon-Tyne), Lieutenant E. R. Fothergill (Hove), Dr. P. V. Fry (Sowerby Bridge), Dr. Major Greenwood (London), Dr. R. Harding (New Radnor), Professor A. Bostock Hill (Birmingham), Dr. B. A. Richmond (London), Dr. W. B. Crawford Treasure (Cardiff). *Scotland:* Dr. John Adams (Glasgow), Dr. J. R. Drexer (Glasgow), Lieutenant J. Hunter (Corstorphine). *Ex officio:* Dr. E. Rayner, Treasurer (Stockport).

SURGERY ACCOMMODATION.

The opinion of the solicitor to the Association concerning the requirements of an Insurance Committee was considered, and it was decided to recommend to the panel practitioner concerned that specific complaints with regard to surgery accommodation should be dealt with by the Medical Service Subcommittee, as provided in the regulations.

DRUG TARIFF.

It was decided to approach the Commissioners from time to time in order that the interpretations of the principles of the tariff by various Insurance Committees may be co-ordinated and defined. It was reported that a conference had been held on January 6th between Dr. Richmond, Captain Lilley, and the Medical Secretary, representing the Association, and representatives of the Pharmaceutical Society, when prices for the starred drugs in the 1915 tariff were agreed for the month of January which it was understood would be accepted by the Commissioners. Their action was approved, and they were appointed to deal, in conference with the representatives of the Pharmaceutical Society, with any question as to the monthly pricing of the starred drugs in the 1915 tariff, and empowered to call in expert assistance.

STOCK MIXTURES.

It was agreed to seek an early conference with representatives of the Pharmaceutical Society for the purpose of agreeing, if possible, on a list of mixtures which could

be stocked without deterioration, and from which list a number, not exceeding ten, may be chosen by any Panel Committee.

USE OF SALVARSAN, VACCINES, SERUMS, ETC.

In answer to a question raised by the Lancashire Panel Committee it was resolved:

That the Insurance Acts Committee is of opinion that the "provision of proper and sufficient medicines," as contemplated by the 1911 Act, does not include the supply of salvarsan, vaccines, serums, etc.

That with a view to the proper treatment of insured persons suffering from diphtheria, the Committee is of opinion that public health authorities should be urged to use the powers they possess, and which most of them utilize, namely, to supply diphtheritic serum gratuitously.

SUSPENSION OF RIGHT OF TRANSFER.

It was decided to present a report to the next conference of representatives of Local Medical and Panel Committees regarding the Association's representations to the Insurance Commissioners pursuant to the decision of the 1915 conference, with reference to withholding the right of an insured person to transfer from the list of any doctor who was absent on naval or military service for the period of the war, or until a reasonable time after his return, and to indicate that in the opinion of the Committee the regulation introduced by the Commissioners in accordance with those representations was satisfactory.

PAYMENTS TO PRACTITIONERS.

It was resolved that, owing to the peculiar difficulties in ascertaining the final amounts of money available to insurance practitioners owing to the war, and in view of the virtual promise of the Commissioners to fix a definite date for the final settlement of each year's accounts after the war, to take no further steps at present to seek any case in which a practitioner has received a less sum than could be proved by his list to be due to him under his contract, for prosecution in the law courts.

THE PRICING OF PRESCRIPTIONS.

A DRAFT scheme has now been agreed on and only needs final confirmation for the pricing of prescriptions under joint arrangements between the Manchester and Salford Insurance Committees. The scheme provides that a joint committee shall be constituted consisting of an equal number of members appointed by each committee. The business of this joint committee will be to price all prescriptions in accordance with the drug tariff, and to furnish to the respective committees the data required to enable them to pay the chemists and to prepare and furnish such statistics as may be required for the Panel Committees or for the use of the Insurance Committees. The committee is to employ a qualified pharmacist and the necessary pricing staff and secure office accommodation. The staff of the Manchester Insurance Committee, now engaged on similar work, will be utilized, with any additional staff required, and the prescriptions of the two Insurance Committees will, so far as practicable, be dealt with concurrently. The procedure will be that indicated by the Commissioners in their circular 220/I.C., the prescribed data being furnished to the respective committees prior to the end of the month in which the preceding month's scripts have been dealt with. It is also provided that should the Panel Committee of either area require the scripts of a particular doctor for the purpose of investigation application must be made through the Insurance Committee for the area. In the draft agreement it is provided that the joint committee shall consist of four members—two from each committee—and the contribution of each committee towards the expenses is to be in proportion to the number of prescriptions sent to be priced by each committee; any question arising which cannot be settled by mutual agreement is to be referred to the Commissioners for decision. On representations being made to the Commissioners by either of the two committees, the Commissioners may, if they consider it expedient, determine the agreement at any time on giving three months' notice to each committee, but otherwise either of the committees may only determine the agreement at the end of any year later than the year 1918, and only on giving the other committee three months' notice. It is estimated that there will be about 1,652,000 prescriptions to be priced annually, and that the

cost will be about £1,112, which is at the rate of 13s. 6d. per 1,000 prescriptions. This is a considerable increase on the joint cost for 1914, which in the case of Manchester was £604 for 1,200,000 scripts—that is, 10s. 0.8d. per 1,000; and in the case of Salford £125 for 335,000 scripts—that is, 7s. 5.55d. per 1,000. The increase is due to the extra work required under the new scheme and the additional statistics to be furnished to Panel Committees, but it will obviate a great part of the expenses which previously had to be met by Panel and Pharmaceutical Committees and will very materially lessen the work which formerly fell on the chemists, as they will no longer need to price their scripts themselves before sending them in to the committee.

For the use of the pricing staffs the Commissioners have now issued a ready reckoner for quickly arriving at the prices of the ingredients of prescriptions to the second place of decimals. It occupies twenty-four foolscap pages of figures, with two pages of description as to their use, and a page is also devoted to an account of the twenty-three varieties of dispensing fees, which will probably be a source of endless questions and disputes. The ready reckoner will undoubtedly save much trouble to the pricing staffs, with a consequent saving of expense, but one cannot help feeling that in the years to come it will be regarded, with the cumbrous system for which it stands, as a curious relic of antiquity.

THE DERBYSHIRE INSURANCE COMMITTEE.

COMPLAINTS are made as to the inconsiderate way in which the Derbyshire Insurance Committee is treating the panel practitioners of its area. A short time ago the Committee addressed a letter to the Panel Committee asking for its formal approval of a new rule that the term "Rep. mist." should not be used in the future. Under the new regulations, however, the Committee is required first to consult the Panel Committee and if, after consultation, it decides to abolish the use of this term, the Panel Committee has a right to appeal to the Commissioners with regard to any exceptions or qualifications of the rule on which the two committees cannot agree, and the Insurance Committee must give not less than fourteen days' notice to practitioners of its intention to bring the rule into operation. In the present instance the Derbyshire Insurance Committee appears to have simply sent a letter asking the Panel Committee for its formal approval of the abolition of the term "Rep. mist.," and the Panel Committee replied by carrying unanimously a resolution that "the term 'Rep. mist.' should not be abolished until the war is over." It is evident that the Insurance Committee has simply attempted to rush the matter utterly regardless of the wishes of the Panel Committee.

Again the Insurance Committee has notified every panel practitioner of its area that "from this date (December 31st, 1915) no registration will take place in partnership names." It is questionable whether this is legal. In the "Explanatory statement as to medical benefit as affecting practitioners" sent to all practitioners by the Commissioners in December, 1912, Section XI states that the panel doctor will be required to give personal attendance to the insured on his list, or, when unable personally to attend, may employ any other practitioner whether on the panel or not—either a partner, or assistant, or locum tenens—as his deputy, and the section then proceeds: "Practitioners practising in partnership may, if they desire, have the fact of the partnership indicated in the published list of practitioners on the panel, so that an insured person may in effect select the firm as his medical attendants." If this does not mean that registration may take place in partnership names, it is nothing more or less than a sort of bait to entice practitioners to swallow the hook.

This is not the first occasion on which it has been proved that the explanatory statement of the Commissioners threw a false glamour over the medical service which, when once its object was attained, has been destroyed by the officiousness of not a few Insurance Committees, of which the Derbyshire Committee is a notable example. The dissatisfaction that is resulting among the panel practitioners of the Derbyshire area is quickly reaching such a pitch that many of them are seriously discussing the question of resigning in a body from the panel, or of withdrawing from their undertaking to do the panel work of medical men who have joined the army. It is clearly useless for the Commissioners, even when they may be so

inclined, to do anything in the interests of panel practitioners if they blind themselves to the fact that officious interference by Insurance Committees may nullify their good intentions, or at least throw suspicion on any explanatory statements that may be issued by the Commissioners.

THE WORK OF PANEL PRACTITIONERS.

The Medical Secretary of the British Medical Association, 429, Strand, would be glad to have from panel practitioners a note as to their work in 1915 stating:

Number of insured persons on his list.
" of patients seen.
" of visits.
" of surgery attendances.

Drs. Fuller and Bell (Tollington Park and Crouch End) have supplied the following statistics of work done under the Insurance Act during 1915:

Number of patients on list	...	...	...	2,300
Attendances at surgery and consultations	...	...	...	7,772
Visits	...	...	...	1,058

Dr. W. O. McKane (Cleethorpes) has forwarded the following particulars of work done under the Insurance Act during 1915:

Approximate number on panel	...	...	...	950
Number of visits paid	...	...	...	905
Number of attendances at surgery	...	...	...	2,588
Total attendances for the year	...	...	...	3,493

Naval and Military Appointments.

ROYAL NAVAL MEDICAL SERVICE.

The following appointments are announced by the Admiralty: Fleet Surgeon E. H. Meaden to the *Vivid*, additional; P. H. Bannister, M.B., to the *Victory*, additional; L. E. Dartnell to the *Impregnable*. Staff Surgeons J. O'Hea to the *Cumberland*, W. L. Hawkins to the *President*, additional; W. E. Gribbell to the *Vivid*, additional. Temporary Surgeon T. C. Russell to Haslar Hospital, L. S. Goss to the *Janet*, G. W. King and J. C. H. Allan, M.B., to the *Vivid*, additional. To be temporary Surgeons: G. L. Attwater, A. C. McAllister, M.B., H. Ellis, W. E. Wade.

ROYAL NAVAL VOLUNTEER RESERVE.

Surgeon L. C. D. Irvine to the *Vivid*, additional. Surgeon-Probationers T. G. Campbell to the *Lucifer*, J. E. Kerr to the *Miranda*.

ARMY MEDICAL SERVICE.

Colonel G. D. Hunter, D.S.O., to be temporary Surgeon-General whilst a Director of Medical Services.

ROYAL ARMY MEDICAL CORPS.

Major to be temporary Lieutenant-Colonel whilst in command of field ambulances: P. J. Hanath, E. H. M. Moore. D. R. O'Sullivan-Beare, M.D., to be temporary Lieutenant-Colonel. To be temporary Captains: W. B. Cosens, temporary Lieutenant A. Gilmour, M.D., Major F. Cathcart, M.D., from unattached list of the T.F.; M. J. Rees, M.D., F. A. Bainbridge, M.D.

Temporary Captain J. Edgar, M.D., relinquishes his commission. Temporary Lieutenants to be temporary Captains: J. La F. Lauder, E. L. Shelton-Jones, J. W. Grace, A. E. A. Burkhard, R. P. McDonnell, F.R.C.S.I., H. W. Turner, W. H. Clements, J. D. Driberg, F.R.C.S., E. L. M. Hackett, C. L. Morgan, M.D., N. P. L. Lumb, D. C. Robertson, M.B., B. A. Hughes, M.D., A. H. Greg, M.B., F.R.C.S., J. E. Rutherford, M.B., A. Grant, M.B., G. D. Sherwood, A. E. Hodgson, M.D., J. Lang, M.B., H. B. Day, M.D., T. B. Marshall, M.B., D. Brough, M.B., T. L. Butler, G. F. Darker, M.D., H. G. Fessel, M.D., H. P. Harpur, M.B., J. Fettes, M.B., R. C. Leonard, M.D., B. C. Tennent, M.D., W. E. David, M.B., W. T. James, M.B., D. Heron, F.R.C.S.E., H. R. Pollock, B. E. Wall, M.B., F. J. Hunt, M.B., A. Jones, M.D., R. Y. Hones, M.B., F.R.C.S.E., G. O. Maw, B. F. Jones, A. Hines, M.B., W. Parsons.

Lieutenants of the Canadian A.M.C. to be temporary Lieutenants: R. Proctor, M.D., G. S. Clancy, M.D.

Temporary Lieutenants relinquish their commissions: P. Reid, M.B., P. J. Maguire, J. D. Cherry, C. E. Pepper, M.B., J. L. Annan, M.B., W. Garton, H. E. Clarke, R. W. Greatorex, M.B., R. E. Nisbett, A. N. Houghton, M.B.

To be temporary Lieutenants: J. B. Dunning, M.B., J. A. Thomson, M.B., F. B. Pinniger, M.D., J. R. Briscoe, M.B., A. R. Jordan, M.B., F.R.C.S., B. L. Bell, G. B. S. Soper, J. Dunbar, M.B., G. Sutherland, M.B., F. L. Spalding, V. S. Partridge, F. de C. Potter, H. Bond, W. R. H. Smith, M.D., R. D. Bell, M.B., J. W. H. Boyd, M.B., H. Speirs, M.D., F.R.C.S.E., A. L. Pentland-Smith, M.B., W. A. Cochran, M.B., H. A. R. E. Unwin, M.B., F.R.C.S., W. H. Gray, D. M. Hanson, W. G. Parker, M.B., H. Child, R. H. W. Garle, J. R. Payne, S. McComb, M.B., J. S. Johnson, M.B., H. Farncombe, M.B., A. Stewart, M.B., P. B. Harrison, D. Manson, M.B., J. Massey, M.B., J. B. Cunningham, M.B., A. E. Jackson, M.D., M. J. Harkin, M.B., A. M. Mitchell, M.B., J. E. J. R. Kelly, A. M. Masters, M.D., J. E. Buck, R. J. Mayberry, M.B., B. C. Eskell, M.B., A. C. Dixon, F. G. Heard, J. D. Mercer, D. L. Sewell, M.B., H. B. Billups, M.B., J. H. Addinsell, J. B. Randall, M.B., W. E. Waller, M.B., E. D. Adrian, M.B., W. A. L. Marriott, M.B., B. F. Bailey, C. E. Hes, M.B., P. W. Brigstocke, M.B., J. B. Alexander, M.B., D. A. Thomson, M.B., T. W. McCubbin, H. E. Battle, J. M. Gage, A. W. S. Sichel, M.B., J. H. P. B. Barrett, M.D., A. Brebner, F. B. Young, M.B., J. P. Ziersvogel, F.R.C.S.I., E. D. Fountain, A. A. Martin, M.D., J. P. Jones, J. R. Griffith, H. C. O. Wheeler, A. E. Atkinson, H. Tonks, F.R.C.S., B. C. W. Pasco, C. E. Jones-Phillips, M.D., F.R.C.S.E., C. C. Hargreaves, M.B., F. J. O. Blackmore, J. Bryan, J. J. Healy, M.B., J. M. Redding, F.R.C.S., W. S. Lacey, M. Douglas, M.D., J. Watt, A. J. Anderson, M.B., T. Tierney, M.D., G. A. Back, O. Le F. Milburn, B. Cox, M.D., J. C. Buckley, M.D., J. S. Curgenven, M. Nicoll, M.B., J. R. Magee, R. Rowlands, S. H.

Richards, M.B., W. V. Pegler, T. Bates, M.B., F.R.C.S., W. F. V. Simpson, M.B., A. Felling, M.D., C. E. L. Burnan, M.B., E. Evans, J. F. Gallaher, M.B., H. S. Berry, G. Collins.
O. G. Morgan to be temporary honorary Lieutenant whilst serving with No. 9 British Red Cross Hospital.
To be temporary honorary Lieutenants: W. R. White-Cooper, J. G. Ackland, J. E. C. Maguire, S. W. Isaacs.

SPECIAL RESERVE OF OFFICERS.

ROYAL ARMY MEDICAL CORPS.

Lieutenants to be Captains: E. Jamieson, M.B., W. McE. Snodgrass, J. G. Hendry.

Lieutenant A. C. Cassells, M.B., is placed temporarily on retired pay on account of ill health (substituted for notification published in the *London Gazette* of January 1st).

Lieutenant (on probation) T. R. Davies is confirmed in his rank.

TERRITORIAL FORCE.

ROYAL ARMY MEDICAL CORPS.

Highland Field Ambulance.—B. L. Davis to be Lieutenant.
Highland Mounted Brigade Field Ambulance.—Lieutenant J. F. Neary, M.B., to be Captain.

Lowland Mounted Brigade Field Ambulance.—Captain (temporary Major) F. Gracie, M.B., to be Major.

Scottish Horse Mounted Brigade Field Ambulance.—Lieutenant F. M. Halley to be Captain.

North Midland Field Ambulance.—J. D. Allen, M.B. (late Captain to this unit), to be Captain.

North Midland Mounted Brigade Field Ambulance.—Lieutenant H. W. Greig to be Captain.

Northumbrian Casualty Clearing Station.—Captain F. J. Nattrass, M.B., from Northern General Hospital, to be Captain.

Northumbrian Field Ambulance.—Lieutenant A. G. McFarlane, M.B., to be Captain.

East Lancashire Field Ambulance.—Lieutenants to be Captains: A. W. Havard, M.B., E. L. Forward.

West Lancashire Divisional Sanitary Section.—Lieutenant W. H. Hill, from London Sanitary Company, to be Lieutenant.

West Lancashire Field Ambulance.—Captain J. Wood to be temporary Major. W. N. Jeffrey, M.B., late Captain King's Own (Royal Lancaster Regiment), to be Captain.

West Riding Field Ambulance.—Lieutenants to be Captains: C. S. Brown, M.B., A. G. Hebblethwaite, A. Anderson, W. Sneddon, M.B., T. I. Mills.

East Anglian Field Ambulance.—Major W. J. Cais, M.B., relinquishes his commission on account of ill health. R. J. E. Mervedy to be Lieutenant, and seconded for duty with a provisional Field Ambulance (not Lieutenant-Colonel, as printed in our issue of January 15th).

London Casualty Clearing Station.—Lieutenants to be Captains: A. C. Pearson, M.B., J. C. W. Methven. To be Lieutenant: F. A. Dick, M.B.

London (City of London) Field Ambulance.—Major (temporary Lieutenant-Colonel) W. V. Sinclair relinquishes the temporary rank of Lieutenant-Colonel on alteration in posting. Major E. C. Montgomery-Smith to be temporary Lieutenant-Colonel. Captain Archibald Leitch, M.B., is restored to the establishment. J. H. Lloyd, M.B., to be Lieutenant.

London Field Ambulance.—Major H. K. Dawson, M.D., to be temporary Lieutenant-Colonel.

London General Hospital.—To be Lieutenants: D. N. Hartcastle, A. W. Bowie, M.B., L. A. Celestin, W. L. Holyoake, M.B., A. Kingsford.

London (City of London) Sanitary Company.—To be Lieutenants: W. S. E. Campbell, M.B., Corporal N. S. Golding from Canadian Expeditionary Force, W. A. F. B. Browne, A. Reid.

London Sanitary Company.—Captain H. Booney placed temporarily on retired list on account of ill health. Lieutenants to be Captains: J. E. Wilson, M.D., C. E. C. Ferrey, W. D. Carruthers, M.B., A. Roinanes, M.B., C. C. Frye, H. G. A. Pearson, G. S. Hoffman. To be Lieutenants: C. H. Lilley, M.B., H. Vickers.

Southern General Hospital.—Captain J. Blackwood is seconded for duty with the East Anglian Field Ambulance.

Wessex Casualty Clearing Station.—Captain Alfred Coleridge, M.B., from Attached to Units other than Medical Units, to be Captain.

Wessex Field Ambulance.—A. C. Hinkles to be Captain.

Welsh Border Mounted Brigade Field Ambulance.—Lieutenant (temporary Captain) R. F. Gerrard to be Captain.

South Wales Mounted Brigade Field Ambulance.—Lieutenant (temporary Captain) J. Browne to be Captain.

Supernumery for Service with the O.T.C.—Lieutenant W. L. H. Duckworth, M.D., to be temporary Captain whilst serving with the medical unit of the Cambridge University Contingent, Senior Division, O.T.C. A. W. W. Baker, M.D., F.R.C.S.I., to be Lieutenant for service with the Medical Unit of the Dublin University Contingent, Senior Division, O.T.C.

Attached to Units other than Medical Units.—Major A. Robinson and Captain G. B. Forge relinquish their commissions on account of ill health. Captain H. E. Murray, M.B., relinquishes his commission on appointment to I.M.S. Surgeon-Major E. B. Purves, from Lincolnshire Yeomanry, to be Major. The announcement of the resignation of Captain W. L. Griffiths, M.D., which appeared in the *London Gazette* of January 8th is cancelled. Lieutenants to be Captains: J. Wood, A. Silbermann. To be Lieutenants: W. H. Buckley, J. L. Hamilton, F. J. P. Saunders.

Vital Statistics.

HEALTH OF SCOTTISH TOWNS.

In the sixteen largest Scottish towns 991 births and 782 deaths were registered during the week ended Saturday, January 1st. The annual rate of mortality in these towns, which had been 18.7, 19.7, and 17.0 per 1,000 in the three preceding weeks, rose to 17.4 in the week under notice, and was 0.8 per 1,000 above that recorded in the ninety-six large English towns. Among the several towns the death-rate ranged from 7.6 in Falkirk, 10.5 in Clydebank, and 11.8 in Perth, to 24.8 in Coatbridge, 27.0 in Hamilton, and 28.0 in Greenock. The mortality from the principal infective diseases averaged 1.6 per 1,000, and was highest in Coatbridge and Hamilton. The 329 deaths from all causes in Glasgow included 7 from scarlet fever, 6 from infantile diarrhoeal diseases, 4 from measles, 4 from diphtheria, and 1 from whooping-cough. Four deaths from scarlet fever, 3 from measles, and 2 from diphtheria were recorded in Edinburgh; 6 deaths from measles in Greenock, 5 in Coatbridge, and 5 in Hamilton; from scarlet fever 7 deaths in Aberdeen; from diphtheria 2 deaths in Paisley and 2 in Kirkcaldy; and from typhus 1 death in Dundee.

In the sixteen largest Scottish towns 1,193 births and 719 deaths were registered during the week ended Saturday, January 8th. The annual rate of mortality in these towns, which had been 19.7, 17.0, and 17.4 per 1,000 in the three preceding weeks, fell to 15.9 in the week under notice, but was 1.6 per 1,000 above that recorded in the ninety-six large English towns. Among the several towns the death-rate ranged from 10.7 in Hamilton, 12.6 in Clydebank, and 14.0 in Kilmarnock, to 19.0 in Aberdeen, 22.9 in Coatbridge, and 25.5 in Greenock. The mortality from the principal infective diseases averaged 1.6 per 1,000, and was highest in Aberdeen and Greenock. The 314 deaths from all causes in Glasgow included 5 from scarlet fever, 4 each from measles and diphtheria, 3 from infantile diarrhoea, and 1 from enteric fever. Six deaths from scarlet fever, 4 from diphtheria, and 3 from measles were recorded in Edinburgh; 4 deaths from diphtheria, 3 from whooping-cough, and 2 from scarlet fever in Aberdeen; 6 deaths from measles in Greenock; and 3 from diphtheria in Paisley.

HEALTH OF IRISH TOWNS.

DURING the week ending Saturday, January 1st, 502 births and 564 deaths were registered in the twenty-seven principal urban districts of Ireland, as against 383 births and 396 deaths in the preceding period. These deaths represent a mortality of 24.3 per 1,000 of the aggregate population in the districts in question, as against 17.0 per 1,000 in the previous period. The mortality in these Irish areas was therefore 7.7 per 1,000 higher than the corresponding rate in the ninety-six English towns during the week ending on the same date. The birth-rate, on the other hand, was equal to 21.6 per 1,000 on population. As for mortality of individual localities, that in the Dublin registration area was 24.0 (as against an average of 22.6 for the previous four weeks), in Dublin city 26.0 (as against 24.0), in Belfast 25.1 (as against 20.8), in Cork 32.0 (as against 21.9), in Londonderry 13.9 (as against 19.3), in Limerick 16.2 (as against 12.6), and in Waterford 22.8 (as against 20.0). The zymotic death-rate was 2.6, as against 1.6 in the preceding period.

During the week ending Saturday, January 8th, 573 births and 463 deaths were registered in the nineteen principal urban districts of Ireland, as against 502 births and 564 deaths in the preceding period. These deaths represent a mortality of 21.0 per 1,000 of the aggregate population in the districts in question, as against 24.3 per 1,000 in the previous period. The mortality in these Irish areas was therefore 5.7 per 1,000 higher than the corresponding rate in the ninety-six English towns during the week ending on the same date. The birth-rate, on the other hand, was equal to 26.0 per 1,000 of population. As for mortality of individual localities, that in the Dublin registration area was 20.3 (as against an average of 22.1 for the previous four weeks), in Dublin city 22.0 (as against 23.9), in Belfast 19.8 (as against 21.8), in Cork 25.8 (as against 24.0), in Londonderry 20.2 (as against 18.5), in Limerick 17.6 (as against 14.2), and in Waterford 49.4 (as against 18.5). The zymotic death-rate was 1.4, as against 2.6 in the preceding period.

Vacancies and Appointments.

NOTICES REGARDING APPOINTMENTS.—Attention is called to a Notice (see Index to Advertisements—Important Notice re Appointments) appearing in our advertisement columns, giving particulars of vacancies as to which inquiries should be made before application.

VACANCIES.

- BIRKENHEAD BOROUGH HOSPITAL.**—House-Surgeon and Junior House-Surgeon. Salaries, £200 and £170 respectively.
- BIRMINGHAM GENERAL DISPENSARY.**—Resident Medical Officer. Salary, £250 per annum.
- BRISTOL ROYAL INFIRMARY.**—(1) House-Physicians; (2) House-Surgeons. Salary, £120 per annum in each case.
- BURY INFIRMARY.**—Senior House-Surgeon. Salary, £250 per annum.
- DERBYSHIRE ROYAL INFIRMARY.**—House-Physician and Casualty Officer. Salary, £200 per annum.
- DEVONPORT: ROYAL ALBERT HOSPITAL.**—House-Surgeon. Salary, £150, and additional 2ls. weekly when working single-handed.
- DUNROSSNESS PARISH.**—Medical Officer and Vaccinator.
- EVELINA HOSPITAL FOR SICK CHILDREN, Southwark.**—Clinical Assistants in the Out-patient Departments.
- KIRKWALL: PARISH OF EDAY.**—Medical Officer.
- LEAMINGTON SPA: WARNEFORD GENERAL HOSPITAL.**—Second Resident Medical Officer. Salary, £150.
- LEEDS PUBLIC DISPENSARY.**—Lady Resident Medical Officer. Salary, £130 per annum.
- MAIDSTONE: WEST KENT GENERAL HOSPITAL.**—One Senior and One Junior House-Surgeon.
- MANCHESTER NORTHERN HOSPITAL FOR WOMEN AND CHILDREN, Cheetham Hill Road.**—Lady House-Surgeon. Salary, £120 per annum.
- MIDDLESBROUGH: NORTH ORMESBY HOSPITAL.**—House-Surgeon. Salary, £150 per annum.
- NORTH STAFFORDSHIRE INFIRMARY, Hartshill, Stoke-on-Trent.**—House-Physician (male or female). Salary, £200 per annum.
- ROYAL FREE HOSPITAL, Gray's Inn Road, W.C.**—Curator of Museum (female).
- SCARBOROUGH HOSPITAL AND DISPENSARY.**—House-Surgeon.
- WANDSWORTH UNION INFIRMARY.**—Male Assistant Medical Officer. Wages, £5 5s a week.
- CERTIFYING FACTORY SURGEONS.**—The Chief Inspector of Factories announces the following vacant appointments: Castleknock (Dublin), Glaslough (Monaghan), Llanberis (Carnarvon).

To ensure notice in this column—which is compiled from our advertisement columns, where full particulars will be found—it is necessary that advertisements should be received not later than the first post on Wednesday morning. Persons interested should refer also to the Index to Advertisements which follows the Table of Contents in the JOURNAL.

APPOINTMENTS.

- DAVIES, A. L., M.R.C.S., L.R.C.P.,** Certifying Factory Surgeon for the Bala District, co. Merioneth.
- HUEY, J. M., M.B., Ch.B.Glas.,** Certifying Factory Surgeon for the Millom District, co. Cumberland.
- MACLEOD, M., M.B., Ch.B.Aberd.,** Medical Officer of the Milnthorpe Workhouse and District of the Kendal Union.
- MURPHY, Geraldine, M.B., B.Ch., B.A.O.Dub.,** House-Physician to the Chester Royal Infirmary.
- NASH, Miss Amy F., F.R.C.S.I.,** House-Surgeon to the Chester Royal Infirmary.
- PEACHELL, G. Ernest, M.D.Lond.,** Medical Superintendent of the Dorset County Asylum, Dorchester.
- EDINBURGH ROYAL INFIRMARY.**—The following appointments have been made: Resident Physicians: J. M. Smellie (final year student), to Professor Gulland; H. F. Ferguson, M.B., Ch.B., to Dr. Boyd; O. E. Blair, M.B., Ch.B., to Dr. Rainy. Resident Surgeons: A. Prentice (final year student), to Mr. Scot Skirving; H. D. Wright, B.A. (final year student), to Mr. Miles; A. K. Gibson (final year student), to Dr. Barbour; C. B. C. Anderson (final year student), to Surgical O.P. Department. Clinical Assistant: G. L. Malcolm Smith (final year student), to Dr. Boyd.

BIRTHS, MARRIAGES, AND DEATHS.

The charge for inserting announcements of Births, Marriages, and Deaths is 5s., which sum should be forwarded in Post Office Orders or Stamps with the notice not later than the first post on Wednesday morning in order to ensure insertion in the current issue.

BIRTH.

HALL.—On January 24th, 1916, at the White House, Eastbourne, the wife of E. Wilson Hall, M.R.C.S., L.R.C.P., of a daughter.

MARRIAGES.

FREDERICK—WALTON.—At Holy Trinity Church, Margate, on the 19th January, Herman Robert Frederick, M.B., Ch.B.Edin., 3, Clarence Street, Aberavon, Port Talbot, Glam., to May Florence Walton, Margate.

WRIGLEY—HOLMES.—On the 18th inst. at St. Andrew's Church, Shifnal, by the Rev. J. K. Swinburne, B.A., Philip Roscoe Wrigley, F.R.C.S., of Manchester, to Gwendolyn Mary, daughter of Edwin Holmes, Esq., of Russell House, Shifnal.

DEATH.

ARMSON.—On January 4th, at Brook House, Yoxall, Burton-on-Trent, Mary, widow of the late Charles Greasley Armson, L.F.P.S.Glasg., L.M.

DIARY FOR THE WEEK.

TUESDAY.

RÖNTGEN SOCIETY, Institution of Electrical Engineers, Victoria Embankment, W.C., 8.15 p.m.—Discussion on the Injurious Effects produced by X Rays, to be opened by Dr. Sidney Russ. Demonstration by Dr. Herschell Harris of Lantern Slides obtained in Gallipoli.

WEDNESDAY.

ROYAL SOCIETY OF MEDICINE:

SECTION OF SURGERY, 5.30 p.m.—Paper and Demonstration: Dr. F. Herniman-Johnson: Condensers in the Diagnosis, Prognosis, and Treatment of Nerve Lesions.

SECTION OF OPHTHALMOLOGY, 8.30 p.m.—The Cause of the Ophthalmic Appearances in Amaurotic Family Idiocy, by the late Mr. George Coats (to be read by Mr. R. Affleck Greaves). Mr. Holmes Spicer: Superficial Linear Keratitis. Mr. Walter Edmunds: Cataract in Experimental Thyroidectomy. Cases.

THURSDAY.

ROYAL SOCIETY OF MEDICINE:

SECTION OF OBSTETRICS AND GYNAECOLOGY, 8 p.m.—Dr. Walter Salisbury: Labour obstructed by Ovarian Cyst. Dr. Frances M. Huxley: Fatal Rupture of Bladder in the Puerperium. Dr. M. Handfield-Jones: Chorion-epithelioma following Vesicular Mole. A discussion on the Clinical Aspect of the Double Uterus will be introduced by the President, Dr. M. Handfield-Jones. Specimens.

FRIDAY.

ROYAL COLLEGE OF SURGEONS, Lincoln's Inn Fields, W.C., 5 p.m.—Hunterian Lecture by Sir J. Bland-Sutton, F.R.C.S.: New Ulcers for Old: Jejunal for Duodenal Ulcers.

ROYAL SOCIETY OF MEDICINE:

SECTION OF LARYNGOLOGY, 4 p.m.—Cases.

POST-GRADUATE COURSES AND LECTURES.

LONDON SCHOOL OF TROPICAL MEDICINE, Royal Albert Dock, E.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.

THE POST-GRADUATE COLLEGE, West London Hospital, Hammer-smith, W.—Clinical work; graduates only.

DIARY OF THE ASSOCIATION.

Date.	Meetings to be Held.
JANUARY.	
28 Fri.	London: Executive Subcommittee of Central Medical War Committee, 3.15 p.m.
FEBRUARY.	
2 Wed.	London: Central Medical War Committee, 2 p.m.
3 Thur.	Executive Subcommittee of the Insurance Acts Committee, 2 p.m.; Conference with Pharmaceutical Society, 3.30 p.m.

SUPPLEMENT

TO THE

BRITISH MEDICAL JOURNAL.

LONDON: SATURDAY, FEBRUARY 5TH, 1916.

CONTENTS.

	PAGE		PAGE
PROCEEDINGS OF COUNCIL:			
HONOURS TO FORMER MEMBERS OF COUNCIL ...	21	INQUIRIES BY THE INSURANCE COMMISSIONERS INTO CHARGES	22
APPOINTMENT OF SOLICITOR ...	21	AGAINST PRACTITIONERS ...	22
GRANT TO SCOTTISH MEDICAL SERVICE EMERGENCY	21	CERTIFICATES FOR CHRONIC INVALIDS ...	22
COMMITTEE ...	21	INSURANCE FINANCE INQUIRY ...	22
REPORT OF JOURNAL COMMITTEE... ..	21	WORK OF PANEL PRACTITIONERS ...	23
ASSOCIATION NOTICES: ELECTION OF COUNCIL, 1915-16 ...	22	LOCAL MEDICAL AND PANEL COMMITTEES... ..	23
NAVAL AND MILITARY APPOINTMENTS ...	23	BIRTHS, MARRIAGES, AND DEATHS ...	24
VACANCIES AND APPOINTMENTS ...	24	DIARY FOR THE WEEK ...	24

Association Intelligence.

PROCEEDINGS OF COUNCIL.

THERE was a meeting of the Council, held at 429, Strand, W.C., on January 26th last.

Present:

<p>Mr. E. B. TURNER, London, (Chairman of Representative Meetings, in the Chair, afterwards)</p> <p>Dr. J. A. MACDONALD, LL.D., Taunton, Chairman of Council.</p> <p>Sir T. CLIFFORD ALLBUTT, K.C.B., F.R.S., President-elect.</p> <p>Dr. EDWIN RAYNER, Stockport, Treasurer.</p> <p>Dr. JOHN ADAMS, Glasgow</p> <p>Lieut.-Colonel Sir JAMES BARR, M.D., LL.D., Liverpool</p> <p>Dr. M. G. BIGGS, London</p> <p>Lieut.-Colonel R. A. BOLAM, Newcastle-on-Tyne</p> <p>Mr. H. B. BRACKENBURY, London</p> <p>Dr. H. J. CAMPBELL, Bradford</p> <p>Major RUSSELL COOMBE, Netley</p> <p>Dr. J. SINGLETON DARLING, Lurgan</p> <p>Major A. C. FARQUHARSON, Newcastle-on-Tyne</p> <p>Lieut. F. ROWLAND FOTHERGILL, Hove</p> <p>Major JAMES GALLOWAY, London</p> <p>Mr. T. W. H. GARSTANG, Altrincham</p> <p>Dr. J. J. GIUSANI, Cork</p> <p>Dr. JOHN GORDON, Aberdeen</p>	<p>Dr. MAJOR GREENWOOD, London</p> <p>Dr. J. R. HAMILTON, Hawick</p> <p>Mr. N. BISHOP HARMAN, London</p> <p>Dr. G. E. HASLIP, London</p> <p>Mr. R. J. JOHNSTONE, Belfast</p> <p>Captain F. CHARLES LARKIN, Liverpool</p> <p>Major ALBERT LUCAS, Birmingham</p> <p>Fleet Surgeon F. D. LUMLEY, R.N. (Royal Navy Medical Service)</p> <p>Dr. H. C. MACTIER, Wolverhampton</p> <p>Captain J. E. MOORHOUSE, Stirling</p> <p>Major GEORGE PARKER, Bristol</p> <p>Major F. J. SMITH, London</p> <p>Mr. T. JENNER VERRALL, LL.D., Bath</p> <p>Dr. O. R. M. WOOD, Woolpit</p>
---	---

APOLOGIES.

Surgeon-General P. H. Benson, Mr. E. J. Domville, Dr. David Ewart, Dr. Adam Fulton, Dr. T. A. Goodfellow, Mr. James Green, Major T. Duncan Greenlees, Dr. W. Ainslie Hollis, Dr. J. Munro Moir, and Dr. W. Johnson Smyth were unavoidably prevented from attending.

DEATHS.

The Chairman was requested to convey to the relatives of Professor A. H. White, of Dublin, and Dr. G. A. Heron, of London, former members of Council, expressions of sympathy in their bereavement.

RESIGNATION.

The CHAIRMAN reported the resignation of Captain Tennyson Smith, the Representative of the Kent, Surrey, and Sussex grouped Branches, of his membership of the Council and Organization Committee. The necessary steps have been taken to fill the vacancy. (See notice on page 22.)

HONOURS TO FORMER MEMBERS OF COUNCIL.

The Council offered its congratulations to Sir James Porter, K.C.B., who for some time represented the Royal Navy Medical Service on the Council, on being created K.C.M.G.; and to Lieutenant-Colonel Montgomery-Smith on being mentioned in despatches.

APPOINTMENT OF SOLICITOR.

Mr. W. E. Hempson was reappointed Solicitor to the Association for a further period of one year as from April 1st, 1916.

FINANCE COMMITTEE.

The accounts for the quarter ending December 31st, 1915, amounting to £12,738 18s. 11d., were received and approved.

GRANT TO SCOTTISH MEDICAL SERVICE EMERGENCY COMMITTEE.

A sum of £100 was voted to the Scottish Medical Service Emergency Committee to assist in meeting the expenses it has incurred in its recruiting campaign for the Naval and Military Medical Services.

JOURNAL COMMITTEE.

The Journal Committee presented an important report on the alterations in the number of pages and in the quality of the paper of the JOURNAL. The report first called attention to the effect of the new postal rates for newspapers by which the weight of a periodical which could pass through the post at the $\frac{1}{2}$ d. rate was reduced to 6 oz. Even the smaller journals produced since the outbreak of the war had exceeded this weight, and the additional postage would have amounted to £35 a week, or £1,800 a year. To have kept each copy of the JOURNAL under the weight of 6 oz. while using the same paper, it would have been necessary to have still further reduced the size of the JOURNAL by twenty pages, making it 68 pages, including both reading matter and advertisements. Having regard to the fact that each week from 40 to 44 pages of advertisements were received this would have left only 24 to 28 pages for literary matter, including the SUPPLEMENT. It was decided that the literary pages could not be so diminished without seriously impairing the usefulness and prestige of the JOURNAL. It was therefore decided that the weight of the paper must be reduced, and after sundry experiments a paper was secured which allowed of a JOURNAL of the maximum size of 88 pages which would not exceed 6 oz. in weight, and would therefore be carried at the $\frac{1}{2}$ d. rate. This paper has been used since the first issue of November, and while its demerits are recognized it is believed that the best has been done in view of the uncertain conditions in the paper trade owing to the difficulties of procuring material, the diminished facilities for transport, and the steadily increasing shortage of labour. The price paid for paper since the war began, it was added, had steadily advanced, and although the primary reason for reducing the weight of the paper was the increase in the postal rates, had not this change been made the Association would have been faced with an increased expenditure of about £1,500 a year for paper. As the changed postal rates did not affect copies of the JOURNAL sent outside the United Kingdom, the same make of paper was being used for both the home and foreign editions.

The report pointed out that the indexes to the JOURNAL, EPITOME, and SUPPLEMENT, issued every half-year, usually occupied 64 pages. It had been decided, for convenience and economy, to publish the indexes

separately, and to intimate to members and subscribers that copies of the indexes could be obtained without charge on application.

The report also contained a reference to the decision, taken at the instance of the Central Medical War Committee, to refuse to accept any advertisements for vacant appointments which might assist in relegating to civil practice those who, in view of the national emergency, should be serving with the colours.

RESIGNATION OF MR. C. LOUIS TAYLOR, THE ASSISTANT EDITOR.

The Council, in accepting the resignation, on account of failing health, of Mr. C. Louis Taylor, the Assistant Editor, placed on record its deep appreciation of the valued services he had rendered to the Association and JOURNAL during the long period of thirty years.

ELECTION TO MEMBERSHIP.

Twenty-three candidates, whose names appeared on the notice convening the meeting, were duly elected members of the British Medical Association.

The remainder of the proceedings will be published next week.

Association Notices.

ELECTION OF COUNCIL, 1915-16.

NOTICE is hereby given that nominations for a candidate for election as a Member of Council by the Kent, Surrey, and Sussex (grouped) Branches for the year 1915-16, vice Dr. Tennyson Smith resigned, must be forwarded to reach the Financial Secretary and Business Manager, at the Office of the Association, not later than Saturday, February 19th. Each nomination must be on the prescribed form, copies of which will be furnished by the Financial Secretary and Business Manager upon application.

Separate forms have been prepared:

- (A) For a nomination by a Division, and
- (B) For a nomination by any three Members of a Branch respectively.

Those applying are requested to state for which purpose the form is desired.

An announcement of the Nominations received will be made in the JOURNAL of February 26th, 1916.

Elections will be by voting papers. These papers will contain the names of all duly nominated candidates, and will be issued from the Central Office on Saturday, February 26th, and will be returnable not later than Saturday, March 4th.

The result of the election will be published in the JOURNAL of March 11th, 1916.

By Order of the Council,

GUY ELLISTON,

Financial Secretary and Business Manager.

February 5th, 1916.

INSURANCE.

INQUIRIES BY THE INSURANCE COMMISSIONERS INTO CHARGES AGAINST PRACTITIONERS.

NOTTINGHAMSHIRE.

We have received from the National Health Insurance Commission (England), under cover of a letter from them dated the 1st February, their decision with regard to a case occurring in Nottingham and which was conveyed to the Clerk to the Nottingham Insurance Committee by a letter dated January 4th.

As the finding of the Commissioners appears to us to involve matter of some importance and general interest to the profession, we have deemed it well to reproduce the letter in full:

I.C. 93,606.

National Health Insurance Commission (England),

Buckingham Gate, London, S.W.,

4th January, 1916.

Sir,

I am directed by the National Health Insurance Commission (England) to state that they have had under consideration the Report of the Inquiry Committee constituted under Part IV of the Medical Benefit Regulations to inquire into the

representation made by the Nottingham Insurance Committee with respect to the continuance on the panel of Dr. H. E. Coghlan.

I am to inform you that on a full review of the facts stated, the Commissioners are not satisfied that the continuance of Dr. Coghlan on the panel would be prejudicial to the efficiency of the medical service of the insured, and they have decided, therefore, not to order his name to be removed from the panel. They have, however, arrived at this decision with considerable hesitation, and they desire to make it clear that in their opinion the Insurance Committee were justified in making the representation which they made to the Commissioners.

While, as stated above, the Commissioners are not of opinion that the facts set forth in the report are such as to warrant them to direct Dr. Coghlan's removal from the panel, they cannot but regard them as constituting a serious breach of the conditions upon which the Exchequer grant is made to the Committee, and they accordingly propose to withhold the sum of £50 (fifty pounds) from the grant which would otherwise be payable to the Committee in respect of the year 1915. As the Committee are aware, provision is made in Clause 13 (1) of their agreement with a practitioner to enable them to recover from him any sum which would otherwise have been payable to them towards the cost of providing medical benefit, and of which they have been deprived by his default.

I am, Sir, your obedient Servant,
(Sgd.) R. W. HARRIS.

The Clerk,
Nottingham Insurance Committee,
12, Victoria Street, Nottingham.

CERTIFICATES FOR CHRONIC INVALIDS.

It appears from correspondence that reaches us from time to time that there is still a large number of approved societies that require members who are chronic invalids receiving disablement benefit to furnish a certificate signed by their panel doctor every week and the suggestion of the Commissioners when the new system of certification was introduced that societies might well accept certificates at longer intervals, say monthly, thus saving both patient and doctor a considerable amount of trouble, appears to have been very generally disregarded. The excuse given by secretaries of societies is that the certificate is a guarantee not only that the patient is still a chronic invalid but that he remains unable to do even light work, and further it shows that he is still living, and in this way prevents fraudulent relatives continuing to draw the disablement benefit after the patient's death, which has actually occurred in more than one case. Such cases, however, can only occur where society officials or sick visitors are extremely negligent, and the requirement of the weekly certificate in cases, for example, of severe hemiplegia or other permanent disabilities can only be explained as an attempt to put on the medical profession the policeman duties which the society itself ought to carry out. As the agreement signed by all panel practitioners at present stands, the panel doctor has no alternative but to give a weekly certificate if required by the society. Many of the best societies have found that they have lost nothing by agreeing to accept monthly certificates in these cases, but in spite of any suggestions of the Commissioners or representations by the British Medical Association it is to be regretted that many local society officials seem to take pleasure in making the lot of both doctors and their own members as irksome as possible. Such societies will find that in the long run they gain nothing by being inconsiderate and disobliging.

INSURANCE FINANCE INQUIRY.

SIR GERALD RYAN, general manager of the Phoenix Assurance Company, and past president of the Institute of Actuaries, is to act as chairman of the Treasury Committee on the Insurance Act, the appointment of which was announced last week. The Committee is instructed—

To consider and report upon any amendments in the financial scheme of the National Insurance Acts which experience of the administration of sickness, disablement, and maternity benefits may suggest as desirable, within the existing limits of contributions and benefits, and apart from further Exchequer grants, before the completion of any valuations of approved societies; and, further, to consider how far the work of approved societies could be simplified and its cost reduced, without detriment to the interests of insured persons, by amendment of the Acts and Regulations; and to make recommendations thereon.

Among the other members of the Committee are Sir Alfred W. Watson, chief actuary of the Insurance Joint Committee; Mr. Ernest Woods, president of the Institute of Actuaries; members of the Insurance Commissions of England, Wales, Scotland, and Ireland; Mr. H. N. Bunbury,

C.B., of the Treasury; and twelve representatives of approved societies and trade unions, including two women.

It will be observed that the reference to the Committee does not include medical or sanatorium benefit, and we are informed that this omission is deliberate, the terms of reference being carefully framed to exclude altogether matters comprised within the terms and conditions of medical service under the Insurance Acts.

THE WORK OF PANEL PRACTITIONERS.

THE Medical Secretary of the British Medical Association, 429, Strand, would be glad to have from panel practitioners a note as to their work in 1915 stating:

- Number of insured persons on his list.
- " of patients seen.
- " of visits.
- " of surgery attendances.

LOCAL MEDICAL AND PANEL COMMITTEES.

COUNTY OF SURREY.

At a meeting of the Panel Committee on December 17th, 1915, a letter was read from the Insurance Committee, stating that it had decided to pay practitioners during 1916 quarterly instead of monthly. It was considered that it would have been more courteous if the Insurance Committee had consulted the Panel Committee before making this change, and it was decided to ask the Insurance Committee to reconsider its decision to make quarterly payments in cases in which the practitioner requested to be paid monthly, and, if it still adhered to the quarterly payments during 1916, to make an advance to practitioners in the middle of each quarter, instead of waiting till the end of the quarter.

The Honorary Secretary was also instructed to ask the Clerk of the Insurance Committee to obviate the delay in issuing medical cards to insured persons.

The Insurance Committee has furnished a list of insured persons on the panel of medical practitioners absent on military duty who do not wish to be attended by their deputies. It was decided to ask the practitioners desired by these persons if they would act as deputy for the absent practitioner without having the insured persons transferred to their lists.

LIVERPOOL.

At a meeting of the Panel Committee on December 21st, nine of the mixtures in the revised formulary were selected as stock mixtures, and the Honorary Secretary was directed to ascertain from the Pharmaceutical Committee whether these particular mixtures were capable of being stocked in bulk without deterioration.

At a meeting of the Committee on January 18th, the draft standing orders of Panel Committees as drawn up by the Commissioners were adopted with the modification that a Treasurer be appointed.

BIRMINGHAM.

At a meeting of the Panel Committee on January 4th authority was given to pay the expenses of members out of the Statutory Grant of the Medical Benefit Fund.

One practitioner from each ward was appointed to obtain information as to whether more doctors could be spared for war service.

COUNTY OF FORFAR.

At a meeting of the Local Medical Committee held on December 8th it was decided to protest against any attempt which may be made by the Parliamentary Retrenchment Committee to abolish the Scottish Insurance Commission should such action be necessary.

At a meeting of the Panel Committee held on the same day it was agreed to make arrangements whereby the services of a medical referee could be obtained by the Forfar Factory Workers' Union on the understanding that the referee or referees to be appointed were practitioners resident outwith the Burgh of Forfar, and that the rate of remuneration was 10s. 6d. per examination. A letter from the Secretary, Panel Medico-Political Union, relative to the payment of the balance of the fees due to practitioners for the year 1914, was allowed to lie on the table.

RENFREW COUNTY.

THE Executive Committee of the Panel Committee has examined all prescriptions criticized in the June report, and has not considered it necessary to make any inquiry

of the practitioners concerned. A letter from the Panel Medico-Political Union, inviting the Committee to accept the assistance of the Union with regard to a final settlement for 1914, has been allowed to lie on the table.

Naval and Military Appointments.

ROYAL NAVAL MEDICAL SERVICE.

THE following appointments are announced by the Admiralty: Deputy Surgeon-Generals G. A. Dreaper to the *Tamar*, additional, for Hong Kong Hospital; V. G. Thorpe and W. W. Prior to the *Vivid*, additional, for Plymouth Hospital; A. G. Willey to the *Cormorant*, additional, for Gibraltar Hospital; W. G. Axford to the *Victory*, additional, for Haslar Hospital. Fleet Surgeons R. T. Gilmour is placed on the retired list; P. H. Boydon, M.D., to the *President*, additional; A. J. Pickthorn (retired) to the *Leander*, vice Nicholls; G. Ley to the *Pembroke*, additional. Staff Surgeons S. H. Vickery, M.B., to the *Victory*, additional, for disposal; R. H. McGiffin, M.B., to the *Diana*; J. A. Thompson, M.B., to the *Victory*, additional. Temporary Surgeons R. T. Bailey, H. S. Brown, H. Ellis, and H. F. McNally, M.B., to Plymouth Hospital; D. M. P. Whitcombe, M.B., S. P. Mort, K. H. McMillan, M.B., W. H. Edmunds, and G. F. V. Anson, to Haslar Hospital; A. C. McAllister, M.B., to Chatham Hospital; J. Bestock, M.B., to the *Vivid*, additional. To be temporary Surgeons: P. C. Woollett, I. H. Lloyd, C. Y. Eccles, C. E. Kindersley, H. S. Singleton, F. C. Cassidi, M.B., G. F. V. Anson, H. F. McNally, M.B., A. O. Courtis,

ROYAL NAVAL VOLUNTEER RESERVE.

Surgeon D. J. Williamson, to the *Victory*, additional, for disposal.

ARMY MEDICAL SERVICE.

Colonel E. H. L. Lynden-Bell, C.B., is retained on the Active List under the provisions of Articles 120 and 522, Royal Warrant for Pay and Promotion, and to be supernumerary (substituted for notification published in the *London Gazette* of December 17th, 1915).

ROYAL ARMY MEDICAL CORPS.

Majors to be temporary Lieutenant-Colonels whilst in command of field ambulances: R. F. M. Fawcett, M. G. Winder, F. P. Lauder, W. J. S. Harvey, A. E. B. Wood, M.B., T. F. Ritchie, M.B., A. F. Carlyon, D. Ahern, S. E. Lewis, M.B., C. B. L. Ronayne, M.B., J. W. Jennings, D.S.O. (retired), C. Bramhall, temporary Major E. L. Gowland, M.B., J. E. Powell, D. P. Watson, M.B., B. H. V. Dunbar, M.D., M. G. Beatty, M.B., A. A. Meaden, Surgeon-Major W. S. Henderson, King Edward's Horse, King's Overseas Dominions Regiment, W. Wiley, M.B., A. B. Hinde (Reserve of Officers), temporary Major E. B. Pooley, temporary Major A. N. Walker, M.B., H. B. Kelly, M.B., H. A. Davidson, M.B., J. H. Brunsell, M.B., A. C. Osburn, A. R. C. Parsons, R. Storrs, H. E. J. A. Howley, A. S. Arthur, M.B.

Captains to be temporary Majors whilst in command of field ambulances: P. Sampson D.S.O., E. M. O'Neill, M.B.

C. H. Milburn, M.B., to be temporary Honorary Major whilst serving with No. 2 British Red Cross Hospital.

To be temporary Captains: Temporary honorary Captain B. C. Mayberry, M.B., F.R.C.S., W. E. James, H. B. German (late Surgeon, R.N.), H. D. Gillies, F.R.C.S.

Temporary Captain R. S. Berry relinquishes his commission.

The following relinquish their temporary honorary commissions on ceasing to serve with the St. John Ambulance Brigade Hospital: Captain F. W. Goyder, M.B., F.R.C.S.; Lieutenants W. R. Mason, M.D., H. de L. Crawford, M.B., F.R.C.S.I., A. C. McAllister.

Temporary Lieutenants to be temporary Captains: J. P. Costobadie, J. Hanson, M.B., W. E. Adam, M.D., F. Paine, M.D., D. H. Paul, M.D., R. H. Fletcher, J. I. O'Sullivan, M.B.

To be temporary Lieutenants: H. W. Evans, A. C. Wilson, M.D., H. G. R. Jamieson, M.B., W. Hughes, M.B., R. L. Blenkhorn, M.D., H. W. Parrott, M.B., H. C. T. Langdon, M.B., W. D. Kennedy, M.B., R. W. L. Fernandes, M.D., A. S. L. Malcolm, R. A. R. Green, M.B., P. A. Reckless, F.R.C.S., C. G. Sherowitz, M.B., G. J. Jones, M.B., A. Hendry, M.D., S. J. C. Fraser, M.D., T. Winning, M.B., C. E. Molino, D. Burns, I. Feldman, E. B. Hart, S. A. W. Munro, M.B., F. D. Crew, M.B., D. H. Hall, M.B., J. J. O'Neill, M.B., G. F. Palmer, M.D., L. W. Oliver, W. Stevenson, M.B., D. Lees, M.B., G. P. White, M.B., A. L. Singer, M.B., I. J. Balkin, M.B., R. M. Rowe, M.D., F.R.C.S., W. Brownlie, M.B., E. Johnson, M.D., J. A. Robinson, T. Dowzer, F.R.C.S.I., E. G. Pringle, M.D., J. Potter, A. M. Pilcher.

Temporary Lieutenant D. J. Miller, M.D., relinquishes his commission on account of ill health.

Temporary Lieutenants C. R. Lucas and D. J. McAdam, M.B., relinquish their commissions.

The name of temporary Lieutenant Archibald Stodart-Walker is as now described, and not as in the *London Gazette* of October 1st, 1915.

Lieutenants of the Canadian A.M.C. to be temporary Lieutenants: G. O. Scott, C. M. Scott.

Temporary Lieutenant V. J. Lawless is dismissed the service by sentence of general court-martial.

To be honorary Lieutenants whilst serving with the St. John Ambulance Brigade Hospital: S. A. Henry, M.D., C. E. S. Jackson, M.B., F.R.C.S., W. Wilson, M.B.

INDIAN MEDICAL SERVICE.

Colonel H. Hendley, M.D., is appointed an Honorary Surgeon to the King, vice Surgeon-General Sir L. D. Spencer, K.C.B., M.D., deceased.

Captains to be Majors: H. B. Drake, E. C. Hodgson, W. S. McGillivray, M.D., W. Gillitt, M.D., C. H. Barber, M.B., W. Tarr, M.D., F.R.C.S.E., I. D. Jones, M.D., W. T. Finlayson, H. E. Stanger-Leathes, M. J. Quirke, M.B., J. M. Holmes, M.B., M. F. White, M.B.

The promotion to his present rank of Major J. B. Christian is antedated from June 27th, 1913, to December 27th, 1912.

The following Lieutenant-Colonels are permitted to retire with effect from the dates mentioned: L. F. Childs, M.D. (November 18th, 1915), G. S. Thomson, M.B. (November 23rd, 1915), W. B. Clark, M.B. (December 18th, 1915).

OVERSEA CONTINGENTS.

CANADIAN ARMY MEDICAL CORPS.

Major J. MacCrae to be temporary Lieutenant-Colonel. Captain E. L. Stone to be temporary Major. V. I. Goodwill to be temporary Major. To be temporary Captains: H. K. Neilson, A. J. Fisher, M.D., F. B. McIntosh, M.D., G. L. D. Kennedy, A. B. Wilkes, G. R. Baby, B. D. Wilson, P. P. Hart, J. K. Matheson, M.D.

ROYAL MALTA ARTILLERY.

Surgeon-Major A. E. Milsud is retained on the active list under the provisions of Articles 120 and 522 Royal Warrant for Pay and Promotion, January 10th, 1916.

SPECIAL RESERVE OF OFFICERS.

ROYAL ARMY MEDICAL CORPS.

Captain R. Magill, M.B., to be temporary Major whilst in command of a Field Ambulance.

TERRITORIAL FORCE.

ROYAL ARMY MEDICAL CORPS.

Highland Field Ambulance.—A. J. McIvor, M.B., to be Lieutenant.
Highland Mounted Brigade Field Ambulance.—Lieutenant (temporary Captain) A. F. Lee, M.D., to be Captain.
Northumbrian Field Ambulance.—Lieutenants to be Captains: F. J. B. Robson, M.B., C. G. Strachan, M.B.
East Lancashire Field Ambulance.—To be Lieutenants: J. Young, M.B., J. R. Jagger, M.B.
West Lancashire Casualty Clearing Station.—Lieutenant T. Aspinall, from Attached to Units other than Medical Units, to be Lieutenant.
Northern General Hospital.—Lieutenants to be Captains: W. Johnson, M.B., G. F. Stones, M.B.
London (City of London) Sanitary Company.—Captain C. C. Frye is seconded for duty under the Ministry of Munitions.
London Field Ambulance.—Lieutenants to be Captains: T. A. Townsend, R. T. Caesar.
South-Eastern Mounted Brigade Field Ambulance.—Lieutenant W. Tresawna, M.B., to be Captain.
Southern General Hospital.—Lieutenants to be Captains: H. C. H. Bracey, M.B., A. F. Thomson.
Wessex Field Ambulance.—Major A. W. F. Sayres to be temporary Lieutenant-Colonel.
Attached to Units other than Medical Units.—A. F. Lee, M.D., from Highland Mounted Brigade Field Ambulance, to be Captain. Lieutenants to be Captains: J. McGregor, T. P. Caverhill, M.B., T. W. Cole, M.B. To be Lieutenant: J. A. Hartley, M.D.

TERRITORIAL FORCE RESERVE.

ROYAL ARMY MEDICAL CORPS.

Captain (temporary Major) J. E. W. McFall, M.D., from West Lancashire Field Ambulance, to be Captain (substituted for announcement published in the *London Gazette* of October 9th, 1915).

COLONIAL MEDICAL SERVICES.

The following changes are notified by the Colonial Office:

WEST AFRICAN MEDICAL STAFF.

Transfers and Promotions.—T. E. Rice, L.S.A.Lond., D.P.H.Irel., P.M.O. Sierra Leone, to be P.M.O. Gold Coast. E. H. Tweedy, L.R.C.S. and P.Irel., Deputy P.M.O. Gold Coast, to be P.M.O. Sierra Leone. C. E. Watson, M.B.C.S., L.R.C.P., D.P.H.Irel., Provincial M.O. Nigeria (Northern Provinces), to be Deputy P.M.O. Gold Coast. G. B. Norman, M.B., B.C.Cantab., M.O. Nigeria (Northern Provinces), to be Senior M.O. R. H. Miller, M.B.C.S., L.R.C.P., M.B.C.V.S. Edin., M.O. Gambia, has been seconded for service as M.O. in Somaliland.
Retirements.—F. G. Hopkins, M.D., B.Ch.Dubl., P.M.O. Gold Coast, retired on pension. C. R. Patton, M.B., Ch.B. Edin., M.O. Gold Coast, retired with a gratuity.

Return to Staff.—D. T. Birt, M.B., B.S. Durh., has returned to the Staff from temporary employment as Lieutenant in the R.A.M.C. M. B. Hay, M.R.C.S. Eng., L.R.C.P. Lond., D.P.H. Lond., and J. C. Watt, M.B., Ch.B. Glasg., have returned to the Staff from temporary employment as Surgeons R.N. W. A. Trumper, M.R.C.S., L.R.C.P., and J. Lindsay, M.B., Ch.B. Edin., who were taken prisoners by the Germans at Garua, Northern Cameroons, on August 29th, 1914, were released by a British force on January 8th.

OTHER COLONIES AND PROTECTORATES.

N. P. Jewell, M.B., B.Ch., B.A.O. Dubl., lately Assistant M.O. Seychelles, to be M.O. East Africa Protectorate. A. I. Murison, M.R.C.S., L.R.C.P., to be District M.O. Cyprus. Lieutenant-Colonel R. H. Whitwell, M.B., M.Ch. Edin., B.Sc. (Publ. Health) Edin., I.M.S. (ret.), to be District M.O. Cyprus.

Vacancies and Appointments.

NOTICES REGARDING APPOINTMENTS.—Attention is called to a Notice (see Index to Advertisements—Important Notice re Appointments) appearing in our advertisement columns, giving particulars of vacancies as to which inquiries should be made before application.

VACANCIES.

BIRKENHEAD: BOROUGH HOSPITAL.—Junior House-Surgeon. Salary, £170.
BRISTOL ROYAL INFIRMARY.—(1) House-Physicians. (2) House-Surgeons. Salary, £120 per annum in each case.
BURY INFIRMARY.—Senior House-Surgeon. Salary, £250 per annum.
DEVONPORT: ROYAL ALBERT HOSPITAL.—House-Surgeon. Salary, £150, and additional 2ls. weekly when working single-handed.
ENDSLEIGH PALACE HOSPITAL FOR OFFICERS, N.W.—Resident Medical Officer. Terms, £1 ls. per day.
KIRKWALL: PARISH OF EDAY.—Medical Officer.
LEEDS PUBLIC DISPENSARY.—Lady Resident Medical Officer. Salary, £130.
LISCARD: VICTORIA CENTRAL HOSPITAL.—House-Surgeon. Salary, £160 per annum.

MANCHESTER CHILDREN'S HOSPITAL.—Resident Medical Officer. Salary, £100 per annum, and £5 bonus per month during the war.

MANCHESTER: NORTHERN HOSPITAL FOR WOMEN AND CHILDREN, Cheetham Hill Road.—Lady House-Surgeon. Salary, £120 per annum.

NEW HOSPITAL FOR WOMEN, Euston Road, N.W.—Female Senior Clinical Assistants in out-patient department.

QUEEN MARY'S HOSPITAL FOR CHILDREN, Carshalton.—Temporary Assistant Medical Officers. Salary, £7 7s. per week.

SUNDERLAND ROYAL INFIRMARY.—Lady House-Surgeon. Salary, £150 per annum.

THROAT HOSPITAL, Golden Square, W.—Resident House-Surgeon.

WEST BROMWICH AND DISTRICT HOSPITAL.—Assistant House-Surgeon. Salary, £120 per annum.

To ensure notice in this column—which is compiled from our advertisement columns, where full particulars will be found—it is necessary that advertisements should be received not later than the first post on Wednesday morning. Persons interested should refer also to the Index to Advertisements which follows the Table of Contents in the JOURNAL.

APPOINTMENTS.

ATAL, M. M. L., M.B., Ch.B. Edin., Assistant Medical Officer to the Bethnal Green Parish Infirmary.

BARROW, G. A., M.R.C.S., L.R.C.P., Anaesthetist to the Manchester Ear Hospital.

BURNET, J., M.D. Edin., Certifying Factory Surgeon for the Edinburgh South District.

CANDY, G. S., M.B., B.S. Lond., District Medical Officer of the Dorking Union.

CARRUTHERS, G. J. R., M.B., Ch.B. Edin., Certifying Factory Surgeon for the Edinburgh North District.

COUPLAND, Wm. H., L.R.C.P. and S. Edin., L.F.P.S. Glasg., Medical Superintendent of the Royal Albert Institution, Lancaster, vice A. R. Douglas, deceased.

FENTEM, T., M.D. Edin., District Medical Officer of the Bakewell Union.

GRICE, J. R., M.B., Ch.B. Glasg., District Medical Officer of the Llandilofawr Union.

HANAFIN, D. J., L.R.C.P. and S.I., Certifying Factory Surgeon for the Clonslee District, Queen's County.

HEBBLETHWAITE, S. M., M.D. Lond., M.R.C.P., Honorary Physician to Cheltenham General Hospital.

HOLMES, A. M., M.B., Ch.B. Edin., District Medical Officer of the Basford Union.

JACKSON, G. S., M.D. Glasg., District and Workhouse Medical Officer of the Alnwick Union.

MURPHY, H. A., L.R.C.P. and S. Edin., District Medical Officer of the Preston Union.

REES-THOMAS, W. H., M.D. Brux., M.R.C.S., L.R.C.P., District Medical Officer of the Basingstoke Union.

TAYLOR, William, M.B. Dubl., F.R.C.S.I., Consulting Surgeon to the Coombe Maternity Hospital, Dublin, vice F. T. Heuston, F.R.C.S.I., deceased.

THOMSON, G., M.B., C.M. Edin., District Medical Officer of the Basford Union.

BIRTHS, MARRIAGES, AND DEATHS.

The charge for inserting announcements of Births, Marriages, and Deaths is 5s., which sum should be forwarded in Post Office Orders or Stamps with the notice not later than the first post on Wednesday morning in order to ensure insertion in the current issue.

BIRTH.

SCHOLEFIELD.—On January 28th, 1916, at 1, Patience Lane, Altofts, Yorkshire, the wife of H. Scholefield, M.B., Ch.B., of a daughter.

MARRIAGE.

RAGG—TATE.—On August 12th, 1915, at the Parish Church, Kingston, Jamaica, by the Rev. R. J. Ripley, rector, Philip M. Ragg, M.B., C.M., son of the late Rev. Thomas Ragg, vicar of Lawley, Shropshire, England, to Ella Lascelles, daughter of the late Lawrence Tate, of Shaftston, Bluefields, Jamaica.

DEATH.

CHEESEWRIGHT.—At 5, The Square, Buxton, on January 21st, John Francis Cheesewright, L.R.C.P., M.R.C.S., late of Rawmarsh, near Rotherham.

DIARY FOR THE WEEK.

MONDAY.

MEDICAL SOCIETY OF LONDON, 11, Chandos Street, W., 9 p.m.—Firs Lettsomian Lecture: The Effects of High Explosives on the Central Nervous System, by Major F. W. Mott, M.D. Lond., F.R.S.

WEDNESDAY.

HUNTERIAN SOCIETY, 1, Wimpole Street, W., 9 p.m.—Annual Oration by Dr. A. S. Currie: The Spirit and Inspiration of William and John Hunter.

POST-GRADUATE COURSES AND LECTURES.

LONDON SCHOOL OF TROPICAL MEDICINE, Royal Albert Dock, E.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.

THE POST-GRADUATE COLLEGE, West London Hospital, Hammer-smith, W.—Clinical work; graduates only.

25'

LONDON: SATURDAY, FEBRUARY 12TH, 1916.

PROCEEDINGS OF COUNCIL:

PAGEINSURANCE:PAGE

INSURANCE, LOCAL MEDICAL, AND PANEL COMMITTEES	...	27
INSURANCE NOTES	...	27
MEETINGS OF BRANCHES AND DIVISIONS	...	27
NAVAL AND MILITARY APPOINTMENTS	...	27
VACANCIES AND APPOINTMENTS	...	28
BIRTHS, MARRIAGES, AND DEATHS	...	28
DIARY FOR THE WEEK	...	28
DIARY OF THE ASSOCIATION	...	28

PROCEEDINGS OF COUNCIL.

LAST week we published an account of part of the business dealt with by the Council at its meeting on January 26th.

ORGANIZATION.

The Council agreed to the recommendation that the question of the Association becoming a federation for other medical bodies be deferred until six months after the end of the war.

ETHICAL

EXPULSION OF A MEMBER.

A member was expelled on the ground that his conduct was deemed to have been detrimental to the honour and interests of the Association.

APPEALS.

Two appeals against decisions of the Central Ethical Committee were considered. In one case the opinion of the Committee was upheld. The other case was postponed in order to enable one of the parties to the appeal to appear who was unable to be present at the meeting.

MEDICO-POLITICAL.

MEDICAL INSPECTION AND TREATMENT OF SCHOOL CHILDREN.

The Council resolved to recommend the Representative Body to approve without alteration, as the policy of the Association, the Memorandum placed before the Aberdeen meeting.

FRES. FOR MEDICAL CERTIFICATES GIVEN TO DEPENDANTS
OF SOLDIERS AND SAILORS KILLED IN ACTION, FOR
ESTABLISHING CLAIMS TO PENSION OR GRATUITY.

The Council is recommending to the Representative Body that with regard to certificates given for the above-mentioned purpose it is desirable in the interests of public economy and efficiency,

- (a) That there should be a uniform standard of estimating disability to earn; and
(b) That the work of certification should be done by a board of practitioners and should be paid for.

INSURANCE ACTS.

CONFERENCE OF LOCAL MEDICAL AND PANEL COMMITTEES.

The Insurance Acts Committee was empowered to consult the Local Medical and Panel Committees as to the desirability of holding a conference this year, and also to call such a conference if satisfied that it was generally desired.

EFFECTS OF THE WAR ON THE MEDICAL SIDE OF THE INSURANCE ACTS.

After consideration of a resolution of the Representative Meeting, 1915, on this subject, the Council passed the following resolution:

That the Council recommend the Representative Body to express the opinion that in view of the difficulty experienced in ascertaining the exact number of insured persons who have enlisted, and in collecting evidence as to the sickness

incidence of those insured persons remaining; and considering that strong representations on the subject have already been made to the Commissioners, no further action be taken at present; but that the Insurance Acts Committee be instructed to collect what information it can on the subject in order that it may be used when any revision of the terms on which insurance practitioners are employed is discussed.

SCOTLAND.

MIDWIVES ACT.

The Council received a report that the Midwives Bill for Scotland had at last become law, and that by its provisions the Scottish Committee of the Association was entitled to appoint two members to the Scottish Midwives Board. This is the first time, so far as can be ascertained, that the Association has been definitely acknowledged in an Act of Parliament.

The Scottish Committee has appointed on the Board: Dr. Wishart Kerr of Glasgow, and Dr. Michael Dewar of Edinburgh. They will retain office for five years as from January 1st, 1916.

IRELAND.

NATIONAL INSURANCE CERTIFICATION.

The Irish Committee reported the success of the efforts of the Irish Medical Committee in regard to the arrangements that have been made as to certification under the Insurance Acts. The Committee placed on record its belief that for this very satisfactory ending to a long dispute the profession in Ireland owed a debt of gratitude to the British Medical Association, both for its moral support and for the material advantage of the help of the Irish Medical Secretary, whose position enabled him to take up the fight untrammelled by professional ties.

IRISH MEDICAL WAR COMMITTEE.

The Irish Committee reported that an Irish Medical War Committee had been appointed, to which the Irish Medical Secretary was acting as assistant secretary, and that the Committee had been successful in inducing many men to apply for commissions in the Royal Army Medical Corps.

CENTRAL MEDICAL WAR COMMITTEE.

The following letter from the Director-General Army Medical Service to the Chairman of Council was read and ordered to be entered on the minutes:

War Office, Whitehall, S.W.,
24th January, 1916.

Dear Sir,

* I understand that a meeting of your Council is about to take place, and I desire to take this opportunity of asking you to express to the Council how deeply I am indebted to the Association for the aid which has been given to the Central Medical War Committee. In placing at the disposal of this Committee the organization of the Association, in affording it hospitality, and in many other ways, the Council has assisted it to undertake a difficult task and to accomplish a work of vital importance to the army and to the public.

I cannot let this occasion pass without acknowledging as warmly as possible the courtesy, as well as the patriotism, your Council has displayed.

I am, dear Sir, yours truly,

(Signed) ALFRED KEOGH,
Director-General, Army Medical Service.

The Chairman of Council,
British Medical Association.

The Committee presented a long and interesting report of its proceedings, most of which will appear in the Annual Report of Council. It was resolved that the following paragraphs of the report should be printed in the Proceedings of Council, as they relate to matters as to which there has apparently been misunderstanding on the part of the profession:

MEN OF MILITARY AGE EMPLOYED ON HOME SERVICE.

Considerable difficulties have arisen in regard to the position of practitioners who are under 45 years of age, and who have been employed on home service only. The Director-General was informed that many representations had been received by the Committee to the effect that the presence of these young men in home posts was seriously detrimental to recruiting for the R.A.M.C., as men in busy practices refused to believe that there was any urgent demand for officers so long as the military authorities could afford to employ these young men at home. The Director-General at once promised to remove this difficulty so far as he could, but pointed out that a great part of it was due to the fact that most of the men concerned were employed in Territorial hospitals over which he had not at that time complete control. In August last the Director-General was requested "to give instructions to D.D.M.S.'s and A.D.M.S.'s not to retain or accept for work in military hospitals at home medical practitioners of military age who were physically fit, but that they should encourage these practitioners to accept commissions in the R.A.M.C."; also that the same principle should apply to those practitioners who have signed the Imperial Service Declaration and who are at present at work in Red Cross and V.A.D. hospitals. To this the following reply was sent on September 3rd, 1915:

I am directed by Sir Alfred Keogh to inform you that the following policy will be adopted with regard to the engagement of medical men as temporarily commissioned officers in the R.A.M.C.:

1. No man under 45 years of age will be employed unless he undertakes general service obligations for a year, and is found to be physically fit for duty at home and abroad.
2. No man over 55 years of age will be accepted for home service.
3. No man under 45 years of age will be re-engaged after the expiration of his first contract unless he offers for general service.

I am to say that it is hoped that these restrictions will facilitate the work of the War Emergency Committee in setting free men of military age and providing for the older practitioners to look after their interests during their absence.

It will be noticed that the age for general service has been advanced by five years and that the age for home service only has been reduced by the same period.

It will be observed that nothing was said in the communication of the Committee as regards men who were not physically fit, but the War Office notified subsequently the exclusion from home commissioned service of all men who were not physically fit for general service, and this has given rise to dissatisfaction. Some of the men concerned who have held commissions, and who have been refused extension of them at the end of the year, have blamed the Committee for this exclusion; but the Committee has pointed out that the action of the War Office was decided on departmental grounds, and not at the request of the Committee, and that the Committee did in fact seek from the Director-General the re-employment of such men, and that therefore the Committee cannot be held responsible for the contracts not having been renewed.

The Portsmouth War Committee has asked that the following resolution should be placed before the Council:

This meeting of the Portsmouth Division is of opinion that, in advocating the dismissal of the very small number of C.M.D.'s from their military posts without any regard to the work they have done and are still doing in these posts, and in their civil appointments or to their physical fitness for foreign service, the Association (to whom the profession looks for protection of the interests of all its members) is guilty of aiding and abetting an injustice, and is promoting a policy which in no way meets the alleged deficiency of medical recruits to the R.A.M.C.

With regard to this resolution the Committee begs to state that the Director-General was asked to see that discretion is used with regard to those medical practitioners of military age who are physically unfit, and who are acting as civil medical practitioners in military posts, but the Committee adheres to its opinion that medical

practitioners who are of military age and are physically fit should not hold such posts.

QUESTION OF MORE ECONOMICAL USE OF MEDICAL MEN IN MILITARY SERVICE.

The Committee has been met in its recruiting efforts by widespread and repeated complaints that more medical officers are already in military service than are required for the needs of the service, and many instances have been given to show that military hospitals and military units in many places are overstaffed. This question has been very earnestly considered by the Committee, and has been the subject of many representations to the Director-General both by deputation and through Major Galloway. While the Committee believes that individual instances of wastage may be proved, it has been convinced by its communications with the Director-General that on the whole these complaints are due to ignorance of the larger questions of army medical administration. In the first place, as regards the alleged over-staffing at the front, the necessity for having ample reserves must not be overlooked. At present on the western front we are going through a period of what may be termed siege warfare, and no doubt in some quarters and at some times medical officers are not used to the extent that they would be if the nature of the warfare were different. But the Army Medical Service must be manned for forward movements, and the Director-General has assured the Committee that the personnel has been fixed with due regard to many years of experience both in our army and in other armies. The Committee feels that, after all, the responsibility must rest upon the military authorities, who would be blamed if at any given time it were found that there were not sufficient medical officers, and the Committee does not consider that it is wise or patriotic to question the decision of the military authorities, arrived at, as the Committee has good reason to know, after full consideration of the criticisms that have been offered.

The same considerations apply more or less to medical officers on home service. At present there are many men engaged at home who when the character of the warfare changes will be wanted at one of the fronts, and it is unreasonable to criticize the military authorities for employing these men at home in some capacity, even though they may not be fully employed, pending their being wanted more urgently elsewhere. Here again the necessity for having ample reserves must be emphasized, and the Committee cannot take the responsibility of urging the military authorities to refrain from recruiting medical officers that the authorities feel sure they will require, probably in the near future, merely because at the moment they cannot fully employ them. If it is said that in view of civilian difficulties practitioners should not be urged to join the army until it is known that they are urgently required, the reply is twofold. First, that medical like other officers are all the better for some preliminary military training and for the physical training and open-air life they get previous to their being required at the front; and secondly, that the Committee believes that if its enrolment scheme is a success and the Director-General is assured of a steady supply of medical officers as and when required, the calling away of more medical men from civilian practice to military life will be deferred as long as the military authorities feel it wise to do so.

In view of these considerations the Committee has felt it to be its duty not to encourage these criticisms and to ask the critics to trust the Director-General, who has shown every disposition to meet legitimate criticisms and to give full weight to the necessities of the civilian population. The military authorities must be trusted not to ask for more medical men than they feel to be absolutely necessary in the interests, either immediate or more remote, of the army. In the meantime the Committee will continue to place before the Director-General all such criticisms as it believes to be legitimate and which have not already been fully answered by him.

A LIST of periodical publications, official reports, and Blue Books in the Library of the British Medical Association available for issue to members on loan has been printed, and copies can be obtained free on application to the Librarian, at the house of the Association, 429, Strand, W.C. The regulations governing the loan of these publications are stated in the introduction to the list.

Meetings of Branches and Divisions.

MIDLAND BRANCH: HOLLAND DIVISION.

A MEETING of the Holland Division was held on January 24th, when Dr. WHITE was in the chair.

Motor Lighting Restrictions.—A discussion took place on the motor lighting restrictions, but no proposition was brought forward.

Panel Practitioners and War Work.—Dr. TATE raised the question of the payment of the practitioners at home for the work they had done on the panel for those absent on war service. The matter was referred to the next meeting of the War Committee.

SUSSEX BRANCH: HORSHAM DIVISION.

At a meeting of the Division held at Horsham on January 15th the following officers of the Division were elected for 1916:

Chairman: F. W. D. Kinnair.
Vice-Chairman: S. P. Matthews.
Honorary Secretary: A. C. Sturdy.
Honorary Secretary (pro tem.): F. W. F. Kinnair.
Representative for Representative Meeting: Dr. W. A. Gosling.
Representative on Branch Council: F. Bonall.

INSURANCE.

INSURANCE COMMITTEES.

LONDON.

The Position of Panel Practitioners' Deputies.—At the meeting of the London Insurance Committee on January 27th some discussion took place upon the extent of the jurisdiction which the Committee possesses over the locumtenent of a panel practitioner absent on war service. The case of one such locumtenent was brought before the Committee in connexion with a charge of gross negligence, and the Medical Service Subcommittee investigating the matter had decided that the deputy's conduct was most reprehensible. Mr. Henry Mills, the chairman of the subcommittee, said that his subcommittee would not be satisfied until they had as much power over the deputy as they had over the practitioner. Mr. Kingsley Wood pointed out that the number of complaints against practitioners on the panel which had come before them that day was the largest in the history of the Committee, and he believed that most of the cases in which neglect was substantiated related to practitioners who had from 3,000 to 5,000 persons on their lists. The Special (War Emergency) Subcommittee reported that 171 practitioners on the London panel were now serving with His Majesty's Forces. In the majority of cases the arrangements made for their panel service appeared upon investigation to be satisfactory; in a few others where it seemed to the subcommittee that the deputy had undertaken greater responsibilities than he could adequately discharge, further inquiries were being made. In cases in which the deputy was not himself a panel practitioner, his attention was being drawn to the conditions of agreement between the practitioner and the Committee.

Sanatorium Treatment.—The Sanatorium Benefit Subcommittee reported that the number of insured persons suffering from tuberculosis who were receiving resident institutional treatment on December 31st was 430; the number receiving dispensary treatment was 784, and 1,504 were receiving domiciliary treatment.

LOCAL MEDICAL AND PANEL COMMITTEES.

LONDON.

At a meeting of the Panel Committee on January 25th it was decided to draw the attention of the Insurance Commissioners to the need for a special grant to meet any administrative expenses incurred by the Committee in rendering effective the safeguards against excessive prescribing embodied in Article 9 of the Medical Benefit Regulations, 1916. The amount was estimated at £2,000. It was announced that the Local Medical Committee for the County of London was now identical in personnel with the Panel Committee, and that the one Committee is to be recognized as the Local Medical and Panel Committee.

WILTSHIRE.

At a meeting of the Panel Committee, held on January 19th, it was agreed to co-operate with other Panel Committees in forming a local pharmacopoeia for the South-Western area. It was resolved that practitioners should be allowed to make use of the term "Rep. mist.," its use being restricted to the current month and the date of the original prescription being given.

EAST SUFFOLK.

The Panel Committee decided to communicate with those practitioners who had overspent, pointing out that they were liable to be surcharged at the end of the year. It was decided to recommend the abolition of the practice of writing "Rep. mist.," and to ask the British Medical Association to make representations to the Commissioners that members of the Panel Committee be allowed their travelling expenses at the rate of 6d. per mile for the single journey.

INSURANCE NOTES.

THE PANEL SYSTEM OR A STATE SERVICE.

At the annual conference of the National Association of Trade Union Approved Societies, held at Manchester on February 1st, Mr. F. Handel Booth, M.P., expressed the view that the administration of medical benefit was unsatisfactory, and particularly the panel system, which, he thought, ought to be abolished and a State or partial State medical service substituted. He thought that the medical service ought to include every form of medical treatment that a man could require, and the money provided by the societies and the State was sufficient for a full service under a comprehensive scheme properly worked out. In other respects, too, he thought there was urgent need for the simplification of the machinery of the Insurance Act. Insurance Committees were far too large and the expenses of their administration far too high, while the cost of administration of approved societies was excessive. Amongst the resolutions passed by the conference there was one calling on the Government to proceed as soon as practicable with a scheme providing insured persons with medical treatment under State or municipal control.

Naval and Military Appointments.

ROYAL NAVAL MEDICAL SERVICE.

The following appointments are announced by the Admiralty: Fleet Surgeons W. J. Colbourne to R.M.A. Eastney; R. Hill, C.V.O., to the *Iron Duke* and for general staff duties; M. R. L. Rodd to R.M. Infirmary, Deal; E. Sutton to the hospital ship *Phosny*. Staff Surgeon T. Creaser, M.B., to the *Boadicea*. Surgeon K. H. Hole to the *Mardstone*. Temporary Surgeons T. Beaton, M.B., and H. S. Sington to the *Pembroke*, additional, for Chatham Hospital; L. B. Stringer and C. E. Kinderley to the *Victory*, additional, for Haslar Hospital; F. T. Cassidy, M.B., to the *Vicid*, additional, for Plymouth Hospital; H. E. Hewat, M.B., to the *Euryalus*; J. S. Macdonald to the *Hyacinth*, additional.

ROYAL NAVAL VOLUNTEER RESERVE.

Staff Surgeon R. J. Willan, M.B., to the *Plussy*, vice Lawson; Surgeon J. H. Thompson, to the *Victory*, additional; Surgeon Probationer F. H. Smith to the *Achates*. To be Surgeon Probationers: W. Shearer, J. Hale, H. T. Cubbon, J. A. L. Cook, W. E. M. Wardill, P. Banbury, F. V. Jaques, A. C. Halliwell, C. R. Downing, A. H. Henry, F. H. Richards, R. D. Lockhart, J. M. Higginton, A. D. McHaffie, J. J. Nolan, E. S. Orme, T. L. Hillier, J. P. S. Walker, F. N. Reynolds.

ARMY MEDICAL SERVICE.

Lieutenant-Colonel C. W. Proffit, M.B., to be temporary Colonel whilst an Assistant Director of Medical Services. The name of Lieutenant-Colonel (temporary Colonel) F. R. Buswell is as now described, and not as in the *London Gazette* of January 6th. Lieutenant-Colonel A. E. Garrod, M.D., F.R.S., R.A.M.C.(T.F.), to be temporary Colonel (substituted for notice printed in the *London Gazette* of November 26th, 1915).

ROYAL ARMY MEDICAL CORPS.

Majors retained on Active List under the provisions of Articles 120 and 522, Royal Warrant for Pay and Promotion: D. E. Powell, W. A. S. J. Graham.

Captain D. S. B. Thomson, half-pay list, to be Major. Temporary Captain E. L. Middleton relinquishes his commission. To be temporary Captains: Captain B. G. Elliott, East Lancashire Regiment (T.F.); Captain J. M. D. Scott, M.B., South African M.C.; temporary Lieutenant R. Brevitt-Taylor, M.B.; temporary Captain S. J. Scott, from Princess Victoria's (Royal Irish Fusiliers); G. Graham, M.D.

Temporary Lieutenants to be temporary Captains: J. D. Finlay, M.B., W. Winslow, M.B., A. C. D. Firth, M.D., C. H. Philips, T. J. Kelly, O. J. H. Sharp, M.B., C. F. O. White, E. S. Dixon, M.B., W. Pritchard Airey, J. Morrison, M.B., J. C. Dunn, M.D., W. C. S. Wood, D. Watson, M.B., G. A. Maling, V.C., M.B., L. A. P. Burt, M.B., S. R. Mackenzie, M.D., A. Ryland, F.R.C.S.E., C. J. Glason, M.D., H. V. Doll, J. Tate, M.B., W. A. Taylor, M.D., A. W. H. Donaldson, M.B., J. F. Venables, M.B., E. B. Sunderland, C. W. Roe, F. C. Greig, J. P. Blockley, M.B., D. W. Beamish, W. Leslie, M.B., J. Parker, C. C. Beatty, W. A. Brown, M.B., R. H. Fothergill, M.B., D. M. MacManus, U. J. Bourke, H. N. Evvard, M.D.

Temporary Lieutenants relinquish their commissions: C. A. Smallhorn, M.B., H. W. Fankhauser, M.B., S. Reader, J. N. G. W. McDonald, F. L. Gill, M.B., P. Steele, M.D., F. J. Browne, M.B., F.R.C.S.E., A. H. Corley.

Temporary honorary Lieutenants to be temporary Lieutenants: E. J. Clark, M.B., W. J. Pearson, M.B., C. F. Macdonald. To be temporary Lieutenants: C. Cooper, W. H. Broughton, M. Campbell, M.D., W. Paul, M.B., W. Speedy, M.B., R. A. Warters, M.D.

G. Fitzgerald, M.B., V. D. Moffat, M.B., J. J. Clarke, R. E. Illingworth, A. D. Hunt, M.D., D. R. Taylor, M.B., A. W. Mather, M.B., A. C. Tait, C. W. C. Robinson, E. L. Christoffels, J. G. M. Molony, A. D. Buchanan, M.B., N. A. Roswell, M.D., W. D. D. Small, M.D., R. M. Hewitt, M.D., J. P. Fairley, R. Montgomery, M.D., L. T. Giles, M.B., F.R.C.S., H. C. Fox, M.B., E. W. Martin, M.B., C. S. Rivington, W. M. Muirhead, M.B., E. H. Cameron, M.B., F.R.C.S.E., J. Bain, M.B., W. B. Mercer, M.B., R. L. Watts, M.B., O. M. G. Elliott, N. Grace, M.D., S. Stockman, M.B., E. W. Craig, M.B., J. Oag, M.B., H. N. Ingham, M.B., F. J. Eagar, P. G. Temple, J. F. St. J. Annesley, M.D., A. H. Donaldson, M.B., J. M. Grier, M.B.
To be honorary Lieutenants: W. R. White-Cooper, H. W. Bennett, M.B.

SPECIAL RESERVE OF OFFICERS.

ROYAL ARMY MEDICAL CORPS.

Temporary Lieutenants to be Captains: W. J. Dowling, M.B., A. R. F. Clarke, M.B., A. J. Horne, M.B., N. L. Reis, M.B., C. E. H. Gater, D. C. Pim, M.B., F. R. S. Shaw, M.B., R. G. Blair, M.B., F. R. H. Mollan, G. Stanton, M.B., J. D. Proud, T. W. E. Elliott, M.B., J. O'S. Beveridge, M.B., A. J. Beveridge, M.B., S. D. Lodge, C. H. Brennan, E. N. H. Gray, J. A. Musgrave, T. McClurkin, M.B., T. Menzies, M.B., R. S. Cumming, M.B., D. H. Murray, M.B., W. A. Thompson, M.B., J. McKay, M.H., W. B. Foley, D. Dempster, M.B., T. Y. Barkley.

Lieutenant M. W. Waterson to be Captain, with seniority next below O. H. Mayor (substituted for notification published in the *London Gazette* of July 26th, 1915).

Lieutenant (on probation) T. E. B. Beatty is confirmed in his rank.

Cadet W. L. A. Harrison, London University Contingent, O.T.C., to be Lieutenant on probation.

TERRITORIAL FORCE.

ARMY MEDICAL SERVICES.

Captain A. Baxter, M.D., from Attached to Units other than Medical Units, to be Deputy Assistant Director of Medical Services, Mounted Division.

James Ewing, late Captain West Riding Field Ambulance and late temporary Captain R.A.M.C., to be Captain and a Deputy Assistant Director of Medical Services.

ROYAL ARMY MEDICAL CORPS.

London (City of London) Field Ambulance.—Lieutenant W. R. H. Heddy, to be Captain.

London (City of London) General Hospital.—Lieutenant J. D. L. Currie to be Captain.

London General Hospital.—J. A. Willett, M.D., to be Lieutenant.

London (City of London) Sanitary Company.—To be Lieutenants: J. Teare, M.B., F. E. W. Rogers.

London Sanitary Company.—Lieutenants to be Captains: J. O. W. Barratt, M.D., H. G. Moss, N. A. Dore, J. Mair, M.B. To be Lieutenants: S. Summerson, E. P. Wheeler.

Home Counties Field Ambulance.—R. H. Hardwick to be Lieutenant.

Southern General Hospital.—Lieutenants to be Captains: C. B. Hawthorne, J. Millard.

Welsh Border Mounted Brigade Field Ambulance.—Major J. B. Yeoman, M.D., F.R.C.S., from A.M.S., to be Major.

South Midland Field Ambulance.—Lieutenant E. J. C. Groves, M.B., is restored to the establishment.

North Midland Casualty Clearing Station.—N. H. Hill to be Lieutenant.

Notts and Derby Mounted Brigade Field Ambulance.—Lieutenant J. W. Rammell to be Captain.

Northern General Hospital.—Lieutenants to be Captains: A. J. W. Stephen, M.B., R. A. Hooper, M.B.

Yorkshire Mounted Brigade Field Ambulance.—Lieutenant A. M. Deane to be Captain.

West Lancashire Field Ambulance.—Captain E. W. Reed, M.B., from Attached to Units other than Medical Units, to be Captain.

West Lancashire Casualty Clearing Station.—Lieutenant T. Aspinall to be Captain; Lieutenant E. M. de Jong, from Attached to Units other than Medical Units, to be Lieutenant.

Highland Field Ambulance.—Lieutenants to be Captains: A. M. Baillie, M.B., and J. A. Sellar, M.B.

Attached to Units other than Medical Units.—Major T. Beard resigns his commission on account of ill health. Lieutenants to be Captains: A. G. Osborn, M.B., S. Hughes, F. J. Davidson.

ST. PETER'S HOSPITAL FOR STONE, Etc., Henrietta Street, W.C.—Junior House-Surgeon. Salary, £75 per annum.

SUNDERLAND ROYAL INFIRMARY.—Lady House-Surgeon. Salary, £150 per annum.

WEST BROMWICH AND DISTRICT HOSPITAL.—Assistant House-Surgeon. Salary, £120 per annum.

WEST HAM AND EASTERN GENERAL HOSPITAL, Stratford, E.—(1) House-Physician. (2) House-Surgeon.

CERTIFYING FACTORY SURGEONS.—The Chief Inspector of Factories announces the following vacant appointments: Aghadowey (Londonderry), Clackmannan (Clackmannan), Lyndhurst (Hants), Newbridge (Kildare), Sedburgh (Yorks., West Ridings).

To ensure notice in this column—which is compiled from our advertisement columns, where full particulars will be found—it is necessary that advertisements should be received not later than the first post on Wednesday morning. Persons interested should refer also to the Index to Advertisements which follows the Table of Contents in the JOURNAL.

APPOINTMENTS.

CURL, S. W., M.D. Cantab., M.R.C.P. Lo-d., Consulting Physician to the Clacton Cottage Hospital, vice Eustace Smith, M.D., deceased.

MACFADYEN, N., M.B. Lond., Certifying Factory Surgeon for the Baldoak District, co. Hertford.

WILLOUGHBY, W. M., M.D. Camb., D.P.H., Medical Officer of Health for the Port of London, vice Herbert Williams, M.D. Lond., deceased.

WYSE, G. H., L.R.C.P. and S. Edin., Certifying Factory Surgeon for the Lytham District, co. Lancaster.

BIRTHS, MARRIAGES, AND DEATHS.

The charge for inserting announcements of Births, Marriages, and Deaths is 5s., which sum should be forwarded in Post Office Orders or Stamps with the notice not later than the first post on Wednesday morning in order to ensure insertion in the current issue.

BIRTHS.

FLEMING.—To Dr. and Mrs. Fleming, Tsinan Fu Union Medical College, Shantung, N. China, on January 6th, a son, named Graham.

WOOLLATT.—On February 7th, at High Oak Lodge, Ware, the wife of Percy C. Woollatt, F.R.C.S.E., Temporary Surgeon, Royal Navy, of a daughter (Lillian Christine).

DEATH.

HOPKINS.—On February 2nd, at the Hoe Mansion Hotel, Plymouth, Francis Gethin Hopkins, M.D., Trin. Coll. Dub., Lieut. R.A.M.C., formerly P.M.O. Gold Coast Colony.

DIARY FOR THE WEEK.

TUESDAY.

LONDON DERMATOLOGICAL SOCIETY, 49, Leicester Square, W.C.—4.30 p.m., Cases and Demonstrations. 5.30 p.m., Dr. W. Knowlesley Sibley: Treatment of Scars.

ROYAL SOCIETY OF MEDICINE:

SECTION OF MEDICINE, THERAPEUTICS, AND PHARMACOLOGY (Joint Meeting), 5 p.m.—Dr. Langdon Brown, Sir William Osler, Sir Wilmot Herringham, Mr. Mackenzie Wallis, Drs. Galloway, R. G. Abercrombie, R. A. Chisolm, and W. Mair: Discussion on "Trench Nephritis."

WEDNESDAY.

ROYAL SOCIETY OF MEDICINE:

SECTION OF HISTORY OF MEDICINE, 5 p.m.—Papers: Mr. C. E. Wallis: Marat. Mr. Percy Dunn: An Oculist of XVI Century (Andreas Laurentius). Dr. Dan McKenzie: Folk Cures by Constriction and Rings. Dr. C. G. Cumston (Geneva): Portrait of Paracelsus.

THURSDAY.

ROYAL SOCIETY OF MEDICINE:

SECTION OF DERMATOLOGY, 4.30 p.m.—Cases.

FRIDAY.

ROYAL SOCIETY OF MEDICINE:

SECTION OF OTOTOLOGY, 5.0 p.m.—Cases and Specimens; Dr. Dan McKenzie: Otogenic Facial Paralysis.

SECTION OF ELECTRO-THERAPEUTICS, 8.30 p.m.—Clinical Meeting, Cases, Skiagrams, and New Apparatus.

POST-GRADUATE COURSES AND LECTURES.

LONDON SCHOOL OF TROPICAL MEDICINE, Royal Albert Dock, E.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.

THE POST-GRADUATE COLLEGE, West London Hospital, Hammer-smith, W.—Clinical work; graduates only.

DIARY OF THE ASSOCIATION.

Date.	Meetings to be Held.
FEBRUARY.	
11 Fri.	London: Executive Subcommittee of Central Medical War Committee, 3.15 p.m.
18 Fri.	London: Executive Subcommittee of Central Medical War Committee, 3.15 p.m.
23 Wed.	London: Central Medical War Committee, 2 p.m.
25 Fri.	London: Executive Subcommittee of Central Medical War Committee, 3.15 p.m.

Vacancies and Appointments.

NOTICES REGARDING APPOINTMENTS.—Attention is called to a Notice (see Index to Advertisements—Important Notice re Appointments) appearing in our advertisement columns, giving particulars of vacancies as to which inquiries should be made before application.

VACANCIES.

BRISTOL ROYAL INFIRMARY.—(1) House-Physicians; (2) House-Surgeons. Salary, £120 per annum in each case.

COVENTRY AND WARWICKSHIRE HOSPITAL.—Third Resident. Salary, £175 per annum.

DEVONPORT: ROYAL ALBERT HOSPITAL.—House-Surgeon. Salary, £150, and additional 21s. weekly when working single-handed.

EVELINA HOSPITAL FOR SICK CHILDREN, Southwark, S.E.—(1) House-Physician. (2) House-Surgeon. Salary, £160 per annum.

HASTINGS: EAST SUSSEX HOSPITAL.—Honorary Surgeon.

KIRKWALL: PARISH OF EDAY.—Medical Officer

LEEDS PUBLIC DISPENSARY.—Lady Resident Medical Officer. Salary, £150 per annum.

LONDON LOCK HOSPITAL, Dean Street, Soho, W.—House-Surgeon. Salary, £150 per annum.

MANCHESTER CHILDREN'S HOSPITAL.—Resident Medical Officer. Salary, £100 per annum, and £5 monthly bonus during the war.

NEW HOSPITAL FOR WOMEN, Euston Road, N.W.—Female Senior Clinical Assistants in out-patient department.

ROYAL FREE HOSPITAL, Gray's Inn Road, W.C.—(1) Radiographer and Medical Electrician. Salary, £100 per annum. (2) Curator of Museum (female).

BRITISH MEDICAL JOURNAL.

LONDON: SATURDAY, FEBRUARY 19TH, 1916.

CONTENTS.

	PAGE		PAGE
RECRUITING FOR THE NAVAL AND MILITARY MEDICAL SERVICES:		INSURANCE:	
THE NEED AND PURPOSE OF ENROLMENT...	29	LOCAL MEDICAL AND PANEL COMMITTEES...	30
IRISH MEDICAL WAR COMMITTEE	29	HANDBOOKS FOR APPROVED SOCIETIES.—INSURANCE FINANCE	
MEDICAL RECRUITING AND THE ALLEGED WASTE OF MEDICAL OFFICERS	29	INQUIRY.—PAYMENT FOR TEMPORARY RESIDENTS...	31
EXAMINATION OF RECRUITS	30	NAVAL AND MILITARY APPOINTMENTS...	31
THE PROFESSION IN VICTORIA	30	VACANCIES AND APPOINTMENTS	32
THE NUMBER OF MEDICAL STUDENTS	30	BIRTHS, MARRIAGES, AND DEATHS	32
ASSOCIATION NOTICES	30	DIARY	32

RECRUITING FOR THE NAVAL AND MILITARY MEDICAL SERVICES.

THE NEED AND PURPOSE OF ENROLMENT.

MEMBERS of the Central Medical War Committee had an interview on February 14th with a number of London men who were anxious to learn first hand the reasons for the request of the Committee that every medical man of military age (under 45 years) should enrol with the Committee as willing to take a commission in the R.A.M.C. if and when he is wanted.

It appears that some little confusion had arisen owing to differences in the military age for medical men and for the general community respectively. It was explained that the limit of age for general service—that is to say, any service at home or abroad—was fixed by the War Office authorities at 45 years for medical men. For the combatant ranks the limit was fixed for most branches at 41 years, and that is the age in the Military Service Act. The words in the Act are, "Every male British subject who on August 15th, 1915, was ordinarily resident in Great Britain... and had not attained the age of 41 years, and on November 2nd, 1915, was unmarried or was a widower without any child dependent on him." The higher age for the medical men, it was pointed out, had no relation to that Act, nor to any scheme of compulsion. It meant only that since the demand for doctors for the army was great and the needs of the civilian population insistent the net had to be spread the wider. Difficulties arising out of the enrolment scheme itself were discussed. It was explained that the man who signed the forms issued by the Committee entered into a moral obligation or bargain with the Committee. He said in effect, "I am willing to do my duty by my country when I am needed, and I look to this Committee of my profession to tell me when I am actually needed." His signature was a promise to hold to that bargain. The Committee on its part undertook to take into consideration the personal difficulties of the man, the nature of his practice and civil obligations, and only to make necessary calls in such a fashion that, so far as was humanly possible, the sacrifice asked for should be evenly distributed. It was pointed out that there were only two possibilities at present before the profession. One was the resumption of the "catch-as-catch-can" method of recruiting medical officers, which was very likely to produce the maximum difficulty in carrying on the medical work of the home community with resultant confusion and mayhap State intervention. The other was the enrolment scheme of the Committee, which was the professional counterpart of the Derby scheme for combatants. It was urged that it was on all counts better for the profession to keep in its own hands such a serious matter as this rather than allow the control to drift into lay hands, whether civilian or military.

We are informed that on February 15th the same gentlemen had an interview with the Under Secretary of State for War, who was accompanied by the D.G., A.M.S. They met with the same sympathetic reception as from the Central War Committee, and have announced that it seems to them desirable to postpone further steps towards

securing more general service from the medical profession until the Central Medical War Committee's canvass for enrolment is completed.

IRISH MEDICAL WAR COMMITTEE.

A meeting of the Irish Medical War Committee was held at the Royal College of Physicians of Ireland on February 1st, when Mr. McDowell Cosgrave, P.R.C.P.I., was in the chair, and the following members were present: Dr. C. Bigger, Dr. D. J. Coffey, the Right Hon. M. F. Cox, M.D., Mr. Conway Dwyer, P.R.C.S.I., Professor Dixon, Dr. McWalter, R.A.M.C., Dr. J. Carroll, Dr. R. J. Rowlette, Dr. M. R. J. Hayes, Honorary Secretary, and Dr. T. Hennessy, Deputy Secretary.

The meeting lasted for some hours, and it was decided to send a circular letter, similar to that already sent by the Central Medical War Committee, to each member of the medical profession in Ireland who was within the age limit, appealing to him to join the Royal Army Medical Corps. The Committee also decided to invite the co-operation of all local medical bodies to assist recruiting for the Royal Army Medical Corps, and to make provisions for the conduct and safeguarding of the practice of the doctors joining the Royal Army Medical Corps.

Mr. John Redmond, M.P., who with the Lord Lieutenant (Lord Wimborne) recently addressed a large recruiting conference at the Mansion House, Dublin, stated that whatever doubt may be expressed about the success of recruiting amongst certain classes of the Irish population, there was not the least doubt—and he mentioned it with pride—that the Irish doctors had, in proportion to population, supplied more than their share.

MEDICAL RECRUITING AND THE ALLEGED WASTE OF MEDICAL OFFICERS.

SIR,—There are so many rumours concerning the poor use to which the men who have already accepted commissions in the R.A.M.C. are put, that even now, in spite of the W. 10 appeal which the Central Medical War Committee has issued, I believe a great many doctors are still undecided as to the necessity of enrolling their names as willing to serve if called upon.

At present there is no compulsion in the matter, except in the case of single men 40 years old and under, but surely there is an obvious moral obligation on all doctors, married or single, up to the age of 45 years to send their names up to this Committee, at the same time giving advantages and disadvantages of their personal position as regards liabilities, physical fitness, etc. The actual needs of the civil population can best be judged of by the local Medical War Committees. The adjudicating of individual cases as to the sacrifices of one man as compared with another can surely be best left in the hands of such an unprejudiced committee as the Central Medical War Committee, whose members have given clear and unmistakable evidence of their great sympathy for such members of the profession who may be called upon to make these sacrifices.

Assuming that every doctor up to 45 years of age admits this moral obligation and enrolls, then the profession would all be attested, and the Medical War Committee, which is practically the medical tribunal of appeal, would be in a very strong position to do its work with fairness to all.

No one could feel that he was called up for service before his more fortunately placed colleagues. If a number of men do not enrol, I think the only name they will rightly earn for themselves is "slacker." Some may object to trusting their private affairs and position to this committee, which I have heard designated as the "Recruiting Agency of the War Office," but if they really took the trouble to inquire into its inception, into its just claim for truly representing the profession, into its record of work, they would at least be sure of this, that there could be no other committee formed to which they could apply so confidently for equitable consideration of the whole subject of medical recruiting.

I myself think that the War Office should make more use of part time service.—I am, etc.,

London, S.W., Feb. 16th.

G. BREBNER SCOTT.

EXAMINATION OF RECRUITS.

"Observer" writes: The present method of selecting medical men for examination of "Derby" recruits is certainly not in accord with the published views of the Central Medical War Committee. It appears that a chief medical examiner is appointed for each district, and the selection of assistants is left entirely in his hands. In this town all the medical men selected for this work are of military age. Other medical men above military age have offered their services, but have been ignored. May I suggest that the chief examiner in each district be requested to send the name, address, and age of each medical man in the district who offers his services to the Central Medical War Committee, by which body the selection shall be made?

THE PROFESSION IN VICTORIA.

With a view to organizing the medical profession of Victoria on a war footing, the Victoria Branch of the British Medical Association has taken a census of the profession in Victoria. Altogether down to August 12th 550 replies had been received, which after deducting those absent and serving abroad or otherwise engaged on military duty, practically accounted for the whole of the profession in Victoria. At that date there were serving with the Imperial Forces 65; with the Australian Forces, for the duration of the war 75, for twelve months 115; and as surgeon on a hospital or transport ship 106. A card catalogue of the names arranged in districts has made it possible to estimate how any particular district stands as regards its supply of medical men and whether any could be spared for war purposes.

THE NUMBER OF MEDICAL STUDENTS.

We are indebted to the President of the General Medical Council for the following statistics of the number of medical students in the United Kingdom. The table shows the number of first year students enrolled in 1915, distinguishing those who were women, or who were foreign or colonial students, or who were under 18. It also shows the number of first year and second year students in attendance at medical schools in January, 1916.

Summary of Returns from Schools of Medicine, January, 1916.

	England and Wales.			Scotland.	Ireland.	Total.
	London.	Pro- vinces.	Total.			
(a) No. of First Year medical students enrolled in 1915	359	384	743	693	499	1,935*
No. out of (a) who were women students	118	■	198	182	76	456
No. out of (a) who were foreign or colonial students	64	25	■	57	12	158
No. out of (a) who were under 18 on admission	66	■	165	170	106	441
(b) No. out of (a) who were in actual attendance in January, 1916	279	320	599	550	477	1,626
(c) No. of Second Year students who were in actual attendance in January, 1916	200	197	397	357	265	1,020

* Number registered by General Medical Council in 1915 was 1,918. Therefore the number of unregistered students in medical schools was 17 at least.

Association Notices.

BRANCH AND DIVISION MEETINGS TO BE HELD.

STAFFORDSHIRE BRANCH.—Dr. Harold Hartley, Honorary General Secretary (Bosford, Stoke-on-Trent), gives notice that the second general meeting of the session will be held at the Swan Hotel, Stafford, on Thursday, February 24th. The president, Dr. F. M. Rowland, will take the chair at 5.15 p.m. Exhibition of living cases and pathological specimens. Papers: (1) The Incidence of Cancer in Meat-eating and in Vegetarian Peoples of India, by Mildred E. Staley; (2) Heart Disease among Children attending Elementary Schools, by John Priestley. Dinner at 7 p.m.; charge, 5s.

INSURANCE.

LOCAL MEDICAL AND PANEL COMMITTEES.

MIDDLESEX.

At a meeting of the Panel Committee on February 10th it was decided to draw attention in the next circular letter issued to practitioners on the panel to the necessity of adhering to the certification rules. A resolution was adopted endorsing the right of doctors to charge persons who, although insured persons on their lists, were unknown to them and gave no indication that they were insured persons.

ESSEX.

A SCHEME for the distribution of moneys between practitioners acting as deputies for practitioners absent on military service has been arranged by the Essex Panel Committee, but is not intended to supersede the local schemes already in use in some areas in Essex. One half the total capitation payments due to each practitioner on the panel who is absent and whose panel practice is not properly provided for is paid by the Insurance Committee to the "Treasurer Committee" of the Panel Committee quarter by quarter, and is distributed by it to the deputies doing the work, less the actual cost of distribution, on the following basis:

The total amount available in respect of each absentee is distributed amongst the practitioners who have undertaken to attend to any of the said absentee's panel patients in proportion to the number of panel patients of the said absentee for which each deputy shall have made himself responsible at the end of each quarter. Each deputy is required to abide by the rules decided upon by the Panel Committee.

The Committee has objected to an emergency settlement in any form, and has asked the Commissioners to remove the anomaly of a doctor being required to give six weeks' notice that he does not desire to undertake treatment in the succeeding year of any insured person on his list, whereas an insured person is only required to give a month's notice that he desires to select another practitioner.

SURREY.

At a meeting of the Panel Committee on January 21st it was decided to inform practitioners in the next circular that if any doctor has special reasons for desiring a monthly advance his application would be favourably considered, and to ask practitioners going on military service to inform the honorary secretary what arrangements they were making for their panel patients.

LANCASHIRE.

At a meeting of the County Local Medical and Panel Committee held on January 19th it was decided that "provision of proper and sufficient medicines" as contemplated by the 1911 Act does not include the supply of salvarsan, vaccines, serums, etc., and that the use of the term "Rep. mist." be limited to reference to prescriptions issued in detail during the month in which the formula is made use of.

LIVERPOOL.

At a meeting of the Panel Committee on February 1st it was decided that the present time, when so many of those interested are absent from their practices on military duty, was inopportune for the consideration of any change, as suggested by the Insurance Committee, in the method of distribution among panel practitioners of the sum due for sanatorium benefit (domiciliary treatment).

A CORRECTION: PAYMENT OF EXPENSES.

In the notice of the meeting of the Birmingham Panel Committee on January 4th, published in the SUPPLEMENT of February 5th, p. 23, it should have been stated that it was agreed that Panel Committees should be allowed when they wished to pay the expenses of their members out of the statutory grant of the Medical Benefit Fund, and not, as printed, that authority was given to pay expenses of the members of the Birmingham Panel Committee.

INSURANCE NOTES.

HANDBOOKS FOR APPROVED SOCIETIES.

OFFICIALS of the societies throughout England will undoubtedly welcome the *Handbook for the Use of Approved Societies* which has been issued by the Commissioners. It is expressly stated in the preface to be a provisional issue only, to be replaced as soon as possible after the end of the war by a more complete handbook. The main object of the book is to provide officials of approved societies with a book of information on procedure, and to afford assistance in the application of the provisions of the Acts and regulations, and suggestions for the efficient administration of societies' affairs. A somewhat serious, though apparently unavoidable, defect is, as stated in the preface, that several circulars were issued while it was in such an advanced state of preparation that they could only be printed in a supplement, and alterations in the text of the book which they involved could not be made without delaying publication. Thus it happens that in several points the text is contradicted by the circulars given in the supplement, and officials of societies will have to find out for themselves where the text is erroneous. This was the position in September last, which is the date of the preface, and possibly even further amendment of the text is now necessary owing to still later circulars. It appears to be quite impossible to keep any publication dealing with National Health Insurance fully up to date.

After an introduction giving broadly the position of approved societies under the insurance, the constitution and government of societies and the general conditions of membership are stated, and the method of dealing with contributions and with sickness, disablement, and maternity benefits are described in detail. Some especially valuable instructions are given as to procedure in dealing with persons receiving compensation on account of accidents at work, and with sailors and soldiers totally disabled in the present war. Considerable space is devoted to the question of certification, and it would well repay every panel doctor to read carefully the full and detailed account of certification, especially what is said about the procedure in exceptional cases. Medical and sanatorium benefits are only dealt with so far as they directly concern procedure of societies and their members, but special attention by paragraphs printed in heavy type is directed to the importance of the early notification by societies of the suspension of a member from medical and sanatorium benefit on account of arrears or other causes. There is some reason to think that some societies are negligent on this point, and that members often receive medical treatment when they are not entitled to it. Special chapters are next devoted to "arrears" and to the intricate finance of societies, followed by a final chapter dealing with miscellaneous matters. Next come a number of appendices giving full tables of contributions and benefits for all classes of members, copies of model letters, notices and agreements, list of the addresses of Insurance Committees, sanatoriums, rules for medical certification, etc. The supplement gives copies of the circulars which had been issued up to September last, after the descriptive part of the book had received its final form. They deal with alterations in the registers consequent on changes in membership, persons engaged in temporary non-insurable employments connected with the war, and the new system of collecting contributions of army (Class B) members. A full index is provided, and the book will be practically indispensable to all who are in any way engaged in the administration of the health insurance.

A Scottish edition of the *Handbook* has also been issued, which is practically on the same lines as the English edition, the arrangements of chapters and paragraphs being identical in both. The Scottish Commissioners, of course, replace the English Commissioners where necessary, and the lists of sanatoriums, Insurance Committees, etc., apply to Scotland. Otherwise practically all the remarks made above apply equally to both editions.

INSURANCE FINANCE INQUIRY.

The first meeting of the Treasury Committee, appointed to report on any amendments in the financial scheme of the Insurance Acts which experience of the administration of sickness, disablement, and maternity benefits may suggest to be desirable, was held last week. It is hinted that it may be possible for the Committee to make recommendations for the consideration of Parliament during the ensuing session.

PAYMENT FOR TEMPORARY RESIDENTS.

DISGUSTED writes: I have attended a considerable number of temporary residents under the Insurance Act, dating back to the beginning of 1914. We are now in January, 1916, and I have not received payment for any of them. It is scandalous that medical men are treated in this fashion by the Insurance Commissioners, who take care to get their pound of flesh from

the panel practitioners under the Act. Can nothing be done to compel them to pay—and without further delay—accounts for 1914 for temporary residents, and also intimate to them that accounts for 1915 must be paid before June 30th of this year? It is only by stern and united action that we will be able to compel the Commissioners to fulfil their part of the contract with the panel practitioners in a more satisfactory manner than at present.

Naval and Military Appointments.

ROYAL NAVAL MEDICAL SERVICE.

The following appointments are announced by the Admiralty: Fleet Surgeon G. M. Levis to the *Pembroke*, additional; Surgeon A. E. Painter to the *Pembroke*; Temporary Surgeons D. M. Connan, J. A. Pendergast to the *Victory*, additional; for Plymouth Hospital: H. B. Carhill, M.D., G. L. Atwater, A. O. Courts, H. V. Deakin, to the *Victory*, additional; for Haslar Hospital: A. G. Brown, M.B., to the *New Zealand*, Lt. F. Strugnell to the *Magnie*, H. G. Sutcliffe, M.D., to Deal R. M. Infirmary, T. S. Gibson to the Naval Medical School, Greenwich College; H. T. Degee to the *Argonaut*; H. Wetherbee to the *Victory*, additional, for disposal; W. E. Miligan, M.B., to the *Soudan*; H. S. Jeffries to the *Cormorant*, additional, for Ascension Hospital; A. B. G. Underwood, M.B., and J. O. Gillies, M.B., to the *Pembroke*, additional, for Chatham Hospital; C. F. G. Wakeley to Queensferry Sick Quarters, vice Williams; A. G. Williams to the *Attentive*.

ROYAL NAVAL VOLUNTEER RESERVE.

Staff Surgeon W. B. Betenson to the *Pembroke*, additional.

ARMY MEDICAL SERVICE.

Temporary Lieutenant-Colonel P. B. Giles, C.B., R.A.M.C., to be temporary Colonel.

ROYAL ARMY MEDICAL CORPS.

Temporary Major B. S. Myers, M.D., relinquishes his commission on appointment to the New Zealand Medical Corps.

Temporary Captains to be temporary Majors: A. N. Minus, whilst commanding 39th Field Ambulance; R. H. Cooper.

Temporary Captains relinquish their commissions: J. Ewing, C. G. Whorlow, H. Munro, M.B., F. A. Cooke, M.D.

Temporary Captain F. W. Mackenzie, M.B., is placed temporarily on retired pay on account of ill health.

Lieutenant D. V. M. Adams, M.B., Reserve of Officers, to be Captain.

Temporary Lieutenants to be temporary Captains: H. S. de Roer, G. A. C. Gordon, M.B., D. Green, M.B., F.R.C.S., C. Banting, M.D., F.R.C.S., R. W. Murphy, M.D., W. G. Ridgway, F.R.C.S.I., R. A. Wright, B. M. Collard, T. J. H. Maguire, M.B., B. H. Barton, M.D., G. F. Barr, M.B., P. H. MacDonald, M.B., G. L. Wigan, M.B., J. C. Robb, M.B., W. S. Heron, M.B., R. MacGrath, M.B., C. N. Vaisey, L. A. Drake, M.B., H. J. Cotter, T. S. Goodwin, M.B., J. S. Prentice, M.B., W. J. A. B. Wishart, M.B., W. S. Lindsay, M.B., G. Davidson, M.B., G. T. Crogan, M.B., H. S. Stockton, C. de C. Pelletier, J. R. Lee, M.D., F.R.C.S.E., G. C. Adeney, M.B., F.R.C.S., T. P. Devlin, late Captain R.F.A.T.F.F., S. T. Davies, F. Barnes, J. L. Leggat, M.B., J. M. Harkey, M.B., S. J. Ormond, M.D., E. Marshall, M.B., J. Stephenson, M.B., R. M. Boyd, M.B., E. Kidd, M.B., J. M. Rishworth, M.B., W. R. S. Watkins, M.B., F.R.C.S.E., T. J. L. Thompson, M.B., C. H. Nash, F. D. Walker, M.B., R. H. Hutchinson, T. L. Jewell, M.D., B. C. Ewens, D. Forde, M.D., D. F. Curran, C. P. V. MacCormack, H. S. C. Hooper, A. Poole, M.B., G. Robinson, J. Hill, M.B., J. P. Lavery, J. B. Turner, M.B.

To be temporary Captains: R. S. Berry, late temporary Captain R.A.M.C., J. R. Williamson, M.D., late temporary Captain, I.M.S.

Temporary honorary Lieutenant O. G. Morgan to be temporary honorary Captain whilst serving with the No. 9 British Red Cross (Duchess of Sutherland's) Hospital.

Temporary honorary Lieutenant A. C. Inman, M.B., to be temporary honorary Captain.

Temporary Lieutenants relinquishing their commissions: A. E. Towley, M.B., H. F. Smith, M.D., W. M. Thomas, A. F. G. Codd, M.B., F.R.C.S., H. Armstrong, G. de P. D'Amico, M.D., R. N. Goach, F.R.C.S., G. O. Jacobsen, M. P. Thomas, G. M. De Vries, M.B., J. R. McGilvray, M.B., J. Ellison, M.B., T. Marron, W. C. Burns, M.D., A. F. W. Millar, M.B.

Lieutenants of the Canadian A.M.C. to be temporary Lieutenants: M. O. Bridgman, M.D., A. McNally, M.B., A. E. McCulloch, M.B., G. J. Hanley, M.D., C. B. Cameron, M.D., W. G. G. Coulter, W. Dixon, M.B., J. E. Bromley, M.D., C. G. McRidd, G. H. Kearney, M.D.

Temporary honorary Lieutenants to be temporary Lieutenants: F. K. Marriott, E. G. Barker, G. W. Huggins, R. B. Eadie, M.B., J. S. Leslie, T. C. Howie, M.B.

To be temporary Lieutenants: J. A. Thoms, M.B., H. W. Barber, M.B., E. C. Sparrow, M.B., A. H. Ernst, R. N. Craig, A. H. G. Burton, M.D., W. G. Porter, M.D., J. A. MacArthur, M.B., W. M. Nairn, M.B., J. W. Potter, M.B., A. Whitome, M.B., F.R.C.S.E., E. G. Wheat, M.D., J. F. Brown, M.B.

To be temporary honorary Lieutenants: H. Lewis, L. M. Davies, J. G. Jones, A. Sunderland, A. Wilson, L. Gameson, M.B., F. B. O'R. Phillips.

INDIAN MEDICAL SERVICE.

Lieutenant-Colonel W. W. Clemencha, M.D., Officiating Sanitary Commissioner with the Government of India, is appointed substantially *pro tempore* to that post with effect from November 9th, 1915.

Colonel G. J. H. Bell, C.I.E., Inspector-General of Prisons, Burma, is appointed to be Inspector-General of Civil Hospitals, Bihar and Orissa, with effect from the date of his assuming charge.

OVERSEAS CONTINGENTS.

CANADIAN ARMY MEDICAL CORPS.

Captains to be temporary Majors: J. C. Fyfe, W. A. Burgess. To be temporary Captains: L. F. Jones, J. W. Hunt, A. Cleghorn, Lieutenant F. Ferras, J. W. Wickware, M.D., G. M. Wallace, M.D.

SPECIAL RESERVE OF OFFICERS.

ROYAL ARMY MEDICAL CORPS.

Lieutenants to be Captains: R. G. McElney, M.B., I. G. M. Firth, C. G. Schurr, J. W. Malcolm, M.B., J. S. Armstrong, M.B., E. S. Rowbotham, C. D. Jarvis, M.B.

¹ *Handbook for the Use of Approved Societies* (English edition): Provisional Issue revised to August, 1915. (324 pp. Price 1s.)

TERRITORIAL FORCE.

ARMY MEDICAL SERVICES.

Colonel J. Harper, M.D., from A.M.S., to be Colonel.
Lieutenant-Colonel G. F. Gubbin, retired pay, from Deputy Assistant Director of Medical Services, to be Assistant Director of Medical Services, London Division, with the temporary rank of Colonel.

Captain C. H. Gregory, M.D., from Home Counties Field Ambulance, to be Deputy Assistant Director of Medical Services, Home Counties Division.

ROYAL ARMY MEDICAL CORPS.

Highland Field Ambulance.—To be Captains: Captain H. G. Bruce, M.B., from Attached to Units other than Medical Units; Lieutenant W. C. D. Wilson.

Lowland Field Ambulance.—Lieutenant R. Kyle, M.D., to be Captain.

Northern General Hospital.—Lieutenants to be Captains: W. Longley, I. C. Marshall, M.D.

Notts and Derby Mounted Brigade Field Ambulance.—Lieutenants to be Captains: D. W. Griffiths, W. Bailey-Thomson, M.B.

North Midland Casualty Clearing Station.—C. Cooke, M.B., to be Lieutenant.

South Midland Field Ambulance.—Lieutenant E. J. C. Groves, M.B., to be Captain.

East Anglian Field Ambulance.—Lieutenant W. J. Wilkinson to be Captain.

Heme Counties Field Ambulance.—Captain H. C. Barr, from Attached to Units other than Medical Units, to be Captain.

London Field Ambulance.—Lieutenant-Colonel M. Taylor, M.B., relinquishes his commission on account of ill health.

Wessex Casualty Clearing Station.—Captain A. C. Alport, M.B., South African Medical Corps (Reserve), to be Captain.

Wessex Field Ambulance.—Captain J. G. Macindoe, M.B., to be Major.

Welsh Dordoir Mounted Brigade Field Ambulance.—Lieutenant H. C. Gilmore to be Captain.

Attached to Units other than Medical Units.—To be Majors: R. B. Williamson, M.B., late Lieutenant-Colonel Duke of Wellington's (West Riding Regiment); G. W. McIntosh, M.B., late Captain Black Watch (Royal Highlanders); Major J. G. Macindoe, from Wessex Field Ambulance; Captain S. Martin, M.B., Captain R. Lindsay, M.B.

To be Captain: Captain H. E. McCready, M.D., from South Midland Field Ambulance. To be Lieutenant: J. Lilwall-Cormac.

Vacancies and Appointments.

NOTICES REGARDING APPOINTMENTS.—Attention is called to a Notice (see Index to Advertisements—Important Notice re Appointments) appearing in our advertisement columns, giving particulars of vacancies as to which inquiries should be made before application.

VACANCIES.

BIRMINGHAM MATERNITY HOSPITAL.—Resident House-Surgeon (female). Salary, £100 per annum.

BRISTOL ROYAL INFIRMARY.—(1) House-Physicians; (2) House-Surgeons. Salary, £120 per annum in each case.

CAMBRIDGESHIRE ASYLUM, Fulbourn.—Junior Assistant Medical Officer (male). Salary, £200 per annum, rising to £250.

CHARING CROSS HOSPITAL. Medical and Surgical Registrars.

COVENTRY AND WARWICKSHIRE HOSPITAL.—Third Resident. Salary, £175 per annum.

EVELINA HOSPITAL FOR SICK CHILDREN, Southwark, S.E.—(1) House-Physician. (2) House-Surgeon. Salary, £150 per annum.

GREENWICH UNION.—Assistant Medical Officer for Infirmary and Workhouse. Salary, £175 per annum.

HAMPSTEAD GENERAL AND NORTH-WEST LONDON HOSPITAL, Haverstock Hill, N.W.—Three Anaesthetists. Honorarium, £25 per annum.

KIRKSTALL PARISH OF EDAY.—Medical Officer.

LEEDS PUBLIC DISPENSARY.—Lady Resident Medical Officer. Salary, £130.

MANCHESTER CITY.—Second Assistant Medical Officer at Baguley Sanatorium for Treatment of Tuberculosis. Salary, £250 per annum.

NEW HOSPITAL FOR WOMEN, Euston Road, N.W.—Assistant Anaesthetist (female). Honorarium, £55s. per annum.

PORTSMOUTH: ROYAL PORTSMOUTH HOSPITAL.—Two Lady House-Surgeons. Salary, £150 per annum.

ROYAL FREE HOSPITAL, Gray's Inn Road, W.C.—Radiographer and Medical Electrician. Salary, £100 per annum.

ST. PETER'S HOSPITAL FOR STONE, Etc., Henrietta Street, W.C.—Junior House-Surgeon. Salary, £75 per annum.

SALFORD POOR LAW UNION INFIRMARY.—Male Resident Assistant Medical Officer. Salary, £300 per annum; and if reappointed, £350.

SALFORD ROYAL HOSPITAL.—(1) House-Physician. (2) House-Surgeon. Salary, £250 and £200 per annum respectively.

SAMARITAN HOSPITAL, Marylebone Road, N.W.—Honorary Dental Surgeon.

WESTERN GENERAL DISPENSARY, Marylebone Road, N.W.—Resident House-Surgeon.

WEST BROMWICH AND DISTRICT HOSPITAL.—Assistant House-Surgeon. Salary, £120 per annum.

WEST HAM AND EASTERN GENERAL HOSPITAL, Stratford, E.—House-Physician and House-Surgeon.

CERTIFYING FACTORY SURGEONS.—The Chief Inspector of Factories announces the following vacant appointments: Barrow-in-Furness (Lancaster), Fintona (Tyne), Staplehurst (Kent).

To ensure notice in this column—which is compiled from our advertisement columns, where full particulars will be found—it is necessary that advertisements should be received not later than the first post on Wednesday morning. Persons interested should refer also to the Index to Advertisements which follows the Table of Contents in the JOURNAL.

APPOINTMENTS.

ARMSTRONG, Hubert, M.D. Vict. and Liverp., Captain R.A.M.C.(T.), Honorary Physician, Liverpool Infirmary for Children, vice N. P. Marsh, M.R., M.R.C.S. (deceased).

BOLT, G. V., M.B., B.C. Cantab., Certifying Factory Surgeon for the Hoddesdon District, co. Hertford.

WILLIAMS, John McGeagh, M.D. Berl., D.P.H. Manch., Tuberculosis Officer for Warwickshire and Coventry.

ST. THOMAS'S HOSPITAL.—The following appointments have been made: Casualty Officers and Resident Anaesthetists: T. Anwyl-Davies, M.R.C.S., L.R.C.P.; S. L. Bhatia, B.A. Cantab., M.R.C.S., L.R.C.P.; F. E. O'R. Phillips, B.A. Cantab., M.R.C.S., L.R.C.P.; L. M. Davies, B.A. Oxon., M.R.C.S., L.R.C.P. Casualty Officers: D. C. Bluet, L. A. Cheson, M.R.C.S., L.R.C.P.; J. Forest Smith, F. H. Vey, W. Marriott, Resident House-Surgeons: J. C. N. Harris, C. B. Hyman, E. H. V. Hensley, H. G. Storer, House-Surgeon to Block 8 and Resident Anaesthetist: W. H. C. Romanis, B.A., M.B., B.C. Cantab., F.R.C.S. Eng. Obstetric House-Physician: (senior) F. E. Higgins, B.A. Cantab., M.R.C.S., L.R.C.P. Ophthalmic House-Surgeon: N. S. Nairne.

BIRTHS, MARRIAGES, AND DEATHS.

The charge for inserting announcements of Births, Marriages, and Deaths is 5s., which sum should be forwarded in Post Office Orders or Stamps with the notice not later than the first post on Wednesday morning in order to ensure insertion in the current issue.

BIRTH.

GOOD.—On February 9th, at The Hurst, Harborne, Birmingham, to Dr. and Mrs. J. Percy Good—a daughter.

MARRIAGES.

JEFFREY-PAGE-ROBERTS.—On January 10th, at Strathfieldsaye, by the Very Rev. the Dean of Salisbury, uncle of the bride, assisted by the Rev. E. C. Hetherington, Rector of Silchester, cousin of the bride, John Jeffrey, M.B., F.R.C.S. Eng., Jeddburgh, to Cicely Frederica, daughter of the Rev. F. Page-Roberts, M.A., Rector of Strathfieldsaye.

PASCO-ROBY.—On February 12th, at St. Matthew's Church, Upper Clapton, by the Rev. Walter Cottrell, M.A., assisted by the Rev. O. B. Dawson, M.A., the Vicar, Bernard Charles William Pasco, M.R.C.S., L.R.C.P. (Lieutenant R.A.M.C.), son of Mr. and Mrs. William John Pasco of Mill Hill, Middlesex, to Annie, daughter of Mr. and Mrs. George W. Roby of Stamford Hill, N.

PEARSON-EARL.—On February 14th, at St. Augustine's, Norwich, Dr. S. V. Pearson of Mundesley, to May Elizabeth, youngest daughter of Mr. and Mrs. Earl of Norwich.

DEATHS.

LAKIN.—On February 10th, at Leicester, Charles Lakin, L.R.C.P. Edin., aged 67 years.

TURNER.—On February 15th, 1916, at 6, Eton Terrace, Edinburgh, after a short illness, Sir William Turner, K.C.B., F.R.S., Principal and Vice-Chancellor of the University of Edinburgh, in his eighty-fifth year. (No flowers, by special request.)

WILLIAMS.—On February 12th, T. Hammond Williams, L.R.C.P. Edin. and L.M., L.F.P.S. Glas. and L.M., Castle House, Oswestry, aged 55 years.

DIARY FOR THE WEEK.

MONDAY.

MEDICAL SOCIETY OF LONDON, 11, Chandos Street, W., 9 p.m.—Second Lethsonian Lecture: The Effects of High Explosives on the Central Nervous System, by Major Fred. W. Motl, M.D. Lond., Hon. LL.D. Edin., F.R.S.

WEDNESDAY.

HUNTERIAN SOCIETY, 1, Wimpole Street, W., 9 p.m.—Demonstration of Gynaecological Specimens by Dr. R. Drummond Maxwell.

THURSDAY.

HARVEIAN SOCIETY OF LONDON, Stafford Rooms, Titchborne Street, W., 8.30 p.m.—Discussion on Treatment of Gunshot Wounds, to be opened by Sir Berkeley Moynihan.

ROYAL SOCIETY OF MEDICINE: SECTION OF NEUROLOGY, 8 p.m.—Clinical Meeting.

POST-GRADUATE COURSES AND LECTURES.

LONDON SCHOOL OF TROPICAL MEDICINE, Royal Albert Dock, E.

NORTH-EAST LONDON POST GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.

THE POST-GRADUATE COLLEGE, West London Hospital, Hammer-smith, W.—Clinical work; graduates only.

DIARY OF THE ASSOCIATION.

Date. Meetings to be Held.

FEBRUARY.

- | | |
|----------|--|
| 18 Fri. | London: Executive Subcommittee of Central Medical War Committee, 3.15 p.m. |
| 23 Wed. | London: Central Medical War Committee, 2 p.m. |
| 24 Thur. | Staffordshire Branch, Stafford, 5.15 p.m.; Dinner, 4 p.m. |
| 25 Fri. | London: Executive Subcommittee of Central Medical War Committee, 3.15 p.m. |

LONDON: SATURDAY, FEBRUARY 26TH, 1916.

CONTENTS.

	PAGE
RECRUITING FOR THE NAVAL AND MILITARY MEDICAL SERVICES:	
CENTRAL MEDICAL WAR COMMITTEE: CIRCULAR TO LOCAL MEDICAL WAR COMMITTEES	33
CHARACTER OF THE ENROLMENT FORMS	34
CIRCULARS BY THE LOCAL GOVERNMENT BOARD	34
ASSOCIATION NOTICES: ELECTION OF MEMBERS OF COUNCIL	35
NAVAL AND MILITARY APPOINTMENTS	36

	PAGE
INSURANCE:	
INSURANCE FUNDS	35
INSURANCE ACT IN PARLIAMENT: DISTRICT INSURANCE COMMITTEES	35
PAYMENTS TO PRACTITIONERS	36
VACANCIES AND APPOINTMENTS	36
BIRTHS, MARRIAGES, AND DEATHS	36
DIARY FOR THE WEEK	36
DIARY OF THE ASSOCIATION	36

RECRUITING FOR THE NAVAL AND MILITARY MEDICAL SERVICES.

CENTRAL MEDICAL WAR COMMITTEE.

The following circular (W. 22) has been issued by the Central Medical War Committee for England and Wales to Local Medical War Committees:

Dear Sir,

The Working of the Enrolment Scheme.

1. It is certain that a very large number of medical men will still be required for service in the R.A.M.C. The Central Medical War Committee is convinced that only through its enrolment scheme can the supply of medical officers for the Army be maintained and regulated with due regard for the needs of the civilian community and the difficulties of individual medical men. The scheme needs for its success the fullest co operation of the Local Medical War Committees, and a complete understanding of the methods to be adopted. Correspondence has been received which shows that there is much misapprehension of the intention and scope of the scheme.

Need for Every Medical Man to Enrol.

2. It is essential that every medical man of "military age" should enrol, even if he regards himself as "indispensable" to the medical service of the community in which he practises, or to the appointment he may happen to hold, or even if he considers that his private circumstances or health are such as to justify his exemption from service. He should sign the form of application for a commission without regard to any local military work that he may already have undertaken. It is not possible for any individual to arrive at an unbiased opinion on his own case, or as to whether he will best be serving the interests of the country by remaining in his own practice or by joining the R.A.M.C. The duty of obtaining the enrolment of every man of military age is the immediate and urgent work of the Central and Local Committees.

Procedure to be Adopted.

3. The Central Committee is addressing to every man of military age an invitation to sign the form of application for a commission in the R.A.M.C., and the authority to the Committee to use this form if and when necessary. The Local Committees will be informed of the names of any men in their area who have failed to apply for enrolment and will be asked to do their utmost to get them to enrol. Periodical lists of enrolments will be furnished to your Committee, the members of which should divide amongst themselves the names of such men as have not enrolled, and approach them personally or by letter.

Points to be Emphasised when Inviting Enrolment.

4. Enrolment does not necessarily mean that all or even the majority of men enrolled will be called upon for

service. Calls will only be made in accordance with the demands of the military authorities from time to time and with due consideration of the medical needs of each area and of the personal difficulties of each medical man. Calling up under the scheme will not be undertaken unless the response from men of military age throughout the country generally justifies it. No man will be called without full opportunity being given to him to lay his case before his Local Committee, and, if necessary, to appeal to the Central Committee. Complete enrolment of all men of medical age is desired, in order that only those who can most easily be spared will be called upon to undertake what is really the duty of every man who is physically fit and acceptable to the military authorities.

5. If it appears likely that the acceptance of a commission by any medical man will cause too great a disturbance of the medical attendance on the community in which he lives, or if personal difficulties, pecuniary or otherwise, render precarious the position of any medical man or of his dependants in the event of his taking service, such a man will be entitled on enrolment to set forth these difficulties to his Local Committee or, should he prefer it, to the Central Committee. But it is suggested that in the main such difficulties should be dealt with by the Local Committee, as the body to which the practitioner must look to safeguard his interests. Points on which the practitioner and the Local Committee differ, or points as to which the practitioner prefers not to consult a local body, can be referred to the Central Committee. Each committee will give the fullest consideration to all the difficulties laid before it, and, where circumstances justify such a course, the Central Committee will defer calling up the practitioner as long as is consistent with the needs of the country.

6. If a medical man has attested voluntarily under the Derby scheme, or will be deemed under the Military Service Act to have attested, his certificate of enrolment will prevent his being called upon for service in a combatant capacity. He will be told by the recruiting authorities that he will remain in the reserve until offered a commission in the R.A.M.C.

Duty of Local Committees to make Arrangements as to Practices of Men who accept Service.

7. Local Committees should think out very carefully the local position in order that they may be able to furnish the Central Committee with all the advice necessary when calls are made. They should make in advance as complete arrangements as possible for the conduct of the practices of all the men who in their opinion can be spared if it should become necessary to make the utmost demand possible from the civilian profession. Suggestions as to these arrangements will be found in the Appendix.

8. The Central Committee invites the assistance of your Committee in making enrolment a complete success, and this can only be done by obtaining the support of every medical man of military age in your district.

We are, yours faithfully,

N. BISHOP HARMAN,
ALFRED COX,

Secretaries.

429, Strand, London, W.C.,
February 17th, 1916.

* That is, from the medical standpoint, the age up to which the R.A.M.C. at present accepts men for commissions for general service—namely, up to the 40th birthday.

APPENDIX.

SUGGESTIONS AS TO ARRANGEMENTS WITH A VIEW
TO FACILITATING THE RELEASE OF MEDICAL
MEN FOR MILITARY SERVICE.

1. It will not do for the Local Committee to wait until men are called up before making their arrangements for the carrying on of the necessary work of attending the local community and protecting the interests of the men who are called up. Plans should be made beforehand based on the assumption that some at least of the local men will be withdrawn, and perhaps even, in the final event, all who could possibly be spared.

2. Such arrangements would vary in their nature in accordance with the call to be made on the area, but they must all be based on the necessity of equalizing as much as possible the inconvenience caused to the public in every area, and of protecting any practitioner who responds to the call of his country from avoidable hardship. The arrangements should be such that there could be no question of any such practitioner feeling that his colleagues who remain behind were profiting by his absence.

3. The arrangements previously suggested by the Central Committee as regards division of fees earned and the refusal to accept as patients those who have been attended for a man on service are already well known and have been adopted throughout the country. These arrangements appear to be accepted as equitable as affecting the current income of the practitioner absent on war service and also as affording sufficient protection for the goodwill of the practice in country districts and even in the smaller towns. But in the larger urban areas considerable difficulties may arise as regards the goodwill of practices. Having regard to the migratory character of town populations, and particularly the populations in the suburban areas of the great cities, many of those who were patients of a doctor when he went away will have moved out of the area before his return. In the ordinary course, if he were at home, their places would be taken by newcomers, but in his absence these will all go to his professional neighbours.

4. It has been suggested that this difficulty might be met by partnerships among the practitioners concerned limited to a period of years—say five. It is a matter of common knowledge that men in partnership can get through more work than the same men acting independently, so that such partnerships would be to the public advantage at a time like this. In such a temporary partnership of, say, five men in a district, it would be a comparatively easy thing for one or two of the partners to go on military service, putting into the partnership their military pay and each drawing as his income a share bearing the proportion to the total receipts that his income before leaving bore to the united incomes of all the partners. Goodwill would in such a case be preserved, as the absent practitioners would receive their due share of the income derived from any newcomers. By the time the partnership comes to an end the men who have been on service will have had the opportunity of re-establishing their connexion. Such a plan is of course revolutionary, but it is worth the serious consideration of the profession in cases in which it would be difficult in any other way to reassure practitioners whose departure on military service might mean very serious financial risk. It is worth consideration, too, as a means of convincing men who go that their colleagues have no desire to profit by their absence.

5. Another suggestion for local organization is the establishment of central surgeries at which the house work of a group of practitioners can be done with great economy of time and labour. This plan was first put into operation at Dundee, and has been found to work very satisfactorily.

Draft Dundee Scheme.

1. Establishment of a central office.
2. Establishment of a central dispensary. For this purpose the out-patient department of the infirmary has been kindly placed at the disposal of the Committee by the directors.
3. Any individual patient may, by arrangement between the representative of the absent doctor and another practitioner, be referred directly to that other practitioner. Such arrangement to be considered outside the scheme.
4. All messages from the patients of absent doctors to be sent to the central office.
5. It is proposed to distribute visits by locality and by rota amongst the doctors willing to participate in the scheme.
6. Consultations for patients who are able to attend at the dispensary to be conducted there. Consultation work at the infirmary it is proposed to perform by rota amongst those doctors who are to participate, each giving two hours, which may be from 5 to 7 or 7 to 9 on stated nights.
7. The doctors who have been called up have agreed to contribute for the expenses of the Committee.

8. The Local Medical Committee will engage the clerical assistance for keeping the necessary records, and the rest of the fund will be distributed amongst the doctors sharing in the work.

9. With regard to midwifery work, it is proposed to ask the maternity service of the infirmary to undertake this with the supervision of a medical staff. It is proposed to charge £1 ls. for each case, and to use this further remuneration for discharging the financial responsibility involved.

6. If the demands on the profession become much greater it will become necessary to consider some plan for redistributing some of the senior members of the profession. Statistics of the country generally show that there are some districts in which the number of general practitioners now available for attendance on the whole population is only one to 4,000, one to 5,000, or even in a few districts, one to 6,000 or more. Some of the general practitioners remaining in those districts are of military age. It is clear that they cannot be released for military service (consistently with proper regard for the needs of the civil population) unless their work can be taken over by practitioners who are over military age or otherwise unfit for military service, and who are at present resident elsewhere or engaged in other work than general practice. On the other hand, there are urban districts in which if every practitioner of military age joined the army there would still remain one general practitioner for 1,500 or 2,000 of the population. It is obvious that if practitioners in one of these latter districts who are not qualified for military service were to make arrangements for their work to be taken over by others in that district, and were to migrate temporarily to a district of the first type, they would be adding as effectively to the military resources of the country as though they joined the military forces, and such sacrifice as they made would be no greater than that made by those who in a similar position have joined the army.

7. The above suggestions are offered for the earnest consideration of the Local Committees. They raise questions of very great importance, which cannot be postponed in view of the prospect that the profession in every area may need in the interests of the country to be depleted very seriously before the war is over. The Central Committee trusts, therefore, that every Local Committee will consider the suggestions in relation to the needs of their own areas, and will favour the Central Committee with their views thereon, and with any other suggestions they may have for dealing with the general situation.

THE CHARACTER OF THE ENROLMENT FORMS.

We understand that in some quarters exception has been taken to the nature of the inquiries made on Form W.7 (particulars of civil surgeons desirous of service with the R.A.M.C.), which has been issued by the Central Medical War Committee with the circular letter of their appeal for enrolment to all medical men under the age of 45 years. Form W.7 is not one for which the Committee is in any way responsible. It is a War Office form, and the questions that are put down for answer are of the same character as the regular questions put to every applicant for a commission in any branch of His Majesty's forces. No doubt this explanation will meet such difficulties as those we have heard of.

THE LOCAL GOVERNMENT BOARD (ENGLAND
AND WALES).

The Local Government Board has issued the following circular to county councils, metropolitan borough councils, sanitary authorities (including port sanitary authorities), joint hospital boards and committees, and joint committees for appointing medical officers of health.

Local Government Board, Whitehall, S.W.,
18th February, 1916.

Sir,

I am directed by the Local Government Board to state that it has become necessary to make provisional arrangements for enabling every medical man of suitable age (45 and under), who can be spared from civil employment without serious injury to the civil population, to place himself at the disposal of the authorities; and to be prepared, if required, to take a commission in the army or navy in the near future. A representative committee of the medical profession, known as the Central Medical War Committee, has been formed to facilitate the carrying out of this object.

This Committee has asked the Board to supply them with a list of doctors of military age who are engaged in

public health work of local authorities, classified as follows:

1. Those who could be spared almost at once;
2. Those who might be spared later;
3. Those who cannot be spared.

To enable the Board to comply with this request, they will be glad if the authority will take the matter into their immediate consideration and supply the Board with the information indicated on the enclosed form. The authority in considering the matter must bear in mind the special importance of maintaining the public health at the present time, but subject to this they should be prepared to allow medical men of military age who are in their service to join the forces. In some areas a reduction of staff may be rendered feasible by co-operation between the county and district authorities, or between neighbouring authorities.

I am to add that by arrangement with the War Office, applications for commissions from medical officers of public health authorities are referred to the Board for their concurrence or otherwise, and in view of this arrangement the Board think that all such medical officers may properly enrol themselves under the scheme of the Central Medical War Committee.

I am, Sir, your obedient servant,
F. J. WILLIS,
Assistant Secretary.

The Clerk to the Local Authority.

A similar circular referring to doctors of military age employed in Poor Law institutions was issued by the Local Government Board to boards of guardians on February 23rd.

Association Notices.

ELECTION OF MEMBERS OF COUNCIL. BY BRANCHES NOT IN THE UNITED KINGDOM (1916-17 COUNCIL).

THE following nomination has been received from the under-mentioned Grouped Branches (By-law 49):

Hong Kong and China, and Malaya: Candidate, FRANCIS WILLIAM CLARK, M.D.

No other nomination having been received, Dr. Francis William Clark is duly elected a member of the 1916-17 Council.

CASUAL VACANCY (1915-16 COUNCIL).

The following nomination has been received from the under-mentioned Grouped Branches for the office of Member of Council, vacant by the resignation of Dr. Tennyson Smith:

Kent, Surrey, and Sussex: Candidate, CLAUDE WILSON, M.D., "Belmont," Church Road, Tunbridge Wells.

No other nomination having been received, Dr. Claude Wilson is duly elected a member of the 1915-16 Council.

By Order of the Council,
GUY ELLISTON,

Financial Secretary and Business Manager.

February 26th, 1916.

BRANCH AND DIVISION MEETINGS TO BE HELD.

WILTSHIRE BRANCH.—Dr. Frank F. Bond, Honorary Secretary (Court House, Trowbridge), gives notice that a meeting of the Branch will be held at the Town Hall, Trowbridge, on Saturday, March 4th, at 3.0 p.m. (1) Captain J. O. Symes, R.A.M.C.(T.): On the Diagnosis and Treatment of Medical Cases at a Base Hospital in this Country. Microscopic specimens of dysenteric organisms will be shown. (2) Consideration of revised ethical rules. Tea will be provided at the close of the meeting.

INSURANCE.

INSURANCE FUNDS.

THE National Health Insurance Funds Accounts for England, Wales, Scotland, and Ireland, issued last week, show for each of the four countries the receipts and payments during the period July 15th, 1912, to January 11th, 1914. As stated in the report of the Auditor-General which accompanies them, these are the first accounts. The contributions named in the accounts were payable from July, 1912, but, with the exception of sanatorium benefit which became operative from the commencement of the Act, benefits were not conferred until after a period of six months had elapsed. Thus the larger items of expenditure, namely, those for sickness, maternity and medical benefits are for a period of twelve months only out of the eighteen months covered by the accounts. Among the enormous mass of particulars given, the following as to England may be mentioned as of special interest:

ENGLAND.

	£
Sale of health insurance stamps at post offices	19,783,000
Exchequer grants	4,532,089
Payments to approved societies for sickness and maternity benefits and administration expenses	8,774,908
To Insurance Committees for benefits and administration expenses	4,623,287
To deposit contributors for sickness, maternity, and special benefits	15,726
To approved societies for investment	870,519
Gross contributions to approved societies	21,387,026
Exchequer grants to societies in respect of benefits and administration expenses	1,969,222
Gross contributions to the Navy and Army Fund	110,650
Gross contributions to Deposit Contributors Fund (with Exchequer grants of £7,356 in respect of contributions, and £3,122 in respect of benefits)	483,570
The General Medical Benefit Fund for England was as follows:	
Income from January 15th, 1913, to January 14th, 1914:	
From approved societies	2,384,825
From deposit contributors	57,251
From Navy and Army Insurance Fund	95
From Exchequer: Ordinary grant	728,729
From Exchequer: Special grant	1,300,226
Total income	4,471,128
Payments:	
To Insurance Committees for year 1913 in respect of medical benefit	4,384,149
To Central Medical Fund in respect of travellers	91
Balance	86,887

The General Sanatorium Benefit Fund for England for the period July 15th, 1912, to January 12th, 1914, was as follows:

Income:	
From approved societies	744,930
From deposit contributors	20,212
From Exchequer	272,729
Total income	1,037,871
Payments:	
To Insurance Committees in respect of sanatorium benefit	1,012,600
Central funds (travellers)	13
Balance	25,257

The total balances of all the funds amounted to £13,009,329, against which the Commissioners have investments with the National Debt Commissioners of £12,432,200. Cash at the Bank of England £200,872 and sundry other amounts to cover the balances.

SCOTLAND.

In an address to an approved Scottish society on February 19th the chairman of the Scottish Insurance Commissioners said that there were more than 1,500,000 insured persons in Scotland, of whom only about 3,000 were voluntarily insured. The amount received to the end of 1915 from all sources was nearly £9,000,000; it had been disposed of as follows: Nearly £2,000,000 to Insurance Committees for the payment of doctors and chemists, etc.; three and a quarter million to approved societies for the payments of benefits and the cost of administration; and half a million for investment by themselves; three and a half million invested by the Commissioners on behalf of the societies for reserves, and so on. Some societies would have a considerable surplus, others would just scrape through; and others, again, would possibly have a deficit. This was due to the option given to the societies; there could be no bankruptcy in the general sense, but societies which had been paying away too much at one period might have to pay less in another, and might have to make a levy. Married women had proved to be more costly to a society than other women, and women on the whole did not enjoy the same health as men. Some occupations also were more unhealthy than others. These matters would, he hoped, be examined by the committee of inquiry.

INSURANCE ACT IN PARLIAMENT.

DISTRICT INSURANCE COMMITTEES.

IN reply to Mr. Tyson Wilson, on February 22nd, the Chairman of the Joint Committee of Insurance Commissioners said that the activities of district insurance committees had in many areas been suspended in the interests of economy. The action taken in Lancashire, to which Mr. Wilson's question referred, was without prejudice to the future and had the strong support of the insurance committee for the county. Regard had to be had to the circumstances of each area.

The Treasury Committee.—Mr. Montagu has informed Mr. Booth that the question of opening to the public the meetings of the Treasury Committee appointed to examine the finance of the insurance scheme was one for determination by that Committee. It had held three meetings and was deliberating in private. In reply to Mr. Ernest Jardine he said that there were three women members of the Committee. It was not proposed to vary its composition.

PAYMENTS TO PRACTITIONERS.

DR. J. CULMER (Birmingham) writes: As there seems to be no prospect of panel moneys for 1914 and 1915 being paid—I refer, of course, to deductions owing—I would suggest that the B.M.A. should approach the Commissioners with the request that each doctor's arrears should be paid by Exchequer Bonds. That would be doing a bit for the Government and to us as well. Personally I am owed at the least £170 for the two years, a sum which I can ill afford to do without.

G. P. writes: On page 18 of the SUPPLEMENT of January 29th, under the Insurance Acts Committee, the last paragraph states that practically and to all intents and purposes no more pressure is to be brought to bear on the Insurance Commissioners over prompt payment of accounts until after the war is finished, which may be this year or next year or some other year.

Now, has this Committee ever asked itself what is the total amount owing for 1914 till 1915 to the practitioners as a whole? For this county for 1913 there is still over £1,000 to come in. For 1914 and 1915 there has been no payments made on account of mileage, of temporary patients, of balances of floating sixpences, of unallocated moneys, whilst the quarterly cheques are very excessively diminished.

If this is so over the whole country, there must be a million or more due to the practitioners, and I would like to ask the Committee if they have ever considered what the effect of being obliged to give this long credit has upon the financial status of the individual practitioner. Has the Committee any idea as to how many practitioners may have had to obtain overdrafts, loans, or reversions in order that they may meet their everyday expenses?

Naval and Military Appointments.

ROYAL NAVAL MEDICAL SERVICE.

THE following appointments are announced by the Admiralty: Surgeon-General (temporary) G. R. Turner, F.R.C.S., to the *Vivid*, additional, for Plymouth Hospital, as Consulting Surgeon; Fleet Surgeon A. Gaskell, C.B., F.R.C.S., to the *Hyacinth*, additional, for Cape of Good Hope Hospital; H. L. Norris to the *Victory*. Surgeons: I. S. Gabe to the *Victorious*; A. G. Evans to the *Pembroke*, additional, for disposal. Temporary Surgeons: H. Whyte to the *Victory*, additional, for Haslar Hospital; H. E. K. Fretz to the *Colleen*, additional, for Haulbowline Hospital; J. Smith, M.B., to the *Pembroke*; C. Y. Eccles to Haslar Hospital; H. Danvers, M.D., to the *Victory*, additional, for disposal; R. Aiken, M.D., to the *Plassy*.

ARMY MEDICAL SERVICE.

ROYAL ARMY MEDICAL CORPS.

Lieutenant-Colonel M. O'Halloran is retained on the active list under the provisions of Articles 120 and '22, Royal Warrant for Pay and Promotion, and to be supernumerary.

Temporary honorary Lieutenant-Colonel R. T. Leiper, M.B., to be temporary Lieutenant-Colonel.

To be temporary Captains: J. R. H. Walker, M.D., late temporary Captain I.M.S.; E. Black; Lieutenant (temporary Captain) A. D. Clinch, M.D., from Dublin University O.T.C.

Vacancies and Appointments.

NOTICES REGARDING APPOINTMENTS.—Attention is called to a Notice (see Index to Advertisements—Important Notice re Appointments) appearing in our advertisement columns, giving particulars of vacancies as to which inquiries should be made before application.

VACANCIES.

BIRMINGHAM MATERNITY HOSPITAL.—Resident House-Surgeon (female). Salary, £100 per annum.

BOLTON INFIRMARY AND DISPENSARY.—Second House-Surgeon. Salary, £200 per annum.

BRADFORD CITY.—Female Medical Officer (temporary). Salary, £8 8s. a week.

BRIDGWATER HOSPITAL.—House-Surgeon. Salary, £125 per annum.

BRISTOL ROYAL INFIRMARY.—(1) House Physicians; (2) House-Surgeons. Salary, £100 per annum in each case.

BURY INFIRMARY.—Junior House-Surgeon. Salary, £150 per annum.

CAMBRIDGESHIRE ASYLUM, Fulbourn.—Junior Assistant Medical Officer (male). Salary, £200 per annum, rising to £250

CHARING CROSS HOSPITAL.—Medical and Surgical Registrars.

GROSVENOR SANATORIUM, Kennington, Ashford.—Assistant Resident Medical Officer. Salary, £200 per annum

GUILDFORD: ROYAL SURREY COUNTY HOSPITAL.—House-Surgeon. Salary, £150 per annum.

HAMSTEAD GENERAL AND NORTH-WEST LONDON HOSPITAL, Haverstock Hill, N.W.—Three Anaesthetists. Honorarium, £25 per annum.

ITALIAN HOSPITAL, Queen Square, W.C.—House-Surgeon. Salary, £80 per annum.

KING EDWARD VII HOSPITAL FOR OFFICERS, Grosvenor Gardens, S.W.—Resident Medical Officer.

KIRKWALL: PARISH OF EDAY.—Medical Officer.

LEEDS PUBLIC DISPENSARY.—Lady Resident Medical Officer. Salary, £130.

LONDON UNIVERSITY.—Examiners in (1) Medicine, (2) Bacteriology, (3) Mental Diseases and Psychology, (4) Pharmacology.

NORTHAMPTONSHIRE WAR HOSPITAL, Duston.—(1) Pathologist and Bacteriologist; (2) Radiographer. Salary, £1 a day.

PETERBOROUGH INFIRMARY.—House-Surgeon. Salary, £150 per annum.

QUEEN CHARLOTTE'S LYING-IN HOSPITAL, Marylebone Road, N.W.—Assistant Resident Medical Officer (female). Salary, £60 per annum.

QUEEN'S HOSPITAL FOR CHILDREN, Hackney Road, E.—House-Surgeons. Salary, £100 per annum.

SALFORD POOR LAW UNION INFIRMARY.—Male Resident Assistant Medical Officer. Salary, £300 per annum; and if reappointed, £350.

SHEFFIELD ROYAL INFIRMARY.—House-Surgeon. Salary, £100 per annum.

SOUTHPORT INFIRMARY.—Junior House-Surgeon. Salary, £3 3 a week.

SOUTH SHIELDS: INGHAM INFIRMARY AND SOUTH SHIELDS AND WESTOE DISPENSARY.—House-Surgeon. Salary, £150 per annum.

SUNDERLAND ROYAL INFIRMARY.—Lady House-Surgeon. Salary, £150 per annum.

WOLVERHAMPTON AND MIDLAND COUNTIES EYE INFIRMARY.—House-Surgeon. Salary, £150 per annum.

To ensure notice in this column—which is compiled from our advertisement columns, where full particulars will be found—it is necessary that advertisements should be received not later than the first post on Wednesday morning. Persons interested should refer also to the Index to Advertisements which follows the Table of Contents in the JOURNAL.

APPOINTMENTS.

ALLAN, E., F.R.C.S. Edin., L.F.P.S. Glasg., Certifying Factory Surgeon for the Barrow-in-Furness District, co. Lancaster.

BAKER, Madeleine S., M.D., B.Ch., Assistant School Medical Officer, Acting School Medical Officer to the Bristol Education Committee for the period of the war.

BRADLEY, F., M.B., B.Ch., N.U.I., Certifying Factory Surgeon for the Fintona District, co. Tyrone.

LOVE, R. J., L.R.C.P. and S. Edin., Certifying Factory Surgeon for the Staplehurst District, co. Kent.

BIRTHS, MARRIAGES, AND DEATHS.

The charge for inserting announcements of Births, Marriages, and Deaths is 5s., which sum should be forwarded in Post Office Orders or Stamps with the notice not later than the first post on Wednesday morning in order to ensure insertion in the current issue.

DEATH.

TURNER.—On February 15th, 1916, at 6, Eton Terrace, Edinburgh, after a short illness, Sir William Turner, K.C.B., F.R.S., Principal and Vice-Chancellor of the University of Edinburgh, in his eighty-fifth year. (No flowers, by special request.)

DIARY FOR THE WEEK.

MONDAY.

ROYAL SOCIETY OF MEDICINE:

SECTION OF ODONTOLOGY. 5.30 p.m.—Debate on War Injuries of the Jaws and Face, to be opened by Mr. J. Lewin Payne. Exhibition of Dental Splints, open from Tuesday, February 22nd, to Monday, February 28th, from 11 a.m. to 6.30 p.m. each day.

THURSDAY.

ROYAL SOCIETY OF MEDICINE:

SECTION OF BALNEOLOGY AND CLIMATOLOGY. 5.30 p.m.—Dr. Clippingdale: The Thame Valley. Members will dine together at Pagani's Restaurant, Great Portland Street, W., at 7.15 p.m., and may bring guests.

FRIDAY.

ROYAL SOCIETY OF MEDICINE:

SECTION OF LARYNGOLOGY. 4 p.m.—Specimens and Cases. **SECTION OF ANAESTHETICS.** 8.30 p.m.—Captain G. Marshall, R.A.M.C.: The Choice of Anaesthetics at a Casualty Clearing Station. Demonstrations.

WEST LONDON MEDICO-CHIRURGICAL SOCIETY. West London Hospital.—8 p.m., Cases. 8.30 p.m., Mr. J. G. Pardoe: Prostatitis, Acute and Chronic.

ROYAL COLLEGE OF SURGEONS OF ENGLAND. Monday, Wednesday, and Friday, 5 p.m.—Arris and Gale Lectures on The Influence of the Arboreal Habit in the Evolution of Man, by Dr. F. Wood Jones.

POST-GRADUATE COURSES AND LECTURES.

LONDON SCHOOL OF TROPICAL MEDICINE. Royal Albert Dock, E. **NORTH-EAST LONDON POST-GRADUATE COLLEGE.** Prince of Wales's General Hospital, Tottenham, N.

THE POST-GRADUATE COLLEGE. West London Hospital, Hammer-smith, W.—Clinical work; graduates only.

DIARY OF THE ASSOCIATION.

Date.	Meetings to be Held.
FEBRUARY.	
25 Fri.	London: Executive Subcommittee of Central Medical War Committee, 3.15 p.m.
MARCH.	
1 Wed.	Lor lon: Central Medical War Committee, 2 p.m.
4 Sat.	Wiltshire Branch. Trowbridge, 3 p.m.

BRITISH MEDICAL JOURNAL.

LONDON: SATURDAY, MARCH 4TH, 1916.

CONTENTS.

	PAGE		PAGE
IRISH MEDICAL WAR COMMITTEE	37	INSURANCE:	
DOCTORS ON ACTIVE SERVICE: SCHEME FOR ATTENDANCE		PAYMENTS TO PRACTITIONERS	38
TO THEIR PRACTICES	37	LONDON INSURANCE COMMITTEE	38
MEETINGS OF BRANCHES AND DIVISIONS:		LOCAL MEDICAL AND PANEL COMMITTEES...	39
CAMBRIDGE BRANCH: ISLE OF ELY DIVISION	37	VACANCIES AND APPOINTMENTS	40
METROPOLITAN COUNTIES BRANCH: SOUTH-WEST ESSEX		BIRTHS, MARRIAGES, AND DEATHS	40
DIVISION	37	DIARY FOR THE WEEK	40
NAVAL AND MILITARY APPOINTMENTS	39	DIARY OF THE ASSOCIATION	40

IRISH MEDICAL WAR COMMITTEE.

A MEETING of the Irish Medical War Committee was held at the Royal College of Physicians of Ireland on February 22nd, when Dr. McDowell Cosgrave, P.R.C.P.L., was in the chair, and the following members were present: F. Conway Dwyer, P.R.C.S.I.; Professor Dixon, Dr. R. J. Rowlette, Colonel Hearn, R.A.M.C., Alderman J. McWalter, Dr. T. Hennessy, and Dr. M. R. J. Hayes, honorary secretary.

The Committee had under consideration the action of some Irish boards of guardians which had cancelled the appointments made by them at previous board meetings of the locumtenents nominated by their medical officers when joining the Royal Army Medical Corps. Poor Law medical officers, when joining the R.A.M.C., nominate locumtenents who, in addition to the discharge of their official duties, undertake to look after their private practice, on terms advantageous to them, while absent. When such arrangements have been made between boards of guardians and their medical officers who have joined the R.A.M.C., and have further received the approval of the Local Government Board, which has to be satisfied before giving its sanction that provision is made for the efficient treatment of the sick poor, there is no excuse for interfering subsequently with these arrangements. The Committee, having very carefully considered the matter, directed their secretary to communicate with the boards of guardians in question and the Local Government Board, and to point out to them that so long as satisfactory arrangements were made for the treatment of the sick poor, the locumtenent nominated by the doctor who was about to join the R.A.M.C. should be appointed, as this would allow provision to be made on satisfactory terms for the conduct of the private practice of the Poor Law medical officer who had joined. The secretary was also directed to point out to the boards of guardians that if they should cancel appointments of locumtenents mutually agreed upon between themselves and their medical officers and sanctioned by the Local Government Board, it would have a very injurious effect on medical recruiting for the R.A.M.C. in Ireland.

DOCTORS ON ACTIVE SERVICE.

SCHEME FOR ATTENDANCE TO THEIR PRACTICES.

THE Partick and District Medical Society has brought into operation a scheme for attending to the practices of doctors on active service; it has been accepted by thirty-eight doctors in the district.

A financial secretary has been appointed to carry out clerical work and to arrange the money payments, and each doctor going on active service is instructed to appoint a representative to transact necessary business during his absence. Failing special arrangements by the doctor, panel patients will be distributed by the society according to locality. An emergency committee, which acts in an advisory capacity, will notify the insured persons, and will consider any objections. It would be competent for insured persons who have failed to choose a doctor, or have recently become insured, to choose a doctor on service, and for the acting doctor to sign the acceptance. Failing special arrangements, private patients may make their own arrangements with any member of the society for attendance, which will be given on behalf of the doctor on service, and practitioners remaining at home pledge themselves not to

accept patients of absent doctors as their own during the war, or within one year of the doctor's return, without his consent.

Payments in respect of panel patients will be divided on the basis of 60 per cent. to the doctors on service, subject to deduction of clerical expenses, and 40 per cent. to the acting doctor. Fees for private patients are to be equally divided, with the exception that the acting doctor shall retain the whole fee in the case of midwifery cases and miscarriages, administration of general anaesthetics, removal of tonsils, and like operations, lunacy and life insurance certificates, legal reports and court attendance, and notification of infectious diseases. Accounts will be rendered by the acting doctor, who will make a half-yearly statement and settlement to the representative of each absent doctor.

Should a doctor die on service, or be incapacitated, or remain permanently in the army, the society undertakes to assist in the advantageous disposal of the practice. Each acting doctor will hand to the representative the list of panel and private patients he has attended, and in the event of patients of a deceased or disabled doctor desiring to retain the services of the acting doctor, the latter shall pay to the representative half the fees paid for work during the ensuing year, with the exception of those enumerated above.

Meetings of Branches and Divisions.

CAMBRIDGE BRANCH:

ISLE OF ELY DIVISION.

A MEETING of the Division was held at March on February 10th, when the Vice-Chairman, Dr. C. H. GUNSON, presided, and the SECRETARY presented the annual balance sheet for the past year, which showed a deficit of 8s. 10½d. The revised ethical rules, as approved by the Representative Meeting, 1915, were adopted by the Division.

Reduced Lighting Order.—The Secretary was instructed to write to the Chief Constable asking if some form of modified motor head light would be permitted to practitioners for use on Fen journeys.

Examination of School Children.—It was resolved to accept the offer of the Education Committee of 2s. 6d. a case for examinations of school children during the absence on military duty of the school medical officer.

METROPOLITAN COUNTIES BRANCH:

SOUTH-WEST ESSEX DIVISION.

Attendance on Dependants of Soldiers.—A meeting of the Division to which all members of the profession in south-west Essex were invited was held on February 17th at Leyton, to discuss the question whether members of the profession should continue to give free medical attendance to the dependants of soldiers. Dr. CHARLES R. DYKES was in the chair. DES. BONNEFIN, VERE HODGE, POTTINGER ELDERED, BLAKE, GREENWOOD, HICKMAN, DREW HARRIS, and TODD-WHITE took part in the discussion, and the following resolutions were carried:

That this meeting of medical men resident in south-west Essex is of opinion that the scheme (for attendance on dependants of soldiers) in its present form should be modified so that free medical attendance should be confined to the dependants of soldiers and sailors who are known to be in necessitous circumstances, after a preliminary inquiry by the Committee, and that the medical man should be the judge in this matter.

That the Honorary Secretary be instructed to write to the various local committees of the Prince of Wales's Fund and point out to them that, when the profession undertook to give free attendance to the families of soldiers and sailors,

the war had just commenced, it was not thought that it would last so long, or that such an enormous army would be raised, placing so many people under the heading of "dependants of soldiers." Moreover, since the profession made this offer, the allowances to soldiers have been greatly increased, and there is therefore no necessity for such wholesale free attendance as in the past, and the Committee should only issue books to dependants who are really in straitened circumstances and unable to pay for medical attendance.

Enrolment.—Dr. VERE HODGE proposed, and Dr. POTTINGER ELDRED seconded, the following resolution, which was carried:

That in the opinion of this meeting of medical men of south-west Essex, all the medical men in any given area should, if they enrol at all, enrol all at the same time under the "British Medical Association" scheme.

INSURANCE.

INSURANCE NOTES.

PAYMENTS TO PRACTITIONERS.

Scottish Committee of the British Medical Association.

On February 9th the Scottish Committee of the British Medical Association addressed a letter to the Insurance Commission (Scotland) stating that considerable dissatisfaction existed among panel practitioners at the prospect of payments for 1915 being delayed, as had been those for 1914. It was considered that whatever excuse due to the war there might have been for delays in regard to 1914 could hardly apply to 1915, seeing that there had been ample time to put into operation the machinery for ascertaining the names of insured persons who enlisted. Any uncertainty as to the exact number was due primarily to the inertia of the approved societies, which would not voluntarily send the necessary information to the Commissioners, and secondarily to the fact that no particular pressure was being put upon them by the Commissioners. The letter concluded by asking whether during 1915 there would be the same deductions and the same delay, and, if such deductions and delays were expected, what steps were being taken to obviate them. The following reply has been received from the Scottish Commissioners:

National Health Insurance Commission (Scotland),
83, Princes Street, Edinburgh,
24th February, 1916.

Sir,

I am directed by the Scottish Insurance Commissioners to refer to your letter of the 9th instant regarding the question of a settlement with practitioners, and am to inform you that the Commissioners are now in a position to proceed with a final settlement for the year 1914, and that this will be advised to Committees so soon as the necessary calculations can be carried through. As you are aware, the position as regards enlistments has been a very difficult one, but the blame is not entirely due to approved societies as your letter indicates. The Commissioners have from time to time taken action to impress upon societies the necessity for early intimation, and they are satisfied that in many cases where such intimation has not been given the society has been unable to ascertain the facts.

As regards the year 1915 the Commissioners will, within a short period, intimate a provisional credit to Insurance Committees which will enable the Committee in most areas to make further payments to practitioners. The final settlement for 1915 cannot be made until the Medical Benefit Fund has been ascertained after taking into account (1) the contribution cards surrendered by or on behalf of insured persons, and (2) the adjustments requiring to be made in respect of enlistments. The Commissioners confidently anticipate, however, that the final settlement will be carried through during the current year.

The Commissioners appreciate the disadvantage of any avoidable delay in intimating credits to committees so that they may settle with practitioners. On the other hand, to give higher provisional credits than may ultimately be found to be due would create even greater difficulty if they involved any question of refund by practitioners. Accordingly, the Commissioners will do all in their power to accelerate payments, provided that these can be made on a basis that secures the practitioner against any question of being asked to refund.

I am, Sir, your obedient servant,

JOHN JEFFREY, Secretary.

A TEMPORARY LIEUTENANT'S WIFE writes: With reference to "G. P.'s" letter in the SUPPLEMENT to the JOURNAL of February 26th, p. 36, I, too, was staggered to read in the issue of January 29th that "no more pressure was to be brought to bear upon the Insurance Commissioners to obtain payment of moneys owing to practitioners for the years 1914 and 1915 until after the war." My husband has joined the R.A.M.C. I pay the lieutenant seven guineas a week (indoors), chauffeur 35s. (outdoors)—just two items, by the way, incurred in attending

to insured persons. The Insurance Committee for Glamorgan owe us well over £200. To pay my way now I am entrenching on our savings. In addition, the wives and families of over 100 men who have joined the colours are being attended free. In my humble opinion no grosser scandal ever existed.

ENSIFORM writes: I was much astonished at the letters of Dr. J. Culmer and "G. P." in your issue of February 26th. In December last the Medical Secretary (Dr. Cox) was informed by the Commissioners that the funds referred to had been placed in the hands of the County Committees, and that distribution would take place "forthwith."

In the two counties in which I am interested the funds are known to have been at the disposal of the committees since early in December, but still no distribution! Apparently this awaits the pleasure of the secretary, who can always find time to write on such important matters as the correct procedure in respect of travellers' vouchers, "surcharges" to be deducted, and triplicate notices as to the movements of tuberculous cases, etc.

As Panel Committees seem to be seldom summoned, and to have merely nominal functions, the only hope of redress would seem to lie with the British Medical Association.

I would suggest, therefore, that a vigorous protest should be made by the Medical Secretary (Dr. Cox) against the unfair and unbusinesslike withholding of moneys long overdue. If we sit quiet now, we shall have worse to face before long; the time for complaisance has run out.

Dr. W. CONWAY GENT (North Curry) writes: Dr. Culmer's suggestion in the SUPPLEMENT to the BRITISH MEDICAL JOURNAL, February 26th (p. 36) might be made more attractive to the Commissioners if we agreed to purchase an amount in Exchequer Bonds equal to the sum allotted to us in settlement of arrears.

For example, supposing the Commissioners owe me £50 arrears, and I invest £50 in Exchequer Bonds, a similar amount should be allotted me on account of arrears. So that my £50 would secure £100 of Exchequer Bonds, and I should give a receipt for £50 received on account of arrears.

Exchequer Bonds are "Bearer" Bonds, and bankers will always advance money on them. I believe a scheme modelled on these lines would induce many medical men to invest, and would bring in quite a substantial amount to the Chancellor of the Exchequer.

"G. P." (SUPPLEMENT, BRITISH MEDICAL JOURNAL, February 26th, 1916, p. 36), and others who have written to the Medical Department of the British Medical Association have fallen into an error as to the meaning of a paragraph in the report of the Proceedings of Council (SUPPLEMENT, BRITISH MEDICAL JOURNAL, January 29th, 1916, p. 18).

In that paragraph the Council stated its intention not to bring any further pressure to bear on the Government at present as regards the special claim of panel practitioners for consideration owing to the taking away from their lists of many of the healthy lives while leaving the men who are on the whole not such good lives as those who have joined the army, and the women workers. The Council based its decision on the difficulty of securing accurate data on which a case for special treatment could be made out. The paragraph had nothing to do with the steps taken to induce the Commissioners to put the payment of accounts due to panel practitioners on a proper business-like basis. This matter has been, and will be, prosecuted vigorously.

INSURANCE COMMITTEES.

LONDON.

Sanatorium Benefit and Practitioners' Remuneration.

At the meeting of the London Insurance Committee on February 27th the Finance Subcommittee presented a report in which it was stated that the sum of 9d. a head remaining to be allotted for sanatorium benefit purposes (after the deduction of the "domiciliary 6d.") had to bear the whole cost of the treatment of insured persons in sanatoriums, hospitals, and dispensaries, the examination of applicants, the supply of medicines, etc., and that it became a question whether there should not be a reconsideration, not of the remuneration of the medical practitioner, but of the source from which that remuneration was derived. It had been agreed between the Chancellor and the medical profession that the question of the "domiciliary 6d." should be subject to reconsideration at the end of the third year; and the depleted state of the Sanatorium Benefit Fund made this very desirable. The report suggested that domiciliary treatment, although unsatisfactory in many instances from the circumstances of the patient's environment, would probably lead to the detection of a much greater percentage of early cases of tuberculosis if every panel practitioner realized his duty to his patients by giving the time necessary for making a thorough examination and more complete diagnosis.

The report was strongly opposed by Dr. B. A. RICHMOND and Dr. H. H. MILLS, the former challenging certain figures as to the Sanatorium Benefit Fund, and urging that the attack on the profession was based upon misconceptions as to what domiciliary treatment really was. The cases classified under this head by the Committee represented only a small proportion of cases attended by practitioners. In the early stages, although the work of the practitioner was then most important and arduous, the cases were not recorded. He knew of practitioners who dealt with cases of tuberculosis among insured persons throughout the whole of the illness, and yet the Committee gave them no credit for this work because the insured person did not choose to apply for sanatorium benefit. Mr. HANDEL BOOTH, M.P., pleaded that the doctors should not put themselves so habitually into the attitude of accused persons, and also that they should not drag the question of their own remuneration into everything.

Dr. Richmond's motion to refer the report back was lost, only three voting in its favour; and a motion was subsequently carried *nomine contradicente* stating that owing to lack of funds the Committee was unable properly to discharge its duties (in respect to sanatorium benefit) to the insured person, and calling upon the Insurance Commissioners to take steps to remedy the deficiency.

LOCAL MEDICAL AND PANEL COMMITTEES.

LONDON.

Complaints against Panel Practitioners.—At the meeting of the London Panel Committee on February 22nd the CHAIRMAN stated, in reply to a question, that during the last three years the number of complaints made by, or on behalf of, insured persons in London against panel practitioners was 303, of which 168 had been sustained. The total number of medical men complained against was 251, and in the case of 39 of these more than one complaint was lodged. The number of practitioners upon whom penalties had been imposed was 105.

Arrangements with Deputies.—The consideration of a case in which a practitioner with 2,776 persons on his list had entered the army and transferred his practice temporarily to a deputy who already had a list of 2,250, led several speakers to express the opinion that it would be a dangerous precedent for the Committee to define the number which a panel practitioner might have on his list. The report of the Panel Service Subcommittee stated that after reviewing the local conditions it appeared that in this case such a responsibility could not be undertaken satisfactorily by the one deputy. By a small majority the Committee agreed to accept the Subcommittee's report, and expressed the view that it was desirable that in all cases in which a full-time locum tenens was not appointed advantage should be taken of the Committee's War Emergency Scheme by which the work of the practice is arranged with due regard to the number of panel practitioners in the locality.

Treatment and Care of Measles.—Opposition was expressed in the report of the General Purposes Subcommittee to the scheme prepared by the Central Council for District Nursing in London, which, it was alleged, made it possible for cases of measles and whooping-cough to be attended by nurses without the direct supervision of a medical practitioner. Some members of the committee, however, denied that the scheme could bear this interpretation. The meeting adjourned without coming to any decision as to a recommendation on the agenda pointing out the desirability of the medical care and treatment of these affections remaining in the hands of the general practitioner, instead of being transferred to full time medical officers.

EAST SUFFOLK.

At a meeting of the Panel Committee on February 8th, the Clerk of the Insurance Committee was requested to refrain in future from sending financial statements through the post in unsealed envelopes. The Secretary was instructed to draw the attention of the authorities in East Suffolk to the resolution of the Insurance Acts Committee of the British Medical Association to the effect that the provision of proper and sufficient medicines, as contemplated by the 1911 Act, does not include the supply of salvarsan, vaccine, sera, etc., and that, with a view to the proper treatment of insured persons, public health

authorities should be urged to use the powers they possess and which most of them utilize—namely, to supply diphtherial serum gratuitously. It was decided that it was not necessary to hold a conference of representatives of Local Medical and Panel Committees in 1916.

YORK.

At a meeting of the Local Medical and Panel Committee on February 2nd, it was decided to appoint a subcommittee to deal with the question of prescribing in the area, as affecting the Panel Committee, and to give it power to complete arrangements with the Joint Committee as to the provision to the Panel Committee of such additional data over and above those to be provided gratis as would enable it to decide upon the question of extravagant prescribing by any practitioner in the area, the cost of such investigations as might be necessary not to exceed 2s. 6d. per 1,000 prescriptions dealt with.

It was agreed that it was not advisable to hold a conference of representatives of Local Medical and Panel Committees in 1916.

Naval and Military Appointments.

ROYAL NAVAL MEDICAL SERVICE.

The following announcements are notified by the Admiralty: Staff Surgeons to be Fleet Surgeons: R. W. G. Stewart, M.B., W. P. Walker, M.B., J. G. Wallis, M.B., H. R. H. Denny, J. B. Muir, M.B., J. O'Hea, J. St. J. Murphy, A. J. Hewitt, L. S. Whitlam, M.B., G. M. Eastment, W. P. Dyer, T. H. Vickers, and R. B. Horley. Staff Surgeon F. R. Townsend to the *Vivid*, additional, for disposal. Surgeons M. P. Caldwell, M.B., to the *Pembroke*, additional, for Yarmouth Hospital; F. G. H. Black, M.D., to the *Pembroke*, additional, for disposal. Temporary Surgeons C. Banes, O. H. Gotch, M.B., and P. C. Woodlatt, F.R.C.S., to the *Victory*, additional, for Haslar Hospital; S. L. Harke, to the *Pembroke*, additional, for disposal.

ROYAL NAVAL VOLUNTEER RESERVE.

To be Surgeon Probationers: V. M. Syngé, F. S. Horrocks, R. Weaver, L. C. Goumet, F. P. N. Parsons, J. S. Westwarter, T. G. Evans, C. G. Terrell, A. E. Ward, C. E. Cobb, R. N. Gibson, T. Carlyle, A. D. Wall, W. G. Thompson, O. K. Cullen, A. W. Kirkham, R. L. Walker, W. S. Sykes, A. P. Gallaher, A. I. Cox, P. S. Walker, R. J. Farmer, and A. R. Matheson.

ARMY MEDICAL SERVICE.

Surgeon-General J. G. MacNeuse, C.B., and Colonel S. Westcott, C.B., C.M.G., are retained on the active list under the provisions of Articles 120 and 522, Royal Warrant for Pay and Promotion, and to be supernumerary.

ROYAL ARMY MEDICAL CORPS.

Major R. S. Smyth, M.D., retires on gratuity. To be temporary Majors: R. D. Hotchkiss, M.D., temporary Captain F. A. A. Holmden, D.S.O., M.B., A. W. May, M.D. Temporary Captain A. H. James relinquishes his commission. Temporary Lieutenants to be temporary Captains: J. H. Glover, M.B., G. Filde, M.B., H. W. S. Wright, E. C. Malden, W. K. A. Richards, C. Roche, J. W. Gilbert, B. H. Browning, K. Playfair, J. H. Bampton, M.B., F. R. Harris, T. A. Watson, M.D., T. L. Enright, H. H. Weekes, M.D., A. H. Wilson, A. G. P. Hardwick, W. J. B. Sellkirk, M.D., R. M. Fraser, W. D. Dunlop, M.B., T. H. F. Roberts, D. Wilson, M.B., G. W. B. James, M.D., B. E. Parmiter, M.B., J. W. McKinney, M.B., C. E. Tawee, M.B., J. D. Forrester, M.B., G. Smith, A. B. Wightman, M.B., R. A. Morrell, S. B. Radley, M.B., F.R.C.S., L. C. Dillon-Kelly, C. F. Dillon-Kelly, E. P. Leahy, M.B., E. Tindall, M.B., R. H. Liscombe, M.B., F. L. Cleland, M.B., A. Fullerton, M.B., E. E. Herga, W. A. Coats, M.B., T. E. Roberts, R. R. Armstrong, M.B., J. A. F. Hatch, M. Gross, A. W. Comber, W. Anderson, M.B., F.R.C.S.E., G. A. Shiel, D. M. Morison, M.B., M. H. Fleming, C. E. Freeman, H. Smith, M.B., W. B. Sanders, M.B., D. J. Jones, M.B., C. H. G. France, H. J. Gator, G. G. Bartholomew, M.B., W. R. Knightley, P. M. Heath, F.R.C.S., H. O. Harrison, A. E. Sellar, A. Cowe, M.B., J. E. Davies, J. C. Neil, M.B., W. MacLeod, O. B. Pratt, T. W. Wadsworth, M.D., E. H. Fennessy, M.B., S. T. Lewis, M.B., D. F. A. Neilson, H. V. Lamb, L. H. Terry, P. L. T. Bennett, J. H. Boag, M.B., W. F. MacAlevy, K. M. Nelson, A. H. Towers, M.B., H. S. Turner, P. P. Warren, P. W. White, M.B., H. G. Morris, M.B., M. Ramsay, M.B., C. R. Nicholson, M. Nicoll, M.B., H. C. Hight, M.D., A. Scott, M.B., late Surgeon, R.N.

Temporary Lieutenants relinquishing their commissions: F. P. Walsh, A. N. Craig, M.B., A. St. Johnston, G. L. Jones, A. J. B. Leckie, M.D., G. Reid, M.B., W. Wilesworth, R. L. E. Downer, M.D.

Temporary Lieutenant H. Matins, M.B., F.R.C.S.E., relinquishes his commission on account of ill health.

To be temporary Lieutenants: Temporary honorary Lieutenant B. Graves, H. E. Whittingham, M.B., J. MacNamara, D. S. Robertson, M.B., J. H. O. Fegan, H. E. Allanson, M.D., J. McConnell, M.B., R. Younger, M.B., A. J. L. Speechly, G. T. L. Murphy, M.B., W. M. Buchanan, M.B., G. G. Buchanan, M.B., W. Garton, T. H. Agnew, A. N. Cox, M.D., H. B. Williams, M.B., H. de L. Crawford, M.B., F.R.C.S.I., W. W. Jones, M.B., C. B. F. Tivy, M.B., H. V. Forster, M.B., J. Bamforth, M.D., E. E. Semmence, G. Hart, J. Nunan, M.B., D. Smith, M.B., A. W. Jones, P. B. Eskell, J. W. Tonks, M.B., F.R.C.S., J. S. Part, M.D., D. J. Clark, M.B., L. R. H. P. Marshall, M.D.

The notifications concerning W. H. Broughton and temporary Lieutenant J. R. McGilvray, M.B., which appeared in the *London Gazette* of February 4th and 8th respectively, are cancelled.

SPECIAL RESERVE OF OFFICERS.

ROYAL ARMY MEDICAL CORPS.

Captain E. T. Burke to be temporary Major whilst commanding 40th Field Ambulance.

Lieutenants to be Captains: R. Stowers, R. O. Eades, R. A. Peters, M.B., J. A. Binning, S. Brown, J. Melvin, M.B., J. E. Busby.

Lieutenant C. G. Todd resigns his commission on account of ill health.
Lieutenants on probation confirmed in their rank: G. T. Gimlette, W. Williams, M.B.

TERRITORIAL FORCE.

ROYAL ARMY MEDICAL CORPS.

Wessex Field Ambulance.—Captain H. W. Spaight, from half-pay list, to be Captain.

Welsh Casualty Clearing Station.—A. W. Clarke to be Lieutenant.

Western General Hospital.—Lieutenants to be Captains: E. W. Richards, M.B., J. Lloyd, M.D.

London Casualty Clearing Station.—Lieutenant H. Drummond, M.B., to be Captain.

London (City of London) Field Ambulance.—Captain H. K. Griffith, M.B., F.R.C.S., from Attached to Units other than Medical Units, to be Captain. C. P. Sells to be Lieutenant.

London Field Ambulance.—Captain D. D. Brown, M.D., from Attached to Units other than Medical Units, to be Captain.

London General Hospital.—Lieutenant-Colonel A. F. Garrod, M.D., is seconded. A. Kingsford to be Captain, whose services will be available on mobilization (substituted for notice published in the *London Gazette*, January 22nd).

London Sanitary Company.—To be Lieutenants: W. J. F. Mayne, M.B., late temporary Lieutenant R.A.M.C., A. F. Girvan. Lieutenant S. L. Bartholomew relinquishes his commission on account of ill health.

South-Eastern Mounted Brigade Field Ambulance.—Captain W. Tresawna, M.B., is seconded for duty with the Duke of Cambridge's Own Middlesex Regiment).

South Midland Mounted Brigade Field Ambulance.—C. P. C. Sargent to be Lieutenant.

East Anglian Field Ambulance.—Captain (temporary Major) J. R. Pooler, M.B., to be temporary Lieutenant-Colonel whilst commanding a field ambulance. To be Captains: Captain T. W. Morcom-Harries, from Attached to Units other than Medical Units, Lieutenants J. E. Brooks, N. M. Smith, M.B., W. J. Dearden, A. Greene, M.D., F.R.C.S. Lieutenant W. K. Legassick is seconded for duty with the Queen's Own (Royal West Kent Regiment).

Yorkshire Mounted Brigade Field Ambulance.—Lieutenant J. C. Denvir, M.B., to be Captain.

West Lancashire Field Ambulance.—Captain F. W. K. Tough, F.R.C.S., from Attached to Units other than Medical Units, to be Captain.

Lowland Field Ambulance.—Captain R. B. Barnetson, M.B., relinquishes his commission. Lieutenant R. Watson to be Captain.

Scottish General Hospital.—Lieutenants to be Captains: F. W. C. Brown, M.B., J. W. Simpson, M.B.

Highland Field Ambulance.—Captain C. A. Whyte relinquishes his commission on account of ill health. Lieutenant (temporary Captain) J. A. Stephen, M.B., to be Captain. Lieutenants to be Captains: H. G. Donald, M.B., J. W. McKeggie, M.B.

Attached to Units other than Medical Units.—To be Captains: Lieutenants R. V. C. Ash, M.B., H. L. Gauntlett, F. R. Fletcher, M.B., H. W. Godfrey; Captain B. Hughes, M.B., F.R.C.S., from 1st West Riding Field Ambulance; Lieutenant A. B. Winder, M.B., to be Lieutenant: M. Thompson.

Vacancies and Appointments.

NOTICES REGARDING APPOINTMENTS.—Attention is called to a Notice (see Index to Advertisements—Important Notice re Appointments) appearing in our advertisement columns, giving particulars of vacancies as to which inquiries should be made before application.

VACANCIES.

BOLTON INFIRMARY AND DISPENSARY.—Second House-Surgeon. Salary, £200 per annum.

BOURNEMOUTH: ROYAL VICTORIA AND WEST HANTS HOSPITAL.—House-Surgeon. Salary, £150 per annum.

BRADFORD CITY.—Female Medical Officer (temporary). Salary, £8 8s. a week.

BRISTOL GENERAL HOSPITAL.—Casualty House-Surgeon. Salary, £175 per annum.

BRISTOL ROYAL INFIRMARY.—(1) House-Physicians; (2) House-Surgeons. Salary, £100 per annum in each case.

BURY INFIRMARY.—Junior House-Surgeon. Salary, £150 per annum.

DEVON COUNTY COUNCIL.—Temporary Medical Superintendent for Tuberculosis Sanatorium. Salary, £500.

DOUGLAS: ISLE OF MAN ASYLUMS BOARD.—Medical Superintendent of the Asylum and Medical Officer of Home for the Poor.

DUDLEY: GUEST HOSPITAL.—Assistant House-Surgeon. Salary, £120 per annum.

EDINBURGH PARISH COUNCIL.—Assistant Medical Officer for Craiglockhart Poorhouse and Hospital. Salary, £150 per annum.

GUILDFORD: ROYAL SURREY COUNTY HOSPITAL.—House-Surgeon. Salary, £150 per annum.

KIRKWALL: PARISH OF EDAY.—Medical Officer.

LEEDS PUBLIC DISPENSARY.—Lady Resident Medical Officer. Salary, £130.

LONDON FEVER HOSPITAL, Liverpool Road, N.—Assistant Resident Medical Officer. Salary, £200 per annum.

LONDON UNIVERSITY.—Examiners in (1) Medicine, (2) Bacteriology, (3) Mental Diseases and Psychology, (4) Pharmacology.

MANCHESTER COUNTY ASYLUM, Prestwich.—Locumtenant.

NORTHAMPTON GENERAL HOSPITAL.—Two House-Surgeons. Salary, £150 per annum each.

NORTHAMPTONSHIRE WAR HOSPITAL, Duston.—(1) Pathologist and Bacteriologist; (2) Radiographer. Salary, £1 a day.

NORTH-EAST KENT JOINT COMMITTEE, Sittingbourne.—Temporary Assistant Medical Officer of Health.

PETERBOROUGH INFIRMARY.—House-Surgeon. Salary, £150 per annum.

QUEEN'S HOSPITAL FOR CHILDREN, Hackney Road, E.—House-Surgeons. Salary, £100 per annum.

SHEFFIELD ROYAL INFIRMARY.—House-Surgeon. Salary, £100 per annum.

SOUTHPORT INFIRMARY.—Junior House-Surgeon. Salary, £3 3s. a week.

SOUTH SHIELDS: INGHAM INFIRMARY AND SOUTH SHIELDS AND WESTOE DISPENSARY.—House-Surgeon. Salary, £150 per annum.

SUNDERLAND ROYAL INFIRMARY.—Lady House-Surgeon. Salary, £150 per annum.

CERTIFYING FACTORY SURGEONS.—The Chief Inspector of Factories announces the following vacant appointments: Charlestown (co. Mayo), Harrow (Middlesex).

To ensure notice in this column—which is compiled from our advertisement columns, where full particulars will be found—it is necessary that advertisements should be received not later than the first post on Wednesday morning. Persons interested should refer also to the Index to Advertisements which follows the Table of Contents in the JOURNAL.

APPOINTMENTS.

AINSCOW, H., M.B., B.S.Lond., District Medical Officer of the Belper Union.

CARLILL, Hildred, M.A., M.D.Cantab., M.R.C.P.Lond., temporary Surgeon R.N., Neurologist to the Royal Naval Hospital, Haslar.

COCHRANE, S. T., M.D.Durh., D.P.H., District Medical Officer of the Burton-upon-Trent Union.

GORDON, F. J., B.A.(Camb.), M.R.C.S., L.R.C.P., District Medical Officer of the Horncastle Union.

GRAVES, A. J., M.R.C.S., L.R.C.P., District Medical Officer of the Whitehaven Union.

HARRY, W. B., L.S.A., District Medical Officer of the Neath Union.

LEONARD, T. J., L.R.C.P. and S.L., Certifying Factory Surgeon for the Glaslough District, co. Monaghan.

NALLIAH, N. B., L.R.C.P., M.R.C.S., Assistant House-Surgeon to the West Bromwich and District Hospital.

SIBBALD, B. I. G., M.B., C.M.Edin., District Medical Officer of the Beaminster Union.

BIRTHS, MARRIAGES, AND DEATHS.

The charge for inserting announcements of Births, Marriages, and Deaths is 5s., which sum should be forwarded in Post Office Orders or Stamps with the notice not later than the first post on Wednesday morning in order to ensure insertion in the current issue.

DEATH.

HOOD.—At 33 Casualty Clearing Station, B.E.F., on the 19th February, of wounds received on the 15th, George Christie, aged 21, Lance-Corporal 16th Middlesex (Public Schools Battalion), only son of T. A. F. Hood, M.B., Ivybank, Blairgowrie.

DIARY FOR THE WEEK.

MONDAY.

MEDICAL SOCIETY OF LONDON, 11, Chandos Street, W., 9 p.m.—Third Letchman Lecture by Major Fred. W. Mott, M.D., F.R.S.: The Effects of High Explosives on the Central Nervous System.

ROYAL SOCIETY OF MEDICINE: SECTION OF ODONTOLOGY, 5.30 p.m.—Adjourned Debate on War Injuries of the Jaws and Face.

TUESDAY.

RÖNTGEN SOCIETY, Institution of Electrical Engineers, Victoria Embankment, W.C., 8.15 p.m.—Adjourned discussion on the Injurious Effects Produced by X Rays.

WEDNESDAY.

HUNTERIAN SOCIETY, 1, Wimpole Street, W., 9 p.m.—Dr. Langdon Brown: A New Method of Treatment in Diabetes.

ROYAL SOCIETY OF MEDICINE: 5 p.m.—Dr. Leonard S. Dudgeon: Personal Experiences on the Gallipoli Peninsula and Eastern Mediterranean, with lantern illustrations.

FRIDAY.

ROYAL SOCIETY OF MEDICINE: 5 p.m.—Lecture by Dr. M. Weinberg: Bacteriological and Experimental Researches on Gas Gangrene.

ROYAL COLLEGE OF SURGEONS OF ENGLAND, 5 p.m.—Monday and Wednesday: Hunterian Lectures by Professor J. E. R. McDonagh—Links in the Chain of Research on Syphilis.

POST-GRADUATE COURSES AND LECTURES.

LONDON SCHOOL OF TROPICAL MEDICINE, Royal Albert Dock, E.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.

THE POST-GRADUATE COLLEGE, West London Hospital, Hammer-smith, W.—Clinical work; graduates only.

DIARY OF THE ASSOCIATION.

Date.	Meetings to be Held.
MARCH.	
3 Fri.	London: Executive Subcommittee of Central Medical War Committee, 3.15 p.m.
4 Sat.	Wiltshire Branch, Trowbridge, 3 p.m.
9 Thur.	London: Executive Subcommittee of the Insurance Acts Committee, 2 p.m.
10 Fri.	London: Executive Subcommittee of Central Medical War Committee, 3.15 p.m.
15 Wed.	London: Central Medical War Committee, 2 p.m.

LONDON: SATURDAY, MARCH 11TH, 1916.

CONTENTS.

RECRUITING FOR THE NAVAL AND MILITARY MEDICAL SERVICES.

	PAGE		PAGE
Central Medical War Committee.		Enrolment of Doctors in England and Wales.	
CIRCULAR TO CANVASSERS:		ARMY COUNCIL INSTRUCTIONS:	
WHY THE ENROLMENT SCHEME MUST BE MADE A SUCCESS, AND ANSWERS TO COMMON OBJECTIONS...	41	PROCEDURE WITH REGARD TO MEDICAL PRACTITIONERS UNDER THE GROUP SYSTEM AND MILITARY SERVICE ACT	43
MEETINGS OF COMMITTEE AND EXECUTIVE SUB- COMMITTEE...	43	ELIGIBILITY OF ENROLLED PRACTITIONERS FOR ARMY DUTY IRRESPECTIVE OF AGE...	42
VACANCIES AND APPOINTMENTS, BIRTHS, MARRIAGES, AND DEATHS, DIARY, ETC. ...	44		

CENTRAL MEDICAL WAR COMMITTEE.

CIRCULAR TO CANVASSERS.

WHY THE ENROLMENT SCHEME MUST BE MADE A SUCCESS, AND ANSWERS TO COMMON OBJECTIONS.

1. No one can say how long the war may last, and therefore how many doctors may be required in the future, but it is the duty of the profession to be prepared for any calls that may be made upon it.

2. The only fair way to secure this—fair to the profession as well as to the public—is to get every man of military age to signify his willingness to accept military service if and when it is thought that his services should be offered. In return for this undertaking the Central Medical War Committee, in consultation with the local Medical War Committees, promises that its calls shall be made with due regard to professional and personal difficulties, which the enrolled man will have full opportunity of placing before the Committee. Inconvenience in most cases, and hardship in many cases, are inevitable, but these can be alleviated if proper arrangements are made before a man is asked to undertake military service.

3. Such arrangements can only be made equitably if the field of selection is as wide as possible. There are, roughly speaking, about 6,000 medical men under 45 in England and Wales. If 2,000 of these should during the course of the war be required it would obviously be more fair to all concerned if the selection were made from the whole 6,000 rather than from three or four thousand. It is extremely unlikely that every man who enrolls will be required. Moreover some would not be accepted by the War Office on physical grounds; others practise in areas from which they could not possibly be spared; others hold public appointments from which it would be difficult to release them without danger to the health of the community. Others have financial liabilities which would entail their ruin if they were called up. But every man who enrolls helps to make it easier for others to do the same and more difficult for them to decline, and thus renders it possible to select the doctors who are wanted and can go with the minimum of hardship.

4. The credit of the whole profession is at stake in making this Enrolment Scheme a success. Up to now the profession has been left to organize itself to meet the calls of the country, and everyone acknowledges that it has done it splendidly. The Central Medical War Committee believes that by energetically carrying out the present system of enrolment the profession will be able, so far as the supply of medical men is concerned, to see the war through without compulsion or official interference.

5. The following are the stock objections against enrolling which you may have to meet, with brief answers:

OBJECTION (A): *I am physically unfit.*

ANSWER: That is no reason why you should not have your certificate of enrolment, which will be a proof that

you were willing to go if the War Office needed and would take you. If you are called upon to join, it will rest with the military authorities to accept or decline you.

Further, the Certificate of Enrolment will enable you to be used in local military service if such service be required. Men holding the Certificate may be employed in part-time military work irrespective of their age, whereas other men will not be employed on such work unless they are over 45.

OBJECTION (B): *I have financial liabilities which make it almost impossible for me to go.*

ANSWER: So have probably two-thirds of the men who will enrol. So have thousands of the men under the Derby Scheme—yet they attested. You are assured of all your circumstances being considered at the time when your name comes up as a possible applicant for the R.A.M.C., and every endeavour will be made to leave till a later time or refrain altogether from calling up those who would obviously suffer greatly by going. But if you decline to take your chance you may be sure that some other man, with probably greater financial difficulties but a keener sense of duty, will have to go in your stead.

The Local Medical War Committee of your area will endeavour to make arrangements to meet your difficulties as far as they can be met by a professional body. It is suggested that one of the best ways would be for practitioners with overlapping practices to enter into a temporary partnership for the duration of the war and a period after, thus pooling finances and sharing loss, if any. The Local Medical War Committee would be glad to discuss this matter, or any alternative plan for protecting your interests if called up, with you and any of your neighbours who may think of entering into such an arrangement.

OBJECTION (C): *I have a partner, or an assistant who is on military service; or I am doing work for a neighbour on active service.*

ANSWER: Enrol all the same. Your position is bound to appeal to the Central and Local Medical War Committees when they decide who are the men who should be asked to go.

OBJECTION (D): *I cannot be spared. If I went away my work could not be done.*

ANSWER: That is a question that should be settled by other people. You are not an unbiassed judge. But it is a necessary part of the Scheme that when a man is asked to go arrangements must be made for carrying on his work. If your neighbours cannot do it, and if a substitute cannot be found, you will not be called up. But you should certainly enrol along with the rest.

OBJECTION (K): *I hold a public appointment from which the authority employing me considers I cannot be spared.*

ANSWER: The Central Medical War Committee is in close touch with the Government Departments concerned in medical practice, and you will not be called up without the consent of the Government Department and of any local authority which are concerned in the work on which you are engaged.

OBJECTION (F): *I am on a Hospital Staff.*

ANSWER: The Central Medical War Committee is as anxious as you can be to prevent Hospital staffs from being unduly depleted. The Committee has already circularized the staffs of all the voluntary hospitals in England and Wales asking them to consider what are their minimum requirements in the way of staff. On this question the Central Committee expects to receive valuable assistance from the Local Medical War Committees in the provinces. For the consideration of the whole question as it affects London it is proposed to set up a Special Advisory Committee, and the opinions of this Committee will no doubt enable the calls on the members of staffs of hospitals in London to be made with as little dislocation of the work of those hospitals as is possible in the circumstances. The individual member of a staff should enrol on the distinct understanding that the circumstances of his hospital will be duly considered before he is asked to undertake military service.

OBJECTION (G): *I am already doing some form of military work, e.g., attending at V.A.D., Red Cross, or some local military hospital.*

ANSWER: The military medical work of primary importance is securing the fitness of the fighting men. This can only be done by medical men with the armies, and by such work alone can the war be won. Home Hospital work can be done by the older men. Further, if the time comes when you are asked to take military service, and you have any doubt as to whether you will be doing better military work by staying at home or by going into the army, put the question to the Director-General of the Army Medical Service.

OBJECTION (H): *I have already served for 12 months.*

ANSWER: That is no reason why you should not enrol. That circumstance will be taken into account when your case is considered, and would be a good reason for expecting other men to go before you are asked to serve again. You have previously set a good example by undertaking military service. Set another one to your neighbour by enrolling.

OBJECTION (I): *I do not think I should be asked to join the R.A.M.C., because I am not convinced that the most economical use is being made of men who are already in the Service.*

ANSWER: Probably most of the men who have joined the Service would agree with you, but that did not prevent them from joining, and it does not prevent most of them continuing in the Service, even after they might retire. War cannot be conducted without waste. Men must be ready in reserve for any contingency. They may seem idle and wasted, but they are doing their duty by being there for service when required. If every man refused to join the army until it was being run in a way which satisfied his ideas as to the economical use of men and material there would be no army at all.

OBJECTION (J): *I have special experience or qualifications, and I don't care to join unless I shall be sure they will be used.*

ANSWER: It is impossible to give a guarantee that every man will be used only in the special line to which he has been accustomed. A large number of men with special qualifications are used in their special work, but every doctor must be prepared to do doctor's work of any kind, and men of the highest qualifications and long experience have not been ashamed or unwilling to turn their hand to routine work when special work was not available.

OBJECTION (K): *I am not content to join as a lieutenant. My position or experience should be recognized by higher rank.*

ANSWER: You are only asked to join as a temporary officer, and the distinctions of rank matter much less in your case than they would if you were joining the R.A.M.C. as a life career. Some thousands of men have now joined as lieutenants, and it would be impossible to ask the authorities to give preferential treatment to men who are now joining. You will find lots of men as well qualified and with as much experience as yourself serving as lieutenants and proud to do so.

OBJECTION (L): *The pay is not sufficient.*

ANSWER: It cannot be denied that most men in practice who take military service will be making a monetary sacrifice, and you must be prepared to do the same in common with very large numbers of your fellow-countrymen. But the pay is good compared with that offered to people who join the army as combatant officers. The pay amounts to £500 per annum—namely, 24s. a day and a gratuity of £60 at the end of the year. There is in addition either rations or a daily allowance in lieu of rations, and £30 for uniform. Your Local Medical War Committee will do all that a professional body can to protect your interests while you are away if you are selected to go. It must not be forgotten that the contract is for one year only, and you can renew it or not at the end of that time as you think fit. This does not apply to any other form of service in the army.

OBJECTION (M): *I am afraid that if I enrol I may be called up arbitrarily by the Committee without due consideration of my personal and professional circumstances.*

ANSWER: The Central Medical War Committee is a purely voluntary one composed of representatives of practically every section of medical men. It was set up in the first instance by the Representative Body of the British Medical Association, but original members were put upon it who were not members of the Association, and power was given to it to co-opt others. The result is that it now consists of representatives of practically every medical interest. Representatives of the three Government Departments concerned with the provision of medical attendance attend its meetings regularly. It is in close and constant co-operation with local Medical War Committees all over the country. It is fully recognized by the Director-General as his medium for communicating to the profession the medical needs of the army. The Committee therefore is in a better position than any other body could be to consider the requirements of the War Office and the Government Departments and those of the civilian population. In any case you must remember that no other body of the kind has attempted to do this duty, and the Committee feels it has established a right to ask the members of the profession to support it in the great task it has undertaken.

March 8th, 1916 [W. 28].

ELIGIBILITY OF ENROLLED MEDICAL PRACTITIONERS FOR ARMY DUTY IRRESPECTIVE OF AGE.

THE Army Council has issued the following instruction, dated March 2nd, 1916:

475. Eligibility of Medical Practitioners for Army Duty Irrespective of Age when Enrolled with Certain Committees.

With reference to W.O. letter X/Misc./246 (A.M.D. 1) of 27th August, 1915, medical practitioners who have enrolled with the Central Medical War Committee, or the Scottish Medical Service Emergency Committee, for service with the Army, and are in possession of a certificate of enrolment with either Committee, may be considered eligible for Army duty irrespective of their age.

24/Gen. No./4749 (A.M.D. 1).

Copies of this instruction have been issued to G.O.S. C.-in-C., and G.O.C. London District.

N. Duggan, M.B., F.R.C.S., A. H. Jacob, H. B. Smith, M.B., T. P. Herriot, M.B., F. E. Sprawson, C. G. G. Keane, A. Leach, M.B., F. P.

Livers, M.B., A. L. Taylor, M.B., W. Campbell, M.B., L. U. Geraty, G. Leggat, M.B., C. R. Dudson, F. H. Woods, L. McI. Weeks, M.B., J. Macintyre, M.B., H. E. A. Boldero, C. S. L. Roberts, H. A. Gillespie, M.B., H. C. Duffy, M.B., L. R. Broster, M.B., J. P. Fitzpatrick, E. S. Marshall, J. I. P. Wilson, M.D., F.R.C.S.E., H. G. Frean, M.B., F.R.C.S., F. A. Mills, M.B., W. T. Collier, J. T. Smeall, M.B., J. J. Dunne, H. A. Russell, I. S. James, E. B. Gunson, M.D., B. D. Fitzgerald, M.B., A. S. Fry, M.B., H. D. Duke, J. H. Wrightson, M.B., H. J. Milligan, M.D., W. R. G. Hamilton, F.R.C.S.I., D. C. Alexander, M.B., H. Ackroyd, M.D., S. G. Tippet, M.B., A. R. Chavasse, M.B., G. W. Davis, M.D., G. Muir, M.B., D. A. D. Kennedy, M.B., W. H. Butler, J. F. Walker, M.B., M. M. Townsend, G. D. Shann, J. R. McGrivray, M.B., K. D. C. Macrae, M.B., H. S. Berry.

To be temporary Captains: R. H. J. Swan, M.B., F.R.C.S., J. S. Ross, M.B., F.R.C.S.E.

Granted temporary honorary rank whilst serving with the Scottish Red Cross Society: As Captains: C. McNeil, M.D., F.R.C.P.E., D. Cotterill, M.D., F.R.C.S.E. As Lieutenants: H. T. Thomson, M.D., D. H. D. Cran, M.B.

To be temporary Lieutenants: H. M. Wilson, M.B., R. H. Bridge, M.B., F.R.C.S., F. M. Davies, J. L. Cochrane, M.D., R. C. Harkness, M.B., F.R.C.S., J. A. Mason, M.D., J. E. Mullan, G. Jackson, M.B., J. A. Fretton, E. W. N. Hobhouse, M.B., J. G. Slade, M.D., G. P. Schoelen, J. W. E. Cole, M.B., D. J. O'Brien, E. M. Balhazar, W. W. Halsted, G. E. Anderson, H. R. Davies, M.D., H. N. Rankin, M.B., G. R. E. Colquhoun, T. F. Moran, W. S. McGowan, M.D., J. P. Douglas, M.B., D. H. Foley, L. F. West, F. J. MacManus, T. W. Rutledge, M.B., P. G. Leeman, M.B., F. H. McCaughy, M.B., C. H. Seville, M.B., C. H. G. Philp, M.B., E. N. Hartley, G. F. C. Healy, M.D., W. G. Jones, J. K. Garner, H. V. A. Gatchell, H. G. Carlisle, M.D., H. T. Finlayson, M.B., J. Williamson, S. Potter, G. Macdonald, M.B., E. W. G. Young, M.B., T. T. O'Callaghan, J. S. Crawford, M.D., J. W. Littlejohn, M.B., C. E. Sharp, M.D., E. Black, M.B., H. Bourchier-Hayes, J. M. O'Reilly, M.B., H. MoW. Daniel, M.B., A. P. Hart, M.B., D. M. Hunt, J. Penman, M.B., A. N. W. Colahan, M.B., H. Stobie, W. O. Roberts, G. S. Robinson, M.B., H. Nichol, M.B., J. E. Cable, M.B., J. E. S. Sheppard-Jones, G. Hesthote, E. H. Wood, M.B., H. P. Caithness, M.B., A. S. Burgess, M.B., W. A. Muir, M.D., D. S. Steele Perkins, G. C. Robinson, J. Colgan, M.B., A. G. East, M.B., A. H. B. Kirkman, F.R.C.S.E., W. D. Macdonald, M.B., M. W. Loy, J. Dunlop, M.B., C. S. Read, M.D., C. R. Wright, W. H. Hart, M.B.

The name of temporary Lieutenant Arthur L. H. Rackham is as now described and not as in the *London Gazette* of December 19th, 1914.

Temporary honorary Lieutenants to be temporary Lieutenants: G. C. Berg, C. H. C. Byrne, P. Hudson, G. Cranston, H. Gardiner-Hill, G. O. Hampson, G. M. Ververs, E. B. Barnes, G. S. Graham, M.B.

To be temporary honorary Lieutenants: T. B. Johnston, M.B., V. C. James, R. H. Fleming, M.B., H. A. Whyte-Venables, P. A. Dargan, L. W. Jones.

Vacancies and Appointments.

NOTICES REGARDING APPOINTMENTS.—Attention is called to a Notice (see Index to Advertisements—Important Notice re Appointments) appearing in our advertisement columns, giving particulars of vacancies as to which inquiries should be made before application.

VACANCIES.

BIRMINGHAM MATERNITY HOSPITAL.—Resident House-Surgeon (female). Salary, £100 per annum.

BRISTOL GENERAL HOSPITAL.—Casualty House-Surgeon. Salary, £175 per annum.

BRISTOL ROYAL INFIRMARY.—(1) House-Physicians; (2) House-Surgeons. Salary, £100 per annum in each case.

BURNLEY: VICTORIA HOSPITAL.—House-Surgeon. Salary, £160 per annum.

BURY INFIRMARY.—Junior House-Surgeon. Salary, £150 per annum.

CAMBRIDGESHIRE ASYLUM, Fulbourn.—Junior Assistant Medical Officer (male). Salary, £200 per annum, rising to £250.

CARDIFF: KING EDWARD VII HOSPITAL.—Two House-Surgeons. Salary, £140 per annum.

CITY OF LONDON HOSPITAL FOR DISEASES OF THE CHEST, Victoria Park, E.—Physician to Out-patients. Fee, £1 ls. per attendance.

DOUGLAS: ISLE OF MAN ASYLUMS BOARD.—Medical Superintendent of the Asylum and Medical Officer of Home for the Poor.

DUDLEY: GUEST HOSPITAL.—(1) Senior Resident Medical Officer; salary, £150 per annum. (2) Assistant House-Surgeon; salary, £120 per annum.

EALING: KING EDWARD MEMORIAL HOSPITAL.—Resident Medical Officer. Salary, £100 per annum.

GUILDFORD: ROYAL SURREY COUNTY HOSPITAL.—House-Surgeon. Salary, £150 per annum.

KIRKWALL: PARISH OF EDAY.—Medical Officer.

LEEDS PUBLIC DISPENSARY.—Lady Resident Medical Officer. Salary, £130.

LONDON UNIVERSITY.—Examiners in (1) Medicine, (2) Bacteriology, (3) Mental Diseases and Psychology, (4) Pharmacology.

NORFOLK WAR HOSPITAL, Thorpe.—Vacancies on Non-commissioned Resident Medical Staff. Pay, £1 per diem.

NOTTINGHAM CITY ASYLUM.—Senior Assistant Medical Officer. Salary, £300 per annum.

QUREN'S HOSPITAL FOR CHILDREN, Hackney Road, E.—House-Surgeons. Salary, £100 per annum.

ROCHESTER: ST. BARTHOLOMEW'S HOSPITAL.—Senior Resident House-Surgeon.

SHEFFIELD ROYAL INFIRMARY.—(1) House-Surgeon. Salary, £100 per annum. (2) Two Anaesthetists.

SMETHWICK EDUCATION COMMITTEE.—Assistant School Medical Officer and Medical Officer of Health. Salary, £350 per annum.

SOUTHPORT INFIRMARY.—Junior House-Surgeon. Salary, £3 3s. a week.

STOKE-ON-TRENT: NORTH STAFFORDSHIRE INFIRMARY, Hartshill.—(1) House-Surgeon; (2) House-Physician (females). Salary, £200 per annum.

VICTORIA HOSPITAL FOR CHILDREN, Tite Street, S.W.—House-Surgeon.

WOMEN'S HOSPITAL FOR CHILDREN, Harrow Road, W.—Anaesthetist (female). Honorarium, £10; L.C.C. fees, £75.

CERTIFYING FACTORY SURGEONS.—The Chief Inspector of Factories announces the following vacant appointments: Bishop's Stortford (Herts), Brighouse (Yorks, West Riding).

To ensure notice in this column—which is compiled from our advertisement columns; where full particulars will be found—it is necessary that advertisements should be received not later than the first post on Wednesday morning. Persons interested should refer also to the Index to Advertisements which follows the Table of Contents in the JOURNAL.

APPOINTMENTS.

LE BLANC, L. G., M.R.C.S., L.R.C.P., Assistant Medical Officer of the Westminster Union Infirmary.

MAXTON, J. H., M.R.C.S., L.R.C.P., Certifying Factory Surgeon for the Hackney District, co. London.

SCOTT, D. W., L.R.C.P. and S.Edin., District Medical Officer of the Neath Union.

WATTS-SILVESTER, T. H. Esq., M.B., B.C.Cantab., District Medical Officer of the Sturminster Union.

BIRTHS, MARRIAGES, AND DEATHS.

The charge for inserting announcements of Births, Marriages, and Deaths is 5s., which sum should be forwarded in Post Office Orders or Stamps with the notice not later than the first post on Wednesday morning in order to ensure insertion in the current issue.

BIRTHS.

BROWN.—At Galtee-More, Barnsley, Yorks, on February 28th, the wife of J. Jopling Brown, M.B.Dun., F.R.C.S.Edin., Lieutenant R.A.M.C. (née Alfreda Tunstall), of a daughter.

CLINE.—On February 24th, at Devonshire House, London Road, Portsmouth, Hants, to Dr. Eric Cline and Mrs. Eric Cline (née Constance De Vere Wheeler), a son.

SHENNAN.—At Aberdeen, on February 27th, the wife of Professor Theodore Shennan, of a son.

DEATHS.

COLLINS.—On March 2nd, suddenly, at Redsteade, East Grinstead, Charles Edward Collins, M.R.C.S.Eng., L.R.C.P.Lond.

JAILLAND.—Previously reported missing, now reported killed in action at Chocolate Hill, Gallipoli, on August 9th, 1915, Lieutenant Stephen Jailland, M.A.Oxon., 6th East Yorkshire Regiment, youngest son of Mr. and Mrs. Jailland, St. Leonards House, York.

MAXWELL.—On March 6th, after an operation, Richard Drummond Maxwell, M.D., F.R.C.S. (Dick), of 7, Devonshire Street, W., Junior Obstetric Surgeon to the London Hospital, the dearly-loved son of the late Richard and Margaret Maxwell, of 102, Oxford Gardens, W. Cremation at Golder's Green Crematorium on Thursday, March 9th, at 2.15. Will friends kindly accept this intimation?

DIARY FOR THE WEEK.

WEDNESDAY.

ROYAL SOCIETY OF MEDICINE:
SECTION OF HISTORY OF MEDICINE.—4.30 p.m., Books, MSS. etc., on view. 5 p.m., Sir William Osler, Bt., F.R.S.: The MSS. of *Religio Medici*. Mrs. Charles Singer: Some English Medical MSS. Mr. R. R. Steele: The Scientific Writings of Roger Bacon. Captain T. A. Malloch (C.A.M.C.): Sir John Finch and Sir Thomas Baines.

THURSDAY.

ROYAL SOCIETY OF MEDICINE:
SECTION OF DERMATOLOGY.—4.30 p.m., Cases. 5 p.m., Papers: Dr. George Pernet and others.

FRIDAY.

ROYAL SOCIETY OF MEDICINE:
SECTION OF ELECTRO-THERAPEUTICS, 8.30 p.m.—Discussion on Experiments and Experiences with the Coolidge Tube.
SOCIETY OF TROPICAL MEDICINE AND HYGIENE, 11, Chandos Street, W., 5.30 p.m.—Treatment of Syphilis, (1) Captain H. J. McGrigor, R.A.M.C., by Concentrated Solutions of Salvarsan; (2) Dr. H. Bayon: in African Tribes.

ROYAL COLLEGE OF PHYSICIANS OF LONDON, Tuesday and Thursday, 5 p.m.—Milroy Lectures by Dr. S. G. Moore: Infant Mortality and the Relative Values of Measures Directed to Protecting Infant Lives.

POST-GRADUATE COURSES AND LECTURES.

LONDON SCHOOL OF TROPICAL MEDICINE, Royal Albert Dock, E.
NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.
THE POST-GRADUATE COLLEGE, West London Hospital, Hammer-smith, W.—Clinical work; graduates only.

DIARY OF THE ASSOCIATION.

Date.	Meetings to be Held.
MARCH.	
10 Fri.	London: Executive Subcommittee of Central Medical War Committee, 3.15 p.m.
15 Wed.	London: Central Medical War Committee, 2 p.m.
21 Tues.	Buckinghamshire Division, High Wycombe, 2.15 p.m.

SUPPLEMENT

TO THE

BRITISH MEDICAL JOURNAL.

LONDON: SATURDAY, MARCH 18TH, 1916.

CONTENTS.

THE ENROLMENT SCHEME: CONFERENCES IN LEEDS, LONDON, BIRMINGHAM, AND BRISTOL.

	PAGE		PAGE
GENERAL MEDICAL COUNCIL:		INSURANCE:	
EXECUTIVE COMMITTEE...	45	RANGE OF MEDICAL SERVICE: OPERATIONS...	46
ASSOCIATION NOTICES:		IRELAND AND MEDICAL BENEFIT...	46
FORMATION OF A GRENADA BRANCH...	47	BIRTHS, MARRIAGES, AND DEATHS...	48
NAVAL AND MILITARY APPOINTMENTS...	47	DIARY FOR THE WEEK...	48
VACANCIES AND APPOINTMENTS...	48	DIARY OF THE ASSOCIATION...	48

THE ENROLMENT SCHEME.

CONFERENCES NEXT WEEK.

At the meeting of the Central Medical War Committee on March 15th it was resolved to hold conferences during next week in Leeds, London, Birmingham, and Bristol, to consider, with representatives of local Medical War Committees, the means to be taken to make the scheme of enrolment successful, and to discuss the various difficulties which arise. After considering the relative advantages of various centres, those mentioned were selected, and the meetings will be held as follows:

LEEDS: Tuesday, March 21st, 3.30 p.m., The Medical School, Thoresby Place, for representatives from the Local Medical War Committees in Northumberland, Durham, Cumberland, Westmorland, Yorkshire, Lancashire, Chesterfield, northern part of Lincolnshire (59 committees—118 representatives).

LONDON: Wednesday, March 22nd, 3 p.m., 429, Strand, W.C., for representatives from Hertfordshire, Bedfordshire, Buckinghamshire, Cambridgeshire, Soke of Peterborough, Huntingdonshire, Isle of Ely, southern part of Lincolnshire, Norfolk, Suffolk, Essex, Kent, Surrey, Sussex, Hampshire, Isle of Wight, Dorsetshire, Berkshire, Oxford, Middlesex, and London (73 committees—146 representatives).

BIRMINGHAM: Thursday, March 23rd, 3 p.m., Midland Medical Institute, Edmund Street, for representatives from Committees in Cheshire, southern part of Derbyshire, Leicestershire, Northamptonshire, Nottinghamshire, Rutlandshire, Shropshire, Staffordshire, Warwickshire, Worcestershire, Anglesey, Carnarvonshire, Denbighshire, Flintshire, Merionethshire, Montgomeryshire, and part of Radnor (24 committees—48 representatives).

BRISTOL: Friday, March 24th, 3 p.m., Bristol University, for representatives from Cornwall, Devonshire, Gloucestershire, Herefordshire, Somerset, Wiltshire, Brecknock, Cardiganshire, Carmarthenshire, Glamorgan, Monmouthshire, Pembrokeshire, and Radnorshire (19 committees—38 representatives).

GENERAL MEDICAL COUNCIL.

EXECUTIVE COMMITTEE.

A MEETING of the Executive Committee was held on a February 21st, when Sir DONALD MACALISTER was in the chair.

Sir William Turner.—A resolution was adopted conveying to the family of Sir William Turner an expression of the Committee's high appreciation of the great services he had rendered in many capacities, and especially as president, to the Medical Council, and its deep sympathy with them in their loss.

Gold Coast Colony.—An ordinance for the registration of medical practitioners and dentists in the Gold Coast Colony passed in 1912, and an amending ordinance, dated 1913, received from the Colonial Office, were considered. It was pointed out that the amending ordinance, by the repeal of one of the paragraphs of the original, appeared, probably by inadvertence, to exclude registered medical practitioners holding British qualifications granted in the Overseas Dominions outside Europe from the right to practise in the Gold Coast Colony. The Committee suggested to the Colonial Office that this result appeared to show the utility of referring all such measures to the Council for comment before they received sanction.

Straits Settlements.—Correspondence with the Colonial Office in regard to the proposed application of Part II of the Medical Act, 1886, to the Straits Settlements was submitted and the answer sent by the direction of the President approved. The last letter from the Colonial Office stated that the observations of the President had been forwarded to the Governor of the Straits Settlements for his consideration.

India.—The receipt from the India Office of a copy of the Indian Medical (Bogus Degrees) Bill introduced in the Council of the Governor-General on September 22nd, 1915, together with a statement of objects and reasons and an extract from the proceedings on that day, was reported.

The statements showed that the Acts of local councils provided in many of the larger provinces of British India for the registration of persons duly qualified to practise Western

medicine or surgery and for the establishment of medical councils with specific powers and duties. It was now considered necessary to pass an Imperial Act restricting the right to issue degrees and diplomas in Western systems of medicine and surgery to duly constituted authorities. It was found that diplomas were being issued by private institutions to untrained or insufficiently trained persons, and that many of these diplomas were colourable imitations of those issued by recognized universities and corporations. The bill would prohibit all persons save certain specified authorities from issuing any degree or diploma in Western medicine or surgery, and penalize persons who voluntarily and falsely assumed any medical title granted by the General Medical Council of the United Kingdom or by the authorities constituted under the Act, as well as the use of colourable imitations of such titles. The bodies recognized by the Act are (1) every university established by an Act of the Governor-General in Council, (2) the State Medical Faculty in Bengal, (3) the College of Physicians and Surgeons of Bombay. The Governor-General in Council may add other bodies at his discretion. The bill does not affect the right of any person to exercise the profession of medicine or to practise as a physician or surgeon, provided he does not pretend to qualifications which he has not got. Homoeopathic, Ayurvedic and Unani practitioners are excluded from the purview of the bill.

The PRESIDENT reported that he had informed the India Office that he was gratified that provision was made for the prohibition of the unauthorized use of degrees in medicine or surgery, and for a penalty for falsely assuming titles, and the Executive Committee agreed with this expression of opinion. It was reported that the United Provinces Draft Medical Bill had also been submitted by the India Office, which had pressed for an answer not later than January 7th. The President had accordingly written to the India Office, stating that in his opinion the Executive Committee would welcome the extension of the provisions of the Bombay Medical Act to the United Provinces, but would regret the inclusion of a clause giving the local government power to sanction the appointment of unregistered persons to important medical offices even in cases of emergency. A reply had been received to the effect that a copy of the President's letter had been sent to the Government of India. The action of the President was approved.

Finance.—Tables showing the accounts of receipts and expenditure of the Council and its branch councils and committees, and of its Dental Fund for 1915, and an approximate statement of assets and liabilities at December 31st, 1915, was submitted by the Senior Treasurer, and the Committee minuted its appreciation of the services he had rendered in the business arising out of the conversion of Consols into war loan stock.

INSURANCE.

RANGE OF MEDICAL SERVICE: OPERATIONS.

THE question whether a certain operation was of a kind which could, "consistently with the best interests of the patient, be properly undertaken by a general practitioner of ordinary professional competence and skill," was recently referred under Article 50 of the Medical Benefit Regulations to a board of referees, consisting of Mr. John Fischer Williams, barrister (chairman), Mr. C. J. Bond, F.R.C.S., and Dr. E. Collingwood Andrews. The operation was for the removal of a papilloma of the lip and was done under chloroform. The Local Medical Committee was at first under the misapprehension that the growth was of a cancerous nature. It came to the unanimous decision that it was not an operation of a kind which consistently with the best interests of the patient could be properly undertaken by a general practitioner of ordinary competence and skill, and the Insurance Committee agreed. The referees, after pointing out that in cases of the kind it is of the highest importance that Local Medical Committees should satisfy themselves that they have before them all material facts before they come to a conclusion, proceeded to make the following pronouncement on the question whether any particular operation falls within the scope of the duties of panel practitioners under their agreement with Insurance Committees. It is not specifically stated that the pronouncement expresses the official view of the Commissioners. The text has been communicated to us by the honorary secretary of the Local Medical Committee concerned.

"Further, we desire, on the invitation of the solicitor to the Insurance Commissioners, to add a word or two with the intention of offering some guidance to Local Insurance and Medical Committees as to the matters principally to be borne in mind where the question arises whether an operation, actually performed by a practitioner on the panel, is one which, consistently with the best interests of the patient, could properly be undertaken by a general practitioner of ordinary professional competence and skill.

"In any such case the operation performed or treatment given is, according to the claim made by the practitioner, of such a nature that he could not have been required to perform or give it under his agreement with the Insurance Committee (see Clause 2 of the model agreement).¹

"It was therefore the practitioner's duty under that agreement before he himself took action, to advise the patient as to the steps which should be taken in order to obtain the necessary treatment (see Clause 4 of the model agreement),² and in so advising, he must be taken to have pointed out to the patient that it was open to him to obtain the services of an expert (either privately or at a hospital or similar institution) or to employ the panel practitioner himself; he must thus have represented himself as possessing the exceptional skill required.

"It is, then, of importance in any given case to ascertain whether any such advice was given by the practitioner to the patient. A practitioner who gives treatment himself without any preliminary advice of the nature indicated is in a weaker position to make good a claim for special remuneration than one who has complied with both the spirit and the letter of the panel agreement.

"A claim of this nature in relation to an operation already performed thus involves the claimant and those who support him in the maintenance of two propositions:

- "(1) That the operation called for skill beyond that ordinarily possessed by general practitioners.
- "(2) That the claimant himself possessed the special skill called for.

"In the consideration of the first of these propositions we deprecate any tendency to seek an answer merely by

¹ "Such treatment as is of a kind which can, consistently with the best interests of the patient, be properly undertaken by a general practitioner of ordinary professional competence and skill."

² "Where the condition of the patient is such as to require services beyond the competence of an ordinary practitioner, the practitioner shall advise the patient as to the steps which should be taken in order to obtain such treatment as his condition may require."

looking at the name of the operation or the disease. In every case the particular facts, both as to the patient and the thing done, must be considered. For instance, the operation of tonsillectomy may involve different degrees of skill and competence according as the patient is a child or an adult of middle age. Or, again, an operation for cancer may vary almost indefinitely in the amount of skill required; and we desire in this connexion to record our dissent from the view of the (Local) Medical Committee as expressed in this case that the mere fact that a papilloma proved to be malignant would without more make the operation of its excision not an operation for a general practitioner.

"The burden of proof is on those who assert the two propositions indicated, though no doubt when once the first proposition is established the successful performance of the operation would in most cases be sufficient evidence to establish the second, especially when the practitioner has given advice to his patient of the nature above suggested. But this burden of proof must be discharged satisfactorily before the conclusion can be reached that the operation was outside the panel agreement. If all that is known is that the operation has been done by a general practitioner, the presumption is that it was a general practitioner's operation, and that no special skill was required.

"If local committees were to assume too readily that operations are not within the competence of the ordinary general practitioner, they would be casting an undeserved slur on the medical profession as a whole, and undermining the well-founded confidence in that profession now felt by the lay public.

"December 30th, 1915."

IRELAND.

AMENDMENT OF THE INSURANCE ACT: IRELAND AND MEDICAL BENEFIT.

THERE is a widespread movement amongst certain Irish public bodies for the repeal of the Insurance Act as applied to Ireland. The demand is based on the assertion that the Act, as administered in Ireland, has not proved worth the cost, and that in the majority of cases insured persons had to wait weeks and months before being paid sickness benefit, with the result that they were left without the money in the acute stage of illness, when it is most needed. It is admitted, however, that since the settlement of the certification dispute, on terms satisfactory to the Irish doctors, the chief administrative difficulties have been removed, and now that the insured can get the certificates for sickness benefit from their medical attendants there is no longer an excuse for any undue delay on the part of approved societies in paying sickness benefits. The public bodies demanding the repeal of the Insurance Act in Ireland are almost exclusively representative of agricultural employers who were never friendly to the application, in any form, of the Insurance Act to Ireland, as they considered it imposed upon them additional burdens in respect of assistance already sufficiently provided under the Poor Law and Medical Charities Acts. It cannot be denied that there is far too much overlapping in the administration of the different Poor Law Acts and the Insurance Act in Ireland, with the result that it is not unusual for insured persons to be receiving relief both from the poor law and insurance, and that this is a hardship on the employer in his capacity also as a ratepayer. It would appear almost certain, in view of the report of the Public Retrenchment Committee, recommending the simplification of the Insurance Act, that the Act will undergo reconstruction in Ireland as well as in Great Britain. At present a committee, representative of the different approved societies, has been appointed in England to prepare and submit evidence in connexion with the working of the Act, to the Treasury Committee now sitting. Many of the larger approved societies in England have also a very large membership in Ireland in both urban and rural areas, and are strongly in favour of extending medical benefits to Ireland; they possess the necessary parliamentary influence, if the Irish Party should desire an amendment of the Act in this direction. The Departmental Committee appointed in the spring of 1913 reported by a majority in favour of extension of medical benefit to urban Ireland. It is probable that the existing Treasury Committee will take into consideration the extension of medical benefit to Ireland as part of the scheme of reconstruction and amendment of the Insurance Act, and it is hoped that a medical member, or

members, representative of the Irish medical profession will be added to this committee.

LOCAL MEDICAL AND PANEL COMMITTEES.

BERKSHIRE.

At a meeting of the Panel Committee on February 4th it was decided to inform the Insurance Committee that there had not been any surplus moneys from the medical practitioners' fund in any year since 1913 to offset the liability to attend insured persons whose names were not upon the list of a practitioner in the area, and that until the Committee could produce such surplus moneys as are referred to in Article 35 (1) it would seem premature to invite the Medical Committee to consider the adoption of these claims.

It was decided to raise no objection to the discontinuance of the use of the term "Rep. mist."

Association Notices.

CHANGES OF BOUNDARIES.

FORMATION OF A GRENADA BRANCH.

The following change has been made in accordance with the Articles and By-laws, and takes effect as from the date of publication of this notice:

That a new Branch of the Association be formed, to be known as the Grenada Branch, and to be coterminous with the Colony of Grenada, thus comprising the Island of Grenada and the Grenadine Islands to the South of the Island of Carriacou, including that Island and the quays adjacent to it, and lying between it and Grenada; also the Islets adjacent to the Northern, Eastern, and Southern coasts of Grenada.

Representation in Representative Body.—In accordance with the decision of the Council, the new Branch forms a Constituency in the Representative Body 1916-17, being entitled to return thereto one Representative.

BRANCH AND DIVISION MEETINGS TO BE HELD.

SOUTH MIDLAND BRANCH: BUCKINGHAMSHIRE DIVISION.—Dr. A. E. Larking, Honorary Secretary (Buckingham), gives notice that a meeting of the Division will be held at the Red Lion Hotel, High Wycombe, on Tuesday, March 21st, at 2.15 p.m., preceded by a lunch at 1.30 p.m. Agenda: Adoption of New Ethical Rules. The Work of the War Emergency Committee (a member of the Central London Committee will attend). Attendance on Dependents of Soldiers and Sailors. Discussion on "Three Years of the Insurance Act," to be opened by members of the Local Medical and Panel Committee.

Naval and Military Appointments.

ROYAL NAVAL MEDICAL SERVICE.

The following appointments are announced by the Admiralty: Surgeon-General (temporary) A. Edmunds, M.B., to the *Pembroke*, additional for Chatham Hospital, Fleet Surgeons A. G. Easton to the *Dreadnought*, P. V. Jackson to the *Defiance*, R. D. Jamieson to *Kang George V. T. D. Halsbury*, M.B., to the *Ganges*, for Shotley Sick Quarters, A. X. Lavertine to the *Field*. Staff Surgeons J. L. Barford to the *Victory*, additional, for disposal; H. V. Wells to the *Monarch*, J. A. Thompson, M.B., to the *President*, Surgeon H. Burns, M.B., to the *Pembroke*, additional; P. G. H. R. Black, M.B., to the *Victory*, additional; temporary Surgeons P. T. Grey, M.B., to the *Cornwallis*; A. G. Evans, M.B., to the *Victory*, additional, for Haslar Hospital; F. M. Lauderdale to the *Nottingham*; A. T. Rivers to the *Field*, additional, for disposal; W. F. Jones to the *President*, additional R.N.A.S.; W. McE. Binning to the *Benbow*. To be temporary Surgeons: W. Francis, R. Castle.

ROYAL NAVAL VOLUNTEER RESERVE.

To be Surgeon Probationers: A. W. Mackie, T. M. Cunningham, K. McFadyen, P. D. T. Roberts, H. V. Edwards, J. F. Howell, J. S. E. Roberts, A. M. C. Young.

ARMY MEDICAL SERVICE.

Colonel C. E. Nichol, C.M.G., D.S.O., M.B., on completion of four years' service in his rank, is retained on the active list under the provisions of Article 120, Royal Warrant for Pay and Promotion, and to be supernumerary.

Lieutenant-Colonel J. P. Silver, M.B., to be temporary Colonel whilst Assistant Director of Medical Services of a Division.

ROYAL ARMY MEDICAL CORPS.

Temporary honorary Major Sir John Collie to be temporary honorary Lieutenant-Colonel.

H. A. Powell, M.D., F.R.C.S., to be temporary honorary Lieutenant-Colonel whilst employed at the Guildford War Hospital.

G. A. Barnatynne, M.D., F.R.C.P., to be temporary Lieutenant-Colonel whilst employed at the Bath War Hospital.

Temporary Captain S. Fleming, M.B., to be temporary Major.

B. Hudson, M.D., to be temporary honorary Major whilst serving with No. 2 Red Cross Hospital (substituted for notification published in the *London Gazette* of July 26th, 1915).

T. E. Holmes, M.D., to be temporary Major whilst employed at the Bagthorpe War Hospital.

Captain R. G. Archibald is seconded for service with the Egyptian Army.

Temporary Captain L. MacLagan-Wedderburn, M.D., relinquishes his commission.

Temporary Lieutenants to be temporary Captains: J. Caton-Shelmerdine, E. S. Gooddy, F.R.C.S., G. M. Mayberry, J. Kirtton, M.B., H. Peters, W. F. Morgan, R. Condy, M.B., E. B. Leech, M.D., B. Wallace, H. E. Gamlen, M.B., E. L. Horsburgh, M.D., T. T. Higgins, M.B., F.R.C.S., G. B. Macgregor, M.B., T. Lovett, M.B., S. C. Westwood, M.D., A. Merrin, M. A. Swan, M.B., E. S. B. Eames, G. A. Borthwick, M.B., H. L. Mann, H. W. Ward, M. J. Mottram, D. F. Shearer, M.B., F.R.C.S., J. F. Steven, D.S.O., M.B., A. C. Giles, M.B., J. Ferguson, M.B., L. H. O. Birkbeck, M.B., T. J. S. Moffett, M.D., R. C. Matison, E. C. Hardwicke, S. J. Henry, M.B., S. W. Coffin, L. G. Brown, P. E. Lones, R. J. McN. Love, M.B., P. W. McKeag, M.B., A. Paterson, M.B., J. McCulloch, M.B., F. D. Atkins, M.B., J. T. Gunn, M.B., J. R. Murray, M.D., C. T. Neve, M.B., F.R.C.S., V. J. Woolley, M.D., H. G. Oliver, J. J. Crawford, M.D., J. McDonnell, J. S. Taylor, M.B., R. A. Steven, M.B., F. E. R. Laborda, C. McShane, M.B., H. H. Sampson, M.B., F.R.C.S., H. E. Battle, S. D. Fairweather, M.B., E. Taunton, M.B., F.R.C.S.

Lieutenants of the Canadian A.M.C. to be temporary Lieutenants: P. W. Tuller, M.D., J. E. Carmichael, M.D., A. E. Whitmore, M.D., R. C. Robinson, M.D., W. S. T. Connell, M.D., D. M. Baillie, M.D. To be Lieutenants: R. P. Smith, M.B., W. M. McLaren, M.B.

The notification regarding temporary Lieutenant S. D. Fairweather, M.B., published in the *London Gazette* of January 13th is cancelled.

To be temporary Lieutenants: L. F. McDowell, M.D., H. A. Boyle, M.B., S. E. Bethell, M.B., C. A. L. Evans, G. C. Metcalfe, R. A. Slater, M.B., A. C. Mackay, W. Corbet, M.B., J. H. Waterhouse, M.D., E. C. E. Barnes, G. G. Old, M.B., E. R. Dermer, A. D. Morris, J. B. Robertson, M.B.; Second Lieutenant J. H. Porter, M.B., from Royal Fusiliers (City of London Regiment); Second Lieutenant T. W. G. Johnson, M.B., from Connaught Rangers; J. R. Stevenson, M.B., W. J. Dilling, M.B., K. T. Limbery, L. R. Pickett, A. McCawley, D. J. Evans, D. MacC. Brown, M.D., C. W. Webb, M.D., J. A. Tippet, C. K. Carroll, P. H. Young, M.B., J. B. Rae, M.B., J. M. Ross, M.B., J. B. Robertson, M.B., E. R. Drake-Brockman, C. I. Hannigan, M.B., A. N. Drury, M.B., A. C. D. Newton, O. W. Gange, J. G. Leslie, M.B., L. A. W. Johnson, temporary Lieutenant S. P. Bedson (from Northumberland Fusiliers), E. K. Williams, J. McHaffie, M.D., C. D. Coyle, M.B., N. Garrard, L. G. Reynolds, H. Mohan, M.D., J. J. Tate, G. L. Pillans, W. L. Paterson, D. J. Bedford, E. L. Hopkins, L. J. O'Donovan, A. F. Wilson-Gunn, M.B., W. H. Pearce, J. R. Brown, M.B., C. B. Tudehope, M.B., A. Trall, M.B., M. Moran, L. M. Mayers, A. B. Mitchell, M.D., W. O. Welby, M.D., J. A. West, S. McNaughton, M.D.

To be temporary honorary Lieutenants: A. W. Adams, N. M. Cummins, M.B., W. L. Thomas, L. ap Ivan Davies, T. Anwyl-Davies.

Temporary Lieutenants relinquishing their commissions: G. Birch, F. S. Scott, M.B., L. E. Eden, M.B., W. C. G. Ashdown, F.R.C.S., E. B. C. Mayrs, M.B., E. Barnett, A. Jamieson, M.B., T. B. McKee, M.B., T. H. Brown, M.B., F. O'C. White, W. E. Dean, M.D., A. E. Clarke, J. H. Yule, M.B., J. A. Martin, M.D., E. L. Marsh, J. G. S. Macpherson, H. Porter, M.B., J. A. Cowie, M.D., F.R.C.S., W. Irving, M.D., E. Johnson, M.B., A. L. Grant, M.B., J. H. J. V. Coats, M.B., A. C. Sandston, G. H. F. Graves, W. S. Baird, M.B., E. W. H. Cruickshank, M.B., L. Ferra, A. W. C. Lindsay, C. H. L. Rixon, H. A. Sharnan, M.D., L. S. Morgan, M.D.

Temporary Lieutenant W. H. Lambert, M.B., relinquishes his commission on account of ill health.

Temporary honorary Lieutenant H. Nockolds, M.B., relinquishes his commission on ceasing to be employed with No. 3 British Red Cross Hospital.

TERRITORIAL FORCE.

ARMY MEDICAL SERVICES.

Lieutenant-Colonel J. Young, M.S., South Midland Field Ambulance, to be Assistant Director of Medical Services, South Midland Division, with temporary rank of Colonel, vice Colonel W. H. Bull, F.R.C.S.E.

Major W. F. McAllister-Hewlings, M.B., from Attached to Units other than Medical Units, to be Deputy Assistant Director of Medical Services, North Midland Division.

Major W. E. Miles, F.R.C.S., from the T.F.R. to be Deputy Assistant Director of Medical Services, London Division.

Captain (temporary Major) C. M. Fegen, from the Sanitary Service, to be Deputy Assistant Director of Medical Services, 2nd London Division.

ROYAL ARMY MEDICAL CORPS.

London Field Ambulance.—Temporary Captain G. E. Nash to be Captain.

London (City of London) Sanitary Company.—Lieutenant G. L. Matthews to be Captain. W. C. Lyons, M.B., to be Lieutenant.

London General Hospital.—Captain K. B. Clarke relinquishes his commission on account of ill health. Lieutenants to be Captains: W. H. Lloyd, H. G. Mallam.

London Sanitary Company.—To be Captains: Lieutenant A. E. Rayner, C. D. Edwards, M.D., O. Cattlin. Captain D. P. M. Farquharson, M.B., from Attached to Units other than Medical Units. To be Lieutenants: T. Legge, W. Johnstone, M.B.

London (City of London) Field Ambulance.—Captain F. V. Denne, from Attached to Units other than Medical Units, to be Captain. M. J. Hackett, M.B., to be Lieutenant.

Home Counties Divisional Sanitary Section.—Captain A. E. Tait, M.B., from North Midland Field Ambulance, to be Captain.

Home Counties Field Ambulance.—Lieutenants to be Captains: J. J. C. Hamilton, A. L. Sharpin.

North Midland Field Ambulance.—Lieutenant (temporary Captain) C. M. Cowper relinquishes his commission on account of ill health.

North Midland Mounted Brigade Field Ambulance.—Lieutenant S. A. S. Malkin to be Captain.

South Midland Field Ambulance.—Lieutenant W. G. McKenzie to be Captain. E. G. Anderson, M.B., to be Lieutenant.

South Midland Casualty Clearing Station.—Major P. S. Hichens, M.B., to be temporary Lieutenant-Colonel whilst in command of a casualty clearing station.

Eastern Mounted Brigade Field Ambulance.—Lieutenant V. M. Wallis to be Captain.

East Anglian Field Ambulance.—Lieutenant (temporary Captain) G. C. Gray relinquishes his commission on account of ill health. Lieutenant R. D. Langdale-Kelham to be Captain.

Southern General Hospital.—Captain G. S. Earl, M.D., relinquishes his commission on account of ill health. Captain H. B. Whitehouse is seconded. Lieutenant R. W. Acheson to be Captain.

Wessex Divisional Sanitary Section.—Lieutenant A. E. Benham to be Captain.

Wessex Casualty Clearing Station.—Lieutenant C. Telfer to be Captain; W. S. Richardson, F.R.C.S.E., to be Lieutenant.

Western General Hospital.—Lieutenants to be Captains: J. G. McKinlay, M.B., L. Oldershaw.

South-Western Mounted Brigade Field Ambulance.—Lieutenants to be Captains: C. D. Reiton, M.B., H. R. Dive.
South Wales Mounted Brigade Field Ambulance.—Lieutenant N. T. K. Jordan, M.B., to be Captain.
Welsh Field Ambulance.—Lieutenant J. E. Dunbar, M.B., from South Wales Mounted Brigade Field Ambulance, to be Lieutenant.
East Lancashire Field Ambulance.—Major F. W. Marsden relinquishes his commission on account of ill health. Lieutenant A. B. Thompson, M.B., to be Captain.
West Lancashire Field Ambulance.—Captain W. R. Stephen, M.B., is dismissed from H.M. service by sentence of a general court-martial. A. S. Parkinson, M.D., to be Lieutenant.
Northern General Hospital.—Lieutenant H. G. Dodd, M.B., to be Captain.
West Riding Field Ambulance.—Major W. S. Kerr, M.B., F.R.C.S.E., to be temporary Lieutenant-Colonel whilst in command of a field ambulance. J. M. Pringle, M.B., to be Lieutenant.
Highland Mounted Brigade Field Ambulance.—Lieutenant W. H. Milligan to be Captain.
Highland Field Ambulance.—Lieutenant C. G. Skinner to be Captain.
Lowland Field Ambulance.—To be Captains: Lieutenant (temporary Captain) N. MacInnes, M.B., Lieutenants J. W. G. H. Riddel, R. Lawson, M.B.
Supernumery for Service with the O.T.C.—V. G. L. Fielden, M.D., to be Lieutenant (temporary) for service with the Medical Unit, Belfast University Contingent, Senior Division, O.T.C.
Attached to Units other than Medical Units.—To be Captains: Captain G. E. Nash, from London Field Ambulance; W. L. Griffiths, M.D., F.R.C.S., late Captain R. A. M.C. (T.F.) (substituted for announcement published in the *London Gazette* of January 21st), Lieutenants H. Connop and W. P. Tindal-Atkinson.

Vacancies and Appointments.

NOTICES REGARDING APPOINTMENTS.—Attention is called to a Notice (see Index to Advertisements—Important Notice re Appointments) appearing in our advertisement columns, giving particulars of vacancies as to which inquiries should be made before application.

VACANCIES.

BOLTON INFIRMARY AND DISPENSARY.—Second and Third House-Surgeons. Salary, £200 and £180 respectively.
BRISTOL GENERAL HOSPITAL.—Casualty House-Surgeon. Salary, £175 per annum.
BRISTOL ROYAL HOSPITAL FOR SICK CHILDREN AND WOMEN.—(1) House-Surgeon; (2) House-Physician. Salary, £150 per annum.
BRISTOL ROYAL INFIRMARY.—(1) House-Physicians; (2) House-Surgeons. Salary, £100 per annum in each case.
BURNLEY: VICTORIA HOSPITAL.—Lady House-Surgeon. Salary, £160 per annum.
CAMBRIDGESHIRE ASYLUM, Fulbourn.—Junior Assistant Medical Officer (male). Salary, £200 per annum, rising to £250.
CARDIFF: KING EDWARD VII HOSPITAL.—Two House-Surgeons. Salary, £140 per annum.
CHARING CROSS HOSPITAL.—Medical Registrar.
EALING: KING EDWARD MEMORIAL HOSPITAL.—Resident Medical Officer. Salary, £100 per annum.
EVELINA HOSPITAL FOR WOMEN, Southwark.—(1) House-Surgeon; salary, £150 per annum. (2) Clinical Assistants in the Out-patient Departments.
GUILDFORD: ROYAL SURREY COUNTY HOSPITAL.—House-Surgeon. Salary, £150 per annum.
KIRK WALL: PARISH OF EDAY.—Medical Officer.
LEEDS PUBLIC DISPENSARY.—Lady Resident Medical Officer. Salary, £130.
LIVERPOOL: DAVID LEWIS NORTHERN HOSPITAL.—(1) House-Physician; (2) Two House-Surgeons. Salary, £150 per annum.
LONDON UNIVERSITY.—Examiners in (1) Medicine, (2) Bacteriology, (3) Mental Diseases and Psychology, (4) Pharmacology.
MANCHESTER CHILDREN'S HOSPITAL.—Two Resident Medical Officers (ladies). Salary, £100 per annum and monthly bonus of £5 during the war.
NOTTINGHAM CITY ASYLUM.—Senior Assistant Medical Officer. Salary, £300 per annum.
PUTNEY HOSPITAL, S.W.—Resident Medical Officer. Salary, £150 per annum.
ROYAL LONDON OPHTHALMIC HOSPITAL, City Road, E.C.—Out-patient Surgical Officer. Salary, £50 per annum.
SALISBURY (GENERAL) INFIRMARY.—(1) House-Surgeon; (2) Assistant House-Surgeon. Salary, £150 and £100 per annum respectively.
SHEFFIELD ROYAL INFIRMARY.—House-Surgeon. Salary, £100 per annum.
SMETHWICK EDUCATION COMMITTEE.—Assistant School Medical Officer. Salary, £350 per annum.
SOUTH LONDON HOSPITAL FOR WOMEN.—(1) Assistant Physician; (2) Assistant Surgeon (females).
STOKE-ON-TRENT: NORTH STAFFORDSHIRE INFIRMARY, Hartshill.—(1) House-Surgeon; (2) House-Physician (females). Salary, £200 per annum.
TOTTENHAM DISTRICT COUNCIL.—Medical Officer (part-time) in connexion with Ante-natal Clinic. Salary, 1½ guineas per session.
VICTORIA HOSPITAL FOR CHILDREN, Tite Street, S.W.—House-Surgeon.
WALLSEND EDUCATION COMMITTEE.—Temporary School Medical Officer. Salary, £300 per annum.
WOLVERHAMPTON AND STAFFORDSHIRE GENERAL HOSPITAL.—Senior Student to act as Assistant to House-Surgeon.
WOMEN'S HOSPITAL FOR CHILDREN, Harrow Road, W.—Anaesthetist (female). Honorarium, £10; L.C.C. fees, £75.

CERTIFYING FACTORY SURGEONS.—The Chief Inspector of Factories announces the following vacant appointments: Billingborough (Lincoln), Lydbrook (Gloucester).

To ensure notice in this column—which is compiled from our advertisement columns, where full particulars will be found—it is necessary that advertisements should be received not later than the first post on Wednesday morning. Persons interested should refer also to the Index to Advertisements which follows the Table of Contents in the JOURNAL.

APPOINTMENTS.

CLUCKIE, M. G., M.D., Consulting Ophthalmic Surgeon, Victoria Eye Infirmary, Paisley.
GILCHRIST, J., M.D., Ophthalmic Surgeon to the Victoria Eye Infirmary, Paisley.
MERRICK, W. J., M.B., B.Ch.Dubl., Certifying Factory Surgeon for the Castleknock District, co. Dublin.
SIMPSON, H., M.B., District Medical Officer of the Tonbridge Union.
SMITH, A. Wood, M.D., Medical Superintendent, Royal Hospital for Sick Children, Yorkhill, Glasgow.

BIRTHS, MARRIAGES, AND DEATHS.

The charge for inserting announcements of Births, Marriages, and Deaths is 5s., which sum should be forwarded in Post Office Orders or Stamps with the notice not later than the first post on Wednesday morning in order to ensure insertion in the current issue.

BIRTHS.

MILNE.—At The Chestnuts, 9, High Road, Streatham, on 12th inst., the wife of George Milne, M.D., D.P.H., of a daughter.
MILNE.—On March 10th, the wife of Robert Milne, M.D., M.S., F.R.C.S., 21, Park Crescent, Portland Place, W., of a son.
WHEELER.—At the Nursing Home, 13, St. James's Road, on 4th inst., the wife of Lieutenant H. Q. O. Wheeler, R.A.M.C. (Dora E. Paterson, M.B.), 247, Boundary Street, Liverpool, of a son.
WILLAN.—At 23, Claremont Place, Newcastle-upon-Tyne, on 14th March, 1916, the wife of R. J. Willan, M.V.O., F.R.C.S., Staff Surgeon, R.N.V.R., of a son.

MARRIAGE.

HANCOCK—WALKER.—On March 4th, at St. Stephen's Church, Norwich, by the Rev. John Huxley, Lieutenant T. W. Hancock, R.A.M.C.(T.), son of J. H. Hancock, Norwich, to Rosetta Isabel Walker (Betty), daughter of T. Walker, Wolverhampton.

DEATHS.

BARNICOT.—On March 10th, at Queen Street, Hitchin, Joseph Barnicot, M.D.Cantab., of typhoid fever.
BENNETT.—March 5th, at Hillside, Upper Lydbrook, Ross-on-Wye, of pneumonia, Edward Bennett, L.E.C.P. and L.R.C.S. Edin., elder son of the late Edward Augustus Bennett, of Marsden Hall, Nelson, Lancashire.
CLARK.—On the 23rd January, at Bulawayo, after a short illness, William Gladstone Clark, M.A.Cantab., F.R.C.S. Eng., aged 48.

DIARY FOR THE WEEK.

MONDAY.

MEDICAL SOCIETY OF LONDON, 11, Chandos Street, W., 8.30 p.m.—Discussion on Gunshot Wounds of the Spine, to be introduced by Captain J. Collier (Medical Aspect) and Lieutenant-Colonel D. Armour (Surgical), to be followed by Major F. W. Mott, F.R.S., Captain W. Harris, Dr. L. Guthrie, Captain E. Adams, Captain F. Buzzard, Major G. N. Pitt, Dr. S. A. K. Wilson, and Dr. E. G. Fearnside.

WEDNESDAY.

HUNTERIAN SOCIETY, 1, Wimpole Street, W., 9 p.m.—Annual Discussion: The Relation of the Medical Profession to the State and the Community (Dr. F. J. Smith, Sir John Collie, Dr. T. D. Lister, Mr. Lawson Dodd).

ROYAL SOCIETY OF MEDICINE: SECTION OF OPHTHALMOLOGY, 8.30 p.m.—Colonel Lister, A.M.S., and Lieutenant-Colonel Gordon Holmes, R.A.M.C.: Disturbances of Vision from Cerebral Lesions, with special reference to the Cortical Representation of the Macula.

FRIDAY.

ROYAL SOCIETY OF MEDICINE: SECTION OF STUDY OF DISEASE IN CHILDREN, 4.30 p.m.—Cases and Specimens. Papers:—Dr. D. H. Hutchison: A Case of Hemi-hypertrophy, with post-mortem examination. Dr. H. C. Cameron: Osteogenesis Imperfecta, illustrated by cases and skiagrams.

POST-GRADUATE COURSES AND LECTURES.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.
THE POST-GRADUATE COLLEGE, West London Hospital, Hammer-smith, W.—Clinical work; graduates only.

DIARY OF THE ASSOCIATION.

Date.	Meetings to be Held.
MARCH.	
17 Fri.	London: Executive Subcommittee of Central Medical War Committee, 3.15 p.m.
21 Tues.	Buckinghamshire Division, High Wycombe, 2.15 p.m.
APRIL.	
12 Wed.	London: Medico-Political Committee.

SUPPLEMENT TO THE BRITISH MEDICAL JOURNAL.

LONDON: SATURDAY, MARCH 25TH, 1916.

CONTENTS.

	PAGE		PAGE
RECRUITING FOR THE NAVAL AND MILITARY MEDICAL SERVICES:		INSURANCE:	
THE ROYAL COLLEGES IN LONDON: APPOINTMENT OF JOINT ADVISORY COMMITTEE...	49	SURCHARGES: DECISIONS OF INSURANCE COMMISSION FOR ENGLAND IN CERTAIN CASES ...	50
CONFERENCES AT LEEDS AND LONDON OF REPRESENTATIVES OF LOCAL MEDICAL WAR COMMITTEES ...	49	STOCK MIXTURES: LETTER FROM THE BRITISH MEDICAL ASSOCIATION ...	51
ASSOCIATION INTELLIGENCE: MEETING OF COUNCIL ...	55	LOCAL MEDICAL AND PANEL COMMITTEES...	53
NAVAL AND MILITARY APPOINTMENTS...	55	INSURANCE NOTES ...	54
VACANCIES AND APPOINTMENTS ...	56	BIRTHS, MARRIAGES, AND DEATHS ...	56
		DIARY ...	56

RECRUITING FOR THE NAVAL AND MILITARY MEDICAL SERVICES.

THE ROYAL COLLEGES IN LONDON.

APPOINTMENT OF JOINT ADVISORY COMMITTEE.

At the meeting of the Council of the Royal College of Surgeons on March 10th the resolution of the Central Medical War Committee asking the Royal Colleges to appoint an Advisory Committee to advise on questions relating to the requisition of medical men for military service was considered, and the following resolution was adopted, together with the two riders as stated:

That the Royal College of Surgeons decides to join the Royal College of Physicians in forming an Advisory Committee to advise the Government Department concerned, through the Central Medical War Committee, on any case affecting the several metropolitan hospitals and medical schools during the war in respect of medical men on their staffs (including residential and teaching staffs), with regard to whom the question arises as to whether a particular individual is indispensable, or would suffer excessive personal hardship if required to enter military service; and further, similarly to advise on the case of any other medical man in England or Wales, in respect of whom the Central Tribunal under the Military Service Act of 1916, or the Central Medical War Committee, thinks it desirable that the Advisory Committee should be consulted.

Rider 1.—It is of course understood that the opinion of the Advisory Committee will be transmitted to the Government departments concerned without alteration.

Rider 2.—It would probably save time if the Advisory Committee would, in the first place, institute a survey of the minimum necessities of the several metropolitan hospitals and medical schools in respect of staff.

It was further resolved that in the event of the Royal College of Physicians deciding to take part in forming such a committee the representatives of the Royal College of Surgeons on it should be:

Sir W. Watson Cheyne, Bt., K.C.M.G., C.B., President, for whom, when absent Sir Rickman J. Godlee, Bt., K.C.V.O., is deputed to act.
Mr. William F. Haslam,
Mr. D'Arcy Power,
Mr. Charles Ryall,
With power to co-opt two others.

The resolution of the Central Medical War Committee was considered at a comitia of the Royal College of Physicians of London on March 17th, when the following resolution was passed:

That this College is willing to join the Royal College of Surgeons in forming an Advisory Committee to give advice to the Government in relation to medical practitioners in the metropolitan district required for service in the army, and also to advise on cases of special difficulty elsewhere in England and Wales. Such advice to be communicated through the Central Medical War Committee without alteration to the Government departments concerned.

CONFERENCES OF REPRESENTATIVES OF LOCAL MEDICAL WAR COMMITTEES.

LEEDS.

The conference to which representatives of the Local Medical War Committees in the north of England had been invited was held in the theatre of the Medical School, Leeds, on March 21st. The chair was taken by Major A. S. F. Leyton, R.A.M.C.T., Chairman of the Leeds Local Medical War Committee, and the arrangements were made by Dr. James Allan, Honorary Secretary of the Leeds Committee. There were about one hundred present, including, besides members of the Leeds Local Medical War Committee and some local practitioners, representatives of Local Medical War Committees all over the north of England.

Dr. Cox, who attended on behalf of the Central Medical War Committee, said that the main business of the meeting was to enlist the enthusiasm of those present in making the enrolment scheme a success, and, judging from the figures of the Committees represented, there could be little doubt of success in most of the areas in the north. He dealt with the various objections to the enrolment scheme, and said that it was apparent that the method of obtaining recruits for the R.A.M.C. which had been used up to now would not do for the future. Sections of the profession had been reached which found it extremely difficult to give up its civil work, and therefore closer organization was required. No alternative to enrolment had been suggested except compulsion, which could not be applied to the medical profession alone. Compulsion, though it would render the task of the profession easier by ensuring that no man should escape doing his duty, would only remove the smallest of the profession's difficulties. The Local Committees would still be faced with the problems of taking the right men in the right order, of organizing the medical work of the district so as to distribute the burden on those remaining as equally as possible, and of protecting the interests of those who went. As practical men they must use the means they possessed because the needs of the country could not wait. The enrolment scheme was an attempt to organize the medical profession by the medical profession for the good of the nation. The profession could do this particular work much better for itself than any State department. It was to the advantage of the profession to organize itself, and thus see that local difficulties were dealt with by people who knew those difficulties. The enrolment scheme, if a success, would be fair and economical. It would not be fair unless the great majority of the men enrolled, but the Central Committee had given its promise that it would not victimize the public-spirited men who enrolled by proceeding to call them up if the response was inadequate. What should be considered an adequate response could not be settled until the total number of men to be dealt with was known, and that could not be ascertained until the Local Committees had eliminated from their lists those ineligible for enrolment. If the scheme were a success it would be fair, because it would ensure that all the men (with exceptions, who could always be relied upon not to help in any organized scheme) were available for doing their country's work whether in the army or by remaining

at home. The fairness of the scheme lay largely in the fact that it was to be worked by the co-operation of Local Committees which would bring to bear local knowledge, and a Central Committee which could be relied upon to take a large and impartial view. The scheme of classification also would serve as a rough guide to selection, so that the men with the fewest ties and difficulties would go first. The scheme was economical because it would form a reserve for the R.A.M.C., which could be drawn upon as wanted, and thus the Director-General, instead of keeping up a constant demand in case the supply might run short, might well be content to wait until he was certain that he needed more men, and then only to ask for the minimum number required, knowing that the men were there when wanted. Dr. Cox expressed the opinion of the Central Medical War Committee that the profession had now a magnificent opportunity of showing its organizing capacity and patriotism. No other profession had anything like the same opportunity, because no other profession, as such, was required for national purposes. If within the next few weeks the country could be assured that arrangements had been made that would provide for the needs of the army, and at the same time those of the civilian population, it would redound to the credit of the profession.

Many questions were asked and certain difficulties were raised which were mainly answered by the experience of the representatives present. The meeting was most satisfactory and clearly showed that the Central Medical War Committee could depend upon the loyal and enthusiastic support of those present.

LONDON.

The conference of the representatives of the Local Medical War Committees of London and the eastern and south-eastern counties was held at the house of the British Medical Association in London on March 22nd. The Council Chamber was filled to the limit of its capacity. Dr. Charles Buttar, who was in the chair, in an opening statement said that only by such arrangements as were provided by the enrolment scheme could there be any possibility of choosing with fairness those members of the profession who could most easily go. Without it, no one could tell whether his private difficulties were greater or less than those of another, or whether the district where he worked could spare a doctor more easily than another district; but, if all enrolled, then there would be no difficulty in choosing fairly. Mr. E. B. Turner emphasized the fact that the Central Medical War Committee was acting as a buffer between the War Office and the profession, and also the War Office and the population. Without such a committee there would be no check on the manner in which the War Office might seek to get the men it wanted.

Difficulties that had arisen in the work of the Local Medical War Committees were then put forward by several speakers. Among the chief were these: It was asked what was the relation of the local committee to the Central Committee, and which had the determining voice as to whether men could or could not go from a district? The answer was that the voice of the local committee must always be the first consideration, but that without counterbalance of the national view possessed by the Central Committee the local committee might have difficulty in estimating the situation. A good deal of discussion arose as to what should be considered success for the enrolment scheme. The demand was that it should be "substantially successful" before men should be called up under the scheme. Several members of the Central Committee plainly stated that this was the view of the committee. It would not proceed to call up men without the knowledge that the vast majority of available men had enrolled. One speaker asked what would happen supposing the Committee considered not enough men had enrolled. Would the enrolled men have the chance of being used? The answer was "Certainly. They would be written to and asked if they were willing to take service should they be required."

One of the speakers, who stated that he was under 45, and had enrolled and was willing to take service even at considerable sacrifice to himself, made a strong appeal to the patriotism of the profession to enrol to a man, and to trust the Central Medical War Committee, which he maintained was formed by the profession to aid the profession in a case of national necessity.

INSURANCE.

SURCHARGES.

DECISIONS OF INSURANCE COMMISSION FOR ENGLAND IN CERTAIN CASES.

WE have received for publication from the National Health Insurance Commission (England) copies of the decisions of the Commissioners in three appeals which have been heard against "surcharges" imposed by Insurance Committees.

By Article 40 of the National Health Insurance (Medical Benefit) Regulations (England), 1913, it is provided that:

Where it appears to the Panel Committee that by reason of the character or amount of the drugs or appliances ordered for insured persons by any practitioner or practitioners on the panel, the cost of the supply of those drugs and appliances is in excess of what may reasonably be necessary for the adequate treatment of those persons, the Panel Committee may, and if any representations to that effect are made to them by the Pharmaceutical Committee shall, make an investigation into the circumstances of the case, whether in respect of the drugs and appliances ordered by an individual practitioner or generally as to the orders given for drugs and appliances by practitioners on the panel.

The article also provides that:

The Panel Committee shall, after hearing the Pharmaceutical Committee and any practitioner concerned, make a report to the Committee, and if, after considering the report, the Committee are of opinion that an excessive demand upon the Drug Fund has arisen owing to orders given by a practitioner which are extravagant either in character or in quantity, they may, if they think fit, make such deduction from the amount payable to that practitioner by the Committee as they think fit, and shall pay the amount so deducted to the credit of the Drug Fund.

The article further provides that a practitioner in whose case the Committee has decided to make a deduction is entitled to appeal to the Commissioners, whose decision is final.

This is the machinery under which "surcharges" are imposed, and the decisions, the substance of which we print below, are those of the Commissioners to whom the surcharged practitioners appealed.

I.

In the first case a Panel Committee had appointed five of their number as a subcommittee to make an investigation into the circumstances of certain cases, including that of Dr. A., in which it was alleged that there had been excessive ordering of drugs. Dr. A. attended before this subcommittee, at which a number of his prescriptions were discussed. The subcommittee reported to the Panel Committee with the result that the latter passed a series of resolutions dealing with certain of Dr. A.'s prescriptions. As typical of these resolutions the Panel Committee resolved that "prescriptions for phylacogen be surcharged at full cost." Copies of these resolutions were transmitted to the Insurance Committee, and the Insurance Committee in due course surcharged Dr. A. to the extent of £12 11s. 9d.

The Commissioners to whom Dr. A. appealed held that although the Panel Committee may properly delegate the duties of investigation to a subcommittee, the practitioner has, under the regulations, the right to appear before the Panel Committee itself, and that inasmuch as Dr. A. had had no such opportunity the matter must be reopened and Dr. A. granted a formal hearing. They further stated that the resolutions which the Panel Committee had forwarded to the Insurance Committee were insufficient in that the regulations required a report in terms which set out the facts upon which the Panel Committee formed their opinion in order that the Insurance Committee might themselves form an opinion on the matter.

The appeal was therefore allowed on these grounds.

II.

In the second case it appeared that the Insurance Committee, the Panel Committee, and the Pharmaceutical Committee had entered into an arrangement whereby various analyses of doctors' prescriptions were prepared under the supervision of the clerk to the Insurance Committee, who from time to time reported the results to the Panel and Pharmaceutical Committees. In this way statistical tables were got out for a certain period showing the total amount of the chemists' accounts, the sum available for their payment, the numbers of prescriptions

issued, the average price per prescription, and the average cost per insured person, both in respect of all the doctors and in respect of each doctor separately. In the case of Dr. B. these tables showed that, on the basis of the number of persons on his list, the amount of his prescriptions exceeded the average price for all the doctors by £174 2s. 10d., or an excess of 22.02d. per insured person for the half-year. On the basis of the number of prescriptions issued, the excess worked out at £205 19s. 8d., or an excess of 16.14d. per prescription. The Panel Committee, at the instance of the Pharmaceutical Committee, considered these tables, afforded the doctors (including Dr. B.), whose prescriptions appeared to them to call for inquiry an opportunity of explaining them, and drew up a report stating that in their opinion Dr. B.'s prescriptions were extravagant and unnecessary in frequency, and estimating the excess thus caused to be 25 per cent. of the cost of the whole of his prescriptions for the period in question. This report was submitted to the Insurance Committee, who replied requesting the Panel Committee to state the method adopted in estimating the excess. The Panel Committee wrote in reply that the prescriptions examined were extravagant, and there was evidence of unnecessary frequency in prescribing; that the doctor was unable to justify his prescriptions; that the tables of statistics had then been referred to and the same extravagance appeared to persist throughout the whole of the doctor's prescribing, and that, there being no method laid down by authority of estimating the excess, they had considered that 25 per cent. of the cost of the whole of the prescriptions was a fair estimate.

Thereupon the Insurance Committee, after consultation with the Medical Benefit Subcommittee of the Insurance Committee, decided to surcharge Dr. B. to the extent of £77 6s. 10d.

It was urged on behalf of Dr. B. that the decision of the Insurance Committee was arrived at on "purely mathematical grounds" in that, having ascertained the average cost of prescriptions given by all doctors in the area, they found that Dr. B. was guilty of extravagance merely because the cost of his prescriptions exceeded that average. The Commissioners were of opinion that this contention was unsupported by the facts, and considered that "in an area where it is found that the cost of a doctor's prescriptions is considerably in excess of the average cost obtaining in that area, there is *prima facie* evidence of extravagance on the part of that doctor, which, however, it is open to him to rebut, if he can, by explanation of the special circumstances of his patients which would justify the apparent excess." The Commissioners therefore dismissed the appeal, at the same time reducing the amount of the surcharge to £25.

III.

In the third case the facts were as follows:

Representations as to the excessive ordering of drugs in the area of the Insurance Committee were made with regard to certain doctors in 1913, and were considered by the Local Medical Committee, on which, under regulations then in force, rested the duty of making the necessary investigation. No definite steps were, however, taken by the Local Medical Committee up to the time when the Panel Committee came into existence in April, 1914, and took over the duty of investigations in accordance with Article 40 of the Medical Benefit Regulations, 1913.

In July, 1914, at a joint meeting of the Panel, the Pharmaceutical, and the Insurance Committees, it was agreed that a certain pharmaceutical chemist should make an analysis of the prescriptions of the doctors which had been considered previously by the Local Medical Committee. This chemist made two reports. The first was in form similar to that in the second case above, and showed a number of averages both of the prescriptions of all the panel doctors in the area and of the prescriptions of the individual doctors. In the second report the chemist dealt particularly with prescriptions given by certain doctors which appeared to him to be *prima facie* of a specially expensive character.

After receiving the first report the Panel Committee invited the doctors in question to meet them in a "round table" conference which was held in October, 1914. At this conference no attention was drawn to individual prescriptions. In November the Panel Committee drew

up a report to the Insurance Committee in which they stated that the prescriptions of the doctors during 1913 had been examined with the result that they considered that there had been undoubted over-prescribing. In the meantime the chemist made his second report, and this, together with the report of the Panel Committee, was before the Insurance Committee, when they decided that there had, in fact, been over-prescribing on the part of all the doctors in question, and that the amount by which each doctor's prescription had exceeded the cost which would have been incurred on the basis of the general average should be deducted from the amount of the remuneration payable to him.

A number of the doctors appealed. The Commissioners, however, being dissatisfied with the nature and form of the report which the Panel Committee had made, caused the matter again to be considered by that Committee. The Panel Committee accordingly drew up a second report in March, 1915, to the Insurance Committee, and this time they had before them the chemist's second report. Their report was again adverse to the doctors. The Insurance Committee then referred back this second report to the Panel Committee with a request that they would see the doctors involved and hear their explanations, and then report to them again.

The Panel Committee then caused each doctor to be furnished with an extract from the chemist's second report containing particulars of cases to which attention was drawn by the chemist, and the doctors were invited to attend before the Panel Committee in a series of conferences. These conferences were duly attended by certain of the doctors concerned, and others did not attend. Those who did attend gave general explanations in reference to those matters affecting them, and the others wrote similar explanations. Individual prescriptions, however, were not discussed. The result was that the Panel Committee confirmed their report of March, 1915, and the Insurance Committee adopted the advice of the Panel Committee. Upon these facts the Commissioners decided that the procedure of the Panel Committee and, to a less extent that of the Insurance Committee, was defective in a way and to a degree which seriously prejudiced the conclusions at which they respectively arrived; that they appeared, in the first instance, simply to have considered how a deficiency in the Drug Fund had been brought about and how that deficiency could be made good, and their first report was made at a time when they had before them no evidence which, standing alone, could be regarded as relevant to that question; and that when the attention of the Panel Committee was directed to the true issues to which it was their duty to address their minds, they had nevertheless refrained from properly investigating the matter. The Commissioners accordingly considered that injustice had been done, themselves reviewed the evidence, and came to the conclusion that, with regard to certain of the doctors, the deduction appealed against should be set aside altogether, and, with regard to others, that it should be reduced.

STOCK MIXTURES.

The West Ham Insurance Committee on December 9th addressed a letter to the National Association of Insurance Committees, stating that it had had under consideration the provisions of the tariff for drugs and appliances coming into operation on January 1st, 1916, and that it found that a note (a) to Part III to the tariff "facilitates the use of stock mixtures by the panel practitioners." The letter went on to request the Association of Insurance Committees to take the question up with the Insurance Commission and to protest strongly. The Association of Insurance Committees forwarded this letter to the British Medical Association on February 18th, and invited observations. The following letter has been in consequence written, and is published for information:

British Medical Association,
429, Strand, London, W.C.

Sir, March 14th, 1916.

Stock Mixtures.

The Insurance Acts Committee of the British Medical Association has instructed me to thank your Association for the opportunity of commenting on the letter of the West Ham Insurance Committee.

No indication is given in that letter as to why your Associa-

tion is expected to protest against the use of stock mixtures as limited by the Note (a) of the 1911 Tariff. This Note states that a fee of 2/3d. will apply to such preparations not exceeding 10, in any one area, as have been selected by the Panel Committee either from a formulary or special pharmacopoeia locally adopted for use in prescribing by practitioners on the Panel, or from a list agreed between the British Medical Association and the Pharmaceutical Society of Great Britain (or in default of such agreement adjudged by the Commissioners) to be capable of being stocked in bulk without deterioration.

So far as this Association is able to gather, the objections to stock mixtures are:—First, that their use is likely to be to the detriment of insured persons; secondly, that they are objectionable to the professional feelings of the chemists; and thirdly, that at the reduced fee which is chargeable for dispensing them (namely 1/4d. less than the ordinary mixture) their use is unfair from a financial aspect to the chemist.

Interest of Insured Persons.

It is the duty of every doctor to give to, or order for, his patient whatever he thinks is required in the medical interests of the patient. My Committee must therefore lay it down as fundamental that no responsible body representing the medical profession could countenance the use of stock mixtures if it could be shown that such use is likely to be detrimental to the interests of patients. The fact that the patients are panel patients in no way affects the case.

A stock mixture is a combination of drugs which is put up in bulk for convenience sake. The convenience arises from the fact that the mixture is in constant demand, and it is obviously easier to make up a considerable quantity at a time and to pour out a measured quantity of the mixture as required, than to weigh or measure out the quantities of the individual drugs at each operation. Time is also saved by giving the mixture a short name which is easier to write than the prescription in full would be.

A stock mixture is no new thing. It will be found that almost every doctor who in private practice dispenses his own medicines keeps in bulk certain mixtures that he uses regularly. This is with the object of saving his time for more important professional work. Moreover in every hospital it will be found that, for the same purpose of saving time, a certain number of mixtures in constant use are kept made up in bulk. Any objection therefore to the use of stock mixtures for insured persons would apply equally to their use for private patients and to their use by the most eminent hospital physicians and surgeons for hospital patients. The prescriptions from which these stock mixtures are made are the result of long practical experience which has shown that certain cases of common occurrence can generally best be treated by certain combinations of drugs. It would of course be possible to combine these drugs freshly every time it was desired to order them, and this should be done if it were found that any deterioration took place when the combination of drugs is kept in bulk. But there are many combinations of drugs which do not deteriorate, and it must be noted that the Tariff carefully guards against mixtures being used as stock mixtures if they would deteriorate when stocked in bulk. The Association has given a good deal of attention to this question of possible deterioration in its negotiations with the Pharmaceutical Society as regards the suggested list of Stock Mixtures which has recently been submitted to the Commissioners. The Association took the best expert advice as to the keeping qualities of the mixtures on this list, and scientific experiments were made with a view to settling the various technical questions that arose. It was only on being satisfied as to these points that the Association submitted its list for the consideration of the Pharmaceutical Society, and afterwards to the Commissioners. Moreover, the Commissioners have also to be satisfied and they will no doubt take independent advice.

It may be said that there is a risk that the problematical gain to the Practitioners' Fund of the 1/4d. per prescription, accruing to the Drug Fund from the use of stock mixtures may outweigh the duty which the doctor owes his patient. The Association thinks it only necessary to put this in black and white to show its absurdity. Quite apart from ordinary human feeling and from the professional instinct which is inculcated all through his training and leads the doctor instinctively to do the best he can for his patient, it is to the financial interest of the panel doctor to get his patient well as soon as possible. Any financial gain which might arise from the saving to the Drug Fund (the interest in which is remote so far as the doctor is concerned) is a mere bagatelle when compared with the additional time and labour imposed on him if he went on attending a patient whom he might have cured earlier had he given the patient different medicine.

The Association is therefore of opinion that Insurance Com-

mittees need have no fear that the use of stock mixtures will lead to inefficient treatment of insured persons. The experience of the profession has evolved certain mixtures which are known to be efficacious in certain common complaints. Scientific pharmaceutical experiments, as well as long experience have shown that some of these mixtures can safely be kept in bulk for any reasonable time. It must be remembered that whether stock Mixtures are used in any area or not it is quite certain that large numbers of patients in all classes will be treated by stock prescriptions, that is to say that the doctor in treating a common complaint will continue to prescribe a mixture which experience or the teaching of experts have shown to be efficacious in that particular complaint. Thus, if the prescriptions of an area, whether used for private or panel patients, were examined, it would be found that there was constant repetition of certain well-known formulae. If this be so, the only two practical questions that arise for the consideration of Insurance Committees are, whether a small number of the mixtures resulting from these formulae can be safely stocked in bulk for a reasonable time, and if so, whether the Drug Fund should be allowed any financial advantage that is to be gained by such stocking in bulk.

Professional Objections of the Chemist.

The medical man must be recognised as the sole judge as to whether any prescription is a proper one in the interests of his patients. Therefore the Association cannot admit the right of any lay person or body of persons to question the propriety, from a medical point of view, of any prescription that is given by a qualified medical practitioner. But we understand that in some areas chemists have objected to the use of stock mixtures because they say that all such stocking in bulk is wrong from the pharmaceutical point of view, because some change takes place in the mixtures which renders them less efficacious.

This is a point on which of course pharmaceutical opinion is entitled to serious consideration. Accordingly the Association has taken the opinion of Mr. E. F. Harrison, Pharmaceutical Chemist, B.Sc., Lond., F.I.C., F.C.S., a well known consulting and analytical chemist, who occupies such a position in the pharmaceutical world that his opinion on any pharmaceutical question would be received with the greatest respect. Guided by his opinion the Association has submitted to the Commissioners a list of mixtures suggested for use under Note (a) of the Tariff, after consultation with the Pharmaceutical Society. Mr. Harrison was of opinion that the mixtures so submitted were sound from the pharmaceutical point of view, and would keep without deterioration for any time that they might fairly be expected to be stocked in the circumstances laid down in Note (a) of the Tariff.

Chemists can hardly be serious in their opposition to all stock mixtures, seeing that the majority of chemists themselves make and sell stock mixtures. This can be proved by inspection of the window and shelves of nearly any chemist in business. He puts up for sale cough mixtures, tonics, etc., which are made in large quantities and bottled off, and which it is to be presumed he would not offer for sale unless he was convinced that such mixtures were correct from the pharmaceutical point of view, and that their use would not be likely in any way to prejudice the person who took them. The very best houses in the wholesale drug business make and sell large quantities of stock mixtures for the use of doctors and chemists.

The Association sympathises with the leaders of the pharmaceutical profession in not desiring to extend unduly the use of either stock prescriptions or stock mixtures. The doctor must not be discouraged from varying prescriptions, in the exercise of his professional judgment, to suit the varying conditions of his patients, nor should the chemist be reduced to a mere compounder of mixtures in bulk. But, as is indicated by the whole of the argument of this letter, stock mixtures are only intended to be used in cases where experience has shown that such mixtures are as efficacious as an extemporaneously prepared prescription. There will always be a large number of cases in which the symptoms of the patient will at once suggest to the doctor the necessity of using mixtures which must be extemporaneously prepared.

Alleged Unfairness to the Chemist on the Financial Side.

On this point also the British Medical Association has taken expert opinion which is to the effect that from the economic point of view the chemist's time in dispensing a stock mixture is paid for at a higher rate than when he is dispensing an ordinary prescription. Take an example in which the times occupied in dispensing have been verified by experiment. Half a gallon (80 oz.) of a stock mixture is made up at one time (taking 9 minutes). If ten 8 oz. bottles are filled from this, taking two minutes each, the whole time taken is 29

minutes. The dispenser is paid 1s. 3d. for these bottles at tariff rates, or at the rate of 2s. 7d. an hour. If the 80 oz. were dispensed as five 16 oz. bottles (a more unusual quantity) the total time would be 19 minutes, and the payment 7½d. or 1s. 11½d. an hour.

An admittedly fair average time for dispensing an 8 oz. mixture from an ordinary prescription is 6 minutes. To dispense 10 bottles separately takes one hour, and the dispenser is paid 1s. 8d. for this at the ordinary tariff rate of 2d. per bottle. It would thus appear that it will pay the chemist well to treat as a stock mixture any mixture of which half a gallon will be used before it deteriorates.

The Association submits these facts and opinions to the National Association of Insurance Committees, and trusts that they will receive that unbiased consideration which the stock mixture question has not had up to the present in discussions at Insurance Committee meetings. Representatives of Approved Societies have urged, quite honestly, no doubt, but without any knowledge of the subject, that the interests of insured persons would suffer if stock mixtures were allowed to be used. Representatives of chemists have backed up these statements, and have also appealed to the sympathies of the Insurance Committees on the ground that to allow stock mixtures to be used would be unfair to the chemists who work for the Committees. Both these suggestions are in the opinion of this Association entirely unfounded.

I am, Yours faithfully,

ALFRED CON,
Medical Secretary.

Edwin Potts, Esq.,
Hon. Secretary,
National Association of Insurance Committees,
20, New Elvet, Durham.

LOCAL MEDICAL AND PANEL COMMITTEES.

LONDON.

The Supply of Serums and Vaccines.—At the meeting of the London Panel Committee on March 21st the question of the supply of serums and vaccines was considered in connexion with the pronouncement by the Insurance Acts Committee of the British Medical Association that the provision of proper and sufficient medicines as contemplated by the Insurance Act did not include the supply of salvarsan, vaccines, serums, etc. The Pharmacy Subcommittee of the Panel Committee had a recommendation expressing the opinion that the supply of these drugs was contemplated in the Act, but recommended that they should be supplied at the cost of the special drug fund. After some discussion, the subcommittee's recommendation was lost on a show of hands.

The Measles Order.—The Local Government Board's Order with regard to the notification of measles, as well as the scheme for the nursing of measles propounded by the Central Council for District Nursing in London, was considered, and the Chairman, Dr. Cardale, said that in one London borough the Public Health Committee had made arrangements with the nursing associations for the payment of a flat rate, and for the medical officer of health to be technically in charge of cases of measles, involving the visiting of cases by him, if necessary, for diagnosis. Dr. B. A. RICHMOND said that the Central Council of District Nursing had introduced safeguards against the dangers of unqualified practice; but there was a widespread feeling that it was going to be the policy of the Local Government Board to appoint full-time officers, and the Panel Committee should nip any such movement in the bud. Dr. MAJOR GREENWOOD also thought that the profession should check these inroads upon the work of the medical practitioner. Although there were protests that the public interests were not being sufficiently considered, a recommendation was carried to the effect that the medical care of cases of measles and whooping-cough should remain in the hands of general practitioners, and that the British Medical Association and medical defence societies be urged to take the necessary steps to secure that result.

Reinstatement of Persons Removed from Lists by Enlistment.—As the result of a conference between representatives of the Insurance and Panel Committees and consultation with the approved societies with regard to the reinstatement in practitioners' lists of insured persons whose names have been removed therefrom on account of enlistment, a scheme was propounded, and approved by the Panel Committee, providing that the doctors on the panel should be advised to refrain from making the

physical condition of such a patient a ground for exercising their option of rejection on his return to civil life.

HERTFORDSHIRE.

At a meeting of the Panel Committee on December 22nd, 1915, it was decided not to contribute towards the cost of the proposed scheme for pricing and checking prescriptions, as the statistical data would under the new arrangements for 1916 be received by the Panel Committee free of charge.

The Insurance Committee having refused to allow the continued use of the term "Rep. mist." under restrictions suggested, it was decided to refer the matter to the Commissioners, and to take every effort to preserve the use of the term.

EAST SUSSEX.

At a meeting of the Local Medical and Panel Committees on March 1st it was decided to represent to the Commissioners that the sums available for payment to Committees and practitioners should be increased during the period of increased prices of drugs and appliances, and that practitioners who supply such a portion of the patients on their lists should be authorized to do so to all.

The Committees approved additional fees in respect of mileage for every visit paid to a dependant suffering from tuberculosis.

OXFORD.

At a meeting of the Panel and Medical Committee on February 17th, surprise was expressed at the speeches of the secretary to the local Pharmaceutical Society on the "Aqua dest." question. It was decided to ask the Insurance Acts Committee of the British Medical Association to bring the matter before the Commissioners. It was reported that the secretary of the Panel Committee had been co-opted on the Local Medical War Committee to represent the panel.

BUCKINGHAMSHIRE.

At a meeting of the Buckinghamshire Local Medical and Panel Committee on February 25th it was decided to protest against the large deductions from the medical practitioners' fees and the very long time taken to settle up arrears of payments, inasmuch as those for 1914 were still unpaid. In a letter to the Clerk to the Buckinghamshire Insurance Committee forwarding the protest Dr. Larking, the secretary, enumerated eight reasons why the deductions were, in the opinion of the Committee, unjust and unreasonable.

GLOUCESTERSHIRE.

At a meeting of the Local Medical and Panel Committee on February 23rd it was reported that the general arrangement for the payment of deputies of doctors who have joined the R.A.M.C. is 1s. per attendance on panel patients and five-eighths of receipts from private patients in a dispensing practice. It was decided not to prepare a local formulary.

DERBYSHIRE.

At a meeting of the Panel Committee, on February 15th the opinion was expressed that a conference of Local Medical and Panel Committees should be held this year as there were urgent matters to discuss, including chronic cases resulting from the war and the signing of patients on to partnership lists.

It was reported that the Commissioners had stated that the abolition of the term "Rep. mist." by the Insurance Committee was out of order, and that a circular authorizing its use had been sent out. Owing to the refusal of the chemists to dispense the same, it was decided to ask the Commissioners to enforce their ruling by ordering the Clerk of the Insurance Committee to notify the chemists that they must make up such prescriptions. It was agreed to allow an additional dispensing fee of 3d. for prescriptions marked urgent by doctors, and dispensed between 8.30 p.m. and 8.30 a.m.

WEST RIDING OF YORKSHIRE.

At a meeting of the Local Medical and Panel Committee on February 11th the opinion was expressed that the removal of a Meibomian cyst from the eyelid was a service which can be properly undertaken by a general practitioner.

It was reported that the Commissioners had approved the continuance of the arrangements between the Insurance Committee and the chemists and doctors, which

provided that doctors should receive a flat rate of 6d. per prescription for emergency prescribing.

STAFFORDSHIRE.

THE Panel Committee has passed the following resolution:

It is the opinion of this committee that Panel and Local Medical Committees should have direct and immediate representation on the Central War Committee.

LANCASHIRE.

At a meeting of the County Local Medical Committee and Panel Committee on February 16th, as it appeared that the Panel Committee was not in agreement with the decision of the Insurance Committee that the use of the formula "Rep. mist." should be discontinued, it was decided to ask the Commissioners to deal with the matter, as provided under the regulations.

SHROPSHIRE.

At a meeting of the Panel Committee on March 7th it was resolved to ask the Insurance Committee to reconsider its refusal to sanction an arrangement whereby discharged soldiers were reinstated on the doctors' lists without the necessity of a fresh choice.

DURHAM COUNTY.

At a meeting of the Panel Committee on January 27th it was resolved that half the aggregate fees to be paid to the Committee by the Insurance Committee be divided amongst the practitioners attending patients of absent practitioners, and allotted to them according to the amount of work done. It was decided to request the Insurance Committee to agree to pay to practitioners an annual capitation fee at the rate of 2s. 6d. per hundred insured persons on their lists in respect of the supply of drugs and appliances under Clause 12 of the agreement between the Committee and practitioners.

RENFREW COUNTY.

At a meeting of the Panel Committee on January 26th it was decided not to make any contribution to the Central Bureau for 1916, and to recommend practitioners to accept the offer of the Insurance Committee of a rate of 5s. a head weekly for medical attendance on dependants of insured persons receiving domiciliary treatment for tuberculosis.

It was agreed that any insured person conscientiously stating a reasonable ground for seeking to be removed from the list of a practitioner on active service, but not actually absent from his practice, should be allowed to transfer.

It was decided to ask the Insurance Committee to continue, with regard to the year 1916 and until further notice, the arrangement whereby the whole of the practitioners' fund was divided among practitioners in proportion to the number of insured persons upon their lists at the commencement of each quarter.

DUNDEE.

At the annual general meeting of practitioners of Dundee and district on February 10th it was reported that the work of the Central Medical Office in connexion with the Emergency Medical Service had gone on smoothly. The number of visits paid to patients of doctors absent on military duty in the quarter ending December 31st, 1915, was 7,977, and of visits to patients of doctors absent through illness or on holiday 1,261. In the year 1915 35,830 visits were paid to patients at their own homes, and 25,842 patients were seen at the consulting-rooms. It was decided not to introduce morning consultation hours. It was agreed to send a letter of congratulation to Major Rogers on his obtaining the D.S.O.

INSURANCE NOTES.

ACTION AGAINST A GLASGOW PANEL DOCTOR.

A REMARKABLE action against a Glasgow panel doctor has been decided by the Sheriff Principal of Lanarkshire. It involved the question whether the doctor had been acting contrary to the provisions of the Insurance Act which forbid a panel practitioner, except under special conditions, to enter into any agreement to supply drugs or medicines to insured persons. It appears, according to the report in the *Medical World*, that Dr. Colvin, who had a large panel practice, had heard constant complaints from insured persons on his list that there were not sufficient panel chemists in the neighbourhood, and that his patients had often to wait unreasonably long before they could get his prescriptions dispensed. He there-

fore sold his own private dispensing practice to a Mr. Aylmer, a qualified pharmacist, whose name was placed on the panel of chemists, and who carried on the business in a shop over which Dr. Colvin had his consulting-rooms. After some time Mr. Aylmer left the country, arranging with his solicitor to pay all his debts out of a sum of money which was said to be owing to him from the Glasgow Insurance Committee for medicines supplied to insured persons. The Pharmaceutical Committee, however, lodged the objection that the business had never really belonged to Mr. Aylmer but to Dr. Colvin, and that this was a contravention of the dispensing provisions of the Insurance Act, and as a result of this the Insurance Committee refused to pay the amount claimed on behalf of Mr. Aylmer. As a consequence of this refusal some of Mr. Aylmer's creditors did not receive their accounts, and one of them, Mr. Taylor, claimed from Dr. Colvin the amount owing for drugs supplied to Mr. Aylmer. Dr. Colvin at once repudiated all liability, and on the matter coming before the Sheriff it was decided in his favour and he was allowed expenses, the Sheriff expressing his opinion that there had been a genuine transfer from Dr. Colvin to Mr. Aylmer, and that Dr. Colvin had not undertaken any responsibility for Mr. Aylmer's debts. Mr. Taylor was, however, not satisfied with this decision, and appealed against it to the Sheriff Principal, who again decided in favour of Dr. Colvin. Further appeal was still possible within a limited period, but apparently has not been lodged. Presumably the Insurance Committee will now be compelled to pay to the representatives of Mr. Aylmer the amount owing for medicines supplied to insured persons nearly three years ago. A remarkable point about the case is that one of the witnesses against Dr. Colvin was Mr. Rutherford Hill, the secretary for Scotland of the Standing Pharmaceutical Committee for National Insurance, who, though, according to the report before us, he admitted at the trial that he had had doubts all the time as to whether there had been a genuine transfer from Dr. Colvin to Mr. Aylmer, had granted a certificate to the Glasgow Insurance Committee that Mr. Aylmer had purchased Dr. Colvin's dispensing practice.

DRAFT REGULATIONS AFFECTING PANEL AND PHARMACEUTICAL COMMITTEES.

THE Insurance Commissioners have issued draft regulations, dated March 10th, for extending the period of office of the present members of the Panel and Pharmaceutical Committees in England and Wales. They provide that the term of office of the members of these committees "shall be extended to such date, not being more than twelve months after the termination of the present war, as the Insurance Commissioners may in each case determine." A proviso is, however, added that if, at any meeting held before June 1st, not less than one-third of the full number of members of a committee are in favour of an appeal to the panel doctors or chemists respectively, the committee shall, either by calling general meetings or by postal vote, ascertain the wishes of the doctors or chemists, and if the Commissioners are then satisfied that a majority of the practitioners or chemists, as the case may be, are not in favour of the term of office of the respective committees being extended, the Commissioners may then declare that the above provision for extending the term of office shall not apply to that committee.

REPEAT PRESCRIPTIONS IN THE LANCASHIRE COUNTY INSURANCE AREA.

IN accordance with a resolution of the Lancashire Insurance Committee a circular has just been issued to all panel practitioners in the county area giving the requisite fourteen days' notice that on and after March 10th no further orders for drugs or appliances must be given in such a form as to necessitate reference on the part of persons supplying the drugs or appliances to a previous order. At the meeting of the committee at which the resolution was carried, it was argued that repeat prescriptions prevented the free choice of chemist which the Insurance Act intended, and an amendment was proposed by Dr. Oldham, representing the Panel Committee, that the use of the term "Rep. mist." be continued provided that in any case of difficulty or at the reasonable request of the patient the prescription should be written in full. This, it was contended, would at any rate to a great extent have got over the difficulty that the use of the term compels the patient to go to the same chemist who first dispensed the prescription. The amendment was, however, lost by a considerable majority, and the effect of the notice just issued is that the term "Rep. mist." cannot be used after March 10th.

RECRUITING OF PANEL CHEMISTS.

THE Insurance Commission (England) has issued a memorandum (222/L.C.) to Insurance Committees pointing out that the position of panel chemists under the Military Service Act differs from that under the Derby scheme. "Chemist, in the sense of a person dispensing medicines under the National Insurance Acts," was a reserved occupation in List D issued by the Local Government Board in November, 1915. Chemists to whom the Military Service Act applies, as distinct from chemists who have attested, will be called up automatically unless application is made to the local tribunal for a certificate of exemption. An application by a person in a reserved, or, as it is now termed, a "certified," occupation for a certificate of exemption in virtue of his occupation, may be opposed by the military representative attending the local tribunal, on the ground that it is unnecessary that the person in question, though engaged in a certified occupation, should be retained in civil employment. The decision of the local tribunal is subject

to the right of appeal in the ordinary course. The memorandum advises each Insurance Committee to appoint a subcommittee to consider whether, having regard to the proper administration of medical benefit, it may be incumbent on the Committee to support applications for exemption. Having regard to the fact that every chemist has the right to place his name on the panel, the Commissioners do not suggest that the maintenance of an adequate supply of drugs and appliances for insured persons necessarily implies the retention in all cases of the services of every individual contractor, and point out that if the Committee is satisfied that the contractor is no longer able to carry on his business the Committee can, under the proviso to Article 19 (2) of the Medical Benefit Regulations, release him from his agreement.

Association Notices.

MEETING OF COUNCIL.

The next meeting of Council will be held on Wednesday, April 26th, in the Council Room, 429, Strand, London, W.C. The hour will be notified later.

By order,

GUY ELLISTON,

Financial Secretary and Business Manager.

March 23rd, 1916.

LANCASHIRE AND CHESHIRE BRANCH:

WARRINGTON DIVISION.

At the annual meeting of the Warrington Division held at the Warrington Infirmary on March 17th, the following officers were elected:—*Chairman*, Dr. Ferguson; *Vice-Chairman*, Dr. Naden, J.P.; *Branch Council Representative*, Dr. Bowden; *Honorary Secretary and Treasurer*, T. A. Murray; *Executive Committee*, Drs. Langdale, Bennett, and Binns, and the above officers. Votes of thanks were accorded to the retiring officers.

Naval and Military Appointments.

ROYAL NAVAL MEDICAL SERVICE.

The following appointments are announced by the Admiralty: Fleet Surgeons A. X. Laverne to the *Vivid*, additional, for disposal; W. H. Pope to the *Vivid*, additional. Staff Surgeon W. E. Gribbell to the Hospital Yacht *Liberty* in medical charge, vice Elder. Surgeons J. H. Wright and T. C. Patterson, M.B., to the *Vivid*, additional, for disposal; J. H. Burdett to the *Victory*, additional, for disposal; J. Duffin, M.B., to the *Thunderer*; temporary Surgeon A. C. Ballance, M.B., to the *Pembroke*, additional. To be temporary Surgeon: G. S. Mitchell.

ROYAL NAVAL VOLUNTEER RESERVE.

Acting Staff Surgeon A. G. V. Elder to the *Pembroke*, additional. Surgeon J. B. Ronaldson, M.B., to R.M. Division, Plymouth, vice Warburton. Surgeon Probationers S. Acheson to the *Laverock*, H. Paul to the *Christopher*.

ARMY MEDICAL SERVICE.

ROYAL ARMY MEDICAL CORPS.

Lieutenant-Colonel J. W. Barrett, late Australian A.M.C., to be temporary Lieutenant-Colonel.

Major (temporary Lieutenant-Colonel) C. H. Straton to retain his temporary rank whilst in command of a field ambulance.

Majors to be temporary Lieutenant-Colonels whilst commanding field ambulances: E. B. Knox, M.D., H. B. Connell, H. Stewart, M.B.

Majors to be temporary Lieutenant-Colonels whilst in command of a casualty clearing station: J. H. Brunsell, M.B., A. R. C. Parsons (substituted for notification published in the *London Gazette* of January 26th), R. H. L. Cordner, H. T. Wilson.

Major C. V. N. Lyne, retired pay, Indian Army, to be temporary Major.

J. Jenkins to be temporary Major whilst employed at the Hammer-smith Military Hospital.

Temporary Captain (temporary Major) A. N. Minns relinquishes the temporary rank of Major on ceasing to command a field ambulance.

R. E. Drake-Brockman to be temporary Captain (substituted for the notification published in the *London Gazette* of March 7th).

C. N. Binney, M.B., to be temporary Captain.

Temporary Lieutenants to be temporary Captains: F. Harris, M.B., R. C. Begg, M.B., D. Evans, M.B., J. B. Forde, M.B., H. T. Lukyn-Williams, M.B., S. B. Faulkner, M.B., H. W. Wilson, M.B., P. Ashe, C. F. Antonhies, H. W. Fox, F. Graveley, W. H. Anderson, J. E. O'Loghlin, G. J. Bowen, C. Hunter, D. S. Brough, M.B., A. Fraser, M.B., G. D. Cairns, M.B., A. P. Saint, B. B. Westlake, G. M. Jones, B. K. Vines, J. T. Hefferman, A. T. Cunningham, M.B., S. A. Montgomery, M.B., E. S. Hall, M.B., A. F. Readle, C. Sullivan, F.R.C.S.I., A. C. Turner, R. H. Tribe, R. M. Johnston, M.B., E. C. Dutton, M.B., F.R.C.S.E., W. H. Stott, A. J. W. Compton, M.B., F. C. Macaulay, M.B., E. W. Smerdon, M.D., F.R.C.S., A. H. Conder, F. P. Joscelyne, M.D., G. S. Deane, A. F. Rook, H. S. Sugars, M.B., F. G. Bell, M.D., F.R.C.S., F. O. Clarke, M.B., J. H. Tomlinson, R. L. Kitching, M.B., E. M. Townsend, J. Boyd, F.R.C.S.E.

Temporary Lieutenants relinquishing their commissions: D. Thomas, F.R.C.S., L. L. McKeever, F. P. Halliday, M.B., C. W. Brooks, M.B., A. E. Ellis, G. H. Alabaster, M.B., E. W. Moore, M.B., W. Fletcher, M.D., G. J. Adams, M.B., F.R.C.S.E., S. C. Tibbles, J. L. O. Tilley, F. C. Barlow.

Temporary honorary Lieutenant W. Burt relinquishes his commission on ceasing to be employed with the British Red Cross Hospital, Netley.

E. W. Twining is granted the temporary honorary rank of Lieutenant whilst serving with the British Red Cross Hospital, Netley.

Temporary Lieutenant B. F. Copland, M.B., is dismissed the service by sentence of a general court-martial.

To be temporary Lieutenants: J. M. Stalker, M.B., D. Crullin, P. Black, L. F. Hirst, M.D., G. W. Young, M.D., A. Sandison, M.B., R. C. Hewitt, J. C. O'Farrell, Lieutenant T. P. Buist, M.B. (from Unattached List, T.F.), W. E. Taylor, G. M. De Vine, M.B., H. Hannigan, M.B., J. W. Wayne, C. H. F. Bailey, A. H. Corley, temporary honorary Lieutenants E. G. Dingley, P. H. Wells, Lieutenant E. Reavley, M.D., Canadian A.M.C.

SPECIAL RESERVE OF OFFICERS.

ROYAL ARMY MEDICAL CORPS.

Captain H. G. Trayer, M.B., to be temporary Major whilst commanding a field ambulance.

Captain P. B. Roth, M.B., relinquishes his commission on account of ill health.

Lieutenants to be Captains: A. R. Laurie, J. T. Scrogie, M.B., R. F. Walker, M.B., H. T. Chutfield, M.B., A. I. O. Mackenzie.

Temporary Lieutenant L. F. Mackenzie, from R.A.M.C., to be Lieutenant.

Lieutenant (on probation) F. H. Goss is confirmed in his rank.

Lieutenants (on probation) relinquishing their commissions: A. Duffus, T. C. Studley.

GENERAL RESERVE OF OFFICERS.

ROYAL ARMY MEDICAL CORPS.

Lieutenant D. V. M. Adams, M.B., to be Captain (substituted for notification published in the *London Gazette* of February 9th under the heading Army Medical Service, R.A.M.C.).

INDIAN MEDICAL SERVICE.

Lieutenant-Colonel C. G. Webster, F.R.C.S.E., and Major W. C. Long have been permitted to retire from the service.

Majors to be Lieutenant-Colonels: C. R. Bakke, K. V. Kukday, C. D. Dawes, T. H. Symons, H. J. Walton, M.D., F.R.C.S., H. Ainsworth, M.B., F.R.C.S., F. A. Smith, M.D., J. V. Cornwall, M.D.; A. Miller, M.B., F. A. L. Hammond, H. R. Brown, S. P. James, M.D., A. N. Fleming, M.B., F.R.C.S.E., P. Dee, M.B., F. O. Mell, M.B.

Captains to be Majors: W. F. Brayne, M.B., M. S. Irani, M.B., H. Watts, M.B., S. W. Jones (Brevet Major), W. T. McCowen, J. Anderson, M.B., E. A. Roberts, G. G. Hirst.

Major H. O. Brown, M.B., Assistant Director, Central Research Institute, Kasauli, was appointed temporarily Director of that Institute, from January 8th to 19th, 1916.

Captain J. Cunningham, M.D., is appointed to be Director, Central Research Institute, Kasauli, *sub. pro tempore* with effect from January 20th, 1916.

Officers of the retired list re-employed during the period of the war, with effect from November 27th, 1915: Lieutenant-Colonels J. G. Hulbert, M.B., and E. H. Sharman, and Majors M. Dick, M.B., and T. A. O. Langston.

OVERSEAS CONTINGENTS.

CANADIAN ARMY MEDICAL CORPS.

Majors to be temporary Lieutenant-Colonels: J. E. Davey, P. G. Goldsmith.

To be temporary Majors: T. H. Macdonald, Major D. S. Mackay, from 27th Canadian Infantry Battalion; Captains S. A. Smith, D.S.O., C. K. Russell, G. B. Peat, L. W. MacNutt, J. G. Hunt, A. S. Donaldson, H. L. Jackson. To be temporary Captains: A. M. Yeates, M.D., M. A. Griffith, A. H. Hough, H. Bell, F. B. Day, E. N. W. Shillington, T. R. C. Hays-Hicks, R. H. Thomas, M.D., A. B. Robertson, R. D. Moyle, G. M. Ross, M.D., F. Harvey, A. H. Rolph, Lieutenants L. A. Le Boeuf, E. O. Beer, R. Braut, S. Traynor, G. Bouthellier. To be temporary Lieutenant: J. F. Sparrow. To be temporary honorary Lieutenants: T. A. Loughrey, A. W. Holmes, C. W. Reynolds.

SOUTH AFRICAN MEDICAL CORPS.

To be temporary Lieutenant-Colonels: P. G. Stock, M.B. (officer of Permanent Defence Force), A. B. Ward, M.B., G. H. Usmar, G. R. Thomson, M.B. To be temporary Majors: T. L. Sandes, M.D., R. N. Pringle, M.B., C. M. Murray, M.B., E. A. St. Leger, M.B., H. C. Baker, E. F. B. Wilson, M.B., E. N. Thornton, M. S. Power, J. C. A. Rigby, M.B., M. G. Pearson, M.B. To be temporary Captains: W. L. Gordon, M.D., H. R. Lawrence, M.D., R. Liebson, J. Granger, M.B., A. G. Forbes, M.B., G. J. Jonbert, T. Welsh, F.R.C.S., C. M. N. May, M. B. Lawrie, M.B., P. J. Monaghan, M.B., I. W. Brehner, M.B., E. B. Brooke, M.B., E. D. Parker, M.B., H. E. H. Oakley, M.B., A. R. Friell, M.D., F.R.C.S., W. Thomas, M.B., A. S. Wilson, M.B., J. Drummond, M.B., E. W. Dyer, M.B., F.R.C.S., G. H. Coke, H. R. Mullins.

BRITISH WEST INDIES REGIMENT.

Major W. D. Neish to be Surgeon-Captain.

TERRITORIAL FORCE.

ROYAL ARMY MEDICAL CORPS.

London Field Ambulance.—The appointment of M. J. Hackett as Lieutenant, announced in the *London Gazette* of March 2nd, is cancelled.

London General Hospital.—Lieutenants to be Captains: D. N. Hardeste, A. W. Bowie, M.B., L. A. Celestin, W. L. Holyoak, M.B., P. G. Doyno, W. J. T. Kimber, H. M. Harwood, H. A. Philpot, M.D.

London Sanitary Company.—Lieutenant T. J. Murray to be Captain.

Western General Hospital.—Lieutenants to be Captains: R. T. Jones and C. C. Boyle, M.B.

Wessex Casualty Clearing Station.—Lieutenant J. Fenton, M.B., from Attached to Units other than Medical Units, to be Lieutenant.

Wessex Field Ambulance.—Captain F. L. Dickson, M.B., relinquishes his commission on account of ill health.

Welsh Border Mounted Brigade Field Ambulance.—J. Durham-Reid to be Lieutenant.

South Midland Field Ambulance.—Captains H. N. Burroughes, M.B., from Attached to Units other than Medical Units, to be Captain.

North Midland Field Ambulance.—Captain (temporary Major) H. A. Howes, Lincolnshire Regiment, to be Major (temporary).

Northern General Hospital.—Major E. M. Sympton, M.D., to be Lieutenant-Colonel; Captain T. M. Allison, M.D., to be Major; Captain J. W. Heslop, from the T.F.R., to be Captain.

East Lancashire Casualty Clearing Station.—Lieutenant (temporary Captain) T. B. Wolstenholme, M.B., to be Captain.

East Lancashire Field Ambulance.—Major T. Holt, M.D., to be temporary Lieutenant-Colonel.

Lowland Field Ambulance.—Lieutenants to be Captains: H. T. Findlay, M.B., N. Scott, M.B., F.R.C.S.

Attached to Units other than Medical Units.—To be Captains: P. G. Williamson, M.B. (late Captain, Prince of Wales's Own, West Yorkshire Regiment); Lieutenants F. A. Pring, C. C. Ling, J. De V. Mather, M.D.

TERRITORIAL FORCE RESERVE.

ARMY MEDICAL SERVICE.

Colonel W. H. Bull, F.R.C.S.E., from Assistant Director of Medical Services, to be Colonel.

ROYAL ARMY MEDICAL CORPS.

Lieutenant-Colonel A. L. Jones, from Welsh Field Ambulance, to be Lieutenant-Colonel. Captain H. G. Butterfield, M.D., from Attached to Units other than Medical Units, to be Captain.

Vacancies and Appointments.

NOTICES REGARDING APPOINTMENTS.—Attention is called to a Notice (see Index to Advertisements—Important Notice re Appointments) appearing in our advertisement columns, giving particulars of vacancies as to which inquiries should be made before application.

VACANCIES.

BIRMINGHAM GENERAL DISPENSARY.—Resident Medical Officer. Salary, £250 per annum.

BOLTON INFIRMARY AND DISPENSARY.—Second and Third House-Surgeons. Salary, £200 and £180 respectively.

BOOTH BOROUGH HOSPITAL.—Junior House-Surgeon. Salary, £170 per annum.

BOURNEMOUTH: ROYAL VICTORIA AND WEST HANTS HOSPITAL.—Honorary Electro-Therapeutist.

BRISTOL GENERAL HOSPITAL.—(1) House-Physician; (2) Casualty House-Surgeon. Salary, £175 per annum.

BRISTOL ROYAL HOSPITAL FOR SICK CHILDREN AND WOMEN.—(1) House-Surgeon; (2) House-Physician. Salary, £150 per annum.

BRISTOL ROYAL INFIRMARY.—(1) House-Physicians; (2) House-Surgeons. Salary, £100 per annum in each case.

BURNLEY: VICTORIA HOSPITAL.—Lady House-Surgeon. Salary, £160 per annum.

CARDIFF: KING EDWARD VII HOSPITAL.—Two House-Surgeons. Salary, £140 per annum.

CHARING CROSS HOSPITAL, W.C.—(1) Resident Medical Officer; (2) Medical Registrar.

DUDLEY: GUEST HOSPITAL.—Senior Resident Medical Officer. Salary, £150 per annum.

GUILDFORD: ROYAL SURREY COUNTY HOSPITAL.—House-Surgeon. Salary, £150 per annum.

HASTINGS: EAST SUSSEX HOSPITAL.—Honorary Assistant Surgeon.

KIRKWALL: PARISH OF EDAY.—Medical Officer.

LEEDS PUBLIC DISPENSARY.—Lady Resident Medical Officer. Salary, £130.

LISCARD: VICTORIA CENTRAL HOSPITAL.—House-Surgeon. Salary, £250 to £300.

LIVERPOOL: DAVID LEWIS NORTHERN HOSPITAL.—(1) House-Physician; (2) Two House-Surgeons. Salary, £150 per annum.

LIVERPOOL INFIRMARY FOR CHILDREN.—(1) Resident House-Physician; (2) Resident House-Surgeon. Salary, £30 for six months.

LONDON HOMOEOPATHIC HOSPITAL, Great Ormond Street, W.C.—(1) House-Surgeon; (2) Two Resident Medical Officers. Salary for (2), £80 per annum.

MANCHESTER CHILDREN'S HOSPITAL, Pendlebury.—Two Resident Medical Officers. Salary, £100 per annum and monthly bonus of £5 during the war.

NEW HOSPITAL FOR WOMEN, Euston Road, N.W.—(1) Radiographer; honorarium £30 per annum. (2) Assistant Pathologist; salary, £100 per annum. (3) Senior Clinical Assistant in Out-patient Department.

NORTHAMPTON EDUCATION COMMITTEE.—Dental Surgeon. Salary, £250 per annum, rising to £300.

PORTSMOUTH PARISH.—First Assistant Medical Officer for the Workhouse, Infirmary and Children's Home (female). Salary, £180 per annum.

PUTNEY HOSPITAL, S.W.—Resident Medical Officer. Salary, £150 per annum.

ROCHESTER: ST. BARTHOLOMEW'S HOSPITAL.—Senior Resident House-Surgeon.

ROYAL LONDON OPHTHALMIC HOSPITAL, City Road, E.C.—Out-patient Surgical Officer. Salary, £50 per annum.

ST. PANCRAS PARISH.—(1) Senior Assistant Medical Superintendent of the South Infirmary and Senior Assistant Medical Officer of the house adjacent; (2) Locumtenent. Salary, £7 7s. a week.

SALISBURY (GENERAL) INFIRMARY.—(1) House-Surgeon; (2) Assistant House-Surgeon. Salary, £150 and £100 per annum respectively.

SHIFFIELD ROYAL INFIRMARY.—House-Surgeon. Salary, £100 per annum.

SOUTHAMPTON: FREE EYE HOSPITAL.—House-Surgeon. Salary, £100 per annum.

SOUTH LONDON HOSPITAL FOR WOMEN.—(1) Assistant Physician; (2) Assistant Surgeon (females).

WIGAN: ROYAL ALBERT EDWARD INFIRMARY AND DISPENSARY.—Junior House-Surgeon. Salary, £150 per annum.

To ensure notice in this column—which is compiled from our advertisement columns, where full particulars will be found—it is necessary that advertisements should be received not later than the first post on Wednesday morning. Persons interested should refer also to the Index to Advertisements which follows the Table of Contents in the JOURNAL.

APPOINTMENTS.

BOLTON, S. J., L.R.C.P. and S.Edin., Certifying Factory Surgeon for the Aghadowey District, co. Londonderry.

CHALLANS, F., M.D., Medical Officer for Schools of the St. George in the East Parish.

EASTON, T. H., M.D.Edin., District Medical Officer of the Penistone Union.

FARR, C. C. J., M.R.C.S., L.R.C.P., District Medical Officer of the Downham Union.

FITZGIBBON, Michael, L.R.C.P. and S.I., Assistant Resident Medical Officer (pro tem) of the Limerick Lunatic Asylum.

GREY, H. M., M.R.C.S., L.R.C.P., Assistant Medical Officer of the South Infirmary, etc., of the St. Pancras Parish.

IRWIN, P. J., L.R.C.P. and S.I., Resident Medical Superintendent of the Limerick Lunatic Asylum, vice Dr. E. D. O'Neill.

LIDDELL, R. M., M.B., Ch.B.Edin., Certifying Factory Surgeon for the Wolston District, co. Warwick.

MCCARTHY, S., L.R.C.P. and S.Edin., District Medical Officer of the Merthyr Tydfil Union.

MORRIS, E. G. F., L.R.C.P.Edin., M.R.C.S.Eng., District Medical Officer of the Eastry Union.

MURPHY, P., M.B., temporary Dispensary Medical Officer for the Castlemary District of the Middleton Union.

O'CALLAGHAN, J. J., L.R.C.P. and S.Edin., Medical Officer for the Glencree Dispensary District, Macroom Union.

RICHARDSON, A. G., M.B., C.M.Edin., Medical Officer of the Rhyader Union Workhouse.

WADESON, E. A., M.B., B.C.Camb., Certifying Factory Surgeon for the Sedburgh District, co. Yorks.

WATSON, S. J., M.B., B.Ch., R.U.I., Certifying Factory Surgeon for the Abercraze District, co. Brecon.

WHITE, S. B., M.B., Ch.B.Oxon., Certifying Factory Surgeon for the Lyndhurst District, co. Hants.

WISE, A. T. Tucker, M.D., M.R.C.S., L.R.C.P., Swiss Diploma, Medical Superintendent of the Devon County Sanatorium at Hawkmoor.

BIRTHS, MARRIAGES, AND DEATHS.

The charge for inserting announcements of Births, Marriages, and Deaths is 5s., which sum should be forwarded in Post Office Orders or Stamps with the notice not later than the first post on Wednesday morning in order to ensure insertion in the current issue.

BIRTHS.

DAVEY.—On January 26th, at Kasu, P.O. Dowa, Nyasaland, the wife of J. B. Davey, M.B.Lond., D.T.M., M.R.C.S.Eng., L.R.C.P.Lond., Nyasaland Medical Service, of a daughter.

DE ZILWA.—On February 2nd, at Villa Mireille, Ward Place, Cinnamon Gardens, Colombo, Ceylon, the wife of Lucian de Zilwa, M.D., B.Sc.Lond., of a daughter.

DEATHS.

ANDERSON.—At a nursing home, Nottingham, after a short illness, Joseph Anderson, M.B., B.Ch., B.A.O., R.C.I., aged 27 years, youngest son of Mr. and Mrs. J. Anderson, Thorndale, Bangor, co. Down, formerly of Vicinage Park, Belfast.

FEIJC.—On March 20th, at Firlands, Burgess Hill, Sussex, Stamford FeiJC, M.R.C.P.E., M.R.C.S., late of Paddington, aged 80 years.

UNDERHILL.—On the 10th inst., at "Mountjoy," West Bromwich, Thomas Underhill, M.D., J.P., in his 93rd year.

DIARY FOR THE WEEK.

TUESDAY.

ROYAL SOCIETY OF MEDICINE: SECTION OF PSYCHIATRY, 8.30 p.m.—Dr. Bernard Hart: The Psychology of Rumour.

THURSDAY.

ROYAL COLLEGE OF PHYSICIANS OF LONDON, 5 p.m.—First Lumenian Lecture, by Dr. F. E. Batten: Acute Poliomyelitis.

POST-GRADUATE COURSES AND LECTURES.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.

THE POST-GRADUATE COLLEGE, West London Hospital, Hammer-smith, W.—Clinical work; graduates only.

DIARY OF THE ASSOCIATION.

Date.	Meetings to be Held.
MARCH.	
24 Fri.	London: Executive Subcommittee of Central Medical War Committee, 3.15 p.m.
31 Fri.	London: Executive Subcommittee of Central Medical War Committee, 3.15 p.m.
APRIL.	
5 Wed.	London: Journal Committee, 12.30 p.m. London: Central Medical War Committee, 2 p.m.
6 Thur.	London: Insurance Acts Committee.
11 Tues.	London: Grants Subcommittee, 2.15 p.m. (provisional). London: Organization Committee, 3.30 p.m. (provisional).
12 Wed.	London: Medico-Political Committee.
19 Wed.	London: Finance Committee, 2 p.m.
26 Wed.	London: Council Meeting.

BRITISH MEDICAL JOURNAL.

LONDON: SATURDAY, APRIL 1st, 1916.

CONTENTS.

	PAGE		PAGE
RECRUITING FOR THE NAVAL AND MILITARY MEDICAL SERVICES:		INSURANCE:	
CONFERENCES AT BIRMINGHAM AND BRISTOL OF REPRESENTATIVES OF LOCAL MEDICAL WAR COMMITTEES ...	57	REPEAT PRESCRIPTIONS... ..	58
APPLICATIONS FOR ENROLMENT	57	LONDON INSURANCE COMMITTEE	58
NEED FOR RESIDENT SURGICAL OFFICERS AT HOSPITALS ...	57	LOCAL MEDICAL AND PANEL COMMITTEES... ..	58
ASSOCIATION INTELLIGENCE:		MILITARY CENSUS OF SCOTTISH CHEMISTS	59
MEETING OF COUNCIL	58	CORRESPONDENCE: SURCHARGES; CLINICAL WORK AND WAR WORK	59
METROPOLITAN COUNTIES BRANCH: RESOLUTIONS OF BRANCH COUNCIL re THE LONDON COUNTY COUNCIL (GENERAL POWERS) ACT, 1915	58	NAVAL AND MILITARY APPOINTMENTS	59
		VACANCIES AND APPOINTMENTS	60
		BIRTHS, MARRIAGES, AND DEATHS	60
		DIARY	60

RECRUITING FOR THE NAVAL AND MILITARY MEDICAL SERVICES.

CONFERENCES OF REPRESENTATIVES OF LOCAL MEDICAL WAR COMMITTEES.

BIRMINGHAM.

THE conference of representatives of the Local Medical War Committees in the Midlands and North Wales was held in the Midland Medical Institute, Birmingham, on March 23rd. The chair was taken by Dr. W. J. Garbutt, Chairman of the Birmingham Local Medical War Committee, and the arrangements were made by Dr. J. J. Bekenn, Honorary Secretary of the same Committee. There were about 100 present, including a number of Birmingham medical men of military age. Major Lucas, Mr. Bishop Harman, and Dr. Cox attended on behalf of the Central Medical War Committee. After a statement had been made on the general situation, questions were invited and answered.

The questions were very similar to those raised at the Leeds and London meetings, as reported in the SUPPLEMENT of March 25th. The representatives of the North Staffordshire Committee were anxious that the Central Medical War Committee should issue some general plan for dealing with the practices of men who had died on service. The example of Nottingham, which formulated such a scheme in September last, was mentioned, and the representatives of the Central Committee undertook that some model arrangement should be issued to local committees.

A suggestion was made that the Central Committee should contain representatives of provincial industrial practice. In reply it was pointed out that the Committee had no power to co-opt more members, and that any change in its composition must be dealt with at the next Representative Meeting.

The representative of Mid Staffordshire moved a resolution from that Committee urging that if enrolment were necessary the Government should make it compulsory. Other representatives declared that they had no mandate to vote on such a proposition, and the Chairman ruled it out of order.

Votes of thanks to the representatives of the Central Committee and the Chairman closed a very successful meeting.

BRISTOL.

THE conference of representatives of the Local Medical War Committees in the South-Western and Western Counties and in Central and South Wales was held at the University of Bristol on March 24th. The chair was taken by Dr. G. T. Miles, Chairman of the Bristol Local Medical War Committee, and Dr. H. F. Davis, Honorary Secretary of that Committee, was responsible for the arrangements. There were over thirty representatives present. Mr. T. Jenner Verrall, LL.D., Chairman, and Dr. Alfred Cox, one of the Secretaries of the Central Medical War Committee, attended on behalf of that Committee.

Dr. Verrall and Dr. Cox dealt with the reasons for the

adoption of the enrolment scheme and many of the general difficulties connected with it. Questions were then invited. Strong exception was taken from more than one area to the presence in Territorial hospitals of men of military age who had not undertaken the Imperial obligation. Dr. Verrall pointed out that the Central Committee had been definitely and officially informed that all medical men of military age holding Territorial commissions would be asked either to sign the obligation or resign. He undertook that inquiries would be made as to the cases raised at the meeting.

The Swansea representatives stated that the action of certain medical men who had attested and had been exempted or granted postponement by the local tribunal had had a very bad effect on the work of their committee, so much so that they had resolved not to press for enrolment. They declared that the military representative at the tribunal had taken no action to prevent medical men from being exempted—rather the reverse.

Representatives from Glamorgan and from Somersetshire stated that the action of the local Insurance Committees in placing unnecessary difficulties in the way of men who desired to offer for military service made it doubtful whether any more men could be got from those areas. Dr. Verrall asked that such cases should be reported fully to the Central Committee, which would place them before the Commissioners, who up to now had shown every disposition to facilitate panel practitioners going on military service.

The North Glamorgan representative said he saw no better plan for satisfying the medical needs of the army than the enrolment scheme which, if a success, would redound to the credit of the profession. He urged those present to put all their energies into it.

Votes of thanks were passed to Dr. Verrall, Dr. Cox, and the Chairman of the meeting.

APPLICATIONS FOR ENROLMENT.

Applications for enrolment should be addressed, if the applicant is resident in England or Wales, to the Secretaries of the Central Medical War Committee, 429, Strand, London, W.C.; if resident in Scotland, to the Secretary of the Scottish Medical Service Emergency Committee, Royal College of Physicians, Edinburgh; or, if resident in Ireland, to the Secretary of the Irish Medical War Committee, c/o British Medical Association, 16, South Frederick Street, Dublin.

NEED FOR RESIDENT SURGICAL OFFICERS AT HOSPITALS.

THE Central Medical War Committee invites applications from gentlemen of good hospital surgical experience, who, being over age or otherwise disqualified for service in the R.A.M.C., would yet be willing, if the necessity arose, to take appointments as resident surgical officers in hospitals. This appeal is not intended to interfere with the ordinary announcements of vacancies for such posts, but the Central Medical War Committee would like to have in reserve a supply of experienced surgeons who would, if necessary, be prepared to fill such appointments for a time. Applications should be sent to the Secretaries, Central Medical War Committee, 429, Strand, London, W.C.

Association Intelligence.

MEETING OF COUNCIL.

The next meeting of Council will be held on Wednesday, April 26th, in the Council Room, 429, Strand, London, W.C. The hour will be notified later.

By order,

GUY ELLISTON,

Financial Secretary and Business Manager.

March 23rd, 1916.

METROPOLITAN COUNTIES BRANCH.

In the London County Council (General Powers) Act, 1915 (Part V), an "establishment for massage or special treatment" is defined as meaning any premises in the county of London used or represented as being or intended to be used for the reception or treatment of persons requiring massage, manicure, chiropody, light, electric, vapour or other baths, or other similar treatment.

The Act provides that on and after February 1st, 1916, no person shall carry on in the county of London an establishment for massage or special treatment unless the name of such person and the premises used or represented as being or intended to be used for the purpose of such establishment are registered with the Council, or, in the case of an establishment in the City of London, with the Corporation.

Duly recognized hospitals established by the public authority or subsidized by recognized hospital funds are exempt.

Doctors are said to be exempt. The clause reads as follows:

An establishment for massage or special treatment carried on by a duly qualified medical practitioner, subject to the Council being furnished with a certificate, in a form approved by the Council, signed by two duly qualified medical practitioners practising or residing in the County of London, not being in partnership with such first-mentioned medical practitioner or with each other, and not having any financial or other interest in such establishment, to the effect (1) that such establishment is not and will not be used for any immoral purpose, and (2) that the medical practitioner carrying on the establishment is a fit and proper person to do so.

Such certificates are valid only for 12 months expiring on 31st January in any year, and only in respect of the person or premises specified therein.

The matter has been under the consideration of the Metropolitan Counties Branch Council, and the following resolutions have been passed:

- That the requirement of the Act, that in order to escape registration a duly qualified medical practitioner shall be required to furnish two certificates that an establishment for which he is responsible "is not and will not be used for an immoral purpose," is derogatory to the medical profession.
- That in the opinion of the council the terms of the Act relating to medical practitioners are so widely drawn that the house of no medical practitioner can be considered wholly safe from the necessity for certification or from inspection under the Act.

INSURANCE.

REPEAT PRESCRIPTIONS.

The Insurance Commissioners, recognizing that the abnormal circumstances of the war as affecting the conditions of practice of practitioners on the panel cannot properly be ignored in arriving at conclusions which will take immediate effect, have determined under Article 11 of the Amending Medical Benefit Regulations, 1915, as follows:

That during the period of the war and until the expiration of a period of three months from the conclusion of peace, the practice of issuing repeat prescriptions may be permitted on the following conditions:

- No "repeat" prescriptions to be given in any calendar month by reference to a prescription given prior to the first of that month.
- No "repeat" prescription to be given by reference to an order containing more than one prescription.
- No order for a "repeat" to be given which in any respect modifies the formula of the original prescription, and no additional prescription to be given on any such order.

4. The doctor to give the prescription in full if the patient so requests.

5. Every "repeat" order to indicate clearly the date of the order for the prescription which is to be repeated.

INSURANCE COMMITTEES.

LONDON.

At the meeting of the London Insurance Committee on March 23rd a scheme for the reinstatement of persons removed from the lists by enlistment approved by the Panel Committee on March 21st was agreed to and forwarded to the Insurance Commissioners.

The name of a panel practitioner of German nationality who returned to Germany last July, and for whom a deputy had since been acting, was removed from the medical list, the Commissioners having stated that it appeared to them that he should be regarded as having ceased to practise. Moneys due under this contract would be retained.

LOCAL MEDICAL AND PANEL COMMITTEES.

FIFE.

At a meeting of the Panel Committee on February 18th it was decided to protest to the Insurance Commissioners against the small credit allowed in respect of medical benefit for the county, and against the general reduction of 30 per cent. in respect of enlistments from the lists of every practitioner without respect of the constitution of individual panel lists as regards males and females. It was decided to support the Insurance Acts Committee of the British Medical Association in proposing that representations should be made by the British Medical Association to the Insurance Commissioners in favour of Panel Committees being allowed, when they so desired, to pay the travelling expenses of members out of the statutory grant for Medical Benefit Funds.

RENFREWSHIRE.

At a meeting of the Panel Committee on February 23rd it was decided to inform the British Medical Association that the Committee was in favour of procuring power to Panel Committees to pay the travelling expenses of their members out of the statutory grant from the medical benefit funds.

It was reported that the total cost for 1915 of the Central Checking Bureau was £3,156, and that the proportion of this amount falling to be paid by the county was £75. The Commissioners had made a deduction in favour of Renfrew because the Insurance Committee had in April, 1915, issued a circular to practitioners requesting them to write one prescription only on each prescription form, whereas other Insurance Committees had not made any such recommendation.

COUNTY TYRONE.

At a largely attended meeting of the County Tyrone Medical Committee, held at Omagh on March 16th, Dr. E. C. THOMPSON, who was in the chair, was congratulated on his return from the front. Resolutions were passed unanimously to the effect that the County and Borough Medical Committees, with the Irish Medical Committee, should have the right of recommending the appointment of medical referees in their different districts subject to the approval of the Insurance Commissioners, and condemning the action of the Council of the Irish Medical Association in admitting to the membership of that association a former medical adviser. We understand that the objection is to such an election by the Irish Medical Association pending the appointment of medical referees.

WEXFORD.

At a meeting in Wexford on March 1st of the medical practitioners of the county when Dr. T. J. KELLY was in the chair, the Honorary Secretary was directed to bring before the Insurance Commissioners, through the Irish Medical Committee, the difficulty medical certifiers experience in obtaining from insured persons their society number. The Irish Medical Committee was also requested to urge the Commissioners to limit the number of certificates as much as possible, as medical men found it a hardship and expense to be obliged to travel long distances in rural areas to give weekly certificates to patients suffering from chronic long illnesses.

A resolution was adopted expressing surprise and dis-appointment at the small superannuation allowance voted to Dr. Thomas J. Kelly after his long service of forty years, and asking the board of guardians (Enniscorthy) to grant him the full allowance to which his salary and emoluments entitled him.

MILITARY CENSUS OF SCOTTISH CHEMISTS.

CHEMISTS who were engaged in dispensing under the Insurance Act were originally included in the list of reserved occupations. In consequence of the decision that an attested man is liable to serve if the military representative of the district is of opinion that his services are not essential to the needs of the civil population, subject, of course, to the right of appeal to the tribunals, a census of the dispensing staffs of all chemists and druggists in Scotland, whether panel or non-panel, is being taken. When completed a meeting of representatives of the fifty-six committees dealing with insurance in Scotland and of the local Insurance Committee will be held with the military authorities in each area, in order to fix the number of chemists required to attend to the needs of the community.

MATERNITY BENEFIT.

In the House of Commons on March 22nd Mr. Charles Roberts said that to increase the maternity benefit payable under the Insurance Act from 30s. to £5 would require legislation. He invited Mr. Byrne to communicate to him the reasons on which the suggestion was based.

CORRESPONDENCE.

SURCHARGES.

DR. ALEX. G. FRASER (Manchester) writes: The following is an abbreviated statement of remarks I made at a meeting of the Manchester Panel Committee last Thursday, and which I have sent also for their consideration to the National Insurance Commissioners in London. They refer to the inadequate treatment we are able to give to our patients. In the following figures I am giving my own case only as illustrative.

Within the last eighteen months every quarter surcharges have been made, or moneys held back. The following are the particulars:

February 26th, 1915, £29 15s. cheque received; £1 5s. kept back, since paid.
March 27th, 1915, £30 13s. cheque; £1 kept back.
August 27th, 1915, £19 6s. cheque; £5 9s. 5d. surcharged.
September 20th, 1915, £16 5s. cheque; £1 10s. surcharged.
February 15th, 1916, £17 3s. cheque; 11s. surcharged.

The ground on which these surcharges have been made is that the average value of my prescription has been larger than the average of Manchester, thus:

	For Manchester.	Mine.
Average cost per script ...	5.104	6.417
Average number of scripts per patient ...	3.452	3.909
Average monthly cost per patient ...	1/5.622	2/1.08

I do not know how these figures are arrived at, nor am I able to verify them, but I presume they are correct. After deducting the dispensing charge, which is usually 2d., this leaves the net charge for drugs for Manchester 3.104d. and mine 4.417d. Because my average is 1.313d. higher than Manchester I am surcharged as above £5 9s. 5d. for the March quarter, besides the other surcharges. I refuse to believe that any competent judge will think that drugs prescribed to the value of 4.417d. can be considered over-prescribing or ought to be surcharged.

Let me take illustrations of what follows with such limitations, and they are of daily occurrence:

1. A poor girl came to my surgery this week suffering from rheumatism. She wanted cotton-wool for her chest and needed medicine. I said to her I was not able to give her both. She asked me to give her the wool and she would get the medicine.

2. The next night another girl called with a medical card transferring her from the Manchester to the county area. My heart leapt with pleasure, for I had never had any trouble with the Lancashire Insurance Committee and I felt I could give her reasonable treatment.

3. A chemist's assistant came in and casually remarked he had just dispensed for an adult suffering from acute dyspepsia a prescription, the Manchester stock bismuth mixture, but only half strength, 3j (instead of 3ij), diluted to 3viij of water, and the dose two teaspoonfuls three times a day. The young man remarked he did not see what good it would do.

These illustrations speak for themselves. It is true that we may order anything, but if the value of the script is over the average we are surcharged. My heaviest surcharge was for the March quarter, 1915, including January, February, and March, but it was not sent in till August; when then I looked back on my day book and read the diseases that had been treated—pneumonia, rheumatism, apoplexy, Graves's disease, etc.—and, reading between the lines, remembered how much treatment was unrecorded, feelings of a very mixed nature of anger and pity and shame came over me, to find myself, like many men, thus penalized in trying to do my duty.

CLERICAL WORK AND WAR WORK.

DR. T. M. CALLENDER (Sidcup) writes: When our country is requiring the aid of so many civil practitioners for the army surely something should be done during this time of severe

strain on the medical profession to lessen the clerical work connected with National Insurance. What is the good of keeping a "card" for each of the insured patients when the time occupied in filling up these cards might be much better employed, not to mention also the cost to the country of producing and tabulating these cards? The important illnesses are those which incapacitate the individual for work, and information with regard to these illnesses (as stated on the certificates) could be obtained, if necessary, from the approved societies. Economy might also be practised if it were only necessary to grant two certificates, one for "going on" and one for "going off" the insurance. A medical man requires some rest, physical and mental, but when he has to run the practices of several of his fellow-practitioners, as many of the profession are doing all over the country at present, it is well-nigh impossible for him to find time to fill in all these "cards" and obtain any mental rest or relaxation.

Naval and Military Appointments.

ROYAL NAVAL MEDICAL SERVICE.

The following appointments are announced by the Admiralty: Surgeons H. E. Scargill to the *Vivid*; L. Moss, M.B., to Gibraltar Hospital, vice Babbington; F. J. D. Twigg, M.B., to the *Victory*, additional for disposal. Temporary Surgeons F. L. Duckworth to the *Bellerophon*; H. P. S. McClintock to the *President*; H. Parry-Price to the *Victory* additional for disposal.

ROYAL NAVAL VOLUNTEER RESERVE.

Surgeon-Probationer A. C. F. Barrow to Haslar Hospital. To be Surgeon Probationers: W. A. Gray, J. Reid, A. P. Robb, H. G. Taylor, J. M. M. Wright, J. C. Blake, E. G. Adams, J. S. Durward.

ARMY MEDICAL SERVICE.

ROYAL ARMY MEDICAL CORPS.

Major Robert Jones, F.R.C.S.E., R.A.M.C.(T.F.), to be temporary Lieutenant-Colonel.

Major E. Ryan to be temporary Lieutenant-Colonel whilst in command of a casualty clearing station.

Majors to be temporary Lieutenant-Colonels whilst in command of field ambulances: G. H. J. Brown, M.B., D.S.O., E. G. Anthonisz, E. M. Ponnetfather, temporary Major C. E. Ligertwood.

Major J. Powell, M.B., is restored to the establishment. Captains to be temporary Majors whilst in command of field ambulances: A. G. Wells, W. G. Wright, F. Worthington, M.B., D.S.O., P. S. Stewart, M.B.

G. D. Gray, M.D., to be temporary Major.

Captain E. W. H. Groves, M.D., F.R.C.S., R.A.M.C.(T.F.), to be temporary Major.

Captain A. F. C. Martyn is seconded for service with the Egyptian army.

Temporary Lieutenants to be temporary Captains: E. G. Wheat, M.D., G. R. E. Colquhoun.

Superintendence Captain B. Gale, M.B., is restored to the establishment.

E. W. Skinner, M.D., to be temporary Captain.

The promotion to the rank of temporary Captain of temporary Lieutenant G. Smith is cancelled, and he is dismissed the service by sentence of a general court-martial.

The name of temporary Lieutenant Malcolm Manson, M.B., is as now described and not as in the *London Gazette* of June 21st, 1915.

To be temporary Lieutenants: C. L. Forde, M.B., P. A. McCallum, M.B., T. R. Davey, C. Costello, M.B., A. A. Scott, M.B., W. Scott, W. H. Seady, E. Nuttall, J. K. Bell, J. Cathcart, M.B., J. J. Dowdall, M.B., W. H. Thomas, W. J. Murphy, J. C. Anderson, M.B., R. C. Corbett, M.B., W. G. Thomas, E. H. Morley, M.B., J. F. Nicholson, M.D., E. B. Gorst, M.B., D. A. Crow, M.B., G. L. Lawlor, J. B. Fairclough, B. A. McClintock, M.D., A. H. Arnott, M.B., F. C. Couran, A. C. Lambert, M.D., R. E. McLaren, M.D., I. O'Keefe, M.B., E. O. Lindsey, R. V. Murphy, D. P. Thomas, A. G. Alexander, M.D., W. G. Harnett, M.D., A. J. Chillingworth, H. M. Harrison, B. A. Quinn, M.B., J. I. Enright, M.B., C. E. G. Bateman, J. G. T. Thomas, B. S. Simmonds, M.B., D. S. Graham, A. A. E. Newth, M.B., J. R. Wylie, M.B., H. W. Harding, M.D., J. Young, G. C. B. Hawes, A. E. Foerster, C. W. Morrison, M.B., W. J. Porteous, M.B., J. S. Annandale, M.B., A. J. D. Rowan, M.B., A. Morgan, W. G. Weston, M.B., J. St. J. Dundon, M.B., C. B. Howard, M.D., J. T. H. Madill, M.B., N. J. Judah, M.B., J. B. Yelf, J. F. Mackenzie, M.B., J. E. Manlove, C. O'Malley, M.B., S. C. W. Ireland, G. B. Mason, C. Townshend, M.D.

Temporary Lieutenants relinquish their commissions: O. Barton, M.B., N. Keith, M.B., J. A. Thoms, M.B., W. K. Hall, M.D., F. S. Pope, M.D.

Temporary Lieutenant E. N. Drier, M.D., F.R.C.S.E., relinquishes his commission on account of ill health.

Temporary honorary Lieutenants to be temporary Lieutenants: S. R. Prall, W. Thomas.

SPECIAL RESERVE OF OFFICERS.

ROYAL ARMY MEDICAL CORPS.

Lieutenants (on probation) confirmed in their rank: C. A. Slaughter, W. L. A. Harrison.

OVERSEAS CONTINGENTS.

CANADIAN ARMY MEDICAL CORPS.

To be temporary honorary Majors: N. C. Wallace, C. J. Stewart, M.D., F. J. Ewing to be temporary Captain.

TERRITORIAL FORCE.

ROYAL ARMY MEDICAL CORPS.

London (City of London) Field Ambulance.—Lieutenant A. H. Platt to be Captain.

London (City of London) General Hospital.—Lieutenant R. J. W. A. Cushing to be Captain.

London General Hospital.—Major J. Calvert, M.D., to be Lieutenant-Colonel. Major (temporary Colonel, A.M.S.) A. H. Tubby, M.D., F.R.C.S., to be Lieutenant-Colonel and remain seconded.

Captains to be Majors: F. W. Andrewes, M.D., F.R.S., F. F. Burghard, M.D., F.R.C.S. (and remain seconded), A. M. Gossage, M.B., H. F. Waterhouse, M.D., F.R.C.S.
London (City of London) Sanitary Company.—Lieutenants to be Captains: M. Greenwood, P. Hartley, E. R. Matthews.
London Sanitary Company.—To be Lieutenants: C. N. Atlee, A. E. Jury.
Home Counties Field Ambulance.—C. C. Robinson, M.B., to be Lieutenant.
Wessex Casualty Clearing Station.—Lieutenant T. J. Wright, F.R.C.S.E., to be Captain.
Wessex Field Ambulance.—Lieutenant E. H. Helby to be Captain.
Western General Hospital.—Lieutenants to be Captains: F. H. Lacey, M.B., J. T. Williams, M.D.
Welsh Border Mounted Brigade Field Ambulance.—Lieutenant W. Morgan resigns his commission.
Southern General Hospital.—To be Captains: Lieutenants K. H. Gill, M.B., G. L. Wilkinson.
Eastern General Hospital.—Lieutenant O. Inchley to be Captain.
Eastern Mounted Brigade Field Ambulance.—To be Lieutenants: E. H. Coyne, M.B., P. J. Smith, M.B.
East Anglian Field Ambulance.—Captain L. H. Hutchins relinquishes his commission on account of ill health. Captain G. C. Gray relinquishes his commission on account of ill health (substituted for announcement published in the *London Gazette* of March 7th).
South Midland Casualty Clearing Station.—To be Lieutenants: A. G. Banks, M.D., F.R.C.S.E., C. A. Reason, M.B.
South Midland Field Ambulance.—Lieutenants to be Captains: H. N. Crowe, M.D., W. J. F. Craig, J. Bannerman.
North Midland Field Ambulance.—Captain J. G. J. Green relinquishes his commission on appointment to the I.M.S.
North Midland Divisional Sanitary Section.—Lieutenant A. White, M.B., to be Captain.
East Lancashire Field Ambulance.—Major W. L. Bentley to be temporary Lieutenant-Colonel whilst in command of a field ambulance.
West Lancashire Divisional Sanitary Section.—Lieutenant A. Reid, from the London Sanitary Company, to be Lieutenant.
West Riding Field Ambulance.—Lieutenant C. H. Heppenstall, M.B., relinquishes his commission on appointment to the I.M.S.
Yorkshire Mounted Brigade Field Ambulance.—Captain A. H. Benson to be temporary Major whilst in command of a field ambulance.
Northern General Hospital.—Lieutenant H. W. Kerrigan, M.B., to be Captain.
Northumbrian Field Ambulance.—Lieutenant P. J. Sheedy to be Captain.
Lowland Field Ambulance.—Major M. Dunning, M.B., to be temporary Lieutenant-Colonel whilst in command of a field ambulance.
Highland Casualty Clearing Station.—Captain J. Dow, M.B., relinquishes his commission on appointment to the I.M.S.
Highland Field Ambulance.—G. Torrance, M.B., to be Lieutenant.
Highland Mounted Brigade Field Ambulance.—Captain A. Mowat, M.B., to be temporary Major whilst in command of a field ambulance.
Attached to Units other than Medical Units.—Major G. S. Mill, M.D., relinquishes his commission on account of ill health. To be Majors: Major W. M. Hamilton, M.D., from T.F.R., Captain D. E. Dickson, M.B. To be Captain: Lieutenant L. S. Wilcox, M.D. To be Lieutenants: H. Jaques, P. A. Chilcott.

TERRITORIAL FORCE RESERVE. ROYAL ARMY MEDICAL CORPS.

Major F. J. Warwick, M.B., from South Midland Field Ambulance, to be Major.

Vacancies and Appointments.

NOTICES REGARDING APPOINTMENTS.—Attention is called to a Notice (see Index to Advertisements—Important Notice re Appointments) appearing in our advertisement columns, giving particulars of vacancies as to which inquiries should be made before application.

VACANCIES.

BRISTOL GENERAL HOSPITAL.—(1) House-Physician; (2) Casualty House-Surgeon. Salary, £175 per annum.
BRISTOL ROYAL INFIRMARY.—(1) House-Physicians; (2) House-Surgeons. Salary, £100 per annum in each case.
BURNLEY: VICTORIA HOSPITAL.—Lady House-Surgeon. Salary, £160 per annum.
CHARING CROSS HOSPITAL.—Resident Medical Officer.
CHESTERFIELD AND NORTH DERBYSHIRE HOSPITAL.—Second House-Surgeon. Salary, £150 per annum.
DUDLEY: GUEST HOSPITAL.—Senior Resident Medical Officer. Salary, £150 per annum.
DURHAM COUNTY HOSPITAL.—House-Surgeon. Salary, £150, and war bonus of £30 per annum.
EAST HAM EDUCATION COMMITTEE.—Temporary Assistant School Medical Officer. Salary, £300 per annum.
EXETER: ROYAL DEVON AND EXETER HOSPITAL.—Senior House-Surgeon. Salary, £250 per annum.
GUILDFORD: ROYAL SURREY COUNTY HOSPITAL.—House-Surgeon. Salary, £150 per annum.
KIRKWALL: PARISH OF EDAY.—Medical Officer.
LEDS PUBLIC DISPENSARY.—Lady Resident Medical Officer. Salary, £130.
LONDON TEMPERANCE HOSPITAL, Hampstead Road, N.W.—Assistant House-Surgeon (non-resident). Honorarium, 120 guineas a year.
MANCHESTER CHILDREN'S HOSPITAL, Pendlebury.—Two Resident Medical Officers (females). Salary, £100 per annum and war bonus of £5 per month.
NEW HOSPITAL FOR WOMEN, Euston Road, N.W.—(1) Radiographer; honorarium, £30 per annum. (2) Assistant Pathologist; salary, £100 per annum. (3) Senior Clinical Assistant in Out-patient Department.

NORTHAMPTON EDUCATION COMMITTEE.—Dental Surgeon. Salary, £250 per annum, rising to £300.

PUTNEY HOSPITAL, S.W.—Resident Medical Officer. Salary, £150 per annum.

QUEEN'S HOSPITAL FOR CHILDREN, Hackney Road, E.—House-Surgeons. Salary, £100 per annum.

SALISBURY (GENERAL) INFIRMARY.—(1) House-Surgeon; (2) Assistant House-Surgeon. Salary, £150 and £100 per annum respectively.

SHEFFIELD ROYAL INFIRMARY.—House-Surgeon. Salary, £100 per annum.

SOUTHAMPTON: FREE EYE HOSPITAL.—House-Surgeon. Salary, £100 per annum.

STOKE-ON-TRENT: NORTH STAFFORDSHIRE INFIRMARY, Hartshill.—(1) House-Surgeon. (2) House-Physician (females). Salary, £200 per annum.

THROAT HOSPITAL, Golden Square, W.—Honorary Medical Registrar.

CERTIFYING FACTORY SURGEONS.—The Chief Inspector of Factories announces the following vacant appointments: East Grinstead (Sussex), Newport (Mayo).

To ensure notice in this column—which is compiled from our advertisement columns, where full particulars will be found—it is necessary that advertisements should be received not later than the first post on Wednesday morning. Persons interested should refer also to the Index to Advertisements which follows the Table of Contents in the JOURNAL.

APPOINTMENTS.

PRICE, C., M.R.C.S., L.R.C.P., Resident Medical Superintendent of the Children's Infirmary, Cleveland Street, W.

ROBERTS, H. S. W., L.R.C.P. and S. Edin., Certifying Factory Surgeon for the Ballindalloch District, co. Banff.

BIRTHS, MARRIAGES, AND DEATHS.

The charge for inserting announcements of Births, Marriages, and Deaths is 5s., which sum should be forwarded in Post Office Orders or Stamps with the notice not later than the first post on Wednesday morning in order to ensure insertion in the current issue.

MARRIAGES.

TEARE-ROBBINS.—On 25th March, at Christ Church, Friern Barnet, London, by the Rev. E. Dukes, John Teare, M.D., D.P.H., Lieutenant 1st London Sanitary Company, R.A.M.C.(T), Assistant to the C.M.O., West Riding County Council, elder son of John Teare, Esq., of "Kirk Royd," Wakefield, and Liverpool, to Lillian Maude, eldest daughter of the late Nicholas Robbins, Esq., of Penzance.

BENTLEY-SCOTT.—On March 28th, at St. Mary's, Kennington, Kent, Richard John Bentley, M.B., B.S. Lond., of Northend, Ashford, to Ida Mildred, eldest daughter of Major H. W. Scott, The Lancs. Fusiliers, of Temple House, Kennington.

DEATH.

HORN.—On March 22nd, at Glidencroft, St. Faith's, Robert James Horn, J.R.C.P., L.F.P.S., aged 60 years. Interred at St. Faith's on Saturday the 25th.

DIARY FOR THE WEEK,

TUESDAY.

RÖNTGEN SOCIETY, Institution of Electrical Engineers, Victoria Embankment, W.C., 8.15 p.m.—Messrs. B. H. Morphy and B. R. Mullan: the Enclosed Tungsten Arc as a source of Ultra-Violet Light. Mr. E. Schall, B.Sc.: Experiments with a Coolidge Tube. And other papers.

FRIDAY.

ROYAL SOCIETY OF MEDICINE:
SECTION OF LARYNGOLOGY, 4 p.m.—Cases.

ROYAL COLLEGE OF PHYSICIANS OF LONDON, 5 p.m.—Tuesday and Thursday: Lumenian Lectures by Dr. F. E. Batten: Acute Poliomyelitis.

POST-GRADUATE COURSES AND LECTURES.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.

THE POST-GRADUATE COLLEGE, West London Hospital, Hammsmith, W.—Clinical work; graduates only.

DIARY OF THE ASSOCIATION.

Date.	Meetings to be Held.
MARCH.	
31 Fri.	London: Executive Subcommittee of Central Medical War Committee, 3.15 p.m.
APRIL.	
5 Wed.	London: Journal Committee, 12.30 p.m. London: Central Medical War Committee, 2 p.m.
6 Thur.	London: Insurance Acts Committee.
7 Fri.	London: Central Ethical Committee, 2 p.m. London: Executive Subcommittee of Central Medical War Committee, 3.15 p.m.
11 Tues.	London: Grants Subcommittee, 2.15 p.m. London: Organization Committee, 3.30 p.m.
12 Wed.	London: Medico-Political Committee.
19 Wed.	London: Finance Committee, 2 p.m.
26 Wed.	London: Council Meeting.

SUPPLEMENT TO THE BRITISH MEDICAL JOURNAL.

LONDON: SATURDAY, APRIL 8TH, 1916.

CONTENTS.

	PAGE		PAGE
RECRUITING FOR THE NAVAL AND MILITARY MEDICAL SERVICES:		INSURANCE:	
THE ENROLMENT SCHEME: WAR OFFICE STATEMENT AND APPEAL ...	61	CIVIL SERVICE ESTIMATES ...	62
MEDICAL WAR COMMITTEES: ENGLAND AND WALES; IRELAND; APPLICATIONS FOR ENROLMENT ...	61	PAYMENT OF ARREARS ...	62
ASSOCIATION INTELLIGENCE:		REPEAT PRESCRIPTIONS ...	63
MEETING OF COUNCIL ...	62	NAVAL AND MILITARY APPOINTMENTS ...	63
BRANCH AND DIVISION MEETINGS TO BE HELD ...	62	VACANCIES AND APPOINTMENTS ...	64
		BIRTHS, MARRIAGES, AND DEATHS ...	64
		DIARY ...	64

RECRUITING FOR THE NAVAL AND MILITARY MEDICAL SERVICES.

THE ENROLMENT SCHEME: WAR OFFICE STATEMENT AND APPEAL.

THE War Office has issued the following statement for publication:

In order to maintain the supply of medical officers required to meet the needs of the military services, it is urgently necessary, in the interests of the civil community no less than of our armies, that all qualified medical men not exceeding 45 years of age, irrespective of their circumstances, should without delay enter their names under the enrolment scheme which has been established by the Central Medical War Committee and has the authorization of the War Office.

The work of enrolment is carried out by three representative bodies of the medical profession, known as the Central Medical War Committee for England and Wales, the Scottish Medical Service Emergency Committee, and the Irish Medical War Committee. It should be understood that enrolment does not mean that the medical man is at once called up for service in the R.A.M.C.; he may never be called, and in any case will not be called up until the proper time has come for his services to be accepted. The real purpose of the scheme is to secure that those doctors are selected for military purposes who can best be spared at the particular date, and from the particular place, with due regard to the needs of the civil population, to the personal circumstances of the doctor, and to the requirements of the armies.

To carry out efficiently the comparative process necessary for an equitable distribution of the civil population, it is evident that all doctors of suitable age should have offered themselves for service quite irrespective of their particular circumstances, whatever these may be, so that a proper selection may be made by a body equipped with the requisite information from all parts of the country, and thus competent to make the necessary comparisons. The only alternatives are haphazard recruitment and arbitrary demand.

It is for these reasons that the War Office has officially recognized and now relies upon the Central Medical War Committee and the corresponding committees in Scotland and Ireland. These committees include representatives of the Royal Colleges of Physicians and the Royal Colleges of Surgeons, of the universities and medical schools, and of the British Medical Association, and have associated with themselves in their work representatives of the Government departments mainly concerned.

The committees have an organization of representative local committees in all parts of the three countries, from which they obtain local information and advice, and they work in daily contact with the various Government departments concerned.

Furthermore, for the purpose of considering and advising, through the Central Committee, on cases in England and Wales having such special features as exist, for instance, in regard to the staffs of the metropolitan hospitals, a Committee of Reference has, with the approval of the War

Office, been now established by the Royal College of Physicians of London and the Royal College of Surgeons of England, acting jointly.

Thus it will be seen that, in order to secure the desired result, that is to say, to obtain the medical officers needed for the army month by month, with the least possible interference with the needs of the civil population and the least possible injury to the individual practitioner, it is necessary that every medical man under the age of 45, who does not hold a certificate of enrolment (or of provisional acceptance by the War Office), should enrol at once. Only in this way can the exigencies of the situation be fairly and efficiently met.

MEDICAL WAR COMMITTEES.

ENGLAND AND WALES.

At its meeting on April 5th the Central Medical War Committee discussed the course it should take in view of the issue of the above official statement, and resolved as follows:

The Committee will not proceed to call up practitioners under the Enrolment Scheme unless and until 75 per cent. of those medical men in England and Wales who on January 5th, 1916, were of military age and not holding a commission have enrolled, or have since that date received a commission in His Majesty's forces or a letter of provisional acceptance. Military age for this purpose means under 45 years of age.

The Committee at this meeting also considered the question of forming a compassionate fund, and adopted a resolution expressing the opinion that it may be necessary to establish a compassionate fund in connexion with medical officers serving in the war. It asked the Council of the British Medical Association to consider the desirability of the formation of such a fund.

IRELAND.

A meeting of the Irish Medical War Committee was held at the Royal College of Physicians of Ireland on March 28th, when Dr. MacDowel Cosgrave, President of the Royal College of Physicians in Ireland, was in the chair, and the following members were present: Mr. F. Conway Dwyer, President of the Royal College of Surgeons of Ireland; Dr. D. J. Coffey, President University College; Alderman J. McWalter, R.A.M.C.; Colonel Hearn, R.A.M.C.; Dr. T. Hennessy, and Dr. M. R. J. Hayes, honorary secretary.

The Committee, having considered correspondence which passed between Sir Alfred Keogh, Director-General A.M.S., and its honorary secretary, Dr. Hayes, decided to circularize all available Irish doctors to join the R.A.M.C., as Sir Alfred Keogh definitely stated in his letter that there was an urgent need for doctors to join the R.A.M.C.

The secretary was directed to convey on behalf of the Irish Medical War Committee its sympathy to its colleague, Sir Thomas Stafford, Bt., medical representative of the Local Government Board, on the death of his wife.

APPLICATIONS FOR ENROLMENT.

Applications for enrolment should be addressed, if the applicant is resident in England or Wales, to the Secretaries of the Central Medical War Committee, 429, Strand,

London, W.C.; if resident in Scotland, to the Secretary of the Scottish Medical Service Emergency Committee, Royal College of Physicians, Edinburgh; or, if resident in Ireland, to the Secretary of the Irish Medical War Committee, c/o British Medical Association, 16, South Frederick Street, Dublin.

Association Intelligence.

MEETING OF COUNCIL.

THE next meeting of Council will be held on Wednesday, April 26th, in the Council Room, 429, Strand, London, W.C., at 11 a.m.

By order,

GUY ELLISTON,

Financial Secretary and Business Manager.

March 23rd, 1916.

BRANCH AND DIVISION MEETINGS TO BE HELD.

YORKSHIRE BRANCH.—Dr. H. J. Campbell, Honorary Secretary (36, Manningham Lane, Bradford), gives notice that a meeting of the Branch will be held at the Royal Bath Hospital, Harrogate, on Saturday, April 8th, at 3 p.m.

INSURANCE.

CIVIL SERVICE ESTIMATES.

THE Estimates for Civil Services for the year ending March 31st, 1917, recently issued, show, in Class VII, dealing with National Insurance, old age pensions, labour exchanges, etc., an anticipated saving of nearly a million and a half pounds.

General Summary.

Service.	1916-7.	1915-16.	Increase.	Decrease
	£	£	£	£
Old age pensions ...	12,654,000	13,089,000		435,000
National Health Insurance:				
Joint Committee ...	208,709	618,275		409,566
English Commission ...	4,667,239	4,891,656		224,417
Welsh Commission ...	314,923	357,073		42,150
Scottish Commission ...	115,922	718,187		101,285
Irish Commission ...	393,475	491,370		97,895
Labour Exchanges and un-				
employment insurance	918,262	1,034,430		116,168
National Insurance audit				
department	104,000	118,440		14,440
Treatment of tuberculosis:				
special grants	425,000	385,000	40,000	
Highlands and Islands				
Medical service Board	44,135	44,015	120	
Friendly societies def-				
iciency	15,307	14,712	595	
Expenses under the Un-				
employed Workmen Act	—	50,000		50,000
Totals ...	20,361,952	21,812,158	40,715	1,490,921
Net decrease ...				£1,450,206.

The decrease in the estimate for old age pensions includes a saving of £2,000 on expenses of Pension Committees, but otherwise no explanation is given. Provision is also made in other estimates for expenditure in connexion with old age pensions to the extent of £447,563.

Perhaps the most noteworthy decrease is in the estimate for the Insurance Joint Committee, which is expected to require in the coming year roughly only about one-third of the grants of the past year. To begin with there is a saving of £2,500 in salaries and allowances. For the Special Drug Fund, which in the past year was £30,000, only £100 is put down for the coming year. This fund is for providing special grants towards the cost of drugs in case of epidemics or abnormal sickness. The grant for the Medical Research Fund is reduced from £56,500 to £50,000, and that for the expenses of members of Insurance Committees is reduced from £30,000 to £6,500. This last reduction is doubtless owing to the stringent regulations which the Commissioners have introduced as to the payments of subsistent allowance and for loss of remunerative time to members of Insurance Committees in attending

meetings of their committees. The grant-in-aid towards arrears of contributions is reduced from £100,000 to £100, and the grants towards the cost of sickness benefit for women is reduced from £150,000 to £100, while the special grants for sanatorium benefit are reduced from £50,000 to £35,000. The only items which show an increase are the mileage grants for Great Britain, including the Highlands and Islands of Scotland, which increase from £13,500 to £37,000, and the grant-in-aid for the administration of medical benefit, which is increased from £40,350 to £59,000.

In the estimates of expenditure of the English Commissioners there is a net decrease of £224,417, but only £3,217 of this decrease is in the Central Administration accounts. By far the greatest saving is in the grants in aid of sickness, disablement, and maternity benefits, which are reduced from £3,147,100 in 1915 to £1,949,400 for the coming year, a reduction of £1,197,700. There is a further saving of £189,200 in the grants towards the administrative expenses of approved societies and Insurance Committees. On the other hand, there is a large increase of £754,300 in the grants-in-aid of medical and sanatorium benefits, which are £1,035,200, against £280,900 in the past year. There is also a large increase of £447,900—that is, from £375,100 in 1915 to £823,000 for the coming year—for the special grants for medical benefit. As the cost of the pricing and checking of prescriptions under the new drug arrangements is included under this head, probably part of the increase may be due to this. Otherwise, this great increase is not explained, and indeed it is impossible to explain many of the increases and decreases without further information than is given in the Estimates.

Broadly speaking there are analogous increases and decreases in the accounts of the Welsh and Scottish Commissions, though it may be noted that under the English Commission there is an increase of £4,200 for salaries, wages, and allowances, largely due to additional clerks, and in spite of the fact that there is a saving of £2,000 as the salaries of two Commissioners who have not been replaced. On the other hand, there is a substantial decrease in the salaries and wages account for Wales and Scotland. In the Irish accounts the net decrease of £97,895 is largely due to the lessened grants-in-aid for sickness, disablement, and maternity benefits and administrative expenses of societies and committees. On the other hand, there is a noteworthy increase of £41,000, namely, from £100 in 1915 to £41,100 in 1916-17, for the expenses of medical certification.

The special grants for the treatment of tuberculosis show an increase of £40,000, namely, from £385,000 in 1915 to £425,000 for the coming year. These grants are for the cost of the extension of sanatorium benefit to the dependants of insured persons and for the treatment of tuberculosis generally, and the grant will be allocated between the four countries, being administered in England, Scotland, and Ireland by the respective Local Government Boards, and in Wales by the Welsh Insurance Commissioners.

PAYMENT OF ARREARS.

We have received several letters complaining that arrears of payments in respect of 1914 have not yet been paid. As long ago as, October 27th, 1915, the Chairman of the Joint Committee of Insurance Commissioners informed Sir Philip Magnus that the Commissioners were using their best endeavours to expedite the settlement by all the means within their power, but he could not bind himself down to a date, even approximately. In a letter addressed by the Commissioners to Insurance Committees on December 2nd, 1915, they said that they had been placed in a position to overcome the difficulties which had hitherto precluded them from completing the computation of the amount of the fund, and that it was proposed to proceed forthwith with a final settlement for 1914 upon the ordinary lines, thus enabling committees to make final payments to doctors of any balances outstanding under their agreements. We are informed that payments have already been made in many areas, and that where they have not the delay is now due to local administrative difficulties, and probably to shortage of labour. This, we are given to understand, is the case in London, where the Panel Committee at its last meeting resolved to make strong representations to the Commissioners expressing

the growing indignation of practitioners on the panel at the delay which has occurred in effecting the final settlement of practitioners' accounts for the medical year 1914. On the other hand, it was reported at a meeting of the Panel Committee for West Suffolk on March 14th that the clerk had money in hand to complete the settlement for 1914, but could not distribute it because the Commissioners, in spite of repeated applications, had failed to supply the necessary figures.

At a special meeting of the York Local Medical and Panel Committee on March 31st great dissatisfaction was expressed both with the very prolonged delay in the payment of the 1914 accounts throughout the country, and with the continued non-payment in York. It was pointed out that on a rough computation at least £1 per 1,000 patients would be permanently lost to the panel practitioners in the shape of interest on the money overdue (reckoning at 5 per cent. for one year only), and the honorary secretary was instructed to write to the Insurance Commissioners requesting an explanation.

REPEAT PRESCRIPTIONS.

We are requested by the Insurance Commissioners to state that the decision with regard to "repeat prescriptions" reported in the SUPPLEMENT to the JOURNAL of April 1st was given by them with reference to the circumstances of a particular case in which they were called upon to adjudicate, and is not a general decision of universal application to all areas. No question, in any event, arises for the Commissioners' decision under Article 11 of the amending Medical Benefit Regulations except where the Insurance and Panel Committees are in disagreement as to the "exceptions and qualifications, if any," to be recognized under the article; and any such question coming before the Commissioners for adjudication falls to be decided with particular reference to the circumstances of the area in which it has arisen.

Dr. M. S. HARTFORD (London, S.W.) writes:

I have never put the blame solely on the Commissioners for the petty act of tyranny abolishing the use of the term "Rep. mist." for I read, between the lines, that had the representatives of the Pharmaceutical Society held up their little fingers against the proposal no question of abolition would ever have arisen.

It is idle to talk of "free choice of chemist" as an absolute bar to using this term, for no panel practitioner would ever have any objection to rewrite the prescription in full should the patient wish to change his chemist. Further, what about the thousands of insured persons who receive their medicine at the dispensaries of those objectionable "approved institutions"? There, apparently, "Rep. mist." may be written as long as the medical officer desires.

Personally, no one has been more careful to avoid extravagant prescribing and not to encourage drugging than I have been, but I have all through continued to "repeat" my prescription if I thought fit; for I know from past experience that the majority of patients like to feel that they are having the same mixture if it seems to suit their diseases. The smallest change in the prescription, often made when it has to be rewritten, gives the practitioner trouble and frequently destroys the confidence of the patient in the efficacy of the treatment. Besides, to rewrite all prescriptions is against the interest of insured persons, for it may be laid down as an axiom that the greater the amount of clerical work the doctor has to do the less attention the patient receives. And the patients know this well, too.

In common with thousands of others, I have no wish to go back to the days of dispensing your own medicine, and I have, hitherto, been quite satisfied with the present arrangements. I cannot help thinking, however, that the chemists must be riding for a fall. But for my part, I had determined to continue to write "Rep. mist.", but I also decided that if its use had been altogether prohibited, in the near future I would appeal to those lay journals, which so generously gave me space in 1911 and 1912 to advocate and defend the Insurance scheme, to give me the hospitality of their columns to advocate, now, that the Insurance Committees should be empowered, either by regulations or by amending the Acts, to open dispensaries, or, failing this, that the grouped approved societies should have the same power. In the latter case I should have been interested to know what so clever and influential an insurance specialist as Mr. Handel Booth, M.P., thought of the advantages of that proposal, especially in view of the inevitable inclusion of the women and children in a future scheme.

Whilst alluding to clerical work, I could never agree with those who, like Dr. T. M. Callender in your last issue, aim at the abolition of record cards. These cards are wholly admirable and simple, and are certainly of the greatest assistance to every conscientious practitioner. To work any practice without keeping any record of cases must seem to be a most haphazard proceeding, and certainly those cards are simplicity itself.

Naval and Military Appointments.

ROYAL NAVAL MEDICAL SERVICE.

THE following appointments are announced by the Admiralty: Fleet Surgeons E. T. P. Eames to the *Queen*, E. G. B. O'Leary to the *Prince of Wales*, Staff Surgeons W. E. Ormsby, M.B., to the *Victory*, additional; F. J. Gowans, M.B., to the *Pembroke*, additional; H. A. Kellond-Knight to the *Vivid*, additional; L. M. Morris to the *Phaeton*; E. L. Atkinson to the *Pembroke*, additional, for Chatham Hospital, temporary; E. Wilkinson, M.B., to York South Hospital, vice Black. Surgeons M. H. Langford, D.S.O., to Chatham Hospital; J. P. Berry (reserve) to the *Victory*, additional, for disposal; M. E. Caldwell, M.B., to the *Vivid*, additional. Temporary Surgeons D. G. Falconer, M.B., to the *Thunderer*, vice Ormsby; M. H. de J. Harper, M.B., to the *Queen Mary*, vice Gowans; C. S. Ogilvy, to the *Marys*, vice Falconer; W. Taylor, M.B., to the *Britannia*, vice Ogilvy; A. M. Dunlop, M.B., to the *Inflexible*, vice Langford; E. T. Parry to the *Vivid*, additional; C. H. Browne to the *Forburgh*, vice Parry; W. K. Chalmers, M.B., to the *Victory*, additional, for disposal; E. J. Cooke to the *Victory*, additional, for Haslar Hospital; R. Creasy to the *Pembroke*, additional, for disposal; T. J. Thomas to the *Donegal*, vice Drummond.

ROYAL NAVAL VOLUNTEER RESERVE.

Staff Surgeon W. G. Bayras, M.D., to the *Vanguard*, vice Kellond-Knight. Surgeon-probationers W. E. M. Wardill to the *Forerunner*; A. D. Wall to the *Defender*; R. McNair to the *Druid*; E. D. T. Roberts to the *Sandfly*; W. G. Thompson to the *Jackal*; P. Bunbury to the *Tigeress*; R. N. Gibson to the *Beaver*; G. H. Fitzgerald to the *Attentive*; J. M. Ritchie to the *Sparrowhawk*. To be Surgeon-probationers: N. T. Williamson, A. B. Green, K. T. E. Wallington, S. R. Tattersall, A. C. Sleight, E. K. Macdonald, J. D. M. Cardell, N. J. Macdonald, H. Chadwick, E. B. Peirce, L. E. Kerr.

ARMY MEDICAL SERVICE.

Lieutenant-Colonel G. St. C. Thom, M.B., R.A.M.C., to be Deputy Assistant Director-General, vice Lieutenant-Colonel W. R. Blackwell.

ROYAL ARMY MEDICAL CORPS.

Major (temporary Lieutenant-Colonel) P. A. Lloyd-Jones, D.S.O., relinquishes his temporary rank on re-posting.

H. Chaffin, F.R.C.S., and W. Gennell, M.B., F.R.C.S., to be temporary honorary Major and temporary honorary captain respectively, whilst employed at the Red Cross Hospital, Bala-houston.

To be temporary honorary Majors: W. I. de C. Wheeler, M.D., F.R.C.S.I., temporary honorary Lieutenant L. J. Austin, M.D., F.R.C.S., whilst employed with the No. 2 British Red Cross Hospital.

Granted temporary rank whilst employed at the County of Middlesex War Hospital: As Lieutenant-Colonel: Temporary Major L. W. Rolleston, M.B., from the Napsbury War Hospital. As Major: Temporary Captain A. O'Neill, from the Napsbury War Hospital; L. S. T. Burrell, M.D. As Captain: H. T. B. Roberts, H. C. Halsted, M.D.

To be temporary Major: W. D. Andersen.

L. S. Kidd to be temporary honorary Captain whilst employed with the Australian Voluntary Hospital.

Temporary Captain - P. Bedson, M.D., from a service battalion, the Northumberland Fusiliers, to be temporary Lieutenant (substituted for notification published in the *London Gazette* of March 7th).

Temporary Captain A. S. Fry, M.B., relinquishes his commission on appointment to the I.M.S.

Temporary Captain C. H. Mills relinquishes his commission. E. C. Austin, F.R.C.S., to be temporary honorary Captain whilst employed at the Withington War Hospital, Manchester.

Temporary honorary Captain - W. Paterson to be temporary honorary Major whilst serving with the Australian Voluntary Hospital.

To be temporary Captains: A. S. Garden, M.B.; G. J. Arnold, F.R.C.S., late Captain R.A.M.C.(T.F.); Staff Surgeon G. H. Ross, M.B., retired list R.N.

Temporary Lieutenants to be temporary Captains: G. M. De Vine, M.B., D. E. Derry, M.B., E. L. Mansel, M.D., T. S. Hammond, F.R.C.S., J. Marmion, C. W. Donald, M.D., F.R.C.S.E., F. G. Milne, M.B., T. F. Griffin, M.D., D. Bird, G. N. Lorimer, M.B., W. J. Le-celles, M.B., A. G. MacLeod, M.B., E. A. O. Travers, P. Carney, M.B., W. Thomas, J. H. Askins, M.B., H. H. Elliot, M.B., J. Sullivan, M.B., H. L. C. Noel, G. S. Phillips, W. E. Robinson, M.B., H. N. M. Puckle, M.B., B. G. Clarke, M.B., A. T. Roberts, M.B., G. D. K. Waldron, M.B., J. L. M. Jamieson, M.B., W. E. Giblin, M.B., W. A. Edwards, M.B., L. J. J. Nye, M.B., P. E. Keane, M.B., O. H. Edwards, F. Irvine, M.B., W. Smithies, H. H. Davis, F.R.C.S.E., C. E. Sundell, M.D., J. R. Black, M.B., T. Sheehan, A. Wiley, F. S. Hawke, J. A. Hutchinson, F. H. Rudge, N. G. Horner, M.B., D. C. Taylor, M.B., F.R.C.S., W. W. Turner, M.B., W. M. O'Connor, M.B., H. B. Binks, M.B., A. H. Davidson, M.B., A. C. Freeth, M.B., M. L. Neylon, M. W. Steinberg, M.B., J. Hutchinson, M.D., G. Riddoch, M.B., V. J. McAllister, M.B., F.R.C.S.I., W. W. Thomson, M.B., A. T. Paterson, M.D., F.R.C.S.E., A. C. A. Jekyll, M.B., C. K. Cohen, M.B., E. P. Dark, M.B., E. V. Steele, M.B., S. E. Elphick, E. J. Eadie, R. B. Hunt, C. Stuart, M.D., M. A. Farr, H. Mathewson, M.B., J. W. Wood, J. S. Caldwell, M.B., W. Morrison, M.B., R. H. Scovell, M.B., O. H. Bowen.

Lieutenants of the Canadian A.M.C. to be temporary Lieutenants: D. E. H. Cleveland, M.D., J. B. Gai ban, M.B., F. H. Hurlbut, M.B., E. C. Smith, J. G. Lee, M. B. A. MacKenzie, M.B., M. D. Baker, M.B., D. T. Evans, M.B., G. A. Lamont, M.B.

To be temporary Lieutenants: E. C. Lindsey, J. Hewat, M.B., F. L. Gill, M.B., H. S. Gaskell, M.B., D. Morrison, M.B., P. J. Maguire, T. E. Hunter, E. J. Dermott, D. C. Suttle, M.B., G. F. Ford, W. J. McIvor, M.B., R. J. P. Waugh, M.B., W. Halliwell, M.B., B. P. Allinson, T. W. Mason, G. J. Knaggs, R. W. Chapman, M.B., A. Walker, M.B., W. J. Evans, J. A. H. Telfer, M.B., F. J. H. Bag, M.B., temporary honorary Lieutenant J. N. Deacon, M.B., T. P. Hutchinson, M.B., F. L. Power, H. Tipping, M.D., W. A. Shafto, M.D., A. Pimm, J. E. Harford, M.B., W. W. Watt, P. Pigdor, M.B., T. Perrin, M.D., F.R.C.S., F. L. Keith, M.B., H. A. Macdonald, M.B.

Temporary Lieutenants relinquish their commissions on account of ill health: C. G. Sherowitz, M.B., F. W. Lee.

TERRITORIAL FORCE.

ROYAL ARMY MEDICAL CORPS.

London Field Ambulance.—Major W. G. Macfee, from Attached to Units other than Medical Units, to be Major.

Home Counties Casualty Clearing Station.—Captain R. W. Brimacombe to be temporary Major whilst in command of a casualty clearing station. Temporary honorary Lieutenant W. Burt, from the Red Cross Hospital, Netley, to be Lieutenant.

East Anlian Field Ambulance.—Lieutenant S. D. Graham, M.B., to Captain; Lieutenant R. J. R. Meerey is restored to the establishment.
South Midland Mounted Brigade Field Ambulance.—Lieutenant W. G. Rutherford to be Captain.
North Midland Field Ambulance.—Lieutenant T. E. A. Carr, M.B., to be Captain; Lieutenant (temporary Captain) G. Holmes, M.B., to be Captain.
Yorkshire Mounted Brigade Field Ambulance.—Lieutenant C. G. Meade to be Captain.
West Lancashire Casualty Clearing Station.—Captain A. P. H. Simpson, from West Lancashire Field Ambulance, to be Captain.
West Lancashire Field Ambulance.—Captain (temporary Major) A. P. H. Simpson relinquishes his temporary rank on alteration in posting.
Northumbrian Field Ambulance.—Lieutenants to be Captains: J. A. L. Magee, J. B. Sisson, M.B.
Lowland Field Ambulance.—Captain W. W. Green, M.D., F.R.C.S.E., to be temporary Major whilst in command of a field ambulance; Lieutenant W. Combe, M.B., to be Captain.
Highland Casualty Clearing Station.—F. G. Stuart, M.B., to be Lieutenant.
Scottish Horse Mounted Brigade Field Ambulance.—Major H. Richardson, M.D., to be temporary Lieutenant-Colonel whilst in command of a field ambulance.
Welsh Border Mounted Brigade Field Ambulance.—H. A. Higginson to be Lieutenant.
Attached to Units other than Medical Units.—Captains W. R. E. Williams and T. M. Morton to be Majors. Captain J. J. Marsh relinquishes his commission on account of ill health. Captain H. F. Everett to be temporary Major whilst in command of a field ambulance. Lieutenants E. H. Gonin, M.D., and J. D. Jones to be Captains. G. H. Gill to be Lieutenant.

Vacancies and Appointments.

NOTICES REGARDING APPOINTMENTS.—Attention is called to a Notice (see Index to Advertisements—Important Notice re Appointments) appearing in our advertisement columns, giving particulars of vacancies as to which inquiries should be made before application.

VACANCIES.

BIRMINGHAM AND MIDLAND EYE HOSPITAL.—Resident Surgeon.
BIRMINGHAM GENERAL DISPENSARY.—Resident Medical Officer for Branch. Salary, £250 per annum.
BRISTOL GENERAL HOSPITAL.—(1) House-Physician; (2) Casualty House-Surgeon. Salary, £175 per annum.
BRISTOL ROYAL INFIRMARY.—(1) House-Physicians; (2) House-Surgeons. Salary, £100 per annum in each case.
BURNLEY; VICTORIA HOSPITAL.—Lady House-Surgeon. Salary, £160 per annum.
BURY INFIRMARY.—Senior House-Surgeon. Salary, £250 per annum.
CAMBRIDGESHIRE ASYLUM, Fulbourn.—Junior Assistant Medical Officer. Salary, £200 per annum, rising to £250.
CHESTERFIELD AND NORTH DERBYSHIRE HOSPITAL.—Second House-Surgeon. Salary, £150 per annum.
DONCASTER ROYAL INFIRMARY AND DISPENSARY.—House-Surgeon. Salary, £250 per annum.
DORSET COUNTY COUNCIL.—Lady Assistant Medical Officer of Health. Salary, £500 per annum.
DUDLEY; GUEST HOSPITAL.—Assistant House-Surgeon. Salary, £120 per annum.
EXETER; ROYAL DEVON AND EXETER HOSPITAL.—Senior House-Surgeon. Salary, £250 per annum.
HUDDERSFIELD ROYAL INFIRMARY.—Junior House-Surgeon. Salary, £100 per annum.
KING EDWARD MEMORIAL HOSPITAL, W.—Resident Medical Officer. Salary, £100 per annum.
LANCASTER; COUNTY ASYLUM.—Assistant Medical Officer (temporary). Salary, £6 6s. a week.
LEEDS PUBLIC DISPENSARY.—Lady Resident Medical Officer. Salary, £130.
LONDON HOSPITAL, E.—Two vacancies on Assistant Obstetric Staff.
LONDON TEMPERANCE HOSPITAL, Hampstead Road, N.W.—Assistant House-Surgeon (non-resident). Honorarium, 120 guineas a year.
NEW HOSPITAL FOR WOMEN, Euston Road, N.W.—(1) Senior Clinical Assistant in Out-patient Department; (2) Clinical Assistants; (3) Resident Medical Officer at House of Recovery, New Barnet, salary, £50 per annum.
PUTNEY HOSPITAL, S.W.—Resident Medical Officer. Salary, £150 per annum.
QUEEN'S HOSPITAL FOR CHILDREN, Hackney Road, E.—House-Surgeons. Salary, £100 per annum.
ROYAL FREE HOSPITAL, Gray's Inn Road, W.C.—Male and Female House-Physicians and House-Surgeons. Salary, £50 per annum.
SHEFFIELD ROYAL INFIRMARY.—House-Surgeon. Salary, £100 per annum.
SHREWSBURY DISPENSARY.—Medical Officer.
SOUTHAMPTON; FREE EYE HOSPITAL.—House-Surgeon. Salary, £100 per annum.
SHEFFIELD; JESSOP HOSPITAL FOR WOMEN.—Junior Lady House-Surgeon. Salary, £80 per annum.
STOKE-ON-TRENT; NORTH STAFFORDSHIRE INFIRMARY, Hartshill.—(1) House-Surgeon. (2) House-Physician (females). Salary, £200 per annum.
SURREY COUNTY ASYLUM Brookwood.—Locumtenent Medical Officer. Salary, 6 guineas a week.
WARWICKSHIRE AND COVENTRY JOINT COMMITTEE FOR TUBERCULOSIS.—Resident Medical Officer for Bramcote Sanatorium, near Nuneaton. Salary, £250 per annum.

WESTMORLAND CONSUMPTION SANATORIUM AND HOME, Grange-over-Sands.—Second Assistant. Salary, £200 per annum.

To ensure notice in this column—which is compiled from our advertisement columns, where full particulars will be found—it is necessary that advertisements should be received not later than the first post on Wednesday morning. Persons interested should refer also to the Index to Advertisements which follows the Table of Contents in the JOURNAL.

APPOINTMENTS.

BEALES, T. W. L., L.R.C.P., M.R.C.S., District Medical Officer of the Smallburgh Union.
FELDMAN, V., M.R.C.S., L.R.C.P., Assistant Medical Officer of the Chelsea Parish Infirmary.
MCGLYNN, J., M.D., R.U.L., Assistant Medical Officer of the Salford Union Infirmary.
MAY-ATKINSON, K. K., M.B., Ch.B. Vict., Assistant Medical Officer of the Brownlow Hill Institution of the Liverpool Parish.

BIRTHS, MARRIAGES, AND DEATHS.

The charge for inserting announcements of Births, Marriages, and Deaths is 5s., which sum should be forwarded in Post Office Orders or Stamps with the notice not later than the first post on Wednesday morning in order to ensure insertion in the current issue.

BIRTH.

RYLE.—At Eyton, Wrexham, on March 30th, the wife of Arthur J. Ryle, M.B., Ch.B. Ed., M.R.C.S., L.R.C.P., of a son.

MARRIAGES.

LEECH-BARKER.—At Leonard Stanley, on April 3rd, Ernest Bosdin Leech (of Manchester), M.D., Captain R.A.M.C., to Mary, daughter of the late Rev. H. Walder of Jamaica, and widow of the late Robert Barker of Marple.

LUCAS-MCKAIL.—On April 3rd, at St. James's, West Hampstead, by the Right Rev. the Lord Bishop of Rochester, assisted by the Rev. A. E. Oldroyd, M.A., Captain Reginald B. Lucas, M.B., M.S., R.A.M.C., eldest son of Mrs. A. R. B. Lucas, of Adelaide, S.A., to Cecily Helen, only daughter of Mrs. John McKail, of Adelaide, and niece of Dr. and Mrs. Cunningham, of West Hampstead, N.W.

MAY-WOOD.—At Hillhead, U. F. Church, Glasgow, on the 27th March, by the Rev. Daniel Lamont, B.D., Walter John May, M.B., Lieutenant R.A.M.C., of Knights, Transvaal, elder son of S. J. May, "Braeside," Durban, to Mary Ferguson Wood, M.A., M.B., younger daughter of the late John Wood, East Kilbride, and of Mrs. Wood, 10, Dryburgh Gardens, Glasgow, W.

WHITE-MACKLIN.—On March 1st, 1916, at the British Legation, Teheran, Persia, Dr. Henry White to Alice Martha Macklin, both of the Church Missionary Society's Hospital, Yazd, Persia.

DEATH.

PRICE.—On March 29th, at Hooper's Hill House, Margate, William Price, M.D., last surviving son of David Price, M.D., of Margate, aged 79 years.

DIARY FOR THE WEEK.

WEDNESDAY.

HUNTERIAN SOCIETY, 1, Wimpole Street, W., 9 p.m.—Adjourned Discussion on the Relationship of the Medical Profession to the State and the Community.

THURSDAY.

ROYAL SOCIETY OF MEDICINE:
SECTION OF DERMATOLOGY, 5 p.m.—Mr. J. E. R. McDonagh: Chemo-therapy.

FRIDAY.

ROYAL SOCIETY OF MEDICINE:
SECTION OF ANAESTHETICS, 8.30 p.m.—Annual General Meeting. Dr. M. S. Pembrey and Dr. F. E. Shipway: Influence of Anaesthetics on the Body Temperature. Demonstrations of Apparatus.

ROYAL COLLEGE OF PHYSICIANS OF LONDON, 5 p.m.—Tuesday and Thursday: Oliver-Sharpey Lectures by Dr. M. S. Pembrey: The Development of the Regulation of Temperature.

POST-GRADUATE COURSES AND LECTURES.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.
THE POST-GRADUATE COLLEGE, West London Hospital, Hammer-smith, W.—Clinical work; graduates only.

DIARY OF THE ASSOCIATION.

Date.	Meetings to be Held.
APRIL.	
7 Fri.	London: Central Ethical Committee, 2 p.m. London: Executive Subcommittee of Central Medical War Committee, 3.15 p.m.
8 Sat.	Yorkshire Branch, Harrogate, 3 p.m.
11 Tues.	London: Grants Subcommittee, 2.15 p.m. London: Organization Committee, 3.30 p.m.
12 Wed.	London: Medico-Political Committee.
14 Fri.	London: Executive Subcommittee of Central Medical War Committee, 3.15 p.m.
19 Wed.	London: Finance Committee, 2 p.m.
21 Fri.	London: Executive Subcommittee of Central Medical War Committee, 3.15 p.m.
26 Wed.	London: Council Meeting, 11 a.m.

BRITISH MEDICAL JOURNAL.

LONDON: SATURDAY, APRIL 15TH, 1916.

CONTENTS.

	PAGE		PAGE
RECRUITING FOR THE NAVAL AND MILITARY MEDICAL SERVICES:		INSURANCE:	
SCOTTISH MEDICAL SERVICE EMERGENCY COMMITTEE	65	LOCAL MEDICAL AND PANEL COMMITTEES...	66
APPLICATIONS FOR ENROLMENT	65	STURCHARGES	67
ASSOCIATION INTELLIGENCE:		CLINICAL WORK AND WAR WORK	67
MEETING OF COUNCIL	65	NAVAL AND MILITARY APPOINTMENTS	67
SUGGESTED CHANGES OF BOUNDARIES	65	VACANCIES AND APPOINTMENTS	68
MEETINGS OF BRANCHES AND DIVISIONS	65	BIRTHS, MARRIAGES, AND DEATHS	68
NOTIFICATION FEES	67	DIARY	68

RECRUITING FOR THE NAVAL AND MILITARY MEDICAL SERVICES.

SCOTTISH MEDICAL SERVICE EMERGENCY COMMITTEE.

At the monthly meeting of the general Committee held in the Royal College of Physicians on Saturday, April 8th, it was reported that the medical recruiting scheme instituted by the Committee in December last for the purpose of organizing the medical resources of Scotland to meet the civil and military needs during the war had produced highly satisfactory results. The registration inquiry under the scheme applied to every qualified medical man in Scotland irrespective of age.

Practitioners were divided into three age-groups, and the service appropriate to each group was noted in the schedule as follows:

Group.	Age.	Service.
A.	Under 45	Lieut., R.A.M.C. (<i>general service</i>).
B.	45 to 55.	Lieut., R.A.M.C. (<i>home service</i>). Part-time home military work. <i>Locum tenens</i> away from home (for practitioner absent on service). Part-time home civil work (in carrying on practice or part of practice of neighbouring practitioner absent on service).
C.	56 and upwards	Part-time home military work. <i>Locum tenens</i> away from home (for practitioner absent on service). Part-time home civil work (in carrying on practice or part of practice of neighbouring practitioner absent on service).

The returns, which have now been digested and summarized, show that in many of the Divisions over 90 per cent. of the profession have registered and intimated their willingness to render one or other of the services appropriate to their age-group mentioned in the schedule, and the activities of the local secretaries were fast diminishing the number of the remainder. In one area, where there were 109 doctors on the Committee's list, 100 had registered, and the local secretary soon reduced the remanet to four, two of whom were over 60. In another Division every man under 45 years of age either had a commission or had declared his readiness to take one if called upon.

The levy of 100 which the Committee had agreed to at its February meeting had been largely anticipated by sixty-eight voluntary offers. This number excluded recent graduates, of whom thirty-two had applied for commissions since January 1st, 1916, and another forty would do so before the end of the month. There was no reason to doubt that Scotland would be able to supply its full share of the number asked for by the Director-General.

The profession had responded most loyally to the successive calls, and the devotion of the local committees and the energy of their secretaries had been beyond praise.

The only censure the Committee had had to endure was that of the men whose applications for commissions were not transmitted to the War Office because, in the opinion of the Committee, their acceptance would have unduly depleted the area in which the applicants practised, and there were now a good many areas in Scotland where this was the case.

APPLICATIONS FOR ENROLMENT.

Applications for enrolment should be addressed, if the applicant is resident in England or Wales, to the Secretaries of the Central Medical War Committee, 429, Strand, London, W.C.; if resident in Scotland, to the Secretary of the Scottish Medical Service Emergency Committee, Royal College of Physicians, Edinburgh; or, if resident in Ireland, to the Secretary of the Irish Medical War Committee, c/o British Medical Association, 16, South Frederick Street, Dublin.

Association Intelligence.

MEETING OF COUNCIL.

The next meeting of Council will be held on Wednesday, April 26th, in the Council Room, 429, Strand, London, W.C., at 11 a.m.

By order,

GUY ELLISTON,

Financial Secretary and Business Manager.

March 23rd, 1916.

SUGGESTED CHANGES OF BOUNDARIES.

PROPOSED AMALGAMATION OF CARLOW AND KILKENNY DIVISIONS.

NOTICE is hereby given to all concerned of a proposal made by the South-Eastern of Ireland Branch for amalgamation of the Carlow and Kilkenny Divisions of the Branch. Written notice of the proposal has been given to the Kilkenny Division (the Carlow Division is at present unorganized), and the matter will be determined in due course by the Council. Any member affected by the proposed change, and objecting thereto, is requested to notify the fact, and his or her reason therefor, to the Medical Secretary, 429, Strand, W.C., not later than May 15th, 1916.

BRANCH AND DIVISION MEETINGS TO BE HELD.

LEINSTER BRANCH.—Dr. William Doolin, Acting Honorary Secretary (50, Fitzwilliam Square, Dublin), gives notice that the annual meeting of the Branch will be held at the Irish offices of the Association, 16, South Frederick Street, Dublin, on Monday, May 15th, at 4.30 p.m. Agenda: Appointment of officers. Adoption of revised organization rules and ethical rules. Receive report of financial position. Apply for supplementary grant for 1916 of such amount as the meeting may decide. Any other business.

Meetings of Branches and Divisions.

SOUTH MIDLAND BRANCH: BUCKINGHAMSHIRE DIVISION.

A MEETING of the Buckinghamshire Division took place at High Wycombe on March 21st, preceded by a lunch. The chair was taken by Dr. DUNBAR DICKSON in the absence of Dr. Deyns, for whose speedy recovery from frost-bite contracted on service the meeting expressed its sincere hope. It was stated that the letter written to all the secretaries stating that care should be exercised in granting vouchers for free attendance on the dependants of soldiers and sailors to none but suitable cases had had a good effect. The new ethical rules were adopted, and the proposed reduction of notification fees was shortly discussed.

Recruiting for the Military Services.—The CHAIRMAN introduced Mr. E. B. TURNER, a member of the Central War Committee, who gave a very lucid and convincing address on the necessity of every medical man up to the age of 45 enrolling at once with the Central Medical War Committee. Any man who snatched the patients of a man away at the front would be severely dealt with. On the form of application for enrolment the applicant should give full particulars of any circumstances concerning himself that would enable the Committee to judge as to whether he should be called upon or not. If the enrolment scheme was a failure—and it would be if at least 75 per cent. did not enrol—the Government would adopt a system not so favourable perhaps to the profession. In the discussion that followed, the danger of men who had been to the war coming to a district and setting up practice where the medical men were scarce owing to entering the R.A.M.C. was mentioned. It was also pointed out that as it was impossible to sell a practice, many men were so held by financial liabilities that they could not volunteer. The possibility of drafting men from the seaside resorts to the poorer districts was suggested. When 8 or 10 guineas a week had to be paid for a locum tenent, the pay of the R.A.M.C. was not much use, especially as it was well known that a locum tenent never did as much as the principal. Dr. Selborne Bailey and Dr. W. P. Miles were selected to represent the Local War Committee in London on March 22nd. A hearty vote of thanks was accorded to Mr. Turner for his address and useful advice. As half of those present were of military age his journey was sure to bear fruit.

The Insurance Acts.—A discussion on the Insurance Acts was initiated by Drs. Henderson, Selborne Bailey and Larking. It was calculated that the Commissioners, by keeping back the balances, were making £12,000 a year interest. The deductions for enlistments were out of all proportion to the necessities of the case. The Insurance Committees wrote to the societies and told them that if they did not inform them at once when a man enlisted they would be liable for medical benefit; then they wrote to the doctors and told them they could not pay them because the societies did not notify them. Why, it was asked, was 75 per cent. kept back for temporary residents? The excessive cost of drugs was also referred to. Country practitioners who dispensed their own medicines were hard hit. Finally, the following resolution was passed:

That this meeting asks the British Medical Association to bring before the notice of the Government the advisability of guaranteeing protection to any firm that is willing to lay down plant to manufacture drugs and chemicals that were made in Germany before the war.

Tea was provided and the meeting was one of the most successful ever held in the Division.

BORDER BRANCH, SOUTH AFRICA.

THE following officers were elected at the yearly meeting of the Branch held at the East London Club on January 21st:—*President for 1917:* Dr. Lownds. *Honorary Secretary and Treasurer:* Dr. Anderson. *Committee:* Drs. Alexander, Brownlee, Bruce-Bays, Byrne, Ganteaume, Grant, Hill, MacGregor, Nangle, Nicol, Sutton, and Uppleby. The meeting expressed its regret at the temporary loss of Dr. Hill's invaluable services as secretary consequent upon his leaving for the East African seat of war. The suggestion of the South African Committee that the Branches should pay the expenses of their representatives attending the meetings of the Committee was negatived.

CAPE OF GOOD HOPE: EASTERN PROVINCE BRANCH.

At a meeting of the Branch on March 3rd, held under the chairmanship of Dr. F. A. SAUNDERS, the following officers were elected:

President: Dr. R. T. Harrison.
President-elect: Dr. H. Bell Walker.
Secretary and Treasurer: Dr. E. G. Dru Drury.
Council: Dr. A. Cowper, Dr. R. C. Mullins, Dr. A. J. Tea, Dr. F. A. Saunders, Dr. A. Gooding (Adelaide), Dr. P. B. Grenfell (Alexandria), Dr. J. M. Beyers (Somerset East), Dr. F. W. Hayes (Aliceale).
Central Council Representative: Dr. T. D. Greenlees.

Contagious Abortion in Cattle.—Mr. WM. ROBERTSON read a paper on haemolysins, with special reference to contagious abortion in cattle. The method of showing complement fixation was shown by the aid of diagrams, and also experimentally; the actual haemolysis, which is the crucial stage in the test, was actually effected in the incubator during the course of the evening. In the discussion which followed, Drs. SAUNDERS, PURVIS, LEA, and DRURY took part. A hearty vote of thanks was accorded to Mr. Robertson for allowing the meeting to be held in the Veterinary Laboratory.

INSURANCE.

LOCAL MEDICAL AND PANEL COMMITTEES.

LIVERPOOL.

At a meeting of the Panel Committee on March 14th the question of the delay in the settlement of the 1914 accounts was again considered, and it was decided that a letter be sent to the Insurance Committee protesting against the delay and urging that an early settlement be effected.

BIRMINGHAM.

At a meeting of the Panel Committee on March 14th it was announced that the final settlement for 1914, together with payments already made, would bring the total received by practitioners to over 95 per cent. of the full credit. A subcommittee was appointed to discuss with the representatives of the Insurance Committee the question of persons acting for panel practitioners being required to sign an agreement with the Insurance Committee similar to that entered into by panel practitioners.

It was agreed that in future a month's notice should be given to pharmacists and the Insurance Committee when alterations were proposed to be made in any of the Insurance Pharmacopoeia formulæ, and that such take effect from the first of the month.

At a meeting of the Panel Committee on April 4th it was decided to draw the attention of the Commissioners (1) to the fact that in nearly all occupations extra payments are made on the ground of increasing expenses which also affect the medical practitioner, and to ask that some such special allowance be made to panel doctors; (2) to the action of agents of some approved societies who require practitioners to see patients on the date upon which the certificate for incapacity is given, and who will not accept certificates given less frequently than weekly in chronic cases.

SOUTHAMPTON.

At a meeting of the Panel Committee on March 28th it was decided that it was not advisable to hold a conference of Local Medical and Panel Committees this year in London. A payment in advance on account, calculated on the basis of 1s. 2d. in respect of each insured person on the doctors' lists, was approved. It was decided to pay to the clerk to the Insurance Committee for his services in collecting the expenses of the Panel Committee for 1915 and for 1914 a fee of £4 4s. for each year.

COUNTY OF SOMERSET.

At a meeting of the Local Medical and Panel Committees on March 23rd great dissatisfaction was expressed that the final payment for 1914 had not been received.

It was reported that some seventy doctors in Somerset had now joined the R.A.M.C.

Difficulties which had arisen in regard to acceptance by deputies of patients whose place of residence was distant more than three miles from the deputy's surgery were considered. In one case it was decided that patients might be accepted on the understanding that mileage might be paid as if they had been allocated; and in a second case, where the patients of a doctor who had

resigned from the panel had applied for medical attendance to another doctor in the district, it was decided that these patients should be held to have come on the panel of the new doctor as from the middle of the current quarter instead of the commencement of the following quarter.

BUCKS.

At a meeting of the Local Medical and Panel Committee on February 25th it was decided to support the holding of a conference of Local Medical and Panel Committees in London this year, as it was considered essential to hear the views from Committees all over the country with regard to the large deductions. It was decided to write to the Insurance Committee giving reasons why the proposed deduction of 30 per cent. from the amounts claimed by doctors this quarter was unjust and unreasonable, and pointing out that interest should be paid on the amount deducted.

ISLE OF ELY.

At a meeting of the Local Medical and Panel Committee on February 10th it was resolved to continue the use of the term "Rep. mist." during the same month only of the original prescription. It was resolved to ask the Commissioners for an increased grant for 1915 in respect of mileage, and to distribute the grant for 1915 in accordance with the 1916 scheme.

CORRESPONDENCE.

SURCHARGES.

Dr. R. G. McGOWAN, Honorary Secretary Manchester Medical (and Panel) Committee, writes: The letter from Dr. Alex. G. Fraser, published in the SUPPLEMENT of April 1st, p. 59, seems to me to require the mention of some additional facts before your readers are able to form any useful opinion on the subject in question.

In this area the averages mentioned by Dr. Fraser—namely, the cost per script, the number of scripts per patient, and the monthly cost per patient—are worked out by the staff of the Insurance Committee for the doctors on the list as a body, and for each doctor separately. These averages are considered by the Pharmaceutical Committee, and any excess of any individual average over the general average for the area is made the subject of a representation to the Panel Committee of extravagant prescribing to the amount of such excess. The Insurance Committee, to protect themselves financially, withhold from payment all sums which are the subject of such representations until the matter has been finally dealt with according to regulations. The Panel Committee, in making their required investigation, do so in each case on its merits, examining prescriptions and prescriber before making their report. The fact that should be made especially clear is that the averages mentioned are taken by the Panel Committee as a basis for investigation and not as a basis for surcharge.

A further point of some importance is that up to the present no surcharge whatever has been made for 1915. The Panel Committee have considered representations made with regard to the first quarter of 1915 but have not yet formulated any report thereon.

In conclusion, I would state that this letter is not intended to criticize in any way the views and opinions that Dr. Fraser has formed, but as a statement of certain facts that may help your readers to assess the value of those opinions.

CLERICAL WORK AND WAR WORK.

Dr. T. M. CALLENDER (Slidcup) writes: I notice that Dr. M. S. Harford, in his letter in the SUPPLEMENT of April 8th, alluding to my suggestion of the abolition of record cards during war time, says: "To work a practice without keeping any record of cases must seem to be a most haphazard proceeding." With this I quite agree, but I presume that Dr. Harford parts with his record cards annually, and if he does not keep separate notes of his cases he will have no records remaining. I, like surely most practitioners, keep a visiting list book, in which all my visits are entered, and can be consulted years after if necessary. I could not do this, nor could I carry on my practice satisfactorily, were I dependent entirely upon record cards, which are disposed of annually. I hold strongly that everything should be done at present to relieve the medical profession of superfluous work, and it would be a great relief to the practitioners helping to do the work of their friends who have joined the R.A.M.C. to know that it would be unnecessary at least during the war to keep record cards of their insured patients.

NOTIFICATION FEES.

Dr. E. E. N. SURRIDGE (Knutsford) writes: I am rather surprised that the proposed reduction of the fee for the notification of infectious diseases from 2s. 6d. to 1s. has received so little notice from the profession. It will, of course, only affect those engaged in general practice, who are the poorer members of the profession. It is a piece of meanness which is difficult to

understand when Cabinet Ministers and members of Parliament continue to draw their salaries without reduction. The State requires certain information, which it cannot obtain from any one else, and in this it differs from the Early Notification of Births Act, where the notification can be made by the parents or other persons in the house. For this information it has been accustomed to pay a certain fee, and as money is now, owing to the depreciation of the purchasing power of the sovereign, of less value, it ought rather to pay an increased than a reduced fee for that information. Medical practitioners are heavily taxed owing to the rise in price of spirit, drugs, petrol, and licences, and are certainly deserving of every consideration, as a very large number of those in private practice are doing a great deal of gratuitous work for the country at the present time. Moreover, if the fee is to be reduced, the penalty for failure to notify should also be reduced.

Naval and Military Appointments.

ROYAL NAVAL MEDICAL SERVICE.

The following appointments are announced by the Admiralty: Deputy Surgeon-General O. W. Andrews, M.B., to the *Pembroke*, additional, for East London Recruiting District. Fleet Surgeons A. Woollcombe to the *Hindustan*; S. T. Reid to the *Vivid*, additional; P. H. M. Star to the *Columbine*, additional, for Queensferry Sick Quarters; R. A. Ross to the *Conqueror*; E. S. Miller, M.B., to the *Edmont*, additional, for Malta Hospital; G. M. Levick to the *Antrim*; J. E. Coad, M.B., to the *Supero*; H. Hunt to the *Vivid*, additional, for disposal. Surgeon J. A. O'Flynn, M.B., to the *Edmont*, additional, for Malta Hospital. Temporary Surgeons H. W. S. out to R.M. Division, Chatham (sent temporarily); J. Pratt to the *Dreadnought*; J. Rothwell to the *Victory*; T. C. Russell to the *Excellent*, vice Brownfield; D. M. P. Whitehouse, M.B., to the *Lord Nelson*, vice Barras; E. B. Kelley, M.B., to the *Victory*, additional, for Haslar Hospital.

ROYAL NAVAL VOLUNTEER RESERVE.

To be Surgeon Probationers: E. J. Edward, G. H. Ward, J. L. Wilson, W. H. Evans, T. O. McKenzie, F. N. V. Dyer, J. Ryan, E. V. Cory, W. G. Robson, J. W. C. Fairweather, A. L. Strachan, K. M. Purves, F. C. H. Brown, J. V. Mainprize, A. H. J. Smart, O. S. Thompson.

ARMY MEDICAL SERVICE.

ROYAL ARMY MEDICAL CORPS.

Major (temporary Lieutenant-Colonel) S. E. Lewis, M.B., relinquishes his temporary rank on ceasing to command a field ambulance.

Majors to be temporary Lieutenant-Colonels whilst commanding casualty clearing stations: W. D. C. Kelly, M.B., D. L. Harding, D. O., F.R.C.S.I., R. F. Ellery.

The following are granted temporary rank whilst commanding field ambulances:—As Lieutenant-Colonel: Brevet Lieutenant Colonel F. G. FitzGerald, Majors B. F. Wingate, M. F. Grant, M.D., G. H. Richard, J. Fairbairn, M.B., Wm. B. Sparkes, J. G. Bell, M.B. As Major: Captain W. E. Marshall, M.B.

Temporary Majors to be temporary Lieutenant-Colonels: A. Lingard, M.B., W. T. Prout, C.M.G., M.B.

Major (temporary Lieutenant-Colonel) T. S. Dudding relinquishes his temporary rank on ceasing to command a field ambulance.

Temporary Major E. W. H. Groves, M.D., F.R.C.S. (Captain R.A.M.C.T.F.), relinquishes his temporary commission.

Temporary Captains E. W. Archer, M.B., and H. B. Maunsell relinquish their commissions.

Temporary Captain W. P. Hogg, M.B., relinquishes his commission on appointment to the I.M.S.

Captain W. R. O'Farrell is restored to the establishment.

The Christian names of temporary Captain John Richard Menzies Whigham, M.B., are as now described, and not as in the *London Gazette* of October 14th, 1915.

Temporary Captain E. W. Archer, M.B., relinquishes his commission.

Temporary Lieutenants to be temporary Captains: O. O'Brien, M.D., W. Garton, E. S. Moorhead, M.B., G. C. Metcalfe, A. Riley, M.B., H. A. Haig, M.B., A. W. Matthew, H. T. L. Roberts, A. M. Pryce, M.B., F. W. Wesley, M.D., G. A. Birnie, M.B., W. C. C. Kirkwood, M.B., J. H. Wilkinson, E. H. Baines, F.R.C.S., J. A. D. Radcliffe, M.B., L. D. Shaw, M.B., W. W. Scott, M.B., A. J. A. Peters, T. G. Brown, M.D., R. Slaney, C. F. Drew, M.B., W. T. Smith, M.B., A. MacKintosh, M.B., T. Ferguson, M.B., C. J. Scholtz, B. W. Gouin, O. S. Kellett, W. E. P. Phillips, F. S. Turner, M. J. Fraser, M.D., H. Owen, M.B., H. R. Brown, M.D., J. R. Mitchell, M.B., H. Dyer, F.R.C.S.E., W. A. Rees, E. Rogerson, M.B., H. B. Lucas, M.B., W. H. Godby, M.B., N. E. Packer, M.B., C. O. Donovan, M.B., R. B. Carter, M.B., E. P. Blanski, M.B., J. L. Digby, M.B., N. McCa. Gregg, M.B., N. W. Broughton, M.B., S. W. G. Lattell, M.B., C. Farraridge, M.B., A. W. Raymond, M.B., W. H. Allen, M.D., T. J. J. Curran, M.D., F. A. L'Estrange, M.B., H. Dudley, J. M. McLachlan, H. R. Souper, M.B., C. Burnham, M.B., H. E. Clutterbuck, M.D., F.R.C.S.E., S. Williams, R. F. Pearce, W. N. Soden, M.D., J. W. Robertson, M.D., N. Smith, J. B. Hunter, A. Renshaw, M.B., H. J. Penny, M.B., J. J. O'Neill, M.B., B. W. Wiberley, M.B., T. F. Noble, M.D., G. R. Pennant, A. R. Quinn, M.B., A. R. Finn, M.D., F.R.C.S., T. H. Whittington, M.D., H. D. H. Willis-Bund, T. H. Agnew, T. W. David, G. W. Perry, R. S. Morshead, M.B., G. M. C. Powell, G. W. FitzHenry.

J. R. Currie, M.D., to be temporary Captain. The Christian name of temporary Lieutenant Hadya Peters is as now described, and not as in the *London Gazette* of March 3rd, 1915.

Temporary Lieutenants relinquish their commissions: C. R. Wright, L. E. G. de Glanville, R. S. Vivian, M.B., J. W. Farrar, M.B., D. F. Finley, M.B., L. B. Daly, M.B., T. C. East, M.D., E. N. Thomson, M.B., J. B. Wortable, M.B., H. H. B. Bayley, L. W. K. Scargill, M.B., A. E. Goldie, M.B., N. D. Mackay, M.D., E. H. Kenny, K. G. Colquhoun, M.B., C. T. Stephen, M.B., H. O. Colville, M.B., A. Pryde, M.B., F. W. Harrowell, M.B., S. Caplan, F. A. M. Green, M.D., J. A. Brown, M.D., H. J. Moon, L. M. Piggott, M.B., E. Greene, M.D.

Temporary Honorary Lieutenants to be temporary Lieutenants: W. H. Marshall, E. I. Davies.

Temporary Lieutenant C. O. Hamilton, M.D., is dismissed the service by sentence of a general court-martial.

To be temporary Lieutenants: G. E. Dodson, W. J. May, M.B., G. B. King, J. N. Glaister, W. A. Curry, M.D., F.R.C.S., D. S. Taylor, V. Wallace, W. J. Tulloch, M.D., C. J. McCarthy, M.B., C. Cairnie,

M.B., W. K. Bell, C. V. Kebbelle, R. Orr, M.B., C. M. Eadie, M.B., D. Rees, W. F. Cornwall, M.B.
V. R. Hirsch to be temporary honorary Lieutenant.

SPECIAL RESERVE OF OFFICERS.

ROYAL ARMY MEDICAL CORPS.

Captain G. V. Stockdale, M.B., to be temporary Major whilst commanding a field ambulance.
Captain C. Lovell, M.D., to be temporary Major whilst commanding a field ambulance.

Captain (temporary Major) H. G. Traylor, M.B., relinquishes his temporary rank on ceasing to command a field ambulance.

To be Lieutenants on probation: Cadet Sergeant-Major G. Morris, M.B., Cadet Sergeant J. A. Crawford, M.B., Lance-Corporals W. H. Ferguson, M.B., and H. D. Wright, M.B., and K. W. Brown, M.B., from the Edinburgh University Contingent O.T.C.

Temporary Lieutenant O. D. Price, M.B., from the R.A.M.C., to be Lieutenant.

Ex-Cadet Sergeant E. W. Mann, M.B., Belfast University Contingent, Officers' Training Corps, to be Lieutenant on probation (substituted for notice in the *London Gazette* of February 18th, 1915).

OVERSEAS CONTINGENTS.

CANADIAN ARMY MEDICAL CORPS.

Major C. P. Templeton to be temporary Lieutenant-Colonel.
A. P. Chown to be temporary Captain.

TERRITORIAL FORCE.

ARMY MEDICAL SERVICE.

Lieutenant-Colonel A. D. Sharp, F.R.C.S., from West Riding Field Ambulance, to be Assistant Director Medical Services, West Riding Division, with the temporary rank of Colonel.

Lieutenant-Colonel D. Smart, M.B., from the Sanitary Service, to be Assistant Director Medical Services, West Lancashire Division, with the temporary rank of Colonel.

Lieutenant-Colonel L. J. Blandford, M.D., from the Sanitary Service, to be Assistant Director Medical Services, 1st Mounted Division, with the temporary rank of Colonel.

ROYAL ARMY MEDICAL CORPS.

London Sanitary Company.—Lieutenants A. M. Brown, M.B., to be Captain; D. J. Peebles, M.B., to be Lieutenant.

South Midland Casualty Clearing Station.—Captain E. Whichells, M.B., from South Midland Field Ambulance, to be Captain.

South Wales Mounted Brigade Field Ambulance.—J. O. Cuthbertson, M.B., to be Lieutenant.

Southern General Hospital.—Majors to be Lieutenant-Colonels: W. Collier, M.D., B. H. A. Whitelocke, M.D., F.R.C.S. Captains to be Majors: E. C. Bevers, M.B., H. E. Counsell, F.R.C.S., J. C. R. Freeborn, A. G. Gibson, M.D., W. J. Turrell, M.D., A. T. Waterhouse, M.B.

Northumbrian Field Ambulance.—V. J. White to be Lieutenant. Attached to Units other than Medical Units.—Captain J. C. Denvir, M.B., from Yorks Mounted Brigade Field Ambulance, to be Captain; Surgeon-Major V. Graham, from Yorks L.I., to be Major; Captain W. Marley-Cass relinquishes his commission on account of ill health; Lieutenant C. W. J. Brasher to be Captain; J. S. Hopwood, M.B., to be Lieutenant.

Vacancies and Appointments.

NOTICES REGARDING APPOINTMENTS.—Attention is called to a Notice (see Index to Advertisements—Important Notice re Appointments) appearing in our advertisement columns, giving particulars of vacancies as to which inquiries should be made before application.

VACANCIES.

BRISTOL GENERAL HOSPITAL.—House-Physician. Salary, £175 per annum.

BRISTOL ROYAL INFIRMARY.—(1) House-Physicians; (2) House-Surgeons. Salary, £100 per annum in each case.

BURNLEY: VICTORIA HOSPITAL.—Lady House-Surgeon. Salary, £160 per annum.

DURY INFIRMARY.—Senior House-Surgeon. Salary, £250 per annum.

CAMBRIDGESHIRE ASYLUM, Fulbourn.—Junior Assistant Medical Officer. Salary, £200 per annum, rising to £250.

CHESTERFIELD AND NORTH DERBYSHIRE HOSPITAL.—Second House-Surgeon. Salary, £150 per annum.

DERBYSHIRE ROYAL INFIRMARY.—House-Physician and Casualty Officer. Salary, £200 per annum.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton, S.W.—House-Physician. Honorarium, 30 guineas for six months.

HUDDERSFIELD ROYAL INFIRMARY.—Junior House-Surgeon. Salary, £100 per annum.

KING EDWARD MEMORIAL HOSPITAL, W.—Resident Medical Officer. Salary, £100 per annum.

LEEDS PUBLIC DISPENSARY.—Lady Resident Medical Officer. Salary, £130.

LONDON HOSPITAL, E.—Two vacancies on Assistant Obstetric Staff.

LONDON TEMPERANCE HOSPITAL, Hampstead Road, N.W.—Assistant House-Surgeon (non-resident). Honorarium, 120 guineas a year.

MANCHESTER NORTHERN HOSPITAL FOR WOMEN AND CHILDREN.—Lady House-Surgeon. Salary, £120 per annum.

MANCHESTER ROYAL INFIRMARY.—(1) Resident Medical Officer, (2) Resident Surgical Officer, (3) Assistant Resident Surgical Officer, (4) Accident Room House-Surgeon, (5) Resident Medical Officer to the Central Branch. Salary for (1) and (2) £225 per annum, and for (3), (4), and (5), £200 per annum.

NORTHAMPTON EDUCATION COMMITTEE.—Dental Surgeon. Salary, £250 per annum, rising to £300.

NORTHAMPTON GENERAL HOSPITAL.—Two House Surgeons. Salary, £150 per annum.

PUTNEY HOSPITAL, S.W.—Resident Medical Officer. Salary, £150 per annum.

ROCHESTER: ST. BARTHOLOMEW'S HOSPITAL.—Senior Resident House-Surgeon. Salary, £300 per annum.

SALISBURY GENERAL INFIRMARY.—Assistant House-Surgeon. Salary, £100 per annum.

SHEFFIELD: JESSOP HOSPITAL FOR WOMEN.—Junior Lady House-Surgeon. Salary, £80 per annum.

SHEFFIELD ROYAL INFIRMARY.—House-Physician. Salary, £120 per annum.

SHREWSBURY DISPENSARY.—Medical Officer.

SOUTHAMPTON: FREE EYE HOSPITAL.—House-Surgeon. Salary, £100 per annum.

TOXTETH PARK TOWNSHIP.—Assistant Resident Medical Officer of the Poor Law Institution and Infirmary. Salary, £300 per annum.

WARWICKSHIRE AND COVENTRY JOINT COMMITTEE FOR TUBERCULOSIS.—Resident Medical Officer for Brancote Sanatorium, near Nuneaton. Salary, £250 per annum.

WATERLOO-WITH-SEAFORTH URBAN DISTRICT COUNCIL.—Medical Officer of Health and School Medical Officer. Salary, £130 and £100 per annum respectively.

WINCHESTER: ROYAL HAMPSHIRE COUNTY HOSPITAL.—Female Assistant House-Surgeon. Salary, £100 per annum.

WINSLEY SANATORIUM, near Bath.—Assistant Resident Medical Officer. Salary, £250 per annum.

CERTIFYING FACTORY SURGEONS.—The Chief Inspector of Factories announces the following vacant appointments: St. Faith's (Norfolk).

To ensure notice in this column—which is compiled from our advertisement columns, where full particulars will be found—it is necessary that advertisements should be received not later than the first post on Wednesday morning. Persons interested should refer also to the Index to Advertisements which follows the Table of Contents in the JOURNAL.

APPOINTMENTS.

ARCHER, E. W., L.M.S.S.A., District Medical Officer of the Pockington and Flaxton Out-Relief Unions.

GOTHELE, H. E., M.B.C.S., L.R.C.P., District Medical Officer of the Newton Abbot Union.

JOYCE, H. W., L.S.A., District Medical Officer of the Mansfield Union.

MAINS, J. H., L.R.C.P.Lond., Certifying Factory Surgeon for the Clackmannan District, co. Clackmannan.

MEYNELL, J. L., M.R.C.S., L.R.C.P., District Medical Officer of the Lexden and Winstree Union.

PROCTOR, S. P. P., M.B., Ch.B.Edin., District Medical Officer of the Chesterfield Union.

RYLAND, A., Captain R.A.M.C., F.R.C.S.E., Specialist in Oto-laryngology at the Cambridge Hospital, Aldershot.

TIBBLES, W., L.R.C.P.Edin., M.R.C.S.Eng., District Medical Officer of the Nottingham Parish.

TURNER, William, M.B., F.R.C.S., Surgeon to In-patients to Westminster Hospital.

WARRACK, J. S., M.D.Aberd., D.P.H.Camb., Deputy Medical Officer of Health for the Port of London.

BIRTHS, MARRIAGES, AND DEATHS.

The charge for inserting announcements of Births, Marriages, and Deaths is 5s., which sum should be forwarded in Post Office Orders or Stamps with the notice not later than the first post on Wednesday morning in order to ensure insertion in the current issue.

BIRTHS.

LYOYD-EVANS.—On March 31st at Tenbury, Worcestershire, the wife of V. Lloyd-Evans, M.B., F.R.C.S.E. (née Gwendolen Irene Pockett), of a son.

TYLOR.—At Beecher's, Oxted, on April 6th, the wife of Christopher Tylor, M.D.Camb., of a daughter.

MARRIAGE.

CLEGG—BROWN.—On April 7th, at Graco Hill Wesleyan Church, Folkestone, Sydney James Clegg, M.D., D.P.H., Captain R.A.M.C.T., younger son of Mr. and Mrs. Clegg, Norwood, Swinton, Manchester, to Janette MacMillan, youngest daughter of the late David Brown of Netherley, Stonehaven.

DEATH.

BRICE.—On April 5th, at Swansea, Major Ernest Brice, R.A.M.C., M.R.C.S., aged 52.

DIARY OF THE ASSOCIATION.

Date.	Meetings to be Held.
APRIL.	
14 Fri.	London: Executive Subcommittee of Central Medical War Committee, 3.15 p.m.
15 Sat.	London: Stewart Prize Subcommittee, 10 a.m. London: Science Committee, 10.30 a.m.
18 Tues.	London: Insurance Acts Committee, 2 p.m.
19 Wed.	London: Finance Committee, 2 p.m.
26 Wed.	London: Council Meeting, 11 a.m.
MAY.	
15 Mon.	Leinster Branch, Annual Meeting, Dublin, 4.30 p.m.

SUPPLEMENT

TO THE

BRITISH MEDICAL JOURNAL.

LONDON: SATURDAY, APRIL 22ND, 1916.

CONTENTS.

	PAGE		PAGE
THE REDUCTION OF NOTIFICATION FEES	69	INSURANCE:	
ASSOCIATION INTELLIGENCE:		TUBERCULOSIS ADMINISTRATION: SANATORIUM BENEFIT IN	
MEETING OF COUNCIL	70	DEVONSHIRE; HOME AND DISPENSARY TREATMENT	69
MEETINGS OF BRANCHES AND DIVISIONS	70	NON-PANEL DOCTORS AND NATIONAL INSURANCE CERTIFI-	
WORK FOR ABSENT COLLEAGUES: ADVICE AS TO LOCAL		CATES	70
ARRANGEMENTS	71	LOCAL MEDICAL AND PANEL COMMITTEES...	70
NAVAL AND MILITARY APPOINTMENTS	71	PARLIAMENTARY NOTES...	70
VACANCIES AND APPOINTMENTS	71	DIARY FOR THE WEEK	72
BIRTHS, MARRIAGES, AND DEATHS	72	DIARY OF THE ASSOCIATION	72

THE REDUCTION OF NOTIFICATION FEES.

THE greatest dissatisfaction is being widely expressed in the whole of the Manchester district at the decision of the Government to reduce the fees for the notification of infectious diseases. At a time when salaries and wages in other directions are being so generally increased, when medical men are so freely giving their services in numerous directions, carrying on the practices of their colleagues, in many cases without any remuneration or at the most only receiving about half the ordinary fees, simply to enable the military authorities to obtain an adequate supply of medical men for the forces; at a time, too, when the "good lives" of the National Insurance lists are being reduced and the "bad lives" increased, involving far more work for the same insurance fees, the action of the Government is very much resented. It is believed that it has been taken now because it was thought that for the moment the profession was not in a position to organize resistance. What makes the injustice felt more keenly is that it will affect almost entirely that class of practitioners who are the least able to bear it. The wealthier sections of the profession and the consultants, as well as medical officers of health and others holding official appointments, will hardly be in the least affected by the reduction, while general practitioners who do the worse-paid part of medical work but who are at present more than ever indispensable to the community, will have to bear the brunt almost entirely. It is being freely suggested that general practitioners should take a leaf out of the match manufacturers' book, recouping themselves by passing on to the public not only the loss but something additional. The reduction of the fees, especially at the present moment, will be remembered in the future as one of the shabbiest things the Government has done.

SIR,—Your correspondent, Dr. E. E. N. Surridge, expresses surprise that so little notice is taken of the reduction of notification fee to 1s. This action is too mean for notice. A Parliament capable of voting its members £400 a year and then cutting down a 2s. 6d. fee is not likely to be amenable to reason. When I register the birth of one of my children I pay 2s. 6d. for a certified copy of the register and 1d. for stamp on same; the gentleman who charges this has not had an expensive education. Again, when he gives a copy of one of my death certificates, to enable someone to pick up insurance money, he still gets 2s. 6d.; I give the original for nothing. When I give the 1s. notification certificate it may land me into the law courts; his 2s. 7d. copy keeps him quite safe from an action at law; he gets his 2s. 6d. clear, I find a 1d. stamp out of my 1s. Evidently the

Government thinks, because we give such a lot of free attendance to the dependants of men at the front, we do not want fees. This free attendance has got such a gigantic task, that it should at once cease; there is really no need for it now, as generally these dependants are earning good money in addition to the Government allowance. I think we have already given more than we can afford, and to meet our very heavy taxation and the reduction in pay, but not in work, of the "inade in Germany Insurance Act," let us now insist on no more free attendance.

Remember, things will be very bad after the war. Then will be the Government's chance for a State medical service. Plenty of out-of-work army surgeons to jump at anything offered.—I am, etc.,

Tipton, April 16th.

T. S. FINCH HUDSON.

SIR,—May I draw attention to the fact that, in addition to the filling up the form for infectious disease notification, we are also required in many cases to fill up a second form for removal by ambulance, and in order to ensure prompt removal of urgent cases the telephone is used for calling up the ambulance?

Half a crown may be considered an exorbitant fee, but I personally think that this is asking too much for one shilling.—I am, etc.,

Streatham, S.W., April 16th.

C. HODGSON, M.R.C.S.

INSURANCE.

TUBERCULOSIS ADMINISTRATION.

SANATORIUM BENEFIT IN DEVONSHIRE.

THE County of Devon Insurance Committee has just issued a pamphlet which purports to be a summary of its Sanatorium Benefit Register up to the end of December, 1915. Fairly full particulars are given for each of 630 cases of tuberculosis which had received treatment through the committee, though, as explained in the preface, the information given is not so complete for the earlier cases as for the later, partly because, as experience has been gained, a more comprehensive and accurate method of recording cases has been developed. At the same time it is pointed out that sufficient time has not been available under present circumstances to tabulate the information obtained in order to show it to the best advantage. Attention is also drawn to the fact that owing to the inadequacy of the funds for the treatment of insured persons, the treatment of dependants has had to be discontinued. The summary of the results shows that of the total number of 630 cases, 244 are marked as showing "improvement," 191 as "stationary," 175 "dead," and

20 have been lost sight of. Of the total number, 387 were males and 243 females. The ages varied from 16 to about 70, though more than a third of the total were between the ages of 21 and 30.

It is of course difficult to summarize to any good purpose the results of treatment in a disease of such a chronic character when the information only extends over less than four years, and when the earlier cases probably included many patients in advanced stages of the disease who had possibly received but little treatment, while the later cases are still under treatment, with doubtful results. It cannot be said that the classification adopted by the committee is of any great practical value, and, unless carefully scrutinized, very erroneous inferences might be drawn. For example, the patients are classified in consecutive hundreds according to the date when the treatment commenced; and when we find that in the first hundred there were 31 improved, 20 stationary, and 44 deaths, while in the sixth hundred there were 44 improved, 45 stationary, and only 6 deaths, it cannot for a moment be properly inferred that the later treatment is in the least respect more efficient, as sufficient time has not elapsed to determine the final results. Moreover, it is noted that the term "stationary" covers all cases still under treatment, relapses, unimprovements, and worse." Difficult as the classification may be, it cannot but lead to wrong inferences if the slightest value is given to statistics which classify as "stationary" patients who have gradually advanced into a hopeless and rapidly sinking condition, while others classified as "improved" may only have shown a very temporary improvement. In short, at the present at any rate, no argument whatever can be properly based on these statistics either against or in favour of the present system of treatment in Devonshire.

HOME AND DISPENSARY TREATMENT.

Evidence as to the practical working of the Insurance Act in respect to the treatment of tuberculosis is gradually accumulating, and several cardinal points are becoming clearly manifest. Some of these are well shown in the report recently presented to his committee by Dr. H. A. Ellis, formerly of Colgardie, and now Tuberculosis Officer to the Middlesbrough Insurance Committee. The notification of tuberculous disease in its early stages is still imperfect. A large proportion of the cases notified in any one year must have been ill for at least two years previously, and many of them appear to have died within a comparatively short period after notification. Such cases are by far the most expensive to deal with, and the money spent upon them brings no advantage to the community. It is not therefore a matter of surprise that the Middlesbrough Committee, with only limited means at its disposal, has decided to treat early cases only, and the results of such a decision are well shown in the latest statistics, which record that 50 per cent. of the cases treated during last year are in full work, although still under dispensary supervision; amongst them are several who have enlisted. His own experience leads Dr. Ellis to advocate a wide extension of home and dispensary treatment in preference to institutional treatment. The main object is to increase the resisting power of the individual, since the liability to infection is universal, and a large proportion of the population are actually infected at some period of their lives. By regulating the home life and by giving assistance when needed he is of opinion that twenty cases may be effectively dealt with at home for the same cost as one such case in a sanatorium. To cope with the great mass of advanced cases is a question of money, for some comprehensive scheme of segregation; where funds are insufficient to meet the requirements of all, it becomes necessary to look to the interests of the community in preference to those of the individual.

NON-PANEL DOCTORS AND NATIONAL INSURANCE CERTIFICATES.

In order to minimize as much as possible the inconveniences caused to doctors who attend insured persons in their private capacity, the Association has published books of certificates which, it is believed, will meet the requirements of approved societies, so far as is practicable in the case of certificates not given under the obligations of the official medical certification rules. The form of certificate is sufficiently like the official form to remove many of the difficulties which insured persons who have

been attended by private doctors have had in satisfying the requirements of their approved societies, but is sufficiently distinct from the official form to show at once that it is being used by a doctor who is attending the patient in a private capacity—that is to say, either by a doctor who is not on a panel, or by a panel doctor other than the one on whose list the insured person is.

The Association has shown the certificates to the Insurance Commissions for England, Scotland, and Wales, and they raise no objection to the issue of them by the Association to medical practitioners for use when attending insured persons not being their panel patients, and not being persons whom they are attending as medical officers of institutions under Section 15 (4), or in virtue of "own arrangements" under Section 15 (3).

The books are being issued at cost price. They contain 50 certificate forms, and may be obtained from the Financial Secretary and Business Manager, British Medical Association, 429, Strand, W.C., price 6d. each, post free.

LOCAL MEDICAL AND PANEL COMMITTEES.

NORTH TIPPERARY.

At a recent meeting of the North Tipperary Local Medical Committee Dr. B. C. Powell (Roscrea) was presented with an illuminated address and gold wrist watch by the members of the North Tipperary Medical Committee in recognition of his services as secretary of the Local Committee and its representative on the Irish Medical Committee.

A resolution was also passed thanking Dr. Thomas Hennessy, Medical Secretary, Dublin, for his services to the profession during the long drawn out negotiations for a settlement of the certification question under the Insurance Act.

INSURANCE ACT IN PARLIAMENT.

The Number of Approved Societies.—In reply to Mr. Raffan, the Chairman of the Joint Committee of Insurance Commissioners said, on April 13th, that approved societies in the United Kingdom numbered on:

January 1st, 1914	...	...	...	...	2,326
" 1st, 1915	...	...	...	...	2,124
" 1st, 1916	...	...	...	...	1,738

Exemption for Friendly Society Officials.—Captain Douglas Hall, on April 17th, asked Mr. Charles Roberts whether he could see his way to secure exemption from military service for the head secretary or other official of friendly societies with a membership of over 500 members who might be exclusively engaged in administering the Insurance Acts, with a view to avoiding the breakdown in the efficient management of the State section of these societies. Mr. Roberts said that he had given the matter very careful consideration, and while fully recognizing the necessity of avoiding a breakdown, was not satisfied that the course suggested would be the best method of effecting that object. A letter had, he said, been addressed to the approved societies advising them as to the best method to pursue in the matter.

Association Intelligence.

MEETING OF COUNCIL.

The next meeting of Council will be held on Wednesday, April 26th, in the Council Room, 429, Strand, London, W.C., at 11 a.m.

By order,

GUY ELLISTON,

Financial Secretary and Business Manager.

March 23rd, 1916.

Meetings of Branches and Divisions.

BOMBAY BRANCH.

At the annual meeting of the Branch, held in the University Library on March 9th, when Lieutenant-Colonel ASHTON STREET, I.M.S., was in the chair, it was announced that the following officers had been elected:

President: The Hon. Surgeon-General R. M. Lyons, I.M.S.

Vice-Presidents: Lieutenant-Colonel Ashton Street, I.M.S., Dr. B. Row.

Honorary Secretary and Treasurer: Mr. D. R. Bardi, F.R.C.S.I.
Members of the Branch Council: Dr. Sorab K. Nariman, Lieutenant-Colonel S. C. Evans, I.M.S., Major E. F. Gordon Tucker, I.M.S., Dr. Sorab K. Engineer, Miss A. M. Benson, M.D., Assistant Surgeon E. S. Bhaurucha.

The appointment of a Representative to the Representative Meetings was postponed.

Annual Report.—The annual report of the Branch presented to the meeting stated that five meetings, of which one was a clinical meeting, had been held, and gave particulars of the clinical cases and specimens exhibited, as well as a list of reports, etc., received.

Vote of Condolence.—A letter of condolence was directed to be sent to Mrs. Childe and her family on the death of Lieutenant-Colonel L. F. Childe, I.M.S.

Clinical Records.—It was resolved to publish a small brochure containing photographs of important cases shown at the Branch meetings during the year.

Cases.—Clinical cases were shown by Lieutenant-Colonel A. STREET, Professor F. G. BADGER, and Dr. FERNANDES.

Before the termination of the meeting the CHAIRMAN congratulated Dr. Bardi on his unanimous re-election as honorary secretary and treasurer.

BRITISH GUIANA BRANCH.

At the meeting of the Branch held at Georgetown on March 15th Dr. MILLER read a paper on surgical complications and sequelae of typhoid fever.

The following officers were elected for the year:

President: Dr. Gomes.
Vice-Presidents: Drs. von Winckler and Craigen.
Council: Drs. Wise, Ozzard, Edmonds, and Mitchell.
Auditors: Drs. Fiddian and Burton.
Honorary Secretary: Dr. F. G. Rose.

SOUTH-EASTERN OF IRELAND BRANCH.

An ordinary meeting of the Branch was held at Waterford on April 5th, when the President, Dr. QUIRKE, was in the chair.

A resolution was unanimously passed to the effect that, owing to the small membership in the Carlow Division and the difficulty experienced in getting a quorum to hold meetings, application be made to have it amalgamated with the Kilkenny Division.

On the motion of Dr. DENIS WALSH a vote of sympathy was passed with Sir Thomas Stafford, Bt., F.R.C.S., Medical Commissioner, Local Government Board, on the death of his wife, Lady Stafford.

The meeting decided to subscribe, from the private fund, £5 to Dr. Power's testimonial.

BRANCH AND DIVISION MEETINGS TO BE HELD.

LEINSTER BRANCH.—Dr. William Doolin, Acting Honorary Secretary (50, Fitzwilliam Square, Dublin), gives notice that the annual meeting of the Branch will be held at the Irish offices of the Association, 16, South Frederick Street, Dublin, on Monday, May 15th, at 4.30 p.m. Agenda: Appointment of officers. Adoption of revised organization rules and ethical rules. Receive report of financial position. Apply for supplementary grant for 1916 of such amount as the meeting may decide. Any other business.

STAFFORDSHIRE BRANCH.—Dr. Harold Hartley, Honorary General Secretary (Bastord, Stoke-on-Trent), gives notice that the third general meeting of the session will be held at the Victoria Hotel, Wolverhampton, on Thursday, April 27th, 1916, when the President, Dr. P. M. Rowland, will take the chair at 4.30 p.m. Business:—Exhibition of living cases. Papers:—(i) H. C. Maetier: Insurance Act Developments and Problems; (ii) E. H. Coleman: Tuberculin and Vaccines from the General Practitioner's Point of View. Dr. J. A. Codd: The "Coolidge Tube." Exhibition of pathological specimens, etc. Dinner at 7 p.m.; charge 5s.

WORK FOR ABSENT COLLEAGUES.

A CORRESPONDENT asks questions generally as to the conditions under which doctors remaining at home are expected to do the work of their colleagues who have joined the forces, and specifically whether any special arrangements have been made with regard to operations. We are not in a position to answer this last question, but the following document, prepared some time ago by the Central Medical War Committee, may be of general service:

Advice as to Local Arrangements.

There are three methods by which the practice of a medical man on military service can be carried on:

- (a) Neighbouring practitioners;
- (b) Locumtenents;
- (c) A bureau organized by colleagues.

In practices in which work is taken over by local men the main questions are:

Division of fees.

Restoration of patients to absentee on his return.

I.—As regards fees the best plan seems as follows:

- A. Town practices, where mileage is not an important question. An equal division of remuneration between the absentee and his representative.
- B. Combined town and country practices. As a general rule, probably a division in the proportion of three-eighths to the absentee and five-eighths to the man who does the work and pays the expenses is best.
- C. Country practices. Where the question of travelling expenses is important, at least three-fourths should be allotted to the man who does the work.

II.—Restoration of patients.

The Committee considers that the following measures should be adopted:

- A. Draw up agreements between the practitioner going on service and his local colleagues in some such form as that adopted by the Mid-Cheshire Division of the British Medical Association, namely:

I hereby promise on my word of honour that if any persons who are ordinarily patients of any medical man practising in this neighbourhood who is on active service with the Forces consult me during his absence, I will attend them for him (on the terms arranged by the Local Committee) and will refuse to act as their medical attendant on my own behalf until at least one year from my colleague's return has elapsed. Also, I will do all in my power to safeguard the absentee's interests with his patients, and to induce them to return to him when he resumes practice.

Signed
Date.....

- B. Urge those going on service to appoint a legal representative who may be consulted on their behalf during their absence.

- C. The Central Committee will be prepared to offer its services in arbitrating on any difficulty or dispute referred to it by the Local Committee.

III.—

- A. Local Committees should impress upon all local public bodies the importance of setting free any medical men of military age in their employ, while keeping their appointments open to them on their return. Arrangements for carrying on public work by means of the older practitioners in the neighbourhood should be made wherever possible.

- B. Insurance Committees should be approached in every district, in order to discourage as far as possible the transfer of patients from a doctor absent on military duty.

- C. Panel Committees should be asked to arrange that no practitioner shall take over as a panel patient any insured person on the list of a doctor absent on military service, until twelve months after the latter's return.

Naval and Military Appointments.

ROYAL NAVAL MEDICAL SERVICE.

THE following appointments are announced by the Admiralty: Fleet Surgeon J. E. Coad, M.B., to the *Pembroke*, additional, for disposal. Surgeons A. B. Clark, M.B., to R.M. Division, Chatham; M. J. Aitken, M.B., to the *Seagull*. Temporary Surgeons C. D. Hagan, M.D., to Haslar Hospital; B. H. Mice, to the *Black Prince*; A. L. Butcliffe, M.B., to the *Victory*, additional, for Haslar Hospital.

ROYAL NAVAL VOLUNTEER RESERVE.

Surgeon probationers F. H. Richards to the *Stag*, vice Prentice; H. T. Cribbon to the *Landrail*, vice Mooney; F. N. Reynolds to the *Oak*, vice Smith; J. M. Higginson to the *Lurcher*, vice Matheson; G. L. Cutts to the *Laertes*.

ARMY MEDICAL SERVICE.

ROYAL ARMY MEDICAL CORPS.

Major (temporary Lieutenant-Colonel) C. Bramhall relinquishes his temporary rank on re-posting.

Granted temporary rank whilst employed at the Northampton War Hospital:—As Lieutenant-Colonel: W. Harding, M.D. As Major: F. J. Stuart.

C. H. Benham, M.D., Captain R.A.M.C.(T.F.), to be temporary Major. A. D. Vardon, late Captain Band's Artillery Volunteers, to be temporary Captain (substituted for notice published in the *London Gazette* of October 23rd, 1915).

C. S. Young, Captain R.A.M.C.(T.F.), to be temporary Major whilst employed at the Dundee War Hospital. To be temporary Captains: H. L. Roe, M.B., late temporary Captain; temporary Captain H. C. Senon, M.D., from I.M.S.; Lieutenant (temporary Captain) A. J. R. Wright, M.B., F.R.C.S., from R.E.(T.F.). Temporary Lieutenant D. R. Campbell, M.D., relinquishes his commission on account of ill health.

Temporary Lieutenants relinquish their commissions: T. A. Brandon, M.B., W. G. S. Thomson, M.B.
Officers of the Canadian A.M.C. to be temporary Lieutenants: Captain R. H. L. O'Callaghan, M.D., Lieutenants H. B. Thompson, J. W. Kergin, M.B., W. T. Little, G. J. C. Ferrier, G. T. Griffith, E. A. Morgan, A. J. Shilstra, C. W. Walker, T. B. Brandon, M.D.
To be temporary Lieutenants: J. T. Bleasdel, A. StJohnston, G. R. Naylor, M.B., J. A. O'Dea, M.B., J. A. C. Roy, M.B., T. G. Fotherstonhaugh, M.B., R. S. Novis, E. E. Chipp, W. H. C. Romanis, M.B., F.R.C.S.

OVERSEAS CONTINGENTS.

CANADIAN ARMY MEDICAL CORPS.

R. Howey to be temporary Captain.

AUSTRALIAN ARMY MEDICAL CORPS.

Major G. B. Carter (Major, Reserve of Officers) is dismissed the service by sentence of a general court-martial.

SPECIAL RESERVE OF OFFICERS.

ROYAL ARMY MEDICAL CORPS.

Lieutenants to be Captains: J. H. C. Walker, M.B., M. B. King, M.B., R. H. Graham, M.B., A. G. Fisher, M.B., W. Hunt, M.B., C. McLi. West, M.B.

TERRITORIAL FORCE.

ROYAL ARMY MEDICAL CORPS.

Highland Field Ambulance.—Captain (temporary Major) G. Davidson, M.D., relinquishes his temporary rank on ceasing to command a field ambulance. Lieutenant J. B. Foubister to be Captain.

Lowland Field Ambulance.—J. Morham, late Captain (temporary Major Royal Scots, to be Captain.

Northern General Hospital.—Lieutenant J. Pearson, M.B., to be Captain.

East Lancashire Field Ambulance.—R. J. Chapman, M.D., to be Lieutenant.

London Field Ambulance.—Lieutenant W. M. Langdon to be Captain.

London Sanitary Company.—Captain V. P. Norman relinquishes his commission on account of ill health To be Lieutenants: J. Griffiths, Acting Sergeant-Major J. A. Andrews.

Welsh Field Ambulance.—J. T. Samuel to be Lieutenant.

Superannuation for service with the O.T.C.—W. Wright, M.B., F.R.C.S., to be Lieutenant for service with the medical unit of the University of London Contingent, Senior Division, O.T.C.

Attached to Units other than Medical Units.—Lieutenant W. W. Horton, M.D., to be Captain. Surgeon-Major E. G. Stocker, from Wessex Divisional Engineers, to be Major. Lieutenants to be Captains: H. Smith, M. B. Dawson. To be Lieutenant: W. Taylor, M.B.

TERRITORIAL FORCE RESERVE.

ROYAL ARMY MEDICAL CORPS.

Captain R. G. Willis, M.B., from West Lancashire Field Ambulance, to be Captain.

Captain W. J. C. Pitt, from the South Midland Field Ambulance, to be Captain.

Vacancies and Appointments.

NOTICES REGARDING APPOINTMENTS.—Attention is called to a Notice (see Index to Advertisements—Important Notice re Appointments) appearing in our advertisement columns, giving particulars of vacancies as to which inquiries should be made before application.

VACANCIES.

BIRMINGHAM AND MIDLAND EYE HOSPITAL.—Resident Surgical Officer. Salary from £200 to £300 per annum and £5 laundry allowance.

BRIGHTON COUNTY BOROUGH ASYLUM, Hayward's Heath.—Temporary Assistant Resident Medical Officer. Salary, 25 guineas a month.

BRISTOL ROYAL INFIRMARY.—(1) House-Physicians; (2) House-Surgeons. Salary, £100 per annum in each case.

BURNLEY: VICTORIA HOSPITAL.—Lady House-Surgeon. Salary, £160 per annum.

BURY INFIRMARY.—Senior House-Surgeon. Salary, £250 per annum.

CHESTERFIELD AND NORTH DERBYSHIRE HOSPITAL.—Second House-Surgeon. Salary, £150 per annum.

FEDERATED MALAY STATES.—Assistant Superintendent of the Government Central Lunatic Asylum. Salary, £400 per annum, rising to £600.

FEDERATED MALAY STATES GOVERNMENT.—Lady Medical Officer. Salary to commence, £350 first year and allowances.

HUDDERSFIELD ROYAL INFIRMARY.—Junior House-Surgeon. Salary, £100 per annum.

KING EDWARD MEMORIAL HOSPITAL, W.—Resident Medical Officer. Salary, £100 per annum.

LEEDS PUBLIC DISPENSARY.—Lady Resident Medical Officer. Salary, £130.

MANCHESTER NORTHERN HOSPITAL FOR WOMEN AND CHILDREN.—Lady House-Surgeon. Salary, £120 per annum.

MANCHESTER ROYAL INFIRMARY.—(1) Resident Medical Officer. (2) Resident Surgical Officer. (3) Assistant Resident Surgical Officer. (4) Accident Room House-Surgeon. (5) Resident Medical Officer to the Central Branch. Salary for (1) and (2), £225 per annum, and for (3), (4), and (5), £200 per annum.

NEW HOSPITAL FOR WOMEN, Euston Road, N.W.—Temporary Assistant Surgeon (female).

FUTNEY HOSPITAL, S.W.—Resident Medical Officer. Salary, £150 per annum.

ROCHESTER: ST. BARTHOLOMEW'S HOSPITAL.—Senior Resident House-Surgeon. Salary, £300 per annum.

SALISBURY GENERAL INFIRMARY.—Assistant House-Surgeon. Salary, £100 per annum.

SCHIFF HOME OF RECOVERY, Knowle Hill Park, Cobham.—Resident Surgical Officer. Salary, £200 per annum.

SHEFFIELD ROYAL INFIRMARY.—House-Physician. Salary, £120 per annum.

SOUTHAMPTON: FREE EYE HOSPITAL.—House-Surgeon. Salary, £100 per annum.

VENTNOR: ROYAL NATIONAL HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST.—Assistant Resident Medical Officer.

WINSLEY SANATORIUM, near Bath.—Assistant Resident Medical Officer. Salary, £250 per annum.

CERTIFYING FACTORY SURGEONS.—The Chief Inspector of Factories announces the following vacant appointment: Acle (Norfolk).

To ensure notice in this column—which is compiled from our advertisement columns, where full particulars will be found—it is necessary that advertisements should be received not later than the first post on Wednesday morning. Persons interested should refer also to the Index to Advertisements which follows the Table of Contents in the JOURNAL.

APPOINTMENTS.

DAVIES, W. F. L., M.R.C.S., L.R.C.P., District Medical Officer of the Newtown and Llanidloes Union.

ERSKINE, W. J. A., M.D., Edin., Medical Superintendent of the Isle of Wight Asylum, Newport.

FABRE, B. T., M.R.C.S., L.S.A., Certifying Factory Surgeon for the Brighouse District, co. Yorks.

MACKENZIE, Miss Rachel E. W., M.B. Lond., D.P.H. Oxon., part-time Medical Officer to the Tottenham Urban District Council.

PALMER, A. S. M., M.D. Camb., Medical Officer of the Convalescent Home, Worthing, of the Kingston (Surrey) Union.

SMITH, J. H., M.B., C.M. Edin., Medical Officer of the Institutions and First District of the Stockport Union.

EDINBURGH ROYAL INFIRMARY.—The following appointments have been made:—Resident Physicians: C. E. Hill, M.B., Ch.B., to Professor Sir T. R. Fraser; Adam Prentice, to Professor Russell; Robert Crawford, M.B., Ch.B., to Dr. Boyd; J. M'Auslin, to Dr. Fleming; and C. E. Blair, M.B., Ch.B., to Dr. Kainy. Resident Surgeons: W. A. Mein, to Mr. Cathcart; Alexander Cleland, M.B., Ch.B., to Mr. Hodsdon; E. O. A. Singer, to Mr. Scot Skirving; C. B. C. Anderson, Gerald W. Grant, R. D. Cameron, to surgical outpatient department, per Mr. Jardine; and A. Keith Gibson, to Dr. Barbour. Clinical Assistants: A. Campbell, M.B., E. D. Daiziel Dickson, and J. MacLean, M.B. Toronto, to Dr. Logan Turner.

BIRTHS, MARRIAGES, AND DEATHS.

The charge for inserting announcements of Births, Marriages, and Deaths is 5s., which sum should be forwarded in Post Office Orders or Stamps with the notice not later than the first post on Wednesday morning in order to ensure insertion in the current issue.

BIRTHS.

TATE.—On April 11th, at Hill House, Stamfordham, Newcastle-on-Tyne, the wife of Ed. Tate, M.D., of a son.

WARD.—On April 17th, at Withycombe Lodge, Torquay Road, Paignton, to Dr. and Mrs. Ward a daughter.

DEATH.

DONALDSON.—On April 7th, at his residence, 23, Eaton Square, Terenure, co. Dublin, Robert Donaldson, M.R.C.S. Eng., J.P., late of Fort Hill, Castle Shane, co. Monaghan.

DIARY FOR THE WEEK.

WEDNESDAY.

HUNTERIAN SOCIETY, 1, Wimpole Street, W., 8.30 p.m.—Annual general meeting.

POST-GRADUATE COURSES AND LECTURES.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.

THE POST-GRADUATE COLLEGE, West London Hospital, Hammersmith, W.—Clinical work; graduates only.

DIARY OF THE ASSOCIATION.

Date. Meetings to be Held.

APRIL.

26 Wed. London: Council Meeting, 11 a.m.

27 Thur. Staffordshire Branch, Victoria Hotel, Wolverhampton, 4.30 p.m.: Dinner, 7 p.m.

28 Fri. London: Executive Subcommittee of Central Medical War Committee, 2.15 p.m.

MAY.

3 Wed. London: Central Medical War Committee, 2 p.m.

15 Mon. Leinster Branch, Annual Meeting, Dublin, 4.30 p.m.

SUPPLEMENT

TO THE

BRITISH MEDICAL JOURNAL.

LONDON: SATURDAY, APRIL 29TH, 1916.

CONTENTS.

	PAGE		PAGE
A RETROSPECT OF THE FINANCES OF THE BRITISH MEDICAL ASSOCIATION	73	NAVAL AND MILITARY APPOINTMENTS	75
REDUCTION OF NOTIFICATION FEES: LETTER FROM THE EDINBURGH BRANCH TO MEMBERS OF PARLIAMENT	75	VACANCIES AND APPOINTMENTS	76
INSURANCE: APPROVED SOCIETIES AND IRISH DOCTORS... ..	75	BIRTHS, MARRIAGES, AND DEATHS	76
		DIARY FOR THE WEEK	76
		DIARY OF THE ASSOCIATION	76

SPECIAL NOTICE TO MEMBERS.

Every member is requested to preserve this "Supplement," which contains matters specially referred to Divisions, until the subjects have been discussed by the Division to which he belongs.

BY ORDER.

MATTERS REFERRED TO DIVISIONS.

A RETROSPECT OF THE FINANCES OF THE ASSOCIATION.

The Finance Committee presented the following report (prepared at its request by the Treasurer and Financial Secretary) to the meeting of the Council on April 26th:

GENERAL FINANCIAL MOVEMENTS, 1906-15.

(1) The Treasurer and the Financial Secretary and Business Manager, in submitting their report, have taken the period 1906 to 1915, both years inclusive. This period of ten years covers the time prior to the demolition of the old building and the erection of the new premises, includes the period of the heavy expenditure the Association had to face in connexion with the introduction and passing into law of the National Insurance Act, the raising of the subscription, and seventeen months of war conditions.

(2) The following tabulated statement presents a chronological record respectively of receipts and expenditure throughout the decade, the progress of the bank overdraft and other borrowings, and the total surplus assets:

Year.	Income.	Add from Insurance Defence Fund.	Expenditure.	Excess Income over Expenditure.	Excess Expenditure over Income.	Bank Overdraft.	Other Loans.	Loan Interest.	Surplus Assets.
1906	£ 52,002	—	£ 50,616	£ 1,385	—	Nil	Nil	Nil	103,644
1907	52,520	—	51,201	1,319	—	12,228	—	158	104,090
1908	53,487	—	52,754	732	—	40,468	—	963	103,814
1909	55,614	—	54,618	995	—	43,754	—	1,607	104,199
1910	59,472	—	57,377	2,094	—	44,150	—	1,665	106,294
1911	61,484	6,446	67,772	207	—	46,150	—	1,613	106,501
1912	65,912	7,054	81,800	—	8,834	49,500	—	1,815	97,667
1913	65,644	—	69,721	—	4,076	45,000	10,500	2,244	93,590
1914	74,844	—	59,548	15,296	—	31,500	10,100	1,835	108,887
1915	66,355	—	53,477	12,877	—	14,000	10,100	1,267	121,765

(3) The main sources of income are subscriptions, advertisements, sales of JOURNALS, interest on investments, and rents. The rents as a result of the rebuilding have risen from £476 to £2,300 a year. The surplus

assets represent the realizable value of the property of the Association on December 31st in each year after providing for all possible debts.

(4) While the foregoing schedule shows the financial position from year to year, it is advisable to amplify by narrative and recapitulate some points that may not be familiar to all the present members of the Committee.

THE REBUILDING OF THE PREMISES OF THE ASSOCIATION.

(5) As a result of the reorganization of the Association in 1902, it soon became apparent that the office accommodation was inadequate for effectively housing the staff and adequately dealing with the large increase of work. After careful consideration of the then existing premises and the possibilities of disposing of the property and moving to a new site, the Council was convinced that the soundest financial proposal was to pull down the old premises and rebuild. This demolition and rebuilding of the property, 429, Strand, 2, 3, 4, and 5, Agar Street, and 1 and 2, Harvey's Buildings, was commenced in the year 1907. At the time, outside its real property, the Association was possessed of liquid assets, amounting to some £14,000, invested in Bank of England and Midland Railway 2½ per cent. Debenture Stock. It was decided not to realize these investments, it being considered preferable to continue to hold these securities against any sudden emergency. The question then arose as to how the rebuilding should be financed, the contract entered into being approximately £45,000, against which cash would have to be forthcoming as the work progressed. The original idea was to mortgage the real estate to an insurance company at a fixed rate of interest. Negotiations were opened, and the preliminary formalities and survey actually completed when it was found that the Association under its Memorandum had not the necessary powers to execute a valid mortgage. It would have been possible to have taken steps there and then to get these powers, but about this time there was under consideration the possibility of petitioning the Sovereign for a Royal Charter, and it was felt it might be left to secure the power in the charter. Difficulties arose, the petition for a charter was abandoned, and the alteration of the Memorandum to enable the Association to mortgage its property was not actually sanctioned by the High Court until seven years later. Meantime, the building operations were in course of execution, and means of meeting the expenditure had to be found. In view of the absence of power to mortgage, the propriety of raising the money within the Association in the form of debentures was considered and abandoned. Consequently, the only practical solution seemed to be to obtain the money from the bank against the deposit of the

deeds of the freehold property. This was done, and the money advanced at bank rate with a minimum charge of 4 per cent. per annum. The arrangement was intended as a purely tentative provision pending the alteration of the Memorandum. Such an arrangement, so long as it was purely temporary, was a sound provision for meeting the expense of rebuilding, but when prolonged it left the Association exposed to the risk of serious pressure in the event of financial panic. Such a panic occurred at the close of July, 1914, and bank rate rushed up to 10 per cent., but after a week it dropped to 5 per cent., where it has since remained.

(6) Until the sudden outbreak of war in August, 1914, the terms of accommodation from the bank could not be considered onerous, and in the light of subsequent events, perhaps, have proved to have been the most economical lines on which the Association could have financed the rebuilding of its premises. When in the early part of 1914 the Association could have taken advantage of its power to mortgage, it is unlikely that a loan could have been arranged on terms as favourable owing to the rising value of money, and even then it would have been subject to be called in by six months' notice. While the greater security of getting rid of a fluctuating rate of interest is not to be questioned, it must be remembered that legal charges, stamp duties and fresh survey fees, would have had to be met. The total expenditure incidental to the rebuilding was £47,053, all of which, with the exception of about £3,000, had to be met by borrowing from the bank. As a result of this capital expenditure, the Association was provided with modern and enlarged premises, and through the increased rents a return of rather over 4½ per cent. on the outlay; or, if the site-value is included with the buildings thereon, a return on capital of nearly 2 per cent., combined with modern accommodation rent free. This was the position at the close of the year 1909.

NATIONAL INSURANCE ACT CAMPAIGN.

(7) In the following year, 1910, commenced the heavy expenditure the Association had to face in connexion with the coming of the National Health Insurance legislation. In spite of this, on the year there was a surplus of £2,094, yet it was necessary to increase the loan account by £400 to £44,150. The apparent anomaly is due to the fact that the balance on current account was higher by £600 and the outstanding realisable assets were more by some £1,400.

(8) In the next year, 1911, the income of the Association was more by nearly £8,500, but £6,445 of this came from the Insurance Defence Fund. Concurrently the expenditure increased by £10,400. But for the contribution from the Insurance Defence Fund the surplus of £207 must have been a deficit of £6,238. The net result involved increasing the loan from the bank to £46,150.

(9) In 1912 the expenditure further rose to £81,800; to meet this the income was short by £8,834, even with a contribution of £7,054 from the Insurance Defence Fund. But for this assistance the deficit would have been £15,888. In this year, in addition to the Insurance Act expenses, the Association was involved in litigation to the amount of about £7,000. To meet its obligations the Association had to borrow yet more, and the loan was increased to £49,500.

(10) Again in 1913 the Association exceeded its income by £4,076, owing primarily to the Insurance Act, although there were abnormal legal expenses aggregating about £1,400. With the close of 1913 the severe financial strain resulting from the fight around the passing of the National Insurance Act was relieved. It is not easy to show the exact amount the fight cost the Association between 1910 and 1913. Taking the year 1909 as the unit, between that time and the close of 1913 the Association's increased expenditure for the period totalled £58,290; from this must be allowed £8,400, being expenses of litigation. This leaves £49,800 increased expenditure to be accounted for. After discounting an expected annual increase of expenditure on the basis of £2,000 a year, there is still left £41,800, which it is not unreasonable to call Insurance Act expenditure, towards which £13,500 was contributed from the Insurance Defence Fund, leaving the Association to find £28,300. In arriving at this figure no provision is made for the expenditure incurred and met by Divisions and Branches out of the capitation grants.

(11) It has already been shown that to meet this expenditure the accommodation at the bank at the close

of 1912 rose to as much as £49,500, while the outstanding liabilities on December 31st exceeded by £3,000 those of the previous year. The following year the loan account would have risen to £55,600, but, instead of going to the bank for the full amount, the Association borrowed at 4 per cent. £10,000 from the Insurance Defence Fund, giving as security the Bank of England and Midland Railway Stock, and £600 from the Central Emergency Fund. Thus, at the end of 1913, six years after the Association had started to rebuild its premises, whereby the rent roll had been raised from about £476 to about £2,350 per annum, the loan from the bank, instead of being repaid in part or in whole, stood at £45,000, while, in addition, the Association had borrowed £10,600, or a total of £55,600.

THE RAISING OF THE SUBSCRIPTION.

(12) In 1914 the subscription to members within the United Kingdom was varied from 25s. to £2 2s. As a result a certain number of members resigned, but the revenue was favourably influenced to the amount of £9,000, and £7,000 the following year.

THE INFLUENCE OF THE WAR.

(13) In 1914, before the war, considerable economy was being effected in the production of the JOURNAL, owing to the increased charge for advertisements. Directly war broke out a great reduction in the size of the JOURNAL was effected, and on the year the cost of producing the JOURNAL was lowered by £9,000. These facts, combined with the general reduction in Association expenditure, made it possible in 1914 to reduce the loan from the bank by £13,500 and the loan from the Insurance Defence Fund by £500, and at the same time liquidate the somewhat swollen liabilities brought forward from the previous year. The year closed with the Association owing the bank £31,500, on which 5 per cent. interest had now to be paid, the Insurance Defence Fund £9,500, and the Central Emergency Fund £600, or a total of £41,600.

(14) This brings the history down to the last year of the decade under review. There was in 1915 some falling away in the revenue derived from subscriptions as compared with the previous year, yet the amount exceeded the year 1913 by £7,000, so on the two years the £2 2s. subscription from members within the United Kingdom resulted in something like £16,000 additional money accruing to the Association, while the adverse influence on the numerical strength meant an indirect saving in the cost of producing the JOURNAL. This year also resulted in a great saving in the cost of producing the JOURNAL, apart from any decline in the number of copies printed. From January to October the literary and advertisement pages were materially curtailed, while for the last two months, owing to the revised postal arrangements, actually it was restricted to 88 pages a week. Against this there have been the adverse factors of serious increase in cost of labour and material, and reduced revenue from advertisements; but the result on the year shows in the cost of production a saving of £4,212 as compared with 1914, while compared with 1913, the last complete twelve months before war, the cost is down by £13,217.

(15) In 1915 the loan from the bank was further reduced by £17,500 to £14,000, the other loans remaining unaltered at £10,100.

(16) The general result is that the indebtedness of the Association, bank overdraft and other loans, which arose originally to meet the expenditure on the new buildings as a deliberate policy, but was increased by the large excess of expenditure over both ordinary and extraordinary receipts due to the Insurance Act, has been decreased from £43,754 in 1909, the year the building was completed, and £55,600 in 1913, the year the Insurance controversy came to an end, to £24,100 at the end of 1915.

(17) Generally, since the close of 1913, the expenditure of the Association was on the downward grade, and since the outbreak of war many of its activities have been interrupted. This, combined with the £16,000 additional subscription money and the £13,200 saved in the production of the JOURNAL, has made it possible to reduce the loans by £31,500 in the last two years.

EDWIN RAYNER, M.D.,
Treasurer.

GUY ELLISTON,
Financial Secretary and Business Manager.

April 19th, 1916.

REDUCTION OF NOTIFICATION FEES.

The following letter has been addressed to the six members of Parliament whose constituencies are in the Edinburgh Branch:

BRITISH MEDICAL ASSOCIATION.

(Edinburgh Branch.)

78, Polwarth Terrace, Edinburgh,
April 25th, 1916.

Dear Sir,

In the name of the medical profession we respectfully and earnestly request your assistance in opposing the reduction of the fee for notification of infectious diseases from 2s. 6d. to 1s.

The Committee on Retrenchment state that "the amount of labour involved is very slight." We cannot view the service as a question of clerical work, because each report involves carefully determined professional opinion, depending on skilled diagnosis, as well as responsibilities to the public authorities, the patient, and the patient's contacts. This is performed under a certain penalty for failure to notify, which it is not proposed to modify.

The half-crown now given is often in the poorer classes the only fee obtained for the visit as well as the notification. These cases should have prompt attention, and this often means increased expense and trouble to the doctor. In many infectious cases, particularly diphtheria, the delay of a few hours, still more of a night, would add seriously to the gravity of the case, and in a proportion of these would even involve the loss of life. If the fee were reduced to 1s. the remuneration obtained would be so small as to discourage the practitioner in attending to such work. Off the 1s. the doctor would have to pay postage and often the expense of telephoning. The result would ultimately be prejudicial to the public health.

Our profession has responded nobly to the medical necessities of the war, the voluntary offers of service having been all the time ample, to say the least, to meet the requirements of the War Office.

The medical profession is also giving gratuitous medical attendance to large numbers of the necessitous dependants of men serving with the colours. This is also extended to many in civil life in distress through war conditions.

Doctors' expenses have also increased during the war. Taking all these matters into consideration it seems, therefore, particularly unfair to force this reduction of income on the medical profession.

We trust you will kindly give us your valued help.

Yours faithfully,

(Signed) JOHN STEVENS, M.D., F.R.C.P.E.,
Honorary Secretary.

A similar letter has been sent to the other members of Parliament within the Edinburgh Branch by Dr. Keppie Paterson, Honorary Secretary to the Edinburgh and Leith Division.

SIR,—There is one aspect of this question which is of great importance, and that is the serious effect the reduction of the notification fee may have on the early notification of cases of pulmonary tuberculosis. Even with the present fee it is difficult to obtain early notification. Every medical officer of health knows from experience how many cases are not notified until late in the illness, and sometimes only when death is imminent or has occurred.

Instead therefore of reducing the fee public policy calls for an increased fee so far as pulmonary tuberculosis is concerned, and suggests that the fee—say, of five shillings at least—should be given for early diagnosis and not merely for notification. It would be fairly easy to make adequate provision to prevent abuse of such a measure, which is the only objection likely to be taken to it.—I am, etc.,

Public Health Department,
Bartlepool, April 24th.

GEORGE JUBB.

SIR,—The Infectious Diseases Notification Act of 1889 demands *compulsory* notification by (a) the head of the family, etc.; (b) by the medical practitioner. This Act differentiates the skilled information for which 2s. 6d. has been determined as a fee to every medical man who notifies the case. In the case of (a) the Act is a dead letter, but it is enforced as to medical men. The notification gives valuable information to the local authority, which takes action in the interests of the public as well as of the affected and relatives. This work involves on the part of the medical man (1) making a skilled diagnosis, (2) loss of patient's fees, (3) upset of programme to phone

to authorities, (4) formal notification with postage, (5) frequently a second visit to house, (6) certificate to nurse to remove the case, (7) in private cases making arrangements for it at a hospital. Reason of "economy" given for reduction is insufficient, since a large area exists for economy in the expenditure on the war. Once the profession permits the reduction without protest, it will remain for good, and we shall have a *statutory* recognition of one shilling for the work involved, which no trade or other profession would tolerate, and is detrimental to our status. By a process of compulsion we are to take the shilling. The notifications required by the Factory and Workshops Act and that of tuberculosis are not brought into consistent action of the proposed reduction. The war has raised the price of drugs and involved loss of income in many ways, hence the war as a reason should have advocated a rise rather than a reduction. Because notifications are being added to by increase of other diseases to the list is no argument, as the fee is for the work involved. Notifications by institutional medical officers are really duplicate notifications, that is, notifications by them of cases already notified by the general practitioner, but the Act allows this, also the notification of the same case irrespective of the number of practitioners who have seen that case. Herein lies one way of thwarting the mean and undignified action of the Retrenchment Committee. All Branches should protest through their local members of Parliament.—I am, etc.,

April 23rd.

N.

INSURANCE.

APPROVED SOCIETIES AND IRISH DOCTORS.

At a meeting of the committee of the Oulart branch of the Irish National Trade and Labour Insurance Society, the Chairman expressed satisfaction at the smooth working of the Act since the appointment of the medical attendants as medical certifiers. These gentlemen had already displayed marked ability and discrimination in the performance of their difficult duties, and local Committees should do all in their power to assist them to detect the very rare cases of malingering. The Chairman also pointed out that where a difference occurred between a member and the medical certifier the matter should be brought before the Committee whose function it was to settle disputes. On no account should a member adopt any other course.

Naval and Military Appointments.

ROYAL NAVAL MEDICAL SERVICE.

The following appointments are announced by the Admiralty: Fleet Surgeons S. H. Facey to the *Victory*, additional, for disposal; C. S. Woodright to the *Vindicta*, Surgeons G. H. Hayes, M.B., to the *Vindicta*, additional, for disposal; H. E. Y. White to the *Pembroke*, additional, for medical transport duties, Chatham. Temporary Surgeons J. Rodwell, M.B., to the *Inflexible*, vice Murphy; W. F. Eborall and E. A. Fiddian to the *Victory*, additional, for Haslar Hospital; F. L. Duckworth to the *Pembroke*; B. J. Brewitt to the *Bellerophon*.

ROYAL NAVAL VOLUNTEER RESERVE.

Surgeons T. L. Ellis to the *Pembroke*, additional. To be Surgeon Probationers: D. E. Ross, H. S. Tretry, R. M. Cairns, J. J. R. Binnie, D. F. Yuille, D. A. Cunningham, J. A. Ross, A. M. Millar, T. A. H. Smith, C. C. Beney.

ARMY MEDICAL SERVICE.

ROYAL ARMY MEDICAL CORPS.

Granted temporary rank whilst commanding field ambulances:—Majors to be Lieutenant-Colonels: C. H. Turner, D.S.O., G. B. Ferguson. Captains to be Majors: A. R. Wright, E. C. Phelan, M.B., T. D. H. Robinson, M.B., A. A. Littlejohns, A. S. Williams, V. C. Honeybourne.

Temporary Captain J. C. Webb, M.B., to be temporary Major. T. M. Burn-McIndooch, M.B., F.R.C.P.E., to be temporary honorary Major whilst employed at the Smithsonian War Hospital, Greenock.

Captain J. W. Lane, M.D., to be temporary Major whilst commanding a field ambulance. Captain D. J. McLaren, M.B., from Somerset Light Infantry (T.F.), to be temporary Captain.

Temporary Lieutenants to be temporary Captains: H. W. B. Danaher, H. A. Baxter, M.B., H. F. Flood, A. Bloom, M.D., J. D. MacLennan, M.B., F.R.C.S.E., J. V. Buchanan, M.B., E. C. Williams, M.D., F.R.C.S.E., G. R. Lawless, F.R.C.S.I., J. C. Lorraines, M.B., F.R.C.S.E., A. J. Smith, M.B., W. A. Kennedy, M.D., C. C. Weeks, D. L. Tate, M.B.

Temporary Lieutenants relinquish their commissions: W. H. Croly, C. S. Palmer, J. T. Anderson, M.B., E. T. Pinhey, M.B., C. Matthews, J. B. Dawson, M.D., F.R.C.S., B. D. Crichton, M.B., J. McDi. H. Reid, M.B., J. L. Davies, M.D., V. C. Pennell, A. E. Gravello, C. P. M. Joubert, M.B., E. H. Drinkwater.

M. K. Robertson to be temporary honorary Lieutenant. C. C. Coghlan, M.B., is granted the temporary honorary rank of Lieutenant whilst serving with the Australian Voluntary Hospital.

TERRITORIAL FORCE.

ARMY MEDICAL SERVICES.

Major (temporary Lieutenant-Colonel) E. J. R. Eratt, M.B., Welsh Field Ambulance, to be A.A.D.M.S., Welsh Division.
Captain J. P. Edmiston, M.B., from Attached to Units other than Medical Units, to be D.A.D.M.S., West Lancashire Division.

ROYAL ARMY MEDICAL CORPS.

Southern General Hospital.—Lieutenant D. R. Dow, M.B., relinquishes his commission on account of ill health.

Wessex Casualty Clearing Station.—Captain A. Greene, M.D., F.R.C.S., from East Anglian Field Ambulance, to be Captain. Lieutenant J. Fenton, M.D., to be Captain.

South Wales Mounted Brigade Field Ambulance.—S. Child, M.B., to be Lieutenant.

London Sanitary Company.—Captain H. Beeneey relinquishes his commission on account of ill health.

South Midland Mounted Brigade Field Ambulance.—O. Cook, M.B., to be Lieutenant.

Northern General Hospital.—Captains to be Majors: O. H. Chapman, M.D., G. A. C. Shipman, M.B., B. McFarland, M.D.

East Lancashire Division Sanitary Section.—Lieutenant N. S. Golding, from London Sanitary Company, to be Lieutenant.

West Lancashire Field Ambulance.—Captain J. E. W. McFall, M.D., from T. F. Reserve, to be temporary Major; Captain F. W. K. Tough, F.R.C.S., to be temporary Major whilst in command of a field ambulance.

Lowland Field Ambulance.—Lieutenant R. Armstrong, M.B., to be Captain.

Highland Casualty Clearing Station.—To be Lieutenants: W. Alexander, M.B., A. A. McKenzie, M.B.

Attached to Units other than Medical Units.—Major W. F. Roe to be temporary Lieutenant-Colonel whilst in command of a field ambulance. Major J. E. B. Wells, from London Field Ambulance, to be Major. Captain R. Carswell, M.B., from London Field Ambulance, to be Captain. Lieutenants to be Captains: D. L. Wall, D. G. Dingwall, F. F. C. Jagger, M.B.

Vacancies and Appointments.

NOTICES REGARDING APPOINTMENTS.—Attention is called to a Notice (see Index to Advertisements—Important Notice re Appointments) appearing in our advertisement columns, giving particulars of vacancies as to which inquiries should be made before application.

VACANCIES.

BIRMINGHAM AND MIDLAND EYE HOSPITAL.—Resident Surgical Officer. Salary from £200 to £300 per annum and £5 laundry allowance.

BOSCOMBE: HOSPITAL FOR SICK CHILDREN.—House-Surgeon. Salary, £125 per annum.

BRIGHTON COUNTY BOROUGH ASYLUM, Hayward's Heath.—Temporary Assistant Resident Medical Officer. Salary, 25 guineas a month.

BRISTOL ROYAL INFIRMARY.—(1) House-Physicians; (2) House-Surgeons. Salary, £100 per annum in each case.

BURNLEY: VICTORIA HOSPITAL.—Lady House-Surgeon. Salary, £160 per annum.

BUXTON: DEVONSHIRE HOSPITAL.—Assistant House-Physician.

CANNING TOWN WOMEN'S SETTLEMENT HOSPITAL, Plaistow, E.—Resident Medical Officer (female). Salary, £150 per annum.

CARDIFF: KING EDWARD VII HOSPITAL.—Fourth-year Student Dresser. Salary, £26 per annum.

CHESHIRE COUNTY COUNCIL.—School Medical Inspector (female). Salary, £350 per annum.

CROYDON GENERAL HOSPITAL.—House-Surgeon. Salary, £200 per annum.

DERBYSHIRE ROYAL INFIRMARY.—House-Physician and Casualty Officer. Salary, £200 per annum.

FEDERATED MALAY STATES.—Assistant Superintendent of the Government Central Lunatic Asylum. Salary, £400 per annum, rising to £600.

FEDERATED MALAY STATES GOVERNMENT.—Lady Medical Officer. Salary to commence, £350 first year and allowances.

GRAVESEND HOSPITAL.—House-Surgeon. Salary, £200 per annum.

HUDDERSFIELD ROYAL INFIRMARY.—Junior House-Surgeon. Salary, £100 per annum.

LEEDS PUBLIC DISPENSARY.—Lady Resident Medical Officer. Salary, £130.

LONDON COUNTY COUNCIL DENTAL TREATMENT CENTRE, Soho.—Anaesthetist. Salary, £25 per annum.

MANCHESTER CHILDREN'S HOSPITAL, Pendlebury.—Two Resident Medical Officers. Salary, £100 per annum, and war bonus of £5 per month.

MANCHESTER NORTHERN HOSPITAL FOR WOMEN AND CHILDREN.—Lady House-Surgeon. Salary, £120 per annum.

MIDDLESBROUGH COUNTY BOROUGH.—Lady Health Visitor. Salary, £75 per annum.

NEWCASTLE-UPON-TYNE: ROYAL VICTORIA INFIRMARY.—(1) Four House-Physicians; (2) Four House Surgeons; (3) Accident Room House-Surgeon; (4) House-Surgeon to Aural and Ophthalmic Department; (5) House-Surgeon to Skin and Gynaecological Department; (6) House-Surgeon to Out-patient Dressing Department.

NORTHAMPTON GENERAL HOSPITAL.—House-Surgeon. Salary, £150 per annum.

QUEEN'S HOSPITAL FOR CHILDREN, Hackney Road, E.—House-Surgeon. Salary, £100 per annum.

ROYAL WESTMINSTER OPHTHALMIC HOSPITAL, King William Street, W.C.—House-Surgeon.

SALISBURY GENERAL INFIRMARY.—(1) House-Surgeon; (2) Assistant House-Surgeon. Salary, £150 and £100 per annum respectively.

SHEFFIELD: JESSOP HOSPITAL FOR WOMEN.—Junior Lady House-Surgeon. Salary, £80 per annum.

SHEFFIELD ROYAL INFIRMARY.—House-Physician. Salary, £120 per annum.

SOUTHAMPTON: FREE EYE HOSPITAL.—House-Surgeon. Salary, £100 per annum.

VENTNOR: ROYAL NATIONAL HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST.—Assistant Resident Medical Officer.

WESTMORLAND CONSUMPTION SANATORIUM AND HOME, Meathop.—Second Assistant. Salary, £200 to £250 per annum.

To ensure notice in this column—which is compiled from our advertisement columns, where full particulars will be found—it is necessary that advertisements should be received not later than the first post on Wednesday morning. Persons interested should refer also to the Index to Advertisements which follows the Table of Contents in the JOURNAL.

APPOINTMENTS.

MCCUTCHEON, J. B., M.B., Ch.B., Edin., District Medical Officer of the Bridgend and Cowbridge Union.

MACKENZIE, H., M.B., Ch.B., Vict., Assistant Medical Officer of the Booth Hall Infirmary of the Manchester Union.

SMALLWOOD, E., M.D., Brux., M.B.C.S., L.R.C.P., Medical Officer of the Lambeth Parish Schools at Norwood.

BIRTHS, MARRIAGES, AND DEATHS.

The charge for inserting announcements of Births, Marriages, and Deaths is 5s., which sum should be forwarded in Post Office Orders or Stamps with the notice not later than the first post on Wednesday morning in order to ensure insertion in the current issue.

BIRTHS.

HADDEN.—At Hunan Yale Hospital, Changsha, China, on March 9th, to Dr. and Mrs. George Hadden (née Helen Randall Vickers), a son, George Benjamin.

MACINNION.—April 13th, at Westwood House, Oldham, the wife of Captain Ronald Macinnion, B.A.M.C., B.E.F., of a son.

MAY.—On April 13th, at The White House, Bonning, Berks, to Dr. and Mrs. Norman May, a son.

MARRIAGE.

BUCHANAN-RANKIN.—At Wakefield, Pollokshields, Glasgow, on April 20th, W. M. Buchanan, M.B., Ch.B., Glasg., Medical Superintendent, Kirklands Asylum, Bothwell, temporary Lieutenant R.A.M.C., to Ethel Stewart, youngest daughter of the late James Rankin and Mrs. Rankin, Wakefield, Pollokshields.

DIARY FOR THE WEEK.

TUESDAY.

ROYAL SOCIETY OF MEDICINE: SECTION OF SURGERY: SUBSECTION OF ORTHOPAEDICS, 5 p.m.—Annual general meeting.

SECTION OF PATHOLOGY, 8.30 p.m.—Annual general meeting. Dr. J. A. Murray: A Transplantable Tumour of the Guinea-pig. Dr. B. H. Spilsbury: Specimen Illustrating Toxic Hepatitis. Mr. Shattock: (1) Some Points in Connection with the Verruiform Appendix; (2) Some Specimens Illustrating Gunshot Wounds.

WEDNESDAY.

ROYAL SOCIETY OF MEDICINE: SECTION OF SURGERY, 5.30 p.m.—Annual general meeting.

THURSDAY.

ROYAL SOCIETY OF MEDICINE: SECTION OF OBSTETRICS AND GYNAECOLOGY, 8 p.m.—Annual general meeting. Dr. Herbert Spencer: Short Case of Primary Carcinoma of the Fallopian Tube. Dr. Henry Briggs: Unilateral Solid Primary Adenoma of the Ovary. Mr. John D. Malcolm: Second Case of Pneumo-peritoneum: Release of Gas: Recovery. Exhibition of Specimens.

FRIDAY.

ROYAL SOCIETY OF MEDICINE: SECTION OF LARYNGOLOGY, 5 p.m.—Annual general meeting.

WEST LONDON MEDICO-CHIRURGICAL SOCIETY, West London Hospital.—Clinical meeting. Cases, 8 p.m.

POST-GRADUATE COURSES AND LECTURES.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.

THE POST-GRADUATE COLLEGE, West London Hospital, Hammersmith, W.—Clinical work; graduates only.

DIARY OF THE ASSOCIATION.

Date.	Meetings to be Held.
APRIL.	
28 Fri.	London: Executive Subcommittee of Central Medical War Committee, 2.15 p.m.
MAY.	
3 Wed.	London: Central Medical War Committee, 2 p.m.
5 Fri.	London: Executive Subcommittee of Central Medical War Committee, 3.15 p.m.
12 Fri.	London: Executive Subcommittee of Central Medical War Committee, 3.15 p.m.
15 Mon.	Leinster Branch, Annual Meeting, Dublin, 4.30 p.m.

LONDON: SATURDAY, MAY 6TH, 1916.

CONTENTS.

Matters Referred to Divisions.	PAGE	Association Intelligence.	PAGE
ANNUAL REPRESENTATIVE MEETING, 1916: PROVISIONAL AGENDA	77	PROCEEDINGS OF COUNCIL	102
ANNUAL REPORT OF COUNCIL, 1915-16	79	MEETINGS OF BRANCHES AND DIVISIONS	102
BALANCE SHEET	81	ELECTION OF COUNCIL	103
REDUCTION OF NOTIFICATION FEES	105	ANNUAL REPRESENTATIVE MEETING	103
INSURANCE: MEETINGS OF INSURANCE, LOCAL MEDICAL, AND PANEL COMMITTEES; CORRESPONDENCE	105	NEW MEMBERS	103
		NAVAL AND MILITARY APPOINTMENTS	107
		VACANCIES AND APPOINTMENTS.—DIARY	108

SPECIAL NOTICE TO MEMBERS.

Every member is requested to preserve this "Supplement," which contains matters specially referred to Divisions, until the subjects have been discussed by the Division to which he belongs.

BY ORDER.

MATTERS REFERRED TO DIVISIONS.

British Medical Association.

Annual Representative Meeting,
London, 1916.

The Annual Representative Meeting of the Association will be held in London on Friday, July 28th, 1916, and following days as may be necessary.

PROVISIONAL AGENDA.

(NOTE.—In view of the shortage of paper, this Provisional Agenda includes only such of the items of the business of the Annual Representative Meeting as are known to require the consideration of the Divisions.)

ANNUAL REPORT OF COUNCIL.

(For Annual Report of Council, 1915-16, see page 79 of this SUPPLEMENT.)

1. Motion: That the Annual Report of Council for 1915-16, Balance Sheet and Financial Statement for 1915, and Estimate of Income and Expenditure for 1916, be received.

(A) Preliminary.

Presidentship for 1916-17.

2. Motion: That the following Recommendation of Council be adopted (paragraph 2 of Annual Report, page 79 of this SUPPLEMENT):

That Sir Thomas Clifford Allbutt, K.C.B., LL.D., be elected President of the Association.

*Remainder of Annual Report under heading
" (A) Preliminary."*

3. Motion: That the remainder of the Annual Report of Council under heading " (A) Preliminary " (paragraphs 1-4, pages 79-80) be approved.

(B) Finance.

Work of Officials and Staff.

4. Motion: That the following Recommendation of Council be adopted (paragraph 13 of Annual Report, page 86):

That the Representative Body place on record its high appreciation of the valuable services rendered by the whole of the Officials and Staff, and that they be thanked for the able way they have worked on behalf of the Association, and congratulated on the careful manner in which they have conserved during very critical times the financial interests of members of the Association.

*Remainder of Annual Report under heading
" (B) Finance."*

5. Motion: That the remainder of the Annual Report of Council under heading " (B) Finance " (paragraphs 5-15, pages 80-86) be approved.

(C) The Association and the War.

*Reappointment of Central Medical War Committee
for 1916-17.*

6. Motion: That the following Recommendation of Council be adopted (paragraph 6 (b) of Annual Report, page 93):

That the Central Medical War Committee be reappointed for 1916-17, with the same personnel as before.

*Remainder of Annual Report under heading
" (C) The Association and the War."*

7. Motion: That the remainder of the Annual Report of Council under heading " (C) The Association and the War " (paragraphs 16-64, pages 86-93) be approved.

(D) Organization.

*General Question of Grouping of Home Branches for
Election of Council: Grouping of these Branches
for Election of Council, 1917-18.*

8. Motion: That the following Recommendation A of Council be adopted (paragraph 65 of Annual Report, page 93):

That the Home Branches be grouped for election of twenty-four members of Council, 1917-18, under By-law 46 (a) in the same way as for 1916-17.

(For the 1916-17 grouping see BRITISH MEDICAL JOURNAL SUPPLEMENT, May 8th, 1915, pp. 201-2.)

* The Council has this year omitted from its report the usual grouping lists of Branches and Divisions, the reports of Branches, and the attendances at meetings of the Representative Body, Council and Committees.

Grouping of Oversea Branches for Election of Council, 1917-18.

9. **Motion:** That the following Recommendation B of Council be adopted (paragraph 66 of Annual Report, page 93):

That the Oversea Branches be grouped for election of seven members of Council, 1917-18, under By-law 46 (b) in the same way as for 1916-17, except that the new Grenada Branch be included in the Canada and West Indies Group of Branches.

(For the 1916-17 grouping of the Oversea Branches see BRITISH MEDICAL JOURNAL SUPPLEMENT, May 8th, 1915, page 202.)

Remainder of Annual Report under heading "(D) Organization."

10. **Motion:** That the remainder of the Annual Report of Council under heading "(D) Organization" (paragraphs 65-81, pages 93-4) be approved.

(E) Journal.

11. **Motion:** That the Annual Report of Council under heading "(E) Journal" (paragraphs 82-4, page 94) be approved.

(F) Science.

12. **Motion:** That the Annual Report of Council under heading "(F) Science" (paragraphs 85-6, page 94) be approved.

(G) Medical Ethics.

13. **Motion:** That the Annual Report of Council under heading "(G) Medical Ethics" (paragraphs 87-92, page 94) be approved.

(H) Medico-Political.

Medical Inspection and Treatment of School Children.

14. **Motion:** That the following Recommendation A of Council be adopted (paragraph 93 of Annual Report, page 94):

That the Representative Body approve, as the policy of the Association on medical inspection and treatment of school children, the Memorandum published in the SUPPLEMENT of May 8th, 1915 (pages 227-9).

Medical Certificates in Connection with Possible Pensions or Gratitudes to Dependents of Soldiers and Sailors Killed on Active Service.

15. **Motion:** That the following Recommendation B of Council be adopted (paragraph 94 of Annual Report, page 95):

That in connection with the giving of certificates by medical practitioners as to the degree of capacity to earn their own livelihood of dependants of deceased soldiers or sailors for the purpose of establishing their claim to pension or gratuity, it is desirable—

(i) That there should be a uniform standard of estimating disability to earn;

(ii) That the work of certification should be done by a board of practitioners, and should be paid for.

16. **Motion:** That the following Recommendation C of Council be adopted (paragraph 94 of Annual Report, page 95):

That it be urged upon the Government that the above proposal would be conducive to public economy and efficiency.

Notification of Pregnancy.

17. **Motion:** That the following Recommendation D of Council be adopted (paragraph 114 of Annual Report, page 97):

That while it is desirable to encourage prospective mothers to make early arrangements for being properly cared for during the time of pregnancy as well as at the actual time of delivery, the Association is not at present prepared to support notification of pregnancy to a public authority.

Election of Direct Representatives on General Medical Council.

18. **Motion:** That the following Recommendation E of Council be adopted (paragraph 119 of Annual Report, page 97):

That the support of the Association be given to the following candidates in the election of direct representatives on the General Medical Council at

the forthcoming election: H. W. Langley Browne, M.D., F.R.C.S.E., West Bromwich; H. A. Latimer, M.D., M.R.C.S., Tunbridge Wells; J. A. Macdonald, M.D., M.Ch., LL.D., Taunton; and T. Jenner Verrall, M.R.C.S., L.R.C.P., LL.D., Bath.

Remainder of Annual Report under heading "(H) Medico-Political."

19. **Motion:** That the remainder of the Annual Report of Council under heading "(H) Medico-Political" (paragraphs 93-119, pages 94-7) be approved.

(I) National Health Insurance.

Effects of the War on the Medical Side of the Insurance Acts.

20. **Motion:** That the following Recommendation A of Council be adopted (paragraph 122 of Annual Report, page 98):

That in view of the difficulty experienced in ascertaining the exact number of insured persons who have enlisted, and in collecting evidence as to the sickness incidence of those insured persons remaining, and considering that strong representations on the subject have already been made to the Commissioners, no further action be taken at present, but that the Council be instructed to collect what information it can on the subject in order that it may be used when any revision of the terms on which Insurance practitioners are employed is discussed.

Medical Referees under the Insurance Acts.

21. **Motion:** That the following Recommendation B of Council be adopted (paragraph 146 of Annual Report, page 100):

That pending the establishment of a permanent system of referees under the Insurance Commission, it is desirable that the Association should co-operate in the promotion of a system of temporary arrangements under suitable conditions.

22. **Motion:** That the following Recommendation C of Council be adopted (paragraph 146 of Annual Report, page 100):

That the fee of 10s. 6d. already approved by the Representative Body for examination of and report on cases submitted to part-time referees under the National Insurance Act be reaffirmed as the minimum fee for cases examined by practitioners who hold no stated appointment to the approved society submitting the case, and Divisions and Branches be allowed to approve schemes for the payment of practitioners in their areas appointed as medical referees to approved societies, provided that where such a scheme involves payment by salary or in accordance with the time occupied, or the acceptance of a fee less than 10s. 6d. per case examined, the scheme shall require the approval of the Council of the Association.

Remainder of Annual Report under heading "(I) National Health Insurance."

23. **Motion:** That the remainder of the Annual Report of Council under heading "(I) National Health Insurance" (paragraphs 120-49, pages 97-100) be approved.

(J) Public Health and Poor Law.

24. **Motion:** That the Annual Report of Council under heading "(J) Public Health and Poor Law" (paragraphs 150-2, page 100) be approved.

(K) Scotland.

25. **Motion:** That the Annual Report of Council under heading "(K) Scotland" (paragraphs 153-7, pages 100-1) be approved.

(L) Ireland.

26. **Motion:** That the Annual Report of Council under heading "(L) Ireland" (paragraphs 158-60, page 101) be approved.

(M) Oversea Branches.

27. **Motion:** That the Annual Report of Council under heading "(M) Oversea Branches" (paragraph 161, page 101) be approved.

By Order,

ALFRED COX,

Medical Secretary.

May 3rd, 1916.

British Medical Association.

ANNUAL REPORT OF COUNCIL,
1915-16.

CONTENTS

(A) Preliminary	...	79
(B) Finance	...	80
(C) The Association and the War	...	86
(D) Organisation	...	93
(E) Journal	...	94
(F) Science	...	94
(G) Medical Ethics...	...	94
(H) Medico-Political	...	94
(I) National Insurance	...	97
(J) Public Health and Poor Law	...	100
(K) Scotland	...	100
(L) Ireland	...	101
(M) Oversea Branches	...	101

(A) Preliminary.

QUESTION OF ANNUAL MEETING, 1916.

1. As the War conditions still make it impossible to hold the usual Annual Scientific Meeting, the Council has with regret found itself obliged to postpone as regards 1916 the holding of an Annual Meeting at Cambridge.

In the present exceptional circumstances the Council has arranged that the Annual Representative Meeting and Statutory General Meeting shall be held at the Connaught Rooms, London, on Friday, July 28th, the Representative Meeting to commence at 10 a.m. The Annual General Meeting will be at 2 o'clock in the afternoon.

PRESIDENTSHIP FOR 1916-17.

2. The Council recommends :

Recommendation.—That Sir Thomas Clifford Allbutt, K.C.B., LL.D., be elected President of the Association.

OBITUARY.

3. Roll of Honour.

Killed on Service.

Capt. Maurice Burnett, R.A.M.C.
 Capt. C. T. Conyngham.
 Capt. Anthony Purdon Hogarty Corley.
 Lieut.-Col. John Henry Dauber, Ex-Chairman of the Westminster Division, on board H.M.S. *Royal Edward*, torpedoed in the Aegean Sea.
 Dr. William Everett, on board ss. *Persia*, torpedoed off the coast of Crete.
 Capt. Eric Louis Giblin, R.A.M.C.
 Lieut. Bernard Bradley Gough, R.A.M.C.
 Capt. Burroughes Maurice Hughes.
 Capt. Howard Tomlin Hunter.
 Major Frederick Miller Johnson, Australian Army Medical Corps.
 Capt. Arthur Kellas, R.A.M.C. (T.F.).
 Lieut. Thomas Jones Latham, R.A.M.C.
 Capt. Keith Maurice Levi, Australian Army Medical Corps.
 Capt. John Harry Meers, R.A.M.C.

Lieut. Jeffery Wimperia Parker, R.A.M.C.
 Surgeon Frederick Whitby Quirke, R.N., on board the *Princess Irene*, torpedoed.
 Capt. Michael Foster Reaney, I.M.S.
 Capt. Walter Rowland Southall Roberts, R.A.M.C. (T.F.).
 Lieut. Kenneth Robinson, R.A.M.C.
 Capt. Francis Shingleton Smith, I.M.S.
 Lieut.-Col. Charles Ernest Thomas, V.D., New Zealand Army Medical Corps.
 Lieut. Patrick Joseph Walsh, I.M.S.
 Lieut. Peyton Tollemache Warren, R.A.M.C. (T.F.).
 Colonel Ernest Octavius Wight, R.A.M.C.
 Major James Woods, I.M.S.

Died from Wounds.

Lieut. John Clarke, R.A.M.C. (T.F.).
 Capt. Gordon Clunes McKay Mathison, of the Australian Army Medical Corps.
 Lieut. Manockji Burjorji Patel, I.M.S.
 Lieut. T. A. Peel, R.A.M.C.
 Lieut.-Col. William Bridgett Pritchard, R.A.M.C.
 Major Samuel Jabez Richards, Australian Army Medical Corps.
 Lieut. Ernest Stratford, R.A.M.C.
 Major James Craik Taylor, R.A.M.C. (T.F.).
 Capt. Andrew Wallace.

Died on Active Service.

Lieut. John Cunningham Bell, R.A.M.C.
 Capt. Gurney White Buxton, R.A.M.C. (T.F.).
 Capt. Archibald Thomson Campbell, R.A.M.C. (T.F.), late President of the Glasgow and West of Scotland Branch, Member of the Organisation Committee.
 Capt. James Fairburn Fairey, R.A.M.C.
 Lieut. Neil Murphy Gavin.
 Major Albert Hilton, R.A.M.C. (T.F.).
 Lieut. Joseph McGowan, R.A.M.C.
 Major William Aberdeine Malcolm, R.A.M.C. (T.F.).
 Major John O'Leary, I.M.S.
 Lieut. Edward Daniell Parsons, R.A.M.C.
 Capt. Peterswald Pattison, R.A.M.C.
 Lieut.-Col. Alexander Aitken Ross, R.A.M.C.
 Major Thomas Copeland Savage, of the New Zealand Army Medical Corps.
 Lieut.-Col. John Wilfred Stokes, R.A.M.C. (T.F.).
 Capt. Archibald Alfred Sutcliffe, R.A.M.C.
 Lieut. A. L. Thornley, R.A.M.C., Hon. Sec. Cardiff Division.
 Capt. Arthur Verge, Australian Army Medical Corps.

The Association also has to deplore the loss of the following members:—

Name.	Offices held in the Association.
Dr. C. Sessions Barrett	Formerly Chairman of the Leicestershire and Rutlandshire Division.
Mr. James Stanley Newton Boyd	Vice-President Section Surgery, 1913.
Dr. Thomas Bushby	President of Section of Medical Sociology at Liverpool Meeting, 1912, and Representative of the Liverpool Division.
Mr. Colin George Campbell	A former representative of the Lancashire and Cheshire Branch on the Council.
Sir Thomas Smith Clouston, M.D.	President of Section Psychology, 1886 and 1898.
Surgeon-General Sir Charles McDonagh Cuffe, K.C.B.	Member of the Naval and Military Committee; Vice-President of Section Public Medicine at Portsmouth, 1899; Vice-President and Representative of Kensington Division.
Sir Peter Ende	President of Section Medicine at Norwich Meeting, 1874.
Dr. William Thomas Edwards	President of Association at the Cardiff Meeting, 1885.
Dr. Bruce Goff	A former Member of Council and several of its Committees as well as President of the Glasgow and West of Scotland Branch.
Dr. George Allan Heron	A former Member of Council, Member of Council of Metropolitan Counties Branch and Chairman of its Finance Committee.

Name.	Offices held in the Association.
Dr. George Kirkwood...	Ex-President of the Cambridge and Huntingdon Branch.
Sir Francis Lovell, C.M.G. ...	Representative of the Trinidad Branch on the Council, 1903-05, and a Member of the Colonial Committee.
Professor Frederick Howard Marsh	President of Metropolitan Counties Branch, 1903-04; President of Section: Surgery at the Ipswich Meeting 1900.
Dr. Nicholas Percy Marsh ...	Formerly Chairman of the Liverpool Division.
*Mr. Edmund Owen ...	Chairman of Council, 1907-10; Chairman of the Constitution Committee, and Colonial Committee; Past President of the Sections Surgery, and Diseases of Children.
Professor Arthur Hamilton White	Secretary to the Leinster Branch; Secretary to the Irish Committee; Member of Council for many years.
Mr. Evan Williams ...	Late President of the North Wales Branch.

Dr. John Allan, Dr. Joseph Anderson, Dr. John J. Austin, Dr. Arthur Cajetan Baca, Dr. Fred. Bailey, Dr. William Barker Bale, Dr. Henry Charlton Bastian, F.R.S., Col Ferdinand Campion Batchelor, Dr. John Abernethy Beattie, Dr. Benjamin David Craigie Bell, Mr. Edward Bennett, Lieut.-Col. George Frederick William Braide, I.M.S., Dr. William Arthur Brailey, Dr. C. H. Bromhall, Dr. Charles Grinling Bunn, Dr. Archibald Carmichael, Dr. Edward William Scott Carmichael, Dr. George Henry Charlesworth, Mr. John Francis Cheesewright, Lieut.-Col. Letterstedt Frederick Childe, I.M.S., Mr. William Gladstone Clark, Dr. Edward A. Clarke, Mr. Charles Edward Collins, Dr. H. B. Currie, Dr. Alfred Beswick Darling, Brigade-Surgeon John Norman Davis, R.A.M.C., Mr. Archibald Robertson Douglas, Colonel Francis James Drury, I.M.S., Dr. Samuel Robert Dudley, Capt. James Johnstone Dykes, Dr. David Edwards, Deputy-Surgeon-General William Farquhar, I.M.S., Brigade-Surgeon Lieut.-Col. Joseph Fleming, R.A.M.C. (T.F.), Capt.-Ernest George Ford, R.A.M.C., Dr. Charles Henry Fox, Dr. Abraham Cross Godfrey, Lieut.-Col. William Henry Gray, I.M.S., Dr. John Greasley, Dr. William Starbuck Griffith, Lieut.-Col. William Sandilands Harrison, R.A.M.C., Colonel John Gasson Harwood, A.M.S., Dr. Pantland Hick, Lieut. Francis Gethin Hopkins, R.A.M.C., Dr. Robert Conwy Joyce, Colonel John Matthew Jones, A.M.S., Mr. Charles Lakin, Lieut.-Col. Edward Lawrie, I.M.S., Dr. David Bridge Lees, Sir John Lentaigne, Colonel Roderick Macrae, I.M.S., C.I.E., Dr. Neil McLeod, Dr. John MacRury, Dr. Samuel Macvie, Dr. Odillo Maher, Dr. Alfred Mann, Dr. George Armstrong Mason, Mr. C. S. Morrison (late President and Sec. of the Worcester and Hereford Branch), Francois Albert de Thierry Mouillot, Major George Thomas Mould, I.M.S., Dr. Brian O'Brien, Dr. George Oliver, Major Arthur Tregellés Pridham, I.M.S., Lieut.-Col. Nathaniel E. Roberts, R.A.M.C. (T.F.), Dr. Robert Barker Robson (formerly Secretary North Northumberland Division), Dr. John O. Roe, Dr. Robert John Roulston, Dr. William Omand Slater, Dr. Richard Sephton, Surgeon-General Sir Lionel Spencer, K.C.B., I.M.S., Dr. Thomas Smailes, Dr. George Walter Steeves, Dr. Charles William Thorp, Lieut.-Col. George Turner Trewhman, R.A.M.C., Dr. Thomas Underhill, Fleet-Surgeon George Alexander Waters, R.N., Dr. Alexander Welsh, Dr. Albert Westland, Mr. J. Hammond Williams.

MEDICAL BENEVOLENCE.

4. During the year 1915 amounts were collected through the Head Office for medical benevolence as follows:—

The Royal Medical Benevolent Fund ...	£568
Epsom College ...	£381
Royal Medical Benevolent Fund Society of Ireland ...	£32

The Council commends the valuable work these Societies are doing to the generous consideration of members of the Association at this time, for at no previous period have the calls upon them been so numerous and insistent.

(B) Finance.

THE FINANCIAL STATEMENT FOR THE YEAR ENDING
31ST DECEMBER, 1915.

5. The Financial Statement for the year 1915 deserves careful study, representing as it does the conditions prevailing for

a full twelve months of War, a time of much anxiety. The figures speak for themselves and call for little explanation.

THE BALANCE SHEET.

6. The outstanding liabilities and assets show but slight variation from those of a normal year. It is a matter of congratulation that the loan from the bank was reduced during the year by no less a sum than £17,500, and it is hoped that at no distant date this item will disappear entirely from the Balance Sheet. During the year, after full provision for depreciation, the Surplus Account was increased by £12,877, bringing the balance of Assets over Liabilities to £121,765.

REVENUE, OR PROFIT AND LOSS ACCOUNT.

7. The receipts from subscriptions are less by £3,645, and from Journal Account £4,679 (to which fuller reference is made later) and there is a decline in rents received. These three sources of income have not escaped the effect of the War; the total income declined by £8,489. Turning to the other side, expenditure is lower by £6,071. As to depreciation, the same provision has been made as in the previous year in respect of such item except the investments held by the Association. On December 31st, 1915, many minimum prices were still fixed. Had the nominal figures then prevailing been taken no shrinkage would have been shown, but it is doubtful whether there was then any real market. While the balance sheet was in course of preparation the Government removed the restrictions, and a real marketable price was created. Consequently your Council has considered it prudent to provide for depreciation based on prices prevailing on January 31st, 1916. This means a diminution of £1,408 in the book values. The sum is large, but the position the Association has to face is common to all holders of gilt-edged securities, and is due to the change in the earning power of capital. As already mentioned the final surplus on the year was £12,877.

GENERAL ASSOCIATION EXPENSES.

8. The interest on loan is substantially less, as also are the legal expenses, the Association having escaped during 1915 any serious litigation. Abstract A shows altogether a decrease in expenditure of £2,544.

CENTRAL MEETING EXPENSES.

9. Under this head there has been a considerable diminution of expenditure. The fact that the annual general meeting was restricted solely to business to the exclusion of all scientific work in itself meant a material saving. Most of the Standing Committees have been less active, confining themselves largely to the more urgent matters of primary importance. The work of the Insurance Acts Committee, however, has involved increased expenditure, and the activity of the Central Medical War Committee has necessitated considerable outlay, a responsibility the Association has accepted gladly in the interests of the Empire! The net result is that under this head (Abstract B) there is a diminution in expenditure of £507 as compared with the previous year.

CENTRAL PREMISES EXPENSES.

10. These expenses have increased. The charges for repairs and upkeep are higher because during the year it was necessary to overhaul the heating apparatus. Rates, taxes, insurance and electricity all show increases, while the need for insurance against air risks could not be ignored. For these reasons Abstract C shows an increase of £271.

CENTRAL PRINTING AND POSTAGES.

11. In the general printing there is a substantial reduction, not attributable to any particular head, but due to a general decrease in the output.

CENTRAL STAFF EXPENSES.

12. There is an increase under this head owing to the fact that during the year a new scheme of remuneration for the clerical staff was put into operation, in accordance with the instructions of the Representative Body and an additional assistant medical secretary came into office.

"JOURNAL" ACCOUNT.

13. The revenue in the Journal account, except for the decrease from advertisements, calls for little comment. The sales of *Secret Remedies* and *More Secret Remedies* declined and may be expected to be a diminishing source of revenue. The discounts on machining and paper are lower; less paper was consumed, and we agreed with our printers to meet

British Medical Association.

Balance Sheet 31st December, 1915.

Dr.

Cr.

LIABILITIES.

1914	1915	
£	£ s. d.	
To Subscriptions paid in advance ...	417 13 2	
" Advertisements ditto ...	1,064 14 4	
" Contributions ...	350 15 11	
" Reporting ...	9 9 0	
" Engraving ...	37 16 2	
" Printing Journal ...	382 10 8	
" Paper for Journal ...	542 16 1	
" Miscellaneous Printing... ..	446 16 3	
" Stationery ...	72 7 10	
" Repairs ...	35 3 8	
" Legal Charges ...	58 15 10	
" Rates and Taxes, Insurance and Electricity ...	517 18 4	
" Plant and Type... ..	8 7 6	
" Sundries ...	6 7 5	
" Library Books ...	39 6 0	
" Journal and Editor ...	32 15 0	
Loans—		
From Bank—Amount of Loan at December 31st, 1915, on Account of New Buildings, secured by Deposit of Deeds of Freehold Property ...	14,000 0 0	
Central Insurance Defence Fund—Secured by charge on £3,200 Bank of England Stock and £8,400 Midland Railway Consolidated 2½% Perpetual Guaranteed Preference Stock ...	9,500 0 0	
Central Emergency Fund ...	600 0 0	
" Exhibition Account Reserve per contra ...	24,100 0 0	
Total Liabilities ...	58 19 7	
Surplus Account—		
Balance on January 1st, 1915 ...	108,887 4 11	
Balance of Income over Expenditure for 1915 brought from Revenue or Profit and Loss Account ...	12,877 15 8	
Balance being total of Excess of Assets over Liabilities ...	121,765 0 7	
	<u>£149,965 13 4</u>	

ASSETS.

1914	1915	
£	£ s. d.	
By Subscriptions in arrear ...	...
" Advertisements " ...	...
" Sundry Sales ...	...
" Furniture and Fittings ...	...
" Library ...	...
" Plant and Type ...	...
" Paper Stock ...	...
" Accrued Rent ...	...
" Cash at Office ...	...
" Cash at Bank ...	...
INVESTMENTS—		
Freehold—429, Strand, Agar Street, and Harvey's Buildings ...	129,518 6 9	
" Less amount written-off ...	1,000 0 0	
" £3,200 Bank of England Stock @ 197 ...	6,304 0 0	
" £8,400 Midland Railway Consolidated 2½% Perpetual Guaranteed Preference Stock @ 38½ ...	3,760 0 0	
" Exhibition Account—Cash at Bank ...	56 12 2	
" " " Cash in hand ...	0 7 5	
Total Assets ...	128,616 6 9	
	<u>£149,965 13 4</u>	

(The above Assets do not include the unexpended Balances of Capitalization Grants held by the various Branches or the Balance held by the Irish Committee.)

Revenue or Profit and Loss Account for the Year ending 31st December, 1915.

	1914.			1915.		
	£	s.	d.	£	s.	d.
General Association Expenses	...	...	...	...	...	...
Central Meeting Expenses	...	...	...	...	...	...
Central Premises Expenses	...	...	...	...	...	...
Central Printing, Stationery, and Postage Expenses	...	...	...	...	...	...
Central Staff Expenses	...	...	...	...	...	...
Library Account	...	...	...	...	...	...
Journal Account Expenses	...	...	...	...	...	...
Grant to Irish Committee	...	...	...	...	...	...
Capitation Grants to Branches	...	...	...	...	...	...
Subscriptions Written off for Deaths	...	...	...	...	...	...
Arrears Written off	...	...	...	...	...	...
Written off for Depreciation of Premises	...	...	...	...	...	...
Library—Written off towards Depreciation	...	...	...	...	...	...
Plant and Type—Ditto	...	...	...	...	...	...
Investments—Ditto	...	...	...	...	...	...
Balance of Income over Expenditure—Carried to Balance Sheet	...	...	...	...	...	...
	£57,348	8	5	£50,369	5	9
	1,000	0	0	1,000	0	0
	200	0	0	200	0	0
	500	0	0	500	0	0
	1,408	0	0	1,408	0	0
	1,700	0	0	3,108	0	0
	15,296	9	9	12,877	15	8
	£74,844	18	2	£66,355	1	5

Irish Committee.

Financial Statement for the Year ending 31st December, 1915.

	1914.			1915.		
	£	s.	d.	£	s.	d.
To Balance from 1914
Contribution from Central Funds of the British Medical Association
By Rent, Rates, Taxes, Light, Water, &c
Printing and Stationery
Postages
Sundries
Salary—Irish Medical Secretary
Clerk
Travelling Expenses
Balance...
	£1,280	18	11	£1,280	18	11

R. J. JOHNSTONE, *Chairman.*
THOMAS HENNESSY, *Irish Medical Secretary.*

General Association Expenses.

	1914.		1915.	
	£	s. d.	£	s. d.
Auditors' Fee	157	10 0
Award of Gold Medal and Engraving President's Badge	63	18 6
Bank Charges	73	8 0
Donation to Charing Cross Hospital	178	19 9
Contribution to Aberdeen Meeting Expenses	3	3 0
Subscription to State Registration of Nurses	105	0 0
Subscription to Belgian Doctors and Pharmacists' Fund	10	0 0
Contribution to Heald and Fleethorne Case
Corporation Duty	239	12 8
Interest on Loans	1,367	15 4
Legal Expenses	1,795	7 7
New Typewriter Machines, Repairs and Hire	399	19 4
Office—Jolly Cash	10	15 0
Parliamentary Papers	129	14 11
Research Scholarships	138	15 3
Scientific Grants	11	12 4
Stamping Subscriptions Receipt Books	487	10 0
Rent of Telephone	335	0 0
Sundries	61	13 4
History of the Association	35	10 6
...	11	12 11
...	28	3 11
...	52	10 0
...	£2,760	16 3
...	45,304	7 3

Central Meetings Expenses.

	1914.		1915.	
	£	s. d.	£	s. d.
ANNUAL MEETING—Daily Journal ...	...	...	...	...
Section Expenses	153	15 0	29	0 4
...	...	...	181	15 4
REPRESENTATIVE MEETINGS—	...	...	...	...
Railway Fares ...	864	0 8	270	19 3
Printings ...	486	12 4	253	1 0
Sundries ...	30	19 6	43	16 10
...	...	...	1,381	12 6
COUNCIL—	...	...	...	...
Railway Fares ...	347	11 3	338	8 0
Printings ...	499	19 6	483	17 0
Sundries ...	30	7 1	27	17 3
...	...	...	877	17 10
Railway Fares, Secretaries' Conference	142	0 9	...	...
...	2,593	6 5	...	...
...	...	...	1,481	14 10

Committees.

Arrangements Committee—	...	...	...	...
Railway Fares ...	...	...	...	...
Printings ...	...	...	...	...
Chairmen of Standing Committees—	...	...	...	...
Railway Fares ...	...	...	...	...
Printings ...	...	...	...	...
Amount Voted to Metropolitan Branch for Expenses	...	...	...	...
Central Ethical Committee—	...	...	...	...
Railway Fares ...	169	5 8	...	...
Printings ...	71	6 6	...	...
Fees in General Medical Council Case	16	5 0	...	...
Fees re Young Case ...	...	...	...	...
Central Medical War Committee—	...	...	...	...
Railway Fares ...	...	...	...	...
Printings ...	...	...	...	...
Special Clerks' Salaries and Postages	...	...	...	...
Dominions Committee—	...	...	...	...
Railway Fares ...	319	0	...	...
Printings ...	217	6	...	...
Election Returns Committee—	...	...	...	...
Railway Fares ...	...	...	...	...
Printings ...	...	...	...	...
Emergency Committee—	...	...	...	...
Railway Fares ...	...	...	...	...
Carried forward	...	...	£2,582	14 4
...	...	...	42,657	7 7

Committees—continued.

	1914.		1915.	
	£	s. d.	£	s. d.
Brought forward ...	2,882	14 4	...	...
Finance Committee—	...	...	...	...
Railway Fares ...	74	3 4	...	...
Printings, &c. ...	71	2 3	...	...
...	145	5 7	...	...
Future Developments Committee—	...	...	...	...
Railway Fares ...	67	1 7	...	...
Printings ...	14	14 6	...	...
...	81	16 1	...	...
Hospitals Committee—	...	...	...	...
Railway Fares ...	44	9 7	...	...
Printings ...	3	17 6	...	...
...	49	7 1	...	...
Insurance Acts Committee—	...	...	...	...
Railway Fares ...	505	19 3	...	...
Printings ...	200	16 1	...	...
Sundries ...	6	15 0	...	...
...	713	10 4	...	...
Irish Committee—	...	...	...	...
Railway Fares ...	60	16 4	...	...
Printings ...	7	1 6	...	...
...	67	17 10	...	...
Journal Committee—	...	...	...	...
Railway Fares ...	27	0 5	...	...
Printings ...	17	13 6	...	...
...	44	13 11	...	...
Medico-Political Committee—	...	...	...	...
Railway Fares ...	211	9 1	...	...
Printings ...	106	9 0	...	...
...	317	18 1	...	...
Naval and Military Committee—	...	...	...	...
Railway Fares ...	10	17 8	...	...
Printings ...	17	18 0	...	...
...	28	15 8	...	...
Non-Panel Committee—	...	...	...	...
Railway Fares ...	77	4 9	...	...
Printings ...	11	6 6	...	...
...	88	11 3	...	...
Organisation Committee—	...	...	...	...
Railway Fares ...	92	13 3	...	...
Printings, &c. ...	178	6 3	...	...
...	250	19 6	...	...
Public Health Committee—	...	...	...	...
Railway Fares ...	53	4 9	...	...
Printings, &c. ...	21	11 0	...	...
...	74	15 9	...	...
Science Committee—	...	...	...	...
Railway Fares ...	32	11 10	...	...
Printings ...	14	12 6	...	...
...	47	4 4	...	...
Scottish Committee—	...	...	...	...
Railway Fares ...	16	13 6	...	...
Printings ...	200	0 0	...	...
Special Grant re Insurance Work	...	...	...	...
Special Inquiry Committee—	...	...	...	...
Railway Fares ...	12	19 9	...	...
Printings ...	6	17	...	...
...	19	17 3	...	...
Special Fund Committee—	...	...	...	...
Railway Fares ...	38	8 4	...	...
Printings ...	6	15 6	...	...
...	45	6 10	...	...
Therapeutic Committee—	...	...	...	...
Railway Fares ...	...	...	...	...
...	5	10 3	...	...
Welsh Committee—	...	...	...	...
Railway Fares ...	6	4 9	...	...
Printings ...	1	4 0	...	...
...	6	8 9	...	...
...	...	...	£5,086	6 4
...	...	...	41,570	13 0

Abstract C.]

Central Premises Expenses.

	1914.	1915.
	£ s. d.	£ s. d.
Cleaning Offices	...	319 1 0
Coals, Coke and Wood	...	111 19 0
General Repairs and Upkeep	...	212 3 9
Rates, Taxes, Insurance, and Electricity	...	1,182 18 8
	£1,555 1 4	£1,826 2 5

Abstract D.]

Central Printing, Stationery and Postage Expenses.

	1914.	1915.
	£ s. d.	£ s. d.
General Printing	...	340 1 8
Office—General Postage:—		
Finance Department	...	284 6 7
Medical Department	...	197 2 0
Stationery	...	425 9 5
	£1,728 6 3	£1,246 19 8

Abstract F.]

Library Account.

	1914.	1915.
	£ s. d.	£ s. d.
Jan. 1. To Balance	...	1,949 8 10
Dec. 31. " Purchase of Books	...	58 19 3
" " Less Sale of old Books	...	8 8 0
" Binding Books	...	50 11 3
" Salary—Librarian	...	37 5 4
" " Librarian's Clerk	...	320 0 0
" " Printing and Postage of Circulars, &c.	...	92 19 6
	...	4 18 7
		£2,455 3 6

Abstract E.]

Central Staff Expenses.

	1914.	1915.
	£ s. d.	£ s. d.
Financial Secretary and Business Manager	...	1,000 0 0
Clerical Staff, General Association, Journal, Subscription and Advertisement Departments	...	3,057 1 5
Less Proportion of Salaries debited to Journal Account	3,919 0 4	4,067 1 5
	1,944 1 5	1,969 3 6
Medical Secretary	...	2,097 17 11
Deputy Medical Secretary	...	900 0 0
Assistant Medical Secretary (1)	...	675 0 0
Do. (2)	...	517 0 0
Clerical Staff, Medical Department	...	380 18 8
	1,539 8 1	1,707 1 0
TRAVELLING EXPENSES:—		
Finance Department	...	4,179 17 8
Medical Department	...	16 12 0
Contribution to Office Staff Superannuation Fund	...	51 9 6
Insurance (Fidelity Guarantee),...	...	375 0 0
	...	71 10 8
	£8,021 2 5	£8,792 7 9

Library Account.

	1914.	1915.
	£ s. d.	£ s. d.
Dec. 31. By Salary—Librarian	...	320 0 0
" " Librarian's Clerk	...	92 19 6
" " Printing and Postage of Circulars, &c.	...	4 18 7
Amount written off for Depreciation	...	417 18 1
Balance carried to Balance Sheet	...	200 0 0
	...	1,837 5 5
	£2,455 3 6	£2,455 3 6

Income and Expenditure Account for the year ending 31st December, 1915.

	1914.			1915.			1914.			1915.		
	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.
EDITORIAL.												
Salaries:—	1,000	0	0	1,250	0	0	...	...	...	23,381	10	11
Editor	...	...	...	...	...	...	...	...	...	2,908	2	4
Assistant Editor	750	0	0	750	0	0	...	...	...	60	16	7
"	...	...	...	...	...	...	...	...	...	233	0	5
"	...	...	...	...	...	...	...	...	...	135	9	9
"	...	...	...	...	...	...	...	...	...	238	5	10
"	...	...	...	...	...	...	...	...	...	10	5	7
"	...	...	...	...	...	...	...	...	...	937	13	1
"	...	...	...	...	...	...	...	...	...	28,106	4	6
CONTRIBUTIONS.												
Editor	400	0	0	400	0	0	...	...	...	...	...	...
Assistant Editor	724	15	6	724	15	6	...	...	...	...	...	...
Clerical Staff	191	18	6	191	18	6	...	...	...	...	...	...
Editor	242	14	0	242	14	0	...	...	...	...	...	...
Assistant Editor	152	15	0	152	15	0	...	...	...	...	...	...
Editor's Clerk	51	11	6	51	11	6	...	...	...	...	...	...
Medical Secretary	14	11	0	14	11	0	...	...	...	...	...	...
(General) and Reporting	2,066	7	8	2,066	7	8	...	...	...	...	...	...
Engraving	151	7	3	151	7	3	...	...	...	...	...	...
Legal Charges	12	18	2	12	18	2	...	...	...	...	...	...
Postage	61	5	0	61	5	0	...	...	...	...	...	...
Analyses	16	13	0	16	13	0	...	...	...	...	...	...
Travelling, Telephone, Parliamentary Papers, and Sundries	152	16	6	152	16	6	...	...	...	...	...	...
Advance Slips circulated to the Press	7	17	3	7	17	3	...	...	...	...	...	...
Compiling Indices for JOURNAL and SUPPLEMENT	68	3	6	68	3	6	...	...	...	...	...	...
Editorial Petty Cash	25	1	1	25	1	1	...	...	...	...	...	...
							6,070	14	11			
										5,446	17	8
JOURNAL—COMPOSITORS' WAGES, MACHINING, &c.												
Paper	7,664	13	9	7,664	13	9	...	...	...	...	...	...
Compositors' Wages, Machining, &c.	7,343	9	11	7,343	9	11	...	...	...	...	...	...
Paper	774	17	6	774	17	6	...	...	...	...	...	...
Compositors' Wages, Machining, &c.	956	9	6	956	9	6	...	...	...	...	...	...
Paper	4,041	9	5	4,041	9	5	...	...	...	...	...	...
Postage for Dispatch of JOURNAL	822	16	3	822	16	3	...	...	...	...	...	...
Address Bands for JOURNAL	1,944	1	5	1,944	1	5	...	...	...	...	...	...
Proportion of Managers and Clerks' Salaries	167	15	7	167	15	7	...	...	...	...	...	...
General Postage	125	1	1	125	1	1	...	...	...	...	...	...
Printings	183	1	1	183	1	1	...	...	...	...	...	...
Reprints	46	4	5	46	4	5	...	...	...	...	...	...
"Secret Remedies"	101	6	3	101	6	3	...	...	...	...	...	...
"More Secret Remedies"	22	6	1	22	6	1	...	...	...	...	...	...
Stationery (Ledgers, Letter Books, &c.)	24	17	6	24	17	6	...	...	...	...	...	...
Travelling	70	1	2	70	1	2	...	...	...	...	...	...
Insurance (Workman's Compensation, &c.)	...	...	...	...	...	...	...	...	...	...	...	...
Sundries	...	...	...	...	...	...	...	...	...	...	...	...
							24,908	10	11			
										21,350	14	3
							£20,979	5	10			
										426,767	11	11
EXPENDITURE.												
Advertisements	...	...	...	...	...	...	...	...	...	...	...	...
Sundry Sales—	...	...	...	...	...	...	...	...	...	...	...	...
Journals	...	...	...	...	...	...	...	...	...	...	...	...
Reading and Binding Covers, &c.	...	...	...	...	...	...	...	...	...	...	...	...
Reprints	...	...	...	...	...	...	...	...	...	...	...	...
"Secret Remedies"	...	...	...	...	...	...	...	...	...	...	...	...
"More Secret Remedies"	...	...	...	...	...	...	...	...	...	...	...	...
Sale of Waste, &c.	...	...	...	...	...	...	...	...	...	...	...	...
Discounts on Machining, Paper, &c.	...	...	...	...	...	...	...	...	...	...	...	...
										23,427	0	5
										2,240	11	6
										£27,767	11	11

Balance from Subscriptions for the cost of production and issue of the JOURNAL

2 873 1 4

£20,979 5 10

Having examined the Balance Sheet, dated 31st December, 1915, and Accounts with the books and vouchers of the Association, except as regards the Irish Committee Account, and having received all the information and explanations we have required, we report that the Balance Sheet is, in our opinion, properly drawn up so as to exhibit a true and correct view of the state of the affairs of the Association according to the best of our information and the explanations given to us and as shown by the books of the Association.

We have verified the Investments of the Association on General Account and on account of the Trust Funds shown and of the Office Staff Superannuation Fund, and we have verified the possession by the Bankers of the Association of the Deeds of the Freehold Property.

EDWIN RAYNER, M.D.,
Treasurer.

GUY ELLISTON,
Financial Secretary and Business Manager.

PRICE, WATERHOUSE & CO.,
3, Frederick's Place, Old Jewry, London, E.C.

6th April, 1916.

them in the extra expenses they had to face for machining owing to the War. The receipts for advertisements are less by £4,000, a serious shrinkage. The decision of the Association to decline to assist in relegating to civil work medical men of military age, made it illogical to accept many advertisements. The diminution on this class of advertisement alone represents something like £50 each week or £2,600 on the year. Turning to the expenditure, this has fallen in a way to balance fully the decreased revenue from advertisements. Comparing the year under review with 1913, the last complete *ante bellum* year, the *Journal* revenue is less by £5,505, while the cost of producing the *Journal* is less by £13,217, notwithstanding increased cost of labour and material. The questions of postage, labour, the make of paper as well as the difficulties of obtaining an adequate supply at anything like a reasonable price were fully reviewed in the report of the meeting of the Council reported in the Supplement to the *Journal* of 5th February last, and it is not proposed to recapitulate these facts, but the Council takes this opportunity of informing members that the supply of paper is now under Government control and is issued only against the Board of Trade certificate. The complicated problems connected with the production of the *Journal* which have arisen since the outbreak of War have so far been met successfully, and substantial economies effected. The outlook, however, is by no means clear, and calls for the exercise of caution. There is evidence that revenue from advertisements must still further diminish, and that the expenses of production in labour and material must advance, though to what extent it would be idle to attempt to prophesy.

The Council recommends:

Recommendation.—That the Representative Body place on record its high appreciation of the valuable services rendered by the whole of the Officials and Staff and that they be thanked for the able way they have worked on behalf of the Association, and congratulated on the careful manner in which they have conserved during very critical times the financial interests of members of the Association.

APPORTIONMENT OF MEMBERS' SUBSCRIPTIONS.

14. The following tables show how a Member's subscription has been apportioned towards defraying the expenses of the Association during the year ending 31st December, 1915.

	£	£ s. d.
General Association Expenses ...	2,460	0 2 6
Central Meeting " ...	4,583	0 4 6
Central Premises " ...	2,069	0 2 2
Printing, Stationery and Postages ...	1,193	0 1 3
Central Staff Expenses ...	6,796	0 6 6
Library Account ...	410	0 0 5
<i>Journal</i> and Supplement ...	3,411	0 3 2
Subscriptions written off ...	2,490	0 2 6
Written off Premises, Investments, Plant and Type ...	3,108	0 3 1
Capitation Grants ...	2,488	0 2 6
Grant to Irish Committee ...	1,000	1 1
Balance to Reserve ...	12,837	12 4
		£2 2 0

ESTIMATE OF EXPENDITURE AND RECEIPTS FOR 1916.

15. It was pointed out last year how difficult it is to forecast expenditure and revenue under existing conditions. A veil of uncertainty still obscures the outlook.

EXPENDITURE.

	£
General Association Expenses ...	3,000
Central Meeting " ...	5,500
Central Premises " ...	2,700
Printing, Stationery, and Postage Expenses	1,500
Irish Committee ...	1,000
Central Staff Expenses ...	7,500
Library ...	450
"Journal" Account ...	30,000
Capitation Grants ...	3,000
Arrears of Subscriptions ...	2,600
Reduction of Premises Account ...	1,000
Depreciation ...	1,000

Estimated total expenditure, 1916	59,250
Estimated surplus, 1916	1,050

£60,300

RECEIPTS.

	£
Subscriptions ...	38,000
Investments and Rents ...	2,500
Advertisements ...	16,500
Sundry Sales of "Journals," &c. ...	3,000
Discounts on Paper, &c. ...	300
	£60,300

(C) The Association and the War.

REPORT OF CENTRAL MEDICAL WAR COMMITTEE.

MEETINGS AND ATTENDANCES.

(From July 30th, 1915, to April 14th, 1916.)

	Committee.		Sub-Committee.	
	Possible.	Actual.	Possible.	Actual.
Orgston, Sir Alexander, K.C.V.O., President	15	11	1	1
Turner, Mr. E. B., Chairman of Represent. Meetings	15	15	39	32
Macdonald, Dr. J. A., LL.D., Chairman of Council	15	2	—	—
Rayner, Dr. Edwin, Treasurer	15	15	—	—
Allbutt, Sir T. Clifford, K.C.B.	15	8	—	—
Barr, Lt.-Col. Sir James, LL.D.	15	10	—	—
Bolam, Lt.-Col. R. A. ...	15	14	—	—
Buttar, Dr. Chas. ...	15	14	39	39
Coombe, Major Russell ...	15	11	25	19
Galloway, Colonel James ...	15	14	39	37
Godlee, Sir Rickman J., Bart.	13	13	—	—
Greer, Major W. J. ...	15	7	—	—
Harman, Mr. N. Bishop ...	15	15	39	38
Hennessy, Dr. Thomas ...	6	1	—	—
Littlejohn, Prof. Harvey ...	14	14	—	—
Lucas, Major Albert ...	15	10	—	—
Osler, Sir Wm., Bt., F.R.S.	15	1	—	—
Richmond, Dr. B. A. ...	4	4	17	13
Shipley, Dr. A. E., F.R.S.	15	6	—	—
Shore, Dr. T. W. ...	7	6	—	—
Taylor, Dr. Frederick ...	13	12	1	1
Verrall, Mr. T. Jenner, LL.D.	15	14	39	33

CHAIRMAN.

16. The Committee appointed Mr. T. Jenner Verrall, LL.D., as its Chairman.

VICE-CHAIRMEN.

17. Mr. E. B. Turner and Dr. A. E. Shipley were appointed Vice-Chairmen.

TITLE OF COMMITTEE.

18. At its meeting on October 20th, the Committee resolved to alter its title from that of War Emergency Committee to Central Medical War Committee, as it was considered that the latter title was more comprehensive and more truly descriptive.

REFERENCE TO CENTRAL MEDICAL WAR COMMITTEE.

19. The reference given to the Committee by the Representative Body was as follows:—

Minute 37.—1. That a War Emergency Committee be appointed for the Session 1915-16.

2. That it consist of the four *ex-officio* members, four members elected by the Council from their own number, four members elected by the Representatives present in the Representative Meeting, and four other members elected in the same way who shall themselves be Representatives.

3. That it shall have power to co-opt not more than six other members representative of Universities, Colleges and other Medical Bodies.

4. That the reference to the Committee be:—To organise the Medical Profession in England, Wales and Ireland in such a way as will enable the Government to use every medical practitioner fit to serve the country in such a manner as to turn his qualifications to the best possible use; to deal with all matters affecting the medical profession arising in connection with the War; and to report to the Council.

CO-OPTION OF MEMBERS.

20. The following six members have been co-opted in accordance with the powers given to the Committee:—

Prof. Harvey Littlejohn, Dean of the Medical Faculty of Edinburgh University;

Dr. Frederick Taylor, President, Royal College of Physicians;

Sir Rickman Godlee, Bart., Ex-President, Royal College of Surgeons;

Dr. T. W. Shore, Dean of St. Bartholomew's Medical School;

Dr. Thos. Hennessy, Irish Medical Secretary and one of the Secretaries of the Irish Medical War Committee;

Dr. B. A. Richmond, Secretary, London Panel Committee;

The Editors of the *Lancet* and *B.M.J.* have also attended the meetings of the Committee by special invitation.

SECRETARIES.

21. The Committee appointed as its Secretaries, Mr. N. Bishop Harman and the Medical Secretary of the Association.

EXECUTIVE SUB-COMMITTEE.

22. It was early seen that the work of the Committee would necessitate the consideration of many matters of detail and therefore frequent meetings. An Executive Sub-Committee was accordingly appointed consisting of: Dr. C. Buttar (Chairman), Dr. T. Jenner Verrall, Mr. E. B. Turner, Colonel Galloway and the two Secretaries, to whom were later added Major Russell Coombe and Dr. B. A. Richmond.

RELATIONS WITH DIRECTOR-GENERAL, ROYAL NAVY MEDICAL SERVICE, AND THE DIRECTOR-GENERAL, ARMY MEDICAL SERVICE.

23. The relationship between Sir Alfred Keogh and the Committee has throughout been close, and the Committee is glad to know that its work has his cordial approval, and that he has more than once publicly expressed his appreciation of the assistance the Committee has been able to give him in his responsible duty of providing for the medical needs of the Army (see letter of the Director-General, published in *B.M.J.*, August 14th, 1915.) The Director-General asked that Colonel Galloway should be appointed to represent the A.M.S. on the Committee on account of his having been a member of the Army Medical Service Advisory Board and of his close touch with the medical members of the War Office staff. This was done, and the Committee has greatly benefited by Colonel Galloway's special knowledge and means of access to the War Office. Later, also at the request of the Director-General, Col. John Atkins, A.M.S., who is specially concerned in the work of Home Defence, was invited to attend all the meetings of the Committee and Sub-Committee. The Committee wishes to express its thanks to Col. Atkins for many valued services.

24. The Committee has had several interviews with the Director-General, A.M.S., at which opportunities were taken to place before him the points to which it was evident that the members of the profession generally attached the greatest importance. The Director-General also expressed his views on the future intentions of the Committee as outlined to him, and has given the Committee much valuable information as to the needs of his Department.

25. The Committee has recently met Sir Arthur May, K.C.B., Medical Director-General of the Royal Navy, and has been assured by him of his interest in and approval of the enrolment scheme. The Committee has informed Sir Arthur May that it will be glad to place at his service the machinery of the Committee for the purpose of providing him with any Medical Officers he may require, and this offer was accepted.

26. The status of the Committee has been gradually strengthened until it may now be said to be an advisory committee on matters which affect the relationship between the medical demands of His Majesty's Forces and the medical requirements of the civilian population, as well as an active recruiting agency which has been the means of securing large numbers of medical officers for the R.A.M.C. The most significant testimony to the usefulness of the Committee is to be seen in the developments that occurred after the adoption of Lord Derby's Scheme of Recruiting. The recruitment of doctors for the R.A.M.C. was left to the Committee by Lord Derby, who in a communication to the press on November 6th, 1915, approved of the operations of the Committee, and on the recommendation of the Director-General, A.M.S., agreed that the Committee should be recognised as the means of organising the medical profession with regard to military service.

27. On January 13th, 1916, the Army Council publicly announced that medical practitioners who attested under Lord Derby's scheme should enrol under the Committee's scheme and await instructions from the Committee. Special privileges have been given to medical practitioners who come within the provisions of the Military Service Act, if they have enrolled with the Committee. The position of the Committee has been further strengthened during the last three months by the issue by the War Office of certain communications to the press officially recognising the Enrolment Scheme of the Committee. The latest War Office announcement published through the Press Bureau on April 2nd, 1916, was as follows:—

In order to maintain the supply of medical officers required to meet the needs of the military services, it is urgently necessary, in the interests of the civil community no less than of our armies, that all qualified medical men not exceeding 45 years of age, irrespective of their circumstances, should without delay enter their names under the enrolment scheme which has been established by the Central Medical War Committee and has the authorisation of the War Office.

The work of enrolment is carried out by three representative bodies of the medical profession, known as the Central Medical War Committee for England and Wales, the Scottish Medical Service Emergency Committee, and the Irish Medical War Committee. It should be understood that enrolment does not mean that the medical man is at once called up for service in the R.A.M.C.; he may never be called, and in any case will not be called up until the proper time has come for his services to be accepted. The real purpose of the scheme is to secure that those doctors are selected for military purposes who can best be spared at the particular date, and from the particular place, with due regard to the needs of the civil population, to the personal circumstances of the doctor, and to the requirements of the armies.

To carry out efficiently the comparative process necessary for an equitable distribution of the civil population, it is evident that all doctors of suitable age should have offered themselves for service quite irrespective of their particular circumstances, whatever these may be, so that a proper selection may be made by a body equipped with the requisite information from all parts of the country, and thus competent to make the necessary comparisons. The only alternatives are haphazard recruitment and arbitrary demand.

It is for these reasons that the War Office has officially recognised and now relies upon the Central Medical War Committee and the corresponding committees in Scotland and Ireland. These committees include representatives of the Royal Colleges of Physicians and the Royal Colleges of Surgeons, of the universities and medical schools, and of the British Medical Association, and have associated with themselves in their work representatives of the Government departments mainly concerned.

The committees have an organisation of representative local committees in all parts of the three countries, from which they obtain local information and advice, and they work in daily contact with the various Government departments concerned.

Furthermore, for the purpose of considering and advising, through the Central Committee, on cases in England and Wales having such special features as exist, for instance, in regard to the staffs of the Metropolitan Hospitals, a Committee of Reference has, with the approval of the War Office, been now established by the Royal College of Physicians of London and the Royal College of Surgeons of England, acting jointly.

Thus it will be seen that, in order to secure the desired result, that is to say, to obtain the medical officers needed for the Army month by month, with the least possible interference with the needs of the civil population and the least possible injury to the individual practitioner, it is necessary that every medical man under the age of 45, who does not hold a certificate of enrolment (or of provisional acceptance by the War Office), should enrol at once. Only in this way can the exigencies of the situation be fairly and efficiently met.

LOCAL MEDICAL WAR COMMITTEES.

28. The Committee early realised that its efforts must prove unavailing unless supported by local organisation. Accordingly the Divisions were urged to call meetings of the local profession in their areas and to secure the appointment of a Local Medical War Committee representing all sections of the profession and both members and non-members of the Association. The response has been very good, and there are now Committees in each of the 172 areas in England and Wales. It is impossible to speak too highly of the arduous work and self-sacrifice that have been devoted to the organisation and conduct of many of these Committees, and the Committee has specially to thank the gentlemen who by acting as Chairmen and Hon. Secretaries have enabled the Central Committee to establish a network of Committees which have carried on the recruiting work for officers for the R.A.M.C. and have enabled some thousands of medical men to join the Services knowing that their interests during their absence will so far as possible be protected.

The work of these local Committees has been

- (a) To disseminate among the local practitioners, the plans of the Central Committee and the requirements of the Services.
- (b) To canvass for medical officers for the Services.
- (c) To arrange for the conduct and protection of the practices of the men who join the Services.
- (d) To assist the local military authorities in supplying, when required, civilian practitioners for military work.
- (e) To advise the Central Committee as to how far the local profession could safely be further drawn upon for the Services, having due regard to the medical needs of the civilian population.

These points must be dealt with in some detail in order that the medical profession may understand the exceedingly important functions that the Local Committees have gradually been called upon to fulfil.

(a) and (b) Dissemination of the Plans of the Central Committee; Canvassing for Medical Officers.

29. Various circulars have been issued dealing with these subjects. In the earlier months of the Central Committee's existence the plan adopted was to urge every area to do its utmost to spare as many men as possible, and a rough calculation was made of the capacity of each area for supplying officers, based on the proportion the local medical population before the War bore to the total number of medical officers required at that time. This quota was indicated as the number of medical officers that each area should strive to obtain, and the method, rough and ready as it was, served the purpose of giving the area something definite to work to. But it soon became apparent that this method needed to be modified, as it was capable of causing injustice by asking for too few from some areas and too many from others. Accordingly the quota principle has been allowed to fall into abeyance.

30. The Committee was gradually led to adopt the plan of enrolment of *all* medical men of military age for general service at home and abroad (40 years for the Navy and 45 for the Army in the case of the medical profession) and classification of these men into groups based on the ease with which generally speaking they could be spared from any locality. This system was described in Circular W. 12 issued to the Local Committees on December 14th, and published in the *Lancet* and *B.M.J.* of December 18th. The enrolment plan may be summarised as follows.—

(1) Every medical man of military age has been asked to enrol himself, that is to fill up an application for a Commission, and place it in the hands of the Committee giving it written authority to send it in to the Admiralty or War Office when in the opinion of the Committee the time has come when the individual in question should offer his services as a commissioned medical officer.

(2) He then receives a numbered Certificate of Enrolment.

(3) He is to receive not less than one month's notice of the intention to call him up.

(4) He has full opportunities of stating all his difficulties in leaving his practice, and is promised that these will receive consideration at the hands of the Local and Central Committees.

(5) He is promised that no call will be made without the Local Committee being consulted as to whether he can go and ought to be allowed to go.

(6) He is informed that enrolment does not mean that all the men enrolled will be called up—indeed it is made plain that in some districts few, and in other districts no men can be allowed to leave, at any rate until it has become imperatively necessary to lower the standard of medical attendance on the civilian population, and until every effort has been made to secure the services of men in areas where it is known there is a surplus of practitioners.

31. The similarity of the scheme to the Lord Derby system of attestation, and consideration later of the special circumstances of those who appeal will be noted, and the Director-General and the Army Medical Council by their latest announcements have indicated that they regard the scheme as the equivalent for the medical profession of the Lord Derby scheme for the rest of the male community of military age.

32. The Committee has found many misapprehensions regarding this scheme, and felt it necessary to call together Conferences of representatives of the Local Medical War Committees in order that these difficulties should be discussed. Accordingly Conferences were held at Leeds, March 21st, London, March 22nd, Birmingham, March 23rd, and Bristol, March 24th, at which representatives of the Central Committee attended in order to explain the scheme and secure the support of the Local Committees for it. The meetings were well attended and were, the Committee believes, very useful.

33. The Committee has given an undertaking not to proceed to call up practitioners under the Enrolment Scheme unless and until 75 per cent. of those medical men in England and Wales who on January 5th, 1916, were of military age, and did not hold a commission have enrolled, or have since that date received a commission in His Majesty's Forces or a letter of provisional acceptance from the War Office.

34. The Committee is glad to report that it has had much help from various Government Departments in its work of recruiting medical officers, and later in its enrolment campaign. The Local Government Board, Board of Education, National Health Insurance Commissioners and the Board of Control have assured the Committee of their full support so far as this is consonant with the public interests that these Departments specially serve.

35. The Local Government Board and the Insurance Commissioners especially have given valuable help, and the Local Government Board has issued a circular to the local authorities with which it is concerned asking them to send in a return of the medical officers they employ classified in accordance with the possibility of their being released for military service either at once, later on, or not at all. The circular also urged all the eligible medical officers to enrol with the Committee whether they think they can be spared or not.

Armet for Men who have Enrolled.

36. The Committee has asked the Director-General, A.M.S., whether a distinctive armet could be supplied to men who have enrolled. The matter is under official consideration.

(c) Arrangements for the Conduct and Protection of the Practices of Men who join the Services.

37. The Committee issued (Circular W 3) a general statement as to arrangements that might be made to minimise as far as possible the loss which must inevitably fall on most established practitioners who join the Services. The response was exceedingly satisfactory and reflected infinite credit on the *esprit de corps* and organising faculty of the profession at large. Many Local Committees have made arrangements of a very detailed character and have taken much trouble in dealing with difficult cases. Great difficulties however exist as regards the protection of the goodwill of practices in certain districts, and this applies especially in London, where the population is of a floating character and patients are not attached so firmly to practices as they are in most other parts of the Kingdom and more especially in the country districts.

38. The Committee had reason to believe that in a few cases practitioners were seeking to take advantage of the absence on Service of their colleagues. The attention of the President of the General Medical Council was called to the matter and in his address to that body at the November Session he indicated that the Council would take a very serious view of any case brought before it in which such unpatriotic and unprofessional conduct was proved. The Committee has informed the Local Committees that the British Medical Association will be prepared to bring any well attested case before the General Medical Council.

39. The Committee issued to the Press on September 23rd, 1915, a letter calling the attention of the public to the fact that they could do much to assist the profession in its efforts to protect the interests of absent practitioners, by refusing to change their doctor if he had responded to the call of the country, and by making known to any practitioner they consult during the absence of their own doctor that they intend to revert to the latter on his return. The Local Committees were urged to make use of the local Press to make a similar appeal and this has been done in many areas.

40. In this connection should be mentioned a scheme which the Committee has under consideration for the establishment of an Emergency Corps of medical men who would be prepared to place themselves at the disposal of the Committee for temporary service in any area in which the local practitioners were hard pressed by the outbreak of an epidemic. The L.G.B. and N.H.I. Commission have been consulted in regard to the proposal, which is receiving official consideration. The scheme as submitted to these Departments is as follows:—

SCHEME FOR THE FORMATION OF A CIVIL EMERGENCY CORPS TO MEET THE EXIGENCIES OF THE WAR CONDITIONS IN HOME PRACTICE.

I.—PREMISES:—

1. The evidence in the possession of the Central Medical War Committee shows that the number of medical practitioners in industrial areas under the ordinary conditions of peace is no more than is reasonably necessary to carry on the average work of those areas.
2. The most carefully graded reduction of the number of practitioners in each area will not safeguard the civil population against the dangers of lack of medical attendance in the event of a serious epidemic of disease.
3. To reduce the risk of any serious disorder arising out of such conditions extraordinary measures are needed, for the customary resource of periods of stress—temporary assistants—is lacking in war time.

II.—SCHEME:—

The organisation of a corps of medical practitioners ready to take emergency duty in any part of the country at short notice.

1. Basis of number of men required to be made on the ascertained reduction of the number of medical men in four large towns. Say 200. It is suggested that the contingency to be met under this scheme should not exceed the measure of difficulty arising in four such towns simultaneously.

2. *Eligibility for Service.*—The volunteers must be aged from 45 to 55 years. They must not be engaged in military duty. They must be or have been engaged in town practice, but not practising in any town where the civil practice is carried on with difficulty. They should not be engaged in panel practice, or if so engaged, their panel should be nominal. Selection shall be made by the Local Medical War Committees and the lists rendered to the central office for the final selection according to the geographical distribution to be arranged for the corps.

3. *Liability of volunteers.*—Each man accepted for service shall be liable for transfer to any affected area on due requisition and at 24 hours notice for a period not exceeding one month in any three months, but not for two consecutive months unless with his consent.

4. *Pay.*—Each man accepted for service shall be paid a retaining fee of twenty-five guineas for each year of his liability. When on service he shall receive the current fees of a locum tenens, say seven guineas a week, with board and travelling expenses.

III.—LOCAL ARRANGEMENTS:—

1. *At places of domicile of the volunteers.*—Each man accepted for service shall arrange for the work of his own practice to be carried on by two of his neighbours, one as first reserve, the other as second reserve. The names of these reserves shall be registered at the central office. The volunteer shall make his own arrangements for the payment of these reserves; but it is suggested that the scale of division of fees issued by the Committee for men on war service might be taken as a guide.

2. *In the affected areas.*—All industrial districts where the medical men engaged in general practice have been reduced by 20 per cent. or more below the average by the withdrawal of men from the district for war service, or below an adjusted average by the emigration of population on munition work, shall be registered at the central office.

3. On a call signed by not less than three medical men in an affected area and countersigned by some representative practitioner of the area, say the Chairman of the Local Medical War Committee, volunteer practitioners to the number required shall be notified to be ready for service within 24 hours at the place indicated.

4. The volunteer practitioner shall be billeted by the doctor requiring his services. During his period of service he shall act as partner or assistant to the local doctor, and carry on with him the full work of his practice whether of the general population or of insured patients.

5. The practitioners of the affected area requisitioning volunteer assistance shall be liable for the payment of the locum fees and the travelling expenses of the volunteer.

IV.—CENTRAL ARRANGEMENTS:—

A central committee shall be formed for the purpose of co-ordinating the working of the scheme. This Committee shall be either appointed *ad hoc* or be a sub-committee of the Central Medical War Committee. The special committee shall consist of equal numbers of members of the profession and of those authorities who shall agree to bear the responsibility for financing the arrangements.

The cost of the scheme, which would simply be the retaining fees, amounting to £5,250 per annum, should be borne in equal proportions by the Local Government Board and the National Health Insurance Commissioners.

(d) Assistance of Local Committees in supplying, when required, Civilian Practitioners for Military Work.

41. Up to the present time the Local Committees have not been called upon to assist the military authorities much in this way, though in a few areas the military authorities have utilised the Committees extensively. This matter was discussed at an interview with the Director-General and he stated that many more demands for this kind of assistance are likely to be made as the war progresses and more and more commissioned medical officers are taken out of the country. He asked for a list of all the Secretaries of the Local Committees and has circulated it to the Deputy Directors of Medical Services of the various Commands, instructing them to make use of the Local Committees in any matters in which the services of these bodies might be profitably used.

42. The Army Council has also issued an instruction that medical practitioners of military age who have not enrolled

shall not be given part-time employment with troops. This will of course greatly assist the Local Committees in their canvass for enrolments.

- (c) *Advising the Central Committee as to how far the local profession could safely be drawn upon for the Services, having due regard to the medical needs of the Civilian Population.*

43. This aspect of the work of both Central and Local Committees has naturally assumed greater importance in the past few months, as it has become evident that the capacity of some areas for sparing more practitioners was becoming seriously strained. On this subject the National Health Insurance Commissioners approached the Committee on October 6th, 1915, when the Chairman of the Joint Committee, Mr. C. H. Roberts, M.P., together with Sir Robert Morant, K.C.B., Mr. J. Smith Whitaker, and Mr. Anderson (Secretary of the English Commission) attended the meeting of the Committee by invitation. The Deputation exhibited anxiety as to the risk of serious depletion of practitioners in some areas, and inquired what the Committee was doing to prevent this and to ensure that other areas where there was a surplus of doctors would be drawn on more freely. Since that time the subject has been discussed on many occasions with representatives of the Commission, who have shown a great desire to assist the Committee in this part of its work, and have supplied the Committee with valuable statistics showing the proportion of general practitioners to population in the various administrative areas of England and Wales.

44. It was at length decided that the only way to secure that the population in no area should be unduly depleted of medical men was to ask the Director-General A.M.S., to submit every application for a Commission in the R.A.M.C. to the Committee, which should then make such inquiries as were necessary to satisfy itself whether or not any given practitioner could safely be spared and whether adequate arrangements had been made for the conduct of his practice during his absence. Such inquiries involve a great deal of work and much consultation with the Local Committees, Insurance Commissioners, and sometimes other Government Departments, but the Committee is satisfied that it is the only way to avoid serious difficulties due to over-depletion. The Director-General A.M.S., at once consented to grant no Commission in England and Wales without submitting the application to the Committee.

45. Further, the Committee issued on December 14th, 1915, to the Local Medical War Committees Circular W. 13 in which this aspect of the medical recruiting question was fully dealt with, and the responsibilities of the Local Committees as advisers of the Central Committee and through it of the War Office were emphasised. The Commissioners also issued a letter to the Insurance Committees urging them to take steps to ensure that no panel practitioner will be allowed to leave his insurance practice until definite arrangements have been made for its conduct during his absence. The Commissioners also circulated, along with their own Memorandum, a copy of the Committee's Circular W. 13.

46. In order that the Committee might be in a position to take full advantage of the co-operation and expert advice which the two Government Departments chiefly concerned in the provision of medical attendance are so willing to give, the Committee asked the N.H.I. Commission and the L.G.B., each to appoint representatives who would attend each meeting of the Committee and Sub-Committee, though without voting powers. Sir R. Morant, K.C.B., and Mr. Smith Whitaker have acted in this capacity for the Commissioners and Mr. H. O. Stutchbury and Dr. S. W. Wheaton for the L.G.B.

COMMUNICATIONS WITH HOSPITALS.

47. The Committee has on two occasions addressed Circulars to the Governing Bodies and Medical Staffs of the Voluntary Hospitals throughout the country, one on September 11th, 1915, and the other on January 10th, 1916 (W. 14), urging them to do what they could to make such arrangements as would allow the members of their resident and honorary staffs to place themselves at the disposal of the Military Authorities. Information was given as to the means devised by certain hospitals to meet the difficulties caused by shortage of staff, and the Committee has good reason to believe that these circulars have been found useful. The Committee received an important deputation from the hospitals of Manchester and discussed with it the difficulties which those bodies were finding in staffing their hospitals and was assured by the deputation that the interview had been of great use to it.

SPECIAL POSITION OF METROPOLITAN HOSPITALS AND HOSPITAL STAFFS.

48. It was intimated to the Committee that the Central Tribunal was of opinion that the necessities of hospitals and their staffs, especially in London, should be dealt with by a Committee of the two Royal Colleges. The Committee therefore approached the Royal College of Physicians, London, and the Royal College of Surgeons of England, who consented to form a joint Advisory Committee (now known as the Committee of Reference) to consider the minimum necessity of the several Metropolitan Hospitals and Medical Schools during the war in respect of medical men on their staffs (including the residential and teaching staffs), to advise the Government Departments concerned through the Central Medical War Committee in any case within this category in respect of which the question arises as to whether a particular individual is indispensable or would suffer excessive personal hardship if required to enter into military service, and further to advise the C.M.W.C. on the case of any other medical man in England and Wales in respect of whom the C.M.W.C. or the Central Tribunal under the Military Service Act, 1916, thinks it advisable that its advice should be sought, such advice to be communicated through the C.M.W.C. without alteration to the Government Department concerned.

49. The following are the members of the Committee of Reference:—

Representatives of Royal College of Physicians, London:—

Dr. Frederick Taylor, President.
Lieut.-Col. W. Pasteur.
Major Sidney Martin.
Colonel James Galloway.
With power to co-opt two others.

Representatives of Royal College of Surgeons, England:—

Surg.-Gen. Sir W. Watson Cheyne, Bt., K.C.M.G., C.B.,
President, for whom when absent Sir Rickman J.
Godlee, Bt., K.C.V.O., is deputed to act.
Lieut.-Col. William F. Haslam.
Lieut.-Col. D'Arcy Power.
Mr. Charles Ryall.
With power to co-opt two others.

Secretary to the Committee:—

Mr. Frederic G. Hallett.

The Committee confidently anticipates that the advice of the Committee of Reference will be exceedingly valuable.

SCOTLAND AND IRELAND.

50. The reference of the Committee included the power of dealing with Ireland so far as the organisation of the medical profession for military purposes was concerned. The Committee however came to the conclusion that it would be better if a Committee were specially constituted for Ireland somewhat on the lines of the Scottish Medical Service Emergency Committee, and this suggestion was conveyed to the Irish Medical Secretary B.M.A. An Irish Medical War Committee has been established composed of representatives of the various Irish medical teaching bodies and of the Local Government Board, concerning which fuller information will be found under the head of Ireland in the Report of Council. *The C.M.W.C. has co-opted as a member Dr. T. Hennessy, who is Assistant Secretary to the Irish Medical War Committee. Similarly Prof. Harvey Littlejohn, of the Scottish Medical Service Emergency Committee, has been co-opted. In this way the three Committees are kept in touch.

TERRITORIAL MEDICAL SERVICE.

51. The Committee has continued the representations which were made by the Committee of Chairmen of Committees of the Association to the Director-General as to the disadvantages under which the Territorial Medical Officer laboured as compared with the Temporary Lieutenant R.A.M.C. As a result the authorities announced that as from April 1915 last all Special Reserve and T.F. Lieutenants would be promoted Captains after six months' service. This promotion carries with it increase in pay, and it did much to allay the dissatisfaction felt by junior Territorial Medical Officers. The Committee acting in consultation with the Naval and Military Committee of the Association did not fail however to point out that as regards pay the Territorial Captain was still in an inferior position as compared with the Temporary Lieutenant R.A.M.C., and in a War Office letter dated October 17th, 1915,

it was announced that all Territorial Medical Officers accepting general service will be entitled to certain gratuities which will make their pecuniary position practically equal to that of the Temporary Officer. The Committee, on the advice of the Naval and Military Committee, informed the War Office that it held that the grant of these gratuities was no new concession, but was a right to which Territorial Officers were clearly entitled under par. 497 of the Royal Pay Warrant. The Committee again informed the War Office that in its opinion the slight disparity still existing between the pay of Territorial and Temporary R.A.M.C. officers should be removed, and also expressed its opinion that the disadvantages under which Territorial Medical Officers laboured (pay, and duration of service for period of War, as compared with the one year contract of the Temporary Officer), accounted for the undoubted difficulties experienced by Territorial units in obtaining medical officers. The reply from the War Office simply recapitulated the improvements already made in the position of the junior Territorial Medical Officer, and did not indicate any prospect of further concessions being made.

PENSIONS FOR NAVAL AND MILITARY MEDICAL OFFICERS.

52. In response to numerous enquiries, it has been definitely ascertained that Temporary Naval and R.A.M.C. Officers are treated as regards pensions in exactly the same way as the permanent officers, with the exception of certain pensions which depend on length and permanency of service.

53. In the 3rd Special Report of the Select Committee on Naval and Military Services (Pensions and Grants), the probability of improved pensions was held out to "Officers holding Combatant Commissions." The question was at once raised with the Director-General A.M.S. as to whether this included Medical Officers, and he informed the Committee, after inquiry, that it did not. Sir Alfred Keogh has promised to give this matter his personal attention, and the Committee is given to understand that the claim of Medical Officers to be treated exactly the same as Combatant Officers will most probably be conceded.

MEDICAL STUDENTS AND RECRUITING.

54. The question of the position of medical students in relation to Lord Derby's Scheme was considered several times by the Committee and considerable diversity of opinion was shown as to whether the authorities should be advised to restrain medical students from enlisting or to encourage them to do so. It was evident that whatever compunction might be felt as to allowing the ranks of future medical practitioners to be depleted by the enlistment of medical students it would be difficult, if not impossible, to restrain these young men from offering themselves for military service when they found that practically all the young men of their acquaintance were enlisting. Moreover it was pointed out by the military authorities that junior medical students were just of the age and type of men who might be expected to make efficient combatant officers. The Committee however attempted to secure a compromise and informed the Director-General that it would be advisable, if possible, to utilise medical students as far as possible in the R.A.M.C., and suggested that Commissions as Second Lieutenants or Surgeon Probationers in the R.A.M.C. might be offered to third year medical students. The proposition was not accepted by the authorities. Further representations were made with the view of preventing the entrance into combatant military service of third year medical students, that is to say, all men who have passed all their examinations in Anatomy and Physiology but have not commenced their fourth year of study. The present position of the Authorities was laid down in the following notice sent to the Committee and to the Press on November 24th, 1915:—

"Students who at or before the close of the present winter session will be qualified for entry to one of the examinations for the third year students in medicine, and duly enter for the examination for which they are now studying, will not be attested until after its conclusion, and if they are successful will be included in the class of fourth year men under Lord Derby's scheme."

The fourth and fifth year students were not encouraged to attest, but to continue their studies with a view to qualification and entrance into the R.A.M.C. as officers.

MEN OF MILITARY AGE EMPLOYED ON HOME SERVICE.

55. Considerable difficulties have arisen in regard to the position of practitioners who are under 45 years of age, and who have been employed on Home Service only. The Director-General was informed that many representations had been received by the Committee to the effect that the presence of these young men in home posts was seriously detrimental to recruiting for the R.A.M.C., as men in busy practices refused to believe that there was any urgent demand for Officers so long as the Military Authorities could afford to employ these young men at home. The Director-General at once promised to remove this difficulty so far as he could, but pointed out that a great part of it was due to the fact that most of the men concerned were employed in Territorial Hospitals over which he had not at that time complete control. In August last the Director-General was requested by the Committee "to give instructions to D.D.M.S.s and A.D.M.S.s not to retain or accept for work in military hospitals at home, medical practitioners of military age who were physically fit, but that they should encourage these practitioners to accept Commissions in the R.A.M.C.;" also that the same principle should apply to those practitioners who have signed the Imperial Service Declaration and who are at present at work in Red Cross and V.A.D. Hospitals. To this the following reply was sent on September 3rd, 1915;

"I am directed by Sir Alfred Keogh to inform you that the following policy will be adopted with regard to the engagement of medical men as temporarily commissioned officers in the R.A.M.C. :—

(1) No man under 45 years of age will be employed unless he undertakes general service obligations for a year, and is found to be physically fit for duty at home and abroad.

(2) No man over 55 years of age will be accepted for home service.

(3) No man under 45 years of age will be re-engaged after the expiration of his first contract unless he offers for general service.

I am to say that it is hoped that these restrictions will facilitate the work of the War Emergency Committee in setting free men of military age and providing for the older practitioners to look after their interests during their absence.

It will be noticed that the age for general service has been advanced by five years and that the age for home service only has been reduced by the same period."

It will be observed that nothing was said in the communication sent by the Committee as regards men who were not physically fit, but the War Office notified subsequently the exclusion from home service of all men of under 45 who are not physically fit for either home or general service, and this gave rise to dissatisfaction. Some of the men concerned who have held Commissions and who have been refused extension of them at the end of the year have blamed the Committee for this exclusion, but the Committee has pointed out that the action of the War Office was decided on departmental grounds and not at the request of the Committee, and that the Committee did in fact seek from the Director-General the re-employment of such men, and that therefore the Committee cannot be held responsible for the contracts not having been renewed.

QUESTION OF MORE ECONOMICAL USE OF MEDICAL MEN IN MILITARY SERVICE.

56. The Committee has been met in its recruiting efforts by widespread and repeated complaints that more medical officers are already in military service than are required for the needs of the service, and many instances have been given to show that military hospitals and military units in many places are overstaffed. This question has been very earnestly considered by the Committee and has been the subject of many representations to the Director-General, A.M.S., both by deputation and through Colonel Galloway. While the Committee believes that individual instances of wastage may be proved, it has been convinced by its communications with the Director-General that on the whole these complaints are due to ignorance of the larger questions of Army medical administration. In the first place, as regards the alleged overstaffing at the Front, the necessity for having ample reserves must not be overlooked. At present on the Western Front we are going through a period of what may be termed siege warfare, and no doubt in some quarters and at some times medical officers

are not used to the extent that they would be if the nature of the warfare were different. But the Army medical service must be manned for forward movements, and the Director-General has assured the Committee that the personnel has been fixed with due regard to many years of experience both in our Army and in other Armies. The Committee feels that after all the responsibility must rest upon the military authorities, who would be blamed if at any given time it were found that there were not sufficient medical officers, and the Committee does not consider that it is wise or patriotic to question the decision of the military authorities, arrived at, as the Committee has good reason to know, after full consideration of the criticisms that have been offered.

57. The same considerations apply more or less to medical officers on home service. At present there are many men engaged at home who when the character of the warfare changes will be wanted at one of the Fronts, and it is unreasonable to criticise the military authorities for employing these men at home in some capacity, even though they may not be fully employed, pending their being wanted more urgently elsewhere. Here again the necessity for having ample reserves must be emphasised, and the Committee cannot take the responsibility of urging the military authorities to refrain from recruiting medical officers that the Authorities feel sure they will require, probably in the near future, merely because at the moment they cannot fully employ them. If it be said that in view of civilian difficulties practitioners should not be urged to join the Army until it is known that they are urgently required, the reply is twofold. First, that medical, like other officers, are all the better for some preliminary military training and for the physical training and open-air life they get previous to their being required at the Front; and, secondly, that the Committee believes that if its enrolment scheme is a success and the Director-General is assured of a steady supply of medical officers as and when required, the calling away of more medical men from civilian practice to military life will be deferred as long as the military authorities feel it wise to do so.

58. In view of these considerations the Committee has felt it to be its duty not to encourage these criticisms and to ask the critics to trust the Director-General, who has shown every disposition to meet legitimate criticisms and to give full weight to the necessities of the civilian population. The military authorities must be trusted not to ask for more medical men than they feel to be absolutely necessary in the interests, either immediate or more remote, of the Army. In the meantime the Committee will continue to place before the Director-General all such criticisms as it believes to be legitimate and which have not already been fully answered by him.

ADVERTISEMENTS IN THE "BRITISH MEDICAL JOURNAL."

59. Certain cases were brought to the notice of the Committee which suggested the advisability of some censorship of advertisements offering posts which were likely to attract to civil practice medical men who ought obviously to be in the Navy or R.A.M.C. The Committee realised that it had no authority in this matter, but as it had the advantage of the presence of the Chairman of the Journal Committee and the Treasurer of the Association the matters were referred to them, with the result that so far as possible no advertisement is allowed to appear in the *Journal* which would probably, if published, result in relegating to civil practice a practitioner who should be serving with the Colours. This is all the more satisfactory inasmuch as this action was taken previous to the severe criticism expressed in the House of Commons by the Under Secretary for War as regards those newspapers which inserted advertisements of the kind just mentioned.

The proprietors of the *Lancet* and *Medical Officer* are also co-operating in this matter.

ROYAL NAVAL VOLUNTEER RESERVE.

60. Representations were made to the Committee on behalf of certain Surgeons in the R.N.V.R. who felt aggrieved that although they had received their commissions in peace time and had done their utmost to qualify for service before the War, their rank was the same as that of the Temporary Surgeons who had been appointed since the commencement of the War. The whole subject was very carefully considered with the help of the representative of the Navy Medical Service on the Council, and enquiries were made of the Medical Director-General Royal Navy, but it was not found possible to arrive at any solution of the difficulty which was

acceptable on the one hand to the Surgeons R.N.V.R. and on the other hand to the Director-General.

QUESTION OF FUND FOR HELPING PRACTITIONERS WHO HAVE BEEN ON SERVICE.

61. The Committee has given consideration to the following resolution of the Representative Meeting, referred to it by the Council:—

Minute 39—Resolved: That the Representative Meeting requests the Council to consider the advisability of raising a Medical Fund for the purpose of helping those practitioners who have been serving their country as medical officers of the Army and Navy and also of helping the dependants of such practitioners, if necessary, and gives the Council power to act.

The Committee does not feel that it possesses sufficient information on the subject to advise definitely in favour of the establishment of such a fund, but has reported to the Council its opinion that such a fund may be necessary and, with a view of assisting the Council in deciding whether it will take action has submitted for the information of the Council a memorandum on the subject, which has been referred by the Council to the appropriate Committees for further consideration and report.

OTHER REFERENCES FROM THE COUNCIL.

62. The following resolutions of the Representative Body were referred to the Committee by the Chairmen of Representative Meetings and Council:—

References from Annual Representative Meeting.

Minute 32.—Resolved: That the Council take every step possible in order to obtain favourable consideration by the Government of the question dealt with in para. 9 (Supp., July 3rd, p. 8) of communication sent to the Director-General, Army Medical Service, dated 26th May, 1915.

(para 9 above referred to): Financial considerations.

9. Very many representations have been made to the Committee to the effect that practitioners who would have been glad to offer themselves for commissions are unable to do so on account of their financial commitments as regards their practices or their families. In the case of the younger practitioners who are not established in practice the remuneration offered by the War Office is probably sufficient to protect them from any financial loss, but the case is quite otherwise as regards the men who have been for some years established in practice. Many suggestions have been made to the Committee on this point which have resolved themselves into proposals either to raise the remuneration or to increase the gratuity at the end of service. On this subject Colonel Blenkinsop placed before the Committee certain considerations which have led it to the conclusion that it cannot at the present moment press either of the above-mentioned suggestions. But the Committee feels that it must place on record its conviction that financial considerations of very varied kinds are preventing many experienced practitioners from offering their services to the War Office, and that an increase in the remuneration offered to such practitioners would be justifiable, and will be necessary if it is really desired to secure their services. The Committee believes that if the Government could see its way to grant extra pay or gratuity to cover what to many practitioners would be a considerable loss of income or capital, such action would to a considerable extent solve the present difficulty of securing medical officers.

Minute 33.—The following Rider by Dr. Major Greenwood, seconded by Mr. J. V. C. Denning, was withdrawn, the Chairman having undertaken that it should be considered by the Council and referred to the appropriate Committee:—

(1) That in all cases where military duties are discharged by institutional Medical Officers, the salaries paid to such officers should, if giving whole-time service, be on a scale not less than that paid by the War Office to members of the R.A.M.C.

(2) That where the duties are part-time only, an addition should be made to the Medical Officer's salary in proportion to the extra labour involved.

Financial Considerations.

63. As regards Minute 32 of the A.R.M., the Committee is of opinion that no further action could usefully be taken in this matter.

Institutional Officers in charge of Military Hospitals.

64 (a). The subject matter of Minute 33 was brought to the notice of the War Office, who did not see their way to take any action.

REAPPOINTMENT OF CENTRAL MEDICAL WAR COMMITTEE FOR 1916-17.

64 (b). The Council recommends:

Recommendation.—That the Central Medical War Committee be reappointed for 1916-17 with the same personnel as for 1915-16.

(D) Organisation.

GENERAL QUESTION OF GROUPING OF HOME BRANCHES FOR ELECTION OF COUNCIL: GROUPING OF THESE BRANCHES FOR ELECTION OF COUNCIL 1917-18.

65. The proposal approved by the A.R.M. 1915 for reconsideration of the general question of the grouping of the members of the Association in the United Kingdom for representation on the Council is receiving the attention of the Council. In the opinion of the Council the present time is not opportune for attempting to make important and, as experience has shown, highly contentious changes in the method of election of the Council.

The Council recommends:

Recommendation A.—That the Home Branches be grouped for election of 24 members of Council, 1917-18, under By-law 46 (a) in the same way as for 1916-17.

(For the 1916-17 grouping see *B.M.J.* Supplement, May 8th, 1915, pp. 201-2*)

GROUPING OF OVERSEA BRANCHES FOR ELECTION OF COUNCIL 1917-18.

66. The Council recommends:

Recommendation B.—That the Oversea Branches be grouped for election of 7 members of Council, 1917-18, under By-law 46 (b) in the same way as for 1916-17, except that the new Grenada Branch be included in the Canada and West Indies Group of Branches.

(For the 1916-17 grouping of the Oversea Branches see *B.M.J.* Supplement, May 8th, 1915, p. 202.)

REPRESENTATION IN REPRESENTATIVE BODY, 1916-17.

(a) *Of Home Divisions.*

67. The Council has provisionally grouped the Home Divisions in Constituencies for election of Representatives, 1916-17, in the same way as for 1915-16. In a considerable number of cases memberships have fallen slightly as compared with last year's figures, owing largely no doubt to circumstances in connection with the War. In the opinion of the Council, however, it is undesirable in the circumstances to reduce further the number of Constituencies. The Council has authorised the Organisation Committee finally to decide the grouping upon publication of the Annual List, 1916.

(b) *Of Oversea Divisions.*

Each Oversea Division and Division-Branch has been made an independent Constituency.

ARTICLES AND BY-LAWS.

68. The alterations of Articles proposed by the A.R.M., 1914, were carried out by Extraordinary General Meetings held in July and August, 1915.

QUESTION OF A CONFERENCE OF SECRETARIES IN 1916.

69. The Council has decided not to hold a Secretaries' Conference in 1916, as it is of opinion that under present conditions a Conference would not be a success.

BOUND VOLUMES OF SUPPLEMENTS.

70. It has been arranged that in accordance with the instruction of the A.R.M., 1915 (Min. 55), Honorary Secretaries

* Owing to the shortage of paper the Council has this year omitted from its report the usual grouping lists of Branches and Divisions, the reports of Branches, and the attendances at meetings of the R.B., Council and Committees.

of Divisions shall be again supplied with half-yearly bound volumes of Supplements, the issue to commence with the half-yearly volume for January-June 1916.

QUESTION OF THE ASSOCIATION BECOMING ALSO A FEDERATION FOR OTHER MEDICAL BODIES.

71. Min. 52 of the A.R.M., 1915, instructed the Council to confer with other societies formed to safeguard the interests of sections of the profession, with a view to determining how far it might be possible for the Association to come into closer relationship with such bodies, and to report with drafts of any alterations in the Articles and By-laws which the Council might consider necessary to that end. In the opinion of the Council the present time is not auspicious for such conferences. Further consideration of the matter has therefore been postponed.

RULES.

72. The Council has approved since the last report of Council Rules of Organisation adopted by 4 Divisions and 8 Branches. Divisions and Branches in the United Kingdom not yet in possession of Rules are urged to apply to the Medical Secretary for copies of the Model Rules of Organisation.

CHANGES OF BOUNDARIES.

73. The only important change made has been the formation, in response to the unanimous wish of the local members, of a Grenada Branch.

MEMBERSHIP.

1915.		1914.	
New Members.....	806	New Members.....	794
Resigned.....	1,056	Resigned.....	2,318
Died.....	285	Died.....	238
Removed in arrears...	379	Removed in arrears...	407
Expelled.....	7	Expelled.....	6
Erased from Medical Register by G.M.C.	1		
	—1,728		—2,969
Decrease	922	Decrease	2,175
Membership, December 31st, 1915	...	21,279	
Membership, December 31st, 1914	...	22,201	

REPORTS OF DIVISIONS AND BRANCHES FOR 1915.

74. In spite of the prevailing unfavourable conditions the Council is glad to report that reports, on the whole satisfactory, have been received from the large majority of the Divisions and Branches. A gratifying feature of the reports received is that they show improved financial co-ordination between Branches and Divisions.

75. The Council wishes to place on record its warm appreciation of the work done during the session by Honorary Secretaries and Acting Honorary Secretaries of Divisions and Branches, work rendered more onerous by the special difficulties of the present time.

(a) *Reports of Home Divisions.*

76. Of the 212 Home Divisions, 150 have up to March 30th reported for 1915.

(b) *Reports of Home Branches.*

77. Up to the same date reports for 1915 have been received from 25 of the 41 Home Branches.

(c) *Reports of Oversea Divisions and Branches.*

78. Circumstances in connection with the War have prevented these from reporting as well for 1915 as has recently been the case.

GRANTS TO BRANCHES.

(a) *Home Branches.*

79. Grants for 1916 varying from 1s. to 4s. per member are being made to such of these Branches as require grants and have furnished satisfactory reports for 1915.

(b) *Oversea Branches.*

80. These grants have been made on the same basis as in previous years, namely, at the rate of 4s. per member who has paid the full subscription for the year, and 2s. per member elected after July 1st who has paid half the ordinary subscription.

(c) *Supplementary Grants.*

81. Supplementary Grants have been made to the Connaught and North of England Branches.

(E) *Journal.*

82. In the Report for last year attention was directed to the many difficulties which had to be faced in the production of the *Journal* owing to the shortage of the paper supply. These difficulties recently have become more acute, and with the stoppage of the export of wood pulp from Sweden, and the restricted facilities of transport, it is not clear what the future has in store.

83. Throughout the year the number of pages of the weekly issue of the *Journal* has been materially curtailed, and with the change of the postal rates in November, 1915, in order to come within the halfpenny rate and so save about £1,800 a year, the substance of the paper had to be materially reduced. These points were fully reviewed in the Supplement of the *British Medical Journal* of February 5th, and as they have an important bearing on the finances, they are also referred to in the Financial Statement; therefore fuller reference is not made to these matters under this head.

ADVERTISEMENT.

84. The Committee has closely watched the advertisements tendered for insertion in the *Journal*, and care has been exercised to guard against accepting for publication any that might conflict with the policy of the Association.

(F) *Science.*

• STEWART PRIZE.

85. The Stewart Prize for work in connection with the origin, spread and prevention of epidemic disease will be awarded during the current year to Colonel William Heaton Horrocks, A.M.S., B.Sc., M.B., for his work in preserving the British Army on the Continent from epidemic disease.

RESEARCH SCHOLARSHIPS AND SCIENCE GRANTS.

86. Although owing to the War many practitioners who would otherwise do so are unable to carry on research work, some practitioners who do research work are not eligible for Military Service, and the Council has therefore decided to invite applications for Grants for 1916-17 in aid of scientific research. It is not proposed however to appoint Research Scholars for 1916-17.

(G) *Medical Ethics.*

POWERS OF CENTRAL ETHICAL COMMITTEE.

87. By Standing Order of Council the Central Ethical Committee has been empowered to act for the Council on and deal with and adjudicate upon all questions of professional conduct arising in the United Kingdom, but not so as to exercise the power of expulsion given to the Council by the 10th Article of Association.

PROFESSIONAL SECRECY.

88. Last year in its Supplementary Report the Council intimated that it had invited the Royal College of Physicians, London, and Royal College of Surgeons, England, to appoint representatives to meet representatives of the Association in Conference on this subject. In response to this invitation replies were received from both Colleges to the effect that as the matter had already been considered and replies sent to the Director of Public Prosecutions it was not felt that any advantage would result from the proposed Conference.

ACTION AGAINST THE ASSOCIATION AND OTHERS.

89. In connection with the Action for conspiracy, libel and slander brought against the Association and five Members of the Coventry Division by the four medical officers of the Coventry Dispensary, and to which reference was made in the last Annual Report of Council, the Council reports that the plaintiffs' application to have the trial of this Action held in London has been allowed.

PUBLICATION IN LOCAL NEWSPAPERS OF NOTICES REGARDING APPOINTMENTS.

90. The Council has approved Regulations relative to the publication in local newspapers of Notices regarding Appointments.

EXPULSION.

91. The Council regrets to report that it has been necessary to remove from Membership of the Association a Member who continued to hold an appointment in connection with a Medical Aid Association in contravention of a resolution adopted in accordance with the provisions of its Ethical Rules by the Division to which he belonged.

RULES.

92. The Council has approved the adoption of the Revised Rules governing procedure in Ethical matters, as approved by the Annual Representative Meeting, 1915, by 113 out of 212 Home Divisions, and by 23 out of 41 Home Branches. The Council no longer recognises any Ethical Rules other than the Revised Ethical Rules approved by the Representative Body, and there are consequently 99 Home Divisions and 18 Home Branches which are not in a position to deal with any Ethical matters.

(H) *Medico-Political.*

MEDICAL INSPECTION AND TREATMENT OF SCHOOL CHILDREN.

93. The Council has considered the following Minutes of the A.R.M., 1915:—

Min. 111.—Proposed:

That the following Recommendation of Council be adopted:—

That the Annual Representative Meeting, 1915, approve the Memorandum on Medical Inspection and Treatment of School Children, as a statement of the policy of the Association in regard to these matters. (For the Memorandum see Supp., May 8th, 1915, p. 227.)

Min. 112.—Whereupon an amendment:

That treatment should not be included in the duties of a School Medical Officer.

The amendment was carried.

*Min. 113.—*The Memorandum on Medical Inspection and Treatment of School Children was thereupon, by leave, withdrawn by the Chairman of the Medico-Political Committee for further consideration.

Inasmuch as the Memorandum in question, which was the result of careful deliberation in conference with the Society of Medical Officers of Health, was approved by the A.R.M., 1914, at Aberdeen, and was merely referred to the Council for the purpose of incorporating therein certain amendments of minor importance adopted by that A.R.M., which has been done,

The Council recommends:

Recommendation A.—That the R.B. approve, as the policy of the Association on medical inspection and treatment of school children, the Memorandum published in the Supplement of May 8th, 1915 (pp. 227-9).

MEDICAL CERTIFICATES IN CONNECTION WITH POSSIBLE PENSIONS OR GRATUITIES TO DEPENDANTS OF SOLDIERS AND SAILORS KILLED ON ACTIVE SERVICE.

94. The certificates in question are required by the War Office for the investigation of claims to pensions or gratuities made by the dependants of soldiers and sailors killed on active service, and it has come to the notice of the Council that practitioners have been pressed to give these certificates gratuitously.

As there is bound to be a great demand for such certificates, which will require to be given with great care in view of the amount of national funds which will be involved, the Council is of opinion that steps should be taken to secure uniformity of action throughout the country.

The Council recommends:—

Recommendation B.—That in connection with the giving of certificates by medical practitioners as to the degree of capacity to earn their own livelihood of dependants of deceased soldiers or sailors for the purpose of establishing their claim to pension or gratuity, it is desirable—

- (i.) That there should be a uniform standard of estimating disability to earn;
- (ii.) That the work of certification should be done by a board of practitioners, and should be paid for.

Recommendation C.—That it be urged upon the Government that the above proposal would be conducive to public economy and efficiency.

PATENT MEDICINES.

95. A communication was addressed to Sir Henry Norman, Chairman of the recent Select Committee on Patent Medicines, conveying the resolution of the A.R.M., 1915, which placed on record its satisfaction with the recommendations of the Committee, and expressing the hope that when normal times arrived the Association might have his support in pressing upon the attention of Parliament the very serious evils which the Report disclosed, and the necessity for dealing with them drastically on the lines therein suggested. A reply has been received from Sir Henry Norman expressing his thanks for the resolution in question and stating that with a return to normal times he would be wholly at the service of the Association for any further help in his power in the matter.

MATERNITY AND CHILD WELFARE.

96. In view of the fact that local Sanitary Authorities were being urged by both the English and Scottish Local Government Boards to put into immediate operation the L.G.B. schemes for the establishment of Maternity and Child Welfare Centres, the Council issued to the Clerks and Medical Officers of local authorities in England, Scotland and Wales, copies of that part of the Association's report on this subject which was approved by the A.R.M., 1915. This report it will be remembered dealt with the necessity of employing the general practitioner in such schemes wherever possible.

Considerable interest has been shown in the report by local authorities, and requests have been received for some 600 additional copies, for circulation to the members of Committees dealing with the question. Many expressions of appreciation have been received regarding the action of the Association in thus circulating its views.

That part of the report of the Association which was referred back to the Council by the A.R.M., and which dealt with the question of the remuneration of medical practitioners for work in connection with schemes, is still under consideration by the Council. Application was made to Divisions for their views, but there was practically no response.

FEES FOR MEDICAL EXAMINATION FOR LIFE INSURANCE.

97. The Council has considered the action taken by the A.R.M., 1915, when, after considering the report of Council dealing with this subject, it decided to proceed to the next business. The Council has decided to take no further action in the matter at present.

NOTIFICATION OF BIRTHS ACT.

98. In view of the fact that the Notification of Births Act became law immediately after the Representative Meeting, the Council decided that it was not possible to take any useful action in connection with the following Minute 147 of the Meeting:—

Resolved: That this Meeting protests against the extension of the Notification of Births Act, on the ground that it compels the profession to reveal facts learnt by them in their professional work.

MEDICAL PROFESSION AND REBATE OF WAR DUTY ON PETROL.

99. Upon the intention of the Government to double the duty on petrol becoming known, the Council considered the question, but did not take any action as it was understood at first that commercial users of motors would not apply for rebate on the proposed tax. Subsequently, however, on it being reported that commercial users of motors had approached the Government on the question and had been granted a rebate, a communication was addressed to the Chancellor of the Exchequer expressing the hope that any rebate granted to commercial users of motor cars would also be extended to the medical profession. The reply of the Chancellor was favourable and a rebate of 50 per cent. of the new tax was conceded to the medical profession.

SUPPLY AND PRICE OF PETROL.

100. Complaints have been received during the past few months from every part of the country, but particularly from rural areas, as to the shortage of the supply of petrol and the price of such as could be obtained. Immediate and repeated representations were thereupon made to the Board of Trade. It was then found that the question had been taken in hand by the Ministry of Munitions, and representations were made to that body which resulted in a Conference being held between representatives of the Government and of the Association. The representatives of the Association pointed out that if prompt action were not taken the difficulty in obtaining a supply of petrol might lead to practitioners having to curtail their work. It was further urged that the fact that so many practitioners are now doing military work and attending to the practices of men on military service entitled them to special consideration.

101. The Council is pleased to report that the case of the profession for special treatment was received very sympathetically. The representatives of the Government were able to show that the question was an exceedingly complicated one, and that before effective action could be taken to secure a supply for the profession information must be obtained as to the amount likely to be required by the profession as a whole and in different parts of the country. Accordingly a circular has been issued to every medical man in the country and the Government expects very shortly to be in a position to estimate the total quantity required, and will then be able to proceed with its detailed arrangements for making such a quantity as can be spared available to practitioners. The Association has offered to the Ministry of Munitions the machinery of the Divisions of the Association in dealing with the question of distribution.

IMPORT DUTY ON MOTOR CARS.

102. In view of the fact that under the Finance (No. 2) Bill it was proposed to make a concession on the new "ad valorem" import duties on motor cars, accessories and component parts, in the case of motor cars proved to be constructed and adapted for use and intended to be used solely for certain business purposes or as *bona fide* motor ambulances, representations were made to the Chancellor of the Exchequer that such concession should be extended to motor cars of medical practitioners.

The Chancellor however intimated that he could hold out no hope of such a concession to medical motorists, as the exemption for trade vehicles was confined to motor ambulances and motor vans or lorries to be used *solely* in connection with the conveyance of goods or burden in the course of trade or husbandry, none of which vehicles could be used for purely private purposes, while the doctor's car could.

PROPOSED INCREASED TAX ON MOTOR CARS.

103. On the introduction of the Budget in April, 1916, it was seen that the increased tax on motor cars would fall very heavily on medical practitioners, and the Chancellor of the Exchequer was at once approached with a request that some special concession should be made to members of the medical profession who use their cars for professional purposes only. It was pointed out that, generally speaking, these cars are used in a way which might fairly entitle them to freedom from any tax, in the same way that commercial cars are free. The case of practitioners in the more sparsely populated districts who require to have cars of comparatively high power and on whom the tax will fall particularly heavily was specially pressed on the attention of the Chancellor.

The Chancellor of the Exchequer replied that it was the intention of the Government that medical practitioners should be entitled to a rebate of half the new tax, but the Council has again pressed the Chancellor to consider the desirability of leaving the present motor taxes untouched so far as concerns cars used by medical practitioners for professional purposes only. A reply has been received that the whole question is again under consideration.

DOCTORS' MOTOR CARS AND LIGHTING RESTRICTIONS.

104. In connection with the new motor car and lighting restrictions Order of the Home Office, communications were received from rural practitioners all over the country asking whether some relaxation of the restrictions could not be made in favour of medical practitioners using motor cars in the course of their professional work. Representations were therefore made to the Home Office, but as will have been seen from the correspondence with the Home Office published in the Supplement of January 15th, 1916, it was found impossible to obtain any relaxation of the Order for medical practitioners. The Home Office considers that the present Order must at any rate have a fair trial before any suggestions as to exemption or modification can be entertained. The Council is ready to take up the matter again if further experience shows that it is impossible for doctors to carry off their work under the Order.

PROPOSED COLLEGE OF NURSING.

105. The Council considered a letter sent to the Editor of the *British Medical Journal* by the Hon. A. Stanley, M.P., Chairman of the Joint War Committee of the British Red Cross Society and the Order of St. John of Jerusalem in England. The letter was addressed to all hospitals, seeking their support for a proposal for the establishment of a College of Nursing for the purpose of granting diplomas to nurses. The College has since been established as a limited Company.

106. The representatives of the Association on the Central Committee for the State Registration of Trained Nurses have been instructed to take such action as may be indicated by the attitude of the College to State Registration.

REDUCTION OF FEES FOR NOTIFICATION OF INFECTIOUS DISEASES.

107. The report of the Government Retrenchment Committee contained a recommendation that the fee to medical practitioners for notification of infectious diseases should be reduced for the following reasons:—

As doctors have now become familiar with the work of notification and so many additional diseases have been added to the list since the fees were originally fixed, we consider that the time has come for reducing the 2s. 6d. fee to 1s. The amount of labour involved in filling up the notification form is, we understand, very slight indeed, and a fee of 1s. would seem to be adequate remuneration for the purpose.

The proposal to reduce the fee was incorporated in a Local Government Bill introduced by the Government in April, and a communication was immediately addressed to the Local Government Board stating that the Association disapproved of the suggestion of the Retrenchment Committee, and asked to be given an opportunity of placing its views more fully before the Board by way of deputation.

108. A deputation, consisting of the Chairman of Representative Meetings, the Chairman of the Parliamentary Sub-Committee (Mr. Bishop Harman) and the Medical Secretary, was accordingly received by the Parliamentary Secretary of the Local Government Board (Mr. Hayes Fisher). A strong protest was made against the proposed reduction. It was, however, suggested that if the Government insisted upon a reduction, medical practitioners might be willing, as their contribution to retrenchment, to accept during the War a nominal fee of 1s. for the notification of measles only, seeing that compulsory notification of measles has just been introduced, and also that the number of cases would probably be large. Mr. Hayes Fisher promised to place the views of the deputation before Mr. Walter Long, but when the clause came up for discussion on April 11th it was found that the latter had been obdurate. In spite of strong protests made by Sir Philip Magnus, Mr. Jonathan Samuel and Mr. J. Boyton, the clause embodying the reduction went through. The three Members of Parliament have been thanked for their action.

109. The Council has repeated its protest against the reduction to the President of the Local Government Board and has, in addition, pressed upon him a point which the Council has had before it for some time, namely, the unification so far

as possible of the forms of notification of the diseases which medical practitioners are required to notify to various Government and local authorities. The Council has also urged that practitioners be supplied with franked envelopes for returning the forms to the authorities concerned.

PROPOSED DISCONTINUANCE OF REPORTS OF CERTIFYING FACTORY SURGEONS.

110. Another recommendation of the Government Retrenchment Committee which concerned the medical profession was the following:—

We understand that the reports of certifying surgeons on accidents, which cost £12,500 per annum, are now of little value, and entail in all serious cases a duplication of the reports made by the inspectors. The Committee on Accidents in Factories recommended that legislation should be obtained to enable them to be dispensed with, and we concur in this proposal.

The matter was at once considered by the Parliamentary Sub-Committee which had the advantage of the assistance of Dr. W. F. Dearden, Honorary Secretary of the Certifying Factory Surgeons Association, and representations were at once made to the Home Office asking that before this proposal was embodied in a Bill the Association should be allowed to submit its views on the subject by deputation. The objection of the Association to the abolition of these reports was based on the following grounds:—

(a) that reports on surgical cases require surgical experience which the factory inspector does not possess;—

(b) that the factory inspector does not come into close personal contact with the patient concerned in any accident, as does the certifying factory surgeon, and is therefore not in a position to obtain intimate first-hand knowledge as to the facts of the accident;—

(c) that having regard to the considerable amount of unskilled labour at present engaged in factories, and the depletion in the ranks of the factory inspectors, it would be injudicious from the public health point of view to abolish one of the principal safeguards of the workman as regards accidents, namely the investigation by the certifying factory surgeon;—

(d) the suggestion was made that consideration might be given to the advisability of extending the duties of certifying factory surgeons in connection with accidents, on the lines of their position with regard to certain industrial (poisoning) diseases. In these cases workmen alleged to be suffering from such diseases must, before claiming compensation under the Compensation Act, obtain from a certifying factory surgeon a certification that they are suffering from such a disease.

The Council is in close touch with the Certifying Factory Surgeons Association on this matter, and it is hoped that the Home Secretary will receive a joint deputation from the two Associations.

REPORT OF ROYAL COMMISSION ON VENEREAL DISEASES.

111. In the Annual Report last year the Council informed the Representative Body that representatives of the Association had given evidence before the Royal Commission on Venereal Diseases. The memorandum of evidence was submitted to the A.R.M. and approved. The report of the Commission has now been issued, and the Council welcomes the report as a great advance in the protection of the public health, and is glad to see how sympathetic the Royal Commission is to the views expressed on behalf of the Association. The Council will press upon the Government the importance of taking early action to carry out the recommendations of the Royal Commission.

112. Besides the recommendations to which so much publicity has been given as regards the public provision of treatment for venereal diseases, the Commission has strongly urged that effect be given to the recommendations of the Select Committee on Patent Medicines as regards the suppression of advertisements of persons professing to treat venereal diseases. In addition the Royal Commission is strongly in favour of a policy the Association has long recommended, namely, the confidential certification of the cause of death.

REPRESENTATION ON EXECUTIVE COMMITTEE OF NATIONAL COUNCIL FOR COMBATING VENEREAL DISEASE.

113. The Council has thought it desirable that the Association should, if possible, be represented on the Executive Committee of the National Council for Combating Venereal Disease, a body which is composed largely of the members of

the recent Royal Commission, and whose chief work will be to press by all possible means the recommendations of the Commission.

The Council has accordingly asked for representation on the Executive Committee, and if this is granted, will nominate the Chairman of Representative Meetings.

NOTIFICATION OF PREGNANCY.

114. The attention of the Council has been drawn by several Divisions to a movement in favour of the notification by doctors and midwives of pregnancy. This has already taken definite form in at least two areas, and in one of them (Huddersfield) a fee of 2s. 6d. is offered to practitioners for each case they notify, with the consent of the mother. The local profession decided to take no action in the matter pending consideration of the subject by the Association. The Council is entirely in favour of any scheme which will encourage prospective mothers to arrange in advance for their nursing and medical attendance during the period of pregnancy as well as at the time of delivery. But it is too early yet to say whether notification of pregnancy will or will not have this effect. Many persons who are deeply interested in the care of prospective mothers are afraid that notification may have quite the contrary effect, namely, of making the mothers, especially unmarried mothers, shy of consulting either a doctor or a midwife until the last available moment, for fear that their condition may be made more or less public.

The Council recommends:—

Recommendation D.—That while it is desirable to encourage prospective mothers to make early arrangements for being properly cared for during the time of pregnancy as well as at the actual time of delivery, the Association is not at present prepared to support notification of pregnancy to a public authority.

MANUFACTURE OF DRUGS AND CHEMICALS HITHERTO IMPORTED FROM GERMANY.

115. The Buckinghamshire Division asked the Council to bring to the notice of the Government the desirability of guaranteeing protection to firms willing to lay down plant to manufacture drugs and chemicals previously imported from Germany. The Council is of opinion that the country and the profession cannot afford again to be left at the mercy of a foreign supply of substances many of which are essential in medical and surgical treatment.

The Council has accordingly asked the Government to consider the desirability of assisting British manufacturing chemists to produce the necessary drugs and chemicals heretofore only imported from Germany, and is bringing the matter also before the following bodies:—Board of Trade, Local Government Board, National Health Insurance Commission, Pharmaceutical Society of Great Britain, and Society of Chemical Industry.

L.C.C. POWERS ACT, 1915.

116. The attention of the Council has been drawn by the Metropolitan Counties Branch to certain provisions of the L.C.C. (General Powers) Act, 1915.

Part IV of the Act provides under penalty that lying-in homes, with the exception of, *inter alia*, establishments conducted by medical practitioners certified as below, shall be registered. It enacts that its provisions with regard to registration, powers of entry, and inspection of such homes shall not apply in the case of a lying-in home carried on by a qualified medical practitioner with respect to which there shall have been lodged with the County Council a certificate, in a form to be prescribed, signed by two other qualified medical practitioners, to the effect that the home and its equipment are in all respects suitable for the purpose, and that the medical practitioner carrying on the home is a fit and proper person to do so, such certificate to be renewable yearly.

Part V of the Act makes similar provision for the case of establishments for massage or special treatment. All such have to be registered with the County Council except, *inter alia*, establishments conducted by medical practitioners certified as below. The certificate by two practitioners in this case must be to the effect that such establishment is not and will not be used for any immoral purpose, and that the medical practitioner carrying on the establishment is a fit and proper person to do so.

117. The Council is of opinion that such a requirement from a medical practitioner constitutes a very serious

reflection on the medical profession and on the General Medical Council, the body which is supposed to remove from the Register medical practitioners who are not fit and proper persons to be registered. The Council has therefore drawn the attention of the General Medical Council to these sections of the Act and has suggested that the General Medical Council should, in the interests of the medical profession, arrange to have reported to it all proposals which affect the medical profession, contained in Parliamentary Bills either public or private.

118. Arrangements are made in the Head Office that all public Bills which seem to affect the medical profession are carefully examined by a member of the staff, but private Bills are not available for this purpose. The Council is trying to make arrangements with the London County Council whereby it may be provided in future with early information as to any future private Bills promoted by the London County Council which in any way affect the medical profession.

ELECTION OF DIRECT REPRESENTATIVES ON GENERAL MEDICAL COUNCIL.

119. As reported in the Supplementary Report of Council for 1915 there will be at the end of this year an election of direct representatives of the medical profession on the General Medical Council.

The retiring candidates are Drs. H. Langley Browne, H. A. Latimer, J. A. Macdonald and T. Jenner Verrall.

The Divisions have been consulted as to their nominations for the vacancies with the result that all the retiring members have been nominated for re-election.

The Council recommends:—

Recommendation E.—That the support of the Association be given to the following candidates in the election of direct representatives on the General Medical Council at the forthcoming election:—H. W. Langley Browne, M.D., F.R.C.S.E., West Bromwich; H. A. Latimer, M.D., M.R.C.S., Tunbridge Wells; J. A. Macdonald, M.D., M.Ch., LL.D., Taunton; and T. Jenner Verrall, M.R.C.S., L.R.C.P., LL.D., Bath.

(I) National Health Insurance.

CO-OPTION TO INSURANCE ACTS COMMITTEE.

120. In addition to the members appointed by the grouped Representatives the following have, in accordance with the By-laws, also been appointed members on the nomination of the various bodies mentioned:—

Dr. P. V. Fry, West Riding, Yorks.	Local Medical
Dr. T. Campbell, Lancashire	
Dr. T. Ridley Bailey, Staffordshire	and
Mr. H. B. Brackenbury, Middlesex	
Mr. P. Napier Jones, Berkshire	Panel Committees
Dr. J. R. Drever, Glasgow	
Dr. Olive Claydon, Oldham, Associations of Registered Medical Women.	of Great Britain.
Prof. Bostock Hill, Society of Medical Officers of Health.	
Dr. Major Greenwood, London, Poor Law Medical Officers' Association of England and Wales.	

The Committee also appointed Mr. T. Jenner Verrall and Dr. W. A. Hollis as two non-panel practitioners.

EFFECTS OF THE WAR ON THE MEDICAL SIDE OF THE INSURANCE ACTS.

121. The following resolution of the Representative Body has received careful consideration:—

Minute 157.—Resolved: That the profession notes with alarm the disturbance of the probable sickness incidence of insured persons owing to the withdrawal of healthy lives by enlistment in the Army, with the probable return of unhealthy lives into the insured classes at a later day; and also the reduction of advance of grants by the Insurance Commissioners to the different Insurance Committees.

As has already been reported to the members of the Association, the Commissioners have been interviewed on this subject, which was the subject of full debate. (For report of interview see Supp., July 31st, 1915, p. 70.)

122. The Council is fully imbued with the great importance of the subject but does not see its way usefully to prosecute it further until it has further data upon which to found its case for special consideration.

The Council recommends:

Recommendation A.—That in view of the difficulty experienced in ascertaining the exact number of insured persons who have enlisted, and in collecting evidence as to the sickness incidence of those insured persons remaining, and considering that strong representations on the subject have already been made to the Commissioners, no further action be taken at present, but that the Council be instructed to collect what information it can on the subject in order that it may be used when any revision of the terms on which Insurance practitioners are employed is discussed.

CONFERENCE OF REPRESENTATIVES OF LOCAL MEDICAL
AND PANEL COMMITTEES.

123. The Council decided to hold a Conference of representatives of Local Medical and Panel Committees, as in each of the past three years, if the Local Committees were of opinion that in present circumstances it was likely to be a success. The Committees were accordingly circularised on the question. There was a large majority against holding a Conference at present. The Council has therefore instructed the Insurance Acts Committee to call a Conference later in the year if and when it is of opinion that the occasion for it has arisen.

RELATIONS BETWEEN ASSOCIATION AND THE LOCAL
MEDICAL AND PANEL COMMITTEES.

124. The Representative Body will be glad to know that the relations between the Association and the large majority of the Local Medical and Panel Committees in England, Scotland and Wales continue to be close and mutually beneficial. Most of the Committees report their doings to the Head Office and make constant use of it for obtaining advice and assistance which the Association is always glad to give. The Association has ample evidence that this help is greatly appreciated. More and more the Head Office is being used as a clearing house for passing on to Local Committees the experience gained and forwarded by other Committees. The addition to the Insurance Acts Committee of representatives of Local Medical and Panel Committees has greatly strengthened that body.

DRUG TARIFF.

125. At a Conference held with the Insurance Commissioners (arising out of the decisions of the June, 1915 Conference of Representatives of Local Medical and Panel Committees) the Commissioners enquired whether the Association had considered the position that was likely to arise in connection with the amendment of Regulations concerning the supply of medicines if, as was expected, the recommendations of the Departmental Committee on the Drug Tariff resulted in the production of a Commercial Tariff.

126. Preliminary discussion only took place at that Conference, and subsequently the question was discussed exhaustively with the Commissioners. Suggestions were made by the Commissioners which were embodied in a Memorandum, which, after revision by the Insurance Acts Committee, was circulated to all Local Medical and Panel Committees in the country with a request for their opinion upon the various methods of dealing with the situation therein explained. The Memorandum (M. 4 and 5) was published in the Supplement to the *Journal* of 11th September, 1915. Meantime the Report of the Departmental Committee was published and was found to contain recommendations that the Drug Tariff should be placed on a Commercial basis.

127. The replies received from the Local Medical and Panel Committees were very carefully considered with the result that a communication was addressed to the Commissioners, stating:—

I. That the Association welcomed the Report of the Departmental Committee on the Drug Tariff in so far as it (a) justified the contention of the Association that the present drug tariff was full of the most extraordinary anomalies, and resulted in great injustice; (b) recommended the adoption of the main principles for which the Association contended; and (c) suggested that these principles should be carried out, in the main, by methods which were identical with, or consistent with, those put forward by the Association;

II. That the Association was willing, under proper conditions, to accept a commercial tariff on the lines laid down in the Departmental Committee's Report, provided such arrangements were made, by Regulation or otherwise, as should ensure that there should be no reduction of the panel practitioner's remuneration below the

minimum which was promised by the Chancellor of the Exchequer in 1912, as the assured basis of payment for doctor's services—namely, 7s. per insured person per annum, and

III. That with regard to matters of detail, the replies the Insurance Acts Committee had obtained from Local Medical and Panel Committees provided abundant opportunities for discussion if and when the Committee was assured that the one outstanding principle emphasised in all the answers would be conceded—namely, that the profession should be guaranteed that the 7s. would not be encroached upon.

128. The Commissioners immediately arranged for a further Conference which took place on October 14th, when it was indicated to the Commissioners that, having regard to the practical unanimity of the replies of Local Medical and Panel Committees on the question, the Association must first press for the guarantee of the 7s., and, secondly, for the retention by the profession of its financial interest in the "floating" 6d., particularly as the latter was one of the chief means of checking excessive prescribing.

129. At this Conference the Commissioners put forward a proposal which was discussed and subsequently embodied by the Commissioners in a Memorandum addressed to the Association asking for its opinion.

The gist of the proposal was:—

(a) That the Government should guarantee (i.) the doctors' minimum of 7s., and (ii.) payment in full on a commercial tariff of the chemists' bills, the Government expecting to cover the latter risk by the saving which it believed would follow from the lowering of the total cost of drugs;

(b) That the possibility of the doctors in any area getting the whole or part of the floating 6d. should remain exactly as at present. Prescriptions in future would be priced under both the old and the new tariff—the former for the purpose of calculating the proportion of the Drug Fund to go into the Practitioners' Fund, and the latter for the purpose of paying the chemists, the additional administrative work involved being paid for by the Commissioners.

130. After consideration of the proposal the Commissioners were informed:—

(i) That the Association approved the proposals of the Commissioners, and would advise Local Medical and Panel Committees to accept them;

(ii) That the Association would do all in its power to render effective the existing safeguards against extravagant prescribing as embodied in Article 40 of the Regulations, subject to the elimination of the functions of the Pharmaceutical Committee in the matter;

(iii) That the approval by the Association of the proposed arrangements was dependent on the understanding that no extra cost would be thrown upon the Panel Committees in carrying out the new administrative details.

131. The outcome of the Association's negotiations with the Commissioners was communicated to Local Medical and Panel Committees in Circular M.6 (Supplement to the *Journal* of November 6th, 1915), in which the Association urged acceptance of the altered conditions. Practically no opposition has been made to the new Drug Traffic arrangements by practitioners, and many Panel Committees have expressed their appreciation of the successful work done by the Association on their behalf.

132. It should be noted, however, that in Scotland, owing to the opposition of the chemists there, the old Tariff is still in operation, though the subject will be re-opened during the course of the present year.

ENQUIRIES INTO OVER-PRESCRIBING.

133. The Council in view of the undertaking (ii.) mentioned in par. 130 above which it felt justified in making on behalf of Panel Committees generally, is glad to report that as the result of an action in the High Court, brought by a panel practitioner against the local Insurance Committee with respect to the action of the latter in surcharging him upon the recommendation of the Panel Committee (the enquiry by that Committee having been conducted in accordance with the suggestions contained in the Association's Memorandum on the subject) the action of the Panel Committee has been completely vindicated. In this connection the Association has informed the

Commissioners (i.) that it is desirable that some Memorandum should be issued by them as regards the procedure to be adopted by Panel Committees in dealing with cases of alleged over-prescribing, such Memorandum embodying the experience gained from various appeals to the Commissioners and to the Courts, and (ii.) that the Association would be glad to have the opportunity of seeing any such Memorandum in draft form and of offering its suggestions thereon.

The Commissioners have stated their intention of issuing such a Memorandum and have promised to give the Association an opportunity of making comments on it before issue.

NEW AGREEMENT AND MEDICAL BENEFIT REGULATIONS.

134. New draft Medical Benefit Regulations for 1916, issued by the Commissioners were considered by the Insurance Acts Committee and approved, subject to amendment of one or two small points which the Commissioners accepted and embodied in the final form of the Regulations.

135. The alterations of the Regulations and Agreement for 1916 as compared with those for 1915 were—

- (i.) as regards the Drug Tariff, previously referred to.
- (ii.) as regards the administrative proceedings necessary to deal with cases of alleged over-prescribing. This change was necessitated by the new arrangements as regards the Drug Tariff.
- (iii.) a provision whereby an Insurance Committee may require, after consultation with the Panel Committee (and subject, in default of agreement between those Committees, to decision by the Commissioners) the abolition of the use of the term "rep. mist," and
- (iv.) a provision whereby all certificates shall be written in ink or in some other indelible substance, and a practitioner's signature shall be written with his own hand.

As regards (iii.) and (iv.) upon which neither the Association nor Panel Committees had been consulted beforehand by the Commissioners, the Association lodged a strong protest against this omission, which it was pointed out would, if repeated, seriously prejudice the smooth working of the present method of consultation between the two bodies. It is understood that the omission was purely an oversight on the part of the Commissioners and not by any means intentional.

The Association, therefore, in Circular M. 7 urged that the new Regulations might well be accepted by Local Medical and Panel Committees.

SUPPLEMENTARY DRUG TARIFF.

136. The Association has continued to carry out in conference with representatives of the Pharmaceutical Society, the pricing of the starred drugs in the 1915 Tariff, that is to say the drugs whose prices are subject to considerable fluctuations owing to the War. The Conferences are being continued during 1916 in view of the fact that the 1915 Tariff is still required for purposes of calculating the amount of the floating 6d. available for distribution to the practitioners of an area and the prices thereon must fluctuate with the prices obtaining in the 1916 Tariff.

STOCK MIXTURES.

(a) *Agreed List.*

137. The 1916 Drug Traffic contains a provision whereby a reduced fee will be paid to chemists for the dispensing of certain liquid preparations not exceeding 10 in number, which (i.) were, prior to 1st January, selected by a Panel Committee from a formulary or special pharmacopoeia locally adopted and agreed by the local Panel and Pharmaceutical Committees, or, failing agreement, settled by the Commissioners, as being capable of being stocked in bulk without deterioration, or (ii.) selected from time to time by the Panel Committee from a list agreed by the Association and the Pharmaceutical Society, or in default of agreement adjudged by the Commissioners to be capable of being stocked in bulk without deterioration.

138. In pursuance of the latter provision, a Conference was held (on November 18th) of representatives of the Committee, the Pharmaceutical Society, and the Commissioners, at the suggestion of the latter, with a view to facilitate the carrying out of the provision and to reduce to a minimum both differences of

opinion as to procedure between the Society and the Association and references from either, or both, to the Commissioners.

139. The Conference agreed on certain points to be avoided in selecting the mixtures to be included in the list. A further Conference was later held with representatives of the Pharmaceutical Society previous to which a list of proposed stock mixtures had been submitted by the Association. These mixtures had been selected as those most commonly in use among those Panel Committees that already have recognised stock mixtures or have local Formularies. In view of the importance of the technical side of the discussion the expert opinion of Mr. E. F. Harrison, Pharmaceutical Chemist, B.Sc., F.I.C., was obtained, and he accompanied the Association's representatives at the Conference. The negotiations are not yet completed, but the Council hopes that the Commissioners will soon be in a position to circulate the agreed list of stock mixtures for the use of such Panel Committees as care to use stock mixtures.

(b) *General Question of the Use of Stock Mixtures.*

140. The National Association of Insurance Committees forwarded for the comments of the Association a strong protest it had received against the use of Stock Mixtures from the West Ham Insurance Committee. Opportunity was taken to forward a full reasoned reply on the whole subject in the hope that it might help to dispel some of the ignorance of the subject which is displayed by many members of Insurance Committees, even by pharmaceutical representatives on those Committees who should know better. The letter was published on page 50 Supplement, March 25th, 1916, and it is hoped that Panel Committees and medical representatives on Insurance Committees will find it useful.

SUSPENSION OF RIGHT OF TRANSFER OF INSURED PERSONS IN CERTAIN CASES.

141. The 1915 Conference of Representatives of Local Medical and Panel Committees passed a resolution urging that the Commissioners be invited to withhold the right of an insured person to transfer from the list of any doctor who is absent on naval or military service for the period of the war, or until a reasonable time after his return. This was brought to the notice of the Commissioners at the Conference the Insurance Acts Committee had with them in July last and received sympathetically by them. The Regulation issued by the Commissioners as a result of the Conference has, it is understood, given great satisfaction to Insurance practitioners who have accepted commissions in the Army or Navy.

INQUIRY INTO THE WORKING OF THE INSURANCE ACTS.

142. The Council, noting various announcements in the press that Approved Societies were intending to urge the Government to hold an inquiry into the working of the Insurance Acts, immediately informed the Prime Minister and Mr. C. H. Roberts, M.P., that while the Association would welcome an inquiry at an appropriate time, it would be impossible at the present to secure the attendance of medical witnesses or to collect the evidence that the Association would desire to place before such an inquiry. Mr. Roberts replied that the Government and Commissioners concurred in the opinion of the Association. Later when it was announced that an inquiry was to be held on the financial scheme of the Acts as regards sickness, disablement and maternity benefits, the Chairman of the Insurance Commissioners was asked whether the omission from the reference to the Enquiry Committee of Medical Benefit was deliberate. He replied that the Association "was right in understanding that the terms of reference to the Enquiry Committee were carefully framed with a view to excluding altogether matters comprised within the terms and conditions of Medical Service under the Insurance Acts." In view of this very specific statement the Council has taken no further action in the matter.

PAYMENTS TO PANEL PRACTITIONERS—1914 AND 1915 ACCOUNTS.

143. Repeated and urgent complaints have been received from all quarters of the country as to the alleged excessive deductions made from the monthly or quarterly advances to Insurance practitioners, and to the protracted delay in the settlement of the 1914 accounts. Considerable correspondence has taken place between the Association and the Commissioners, all of which has been reported in the Supplement.

144. As regards the deductions from advances the Commissioners hold very strongly that the uncertainty as to the

lists, caused by recruiting in addition to the normal inflation of all lists, justified them in their recommendation to Insurance Committees that not more than £72 per 1,000 persons on the Register be advanced quarterly, and they are advising the advance of practically the same amount for 1916.

145. As regards the settlement for 1914, the Commissioners late in 1915 stated that it was hoped to proceed with it forthwith, but not until April 1916 was the settlement made so far as the Council can ascertain, and the payments are not yet made in some areas. This is a most unsatisfactory state of things, and while willing to make all allowances for a Department that has seen, like so many other bodies, all its usual arrangements upset by the War, the Council is of opinion that any system of payment which cannot provide for final settlement until 16 months or more after the termination of the year in which the money is due is a bad one and must be altered. Questions are now arising as to whether the same delay will occur as regards the settlement of the 1915 accounts. An interview with the Commissioners took place on April 19th, at which the whole subject was discussed. The Council hopes shortly to be able to place before Local Medical and Panel Committees proposals for dealing with the situation.

MEDICAL REFEREES UNDER THE INSURANCE ACTS.

146. The Council has given very careful consideration to the following Minute of the A.R.M., 1915:—

Minute 152.—Resolved: That the Representative Body, on reconsidering the whole subject of fees for examination and report on cases submitted to part time referees under the National Insurance Act, requests the Council to consider and report as to the advisability of greater elasticity as between case and case in the fees demanded for these examinations.

The Council recommends:

Recommendation B.—That pending the establishment of a permanent system of referees under the Insurance Commission, it is desirable that the Association should co-operate in the promotion of a system of temporary arrangements under suitable conditions.

Recommendation C.—That the fee of 10s. 6d. already approved by the Representative Body for examination of and report on cases submitted to part-time referees under the National Insurance Act be re-affirmed as the minimum fee for cases examined by practitioners who hold no stated appointment to the Approved Society submitting the case, and Divisions and Branches be allowed to approve schemes for the payment of practitioners in their areas appointed as medical referees to Approved Societies, provided that where such a scheme involves payment by salary or in accordance with the time occupied, or the acceptance of a fee less than 10s. 6d. per case examined, the scheme shall require the approval of the Council of the Association.

COLLECTIVE BARGAINING ON BEHALF OF INSURANCE PRACTITIONERS.

147. The 1915 Conference of representatives of Local Medical and Panel Committees requested the Association to devise a scheme whereby collective bargaining on behalf of Panel Committees could be carried out by the Association in connection with the signing of new agreements by Insurance practitioners. Considerable attention has been given to this subject and a memorandum is ready for use at an appropriate time. It was proposed to circulate it to Panel Committees in time for discussion at the Conference had the latter been held at the usual time. The Memorandum will now be held in readiness either for the Conference when it is held, or for use prior to any negotiations which may be necessary as to any material alteration of the terms of service.

TRAVELLING EXPENSES OF MEMBERS OF PANEL COMMITTEES.

148. On a representation by several Panel Committees the opinion of all such Committees was taken as to the desirability of Panel Committees being allowed, if they so desire, to pay travelling expenses of their members out of the statutory allotment from the Medical Benefit Fund. It was found that most Committees were in favour of this. Representations have been made to the Commissioners accordingly, and the Pharmaceutical Society of Great Britain has promised to co-operate by making a similar representation as regards Pharmaceutical Committees.

DEFINITION OF THE TERM "CONFINEMENT" IN THE MODEL AGREEMENT.

149. The opinion of the Association having been sought by several Panel Committees, they have been informed that the time during which a practitioner is not by virtue of his agreement (Clause 2 (1)) required to give treatment in respect of a confinement should be held to be the period of ten days after the birth of a child.

(J) Public Health and Poor Law.

SECURITY OF TENURE FOR MEDICAL OFFICERS OF HEALTH.

150. Members will be gratified to learn that the new President of the Local Government Board (Mr. Walter Long, M.P.) has intimated to Sir Philip Magnus, M.P., who, with Dr. Addison, M.P., introduced the deputation to Ministers on this subject in 1914, that like the late President of the Board he is strongly in favour of security of tenure for whole-time medical officers of health and sanitary inspectors appointed in the future. An Order of the Board has been drafted accordingly, but its issue is being postponed for the present for, it is understood, the following reasons:—

First, because many of the best men who previously held these posts are now serving in the Army or Navy, and that it is consequently undesirable that their places should be permanently filled by other applicants in their absence.

Secondly, because even when vacancies occur through death or resignation, such vacancies cannot be so efficiently filled at a time when competition for the appointments is necessarily restricted owing to the absence of many competent men who might be applicants.

The Council is of opinion that these are good and sufficient reasons for the postponement of the issue of the Order. The matter will be re-opened at the first opportunity.

DEPARTMENTAL COMMITTEE ON POOR LAW ORDERS.

151. The Council has intimated to the Departmental Committee on Poor Law Orders its approval of the Memorandum forwarded to that body by the Poor Law Medical Officers' Association, and has urged upon the Committee that the suggestions contained in that Memorandum for the simplification of such Orders be accepted.

PUBLIC HEALTH AND POOR LAW APPOINTMENTS.

152. The Council is pleased to report that action has been taken in support of the policy of the Association in connection with a large number of appointments, and that with very few exceptions the action has been successful.

(K) Scotland.

MIDWIVES ACT FOR SCOTLAND.

153. The Council has great pleasure in reporting that acting on representations made by various lay and medical bodies in Scotland, including the Scottish Committee, the Secretary for Scotland introduced a bill for the Registration of Midwives in Scotland which has now become law. Under the Act two medical practitioners are to be appointed by the Scottish Committee as members of the Central Midwives Board, Scotland, and it is interesting to note that this is apparently the first Act of Parliament in which any statutory recognition is given to the Association.

The Scottish Committee has appointed Dr. Wishart Kerr, of Glasgow, and Dr. Michael Dewar, of Edinburgh, as its representatives, and they will retain their seats on the Board for five years from the commencement of 1916.

SUGGESTION BY PARLIAMENTARY RETRENCHMENT COMMITTEE TO ABOLISH SCOTTISH INSURANCE COMMISSION.

154. The Scottish Committee had before it a report in the lay press of the alleged intention of the Retrenchment Committee to abolish the Scottish Insurance Commission and administer the Insurance Acts in Scotland by a central body sitting in London. The Committee at once ascertained the opinion of the Scottish Divisions, which showed that they were practically unanimously against the proposal. The suggestion seems to have been dropped, at any rate for the present.

MEDICAL REFEREES UNDER THE INSURANCE ACTS.

155. Considerable attention has been given by the Scottish Committee to proposals made by the Scottish National Union of Friendly Societies in regard to the appointment of medical referees to Approved Societies acting under the Insurance Acts. That Union was prepared to allow such appointments to be made by representative bodies of the medical profession in each area, but the fees offered were less than the minimum fee laid down by the Representative Body of the Association. Grave dissatisfaction has been caused to loyal members of the Association in Scotland by the operation of this minimum fee, and the Committee has made suggestions to the Council as regards the modification of the present position.

COST OF CENTRAL BUREAU FOR CHECKING INSURANCE PRESCRIPTIONS.

156. Several inquiries have been received by the Scottish Committee asking whether Panel Committees should subscribe to the cost of the Scottish Central Bureau for checking prescriptions. Acting on the advice of the Insurance Acts Committee the Scottish Committee has advised that each Panel Committee should decide for itself whether the work done by the Central Bureau has been beneficial to practitioners in the area concerned, and, if so, that it should contribute to the cost.

PAYMENTS TO INSURANCE PRACTITIONERS FOR 1915.

157. Many expressions of dissatisfaction have been received from Insurance areas in Scotland concerning the long delay in the settlement of Insurance practitioners' accounts for 1914 and 1915. The Scottish Committee accordingly approached the Scottish Commissioners and expressed the view that whatever excuse there might be for delays in 1914, caused as they were by the entirely unforeseen circumstances of the war, that could not apply to 1915, as there had been ample time to put into operation the machinery for ascertaining the name of every insured person who enlists. The Committee also stated that in its opinion the delays were due primarily to the inertia of the Approved Societies who would not voluntarily send the necessary information to the Commissioners, and apparently no particular pressure is being put upon them by the Commissioners. The Committee therefore asked whether during 1915 there were likely to be the same deductions from the payments made to Insurance practitioners and the same delay in making a final settlement, and, if such deductions and delays were expected, what steps were being taken to obviate them. The reply of the Commissioners was of a non-committal nature which did not clear up any of the difficulties of the Committee. A copy of the correspondence between the Committee and the Commissioners was published in the Supplement of March 4th, 1916.

(L) Ireland.

SETTLEMENT OF THE CERTIFICATION QUESTION.

158. In accordance with the request of the Chairman of Council and Treasurer that as few meetings of Committees as possible should be held, the usual quarterly meetings of the Irish Committee were not called as there was no pressing business for the special consideration of the Committee. Most of the members of the Committee, who were also members of the Irish Medical Committee, had been repeatedly called to Dublin during the year in connection with the negotiations with the Irish Commissioners over the question of certification of sickness benefit under the Insurance Act. These negotiations were conducted by the Irish Medical Committee at whose disposal the Irish Committee, B.M.A. two years ago put the services of the Irish Medical Secretary. Owing to the friendly offices of Dr. Macdonald, Chairman of Council, and the Medical Secretary, an interview was arranged between Mr. C. Roberts, M.P., who had assumed responsibility in Parliament for the administration of the Insurance Act, and the representatives of the Irish medical profession. As the result of this interview, which took place at the time of the Annual Representative Meeting of 1915, negotiations for a settlement progressed satisfactorily, and the new arrangements for the certification of sickness benefit came into force on the 1st January, 1916. The conditions of certification from an ethical and monetary point of view are on the whole satisfactory. As regards remuneration the doctors in rural districts have got their full demand of half-a-crown per insured person, the mixed and urban areas 2s. per insured person, and in urban areas with over 10,000 of a population, where the doctors demanded 2s. 6d. per certificate, they are to be paid at the capitation rate of 1s. 3d. Experience alone will

prove whether this capitation rate will be more or less than the equivalent of 2s. 6d. per certificate. The provisions made in the certification scheme for the appointment of whole-time medical referees have been abandoned until after the war, lest their appointment might interfere with the supply of doctors for military service. At the urgent request of the representatives of the Irish Medical Committee instructions were included in the Memorandum of Instructions to Medical Certifiers, issued by the Irish Insurance Commissioners, that a doctor who had signed the Agreement for certification *must refuse* to examine or issue a certificate to any insured person who is under the treatment of another doctor, whether he signed the Agreement for certification or not, so long as such doctor is prepared to issue free of charge to insured persons such certificates as may be required by the body administering Sickness and Disablement Benefits.

159. There are, however, some important details to be arranged between the doctors and the Insurance Commissioners as regards the method of payment and the frequency of certificates in long continued disability. In the latter respect doctors in rural areas protest that, if Approved Societies persist in their demand for weekly certificates, necessitating domiciliary visits where the insured persons are no longer under medical treatment, practitioners will be unable to recoup themselves out of the certification remuneration owing to the expenses incurred in travelling long journeys, especially at the present time when petrol and motor taxes are so very high.

IRISH MEDICAL WAR COMMITTEE.

160. A general meeting of the profession of the City of Dublin, convened by the Dublin Division of the British Medical Association, was held at the Royal College of Physicians on May 18th, 1915, when the President of the College (Dr. McDowell Cosgrave) was in the Chair. The meeting was very well attended, enthusiastic, and most representative of the profession. Dr. M. R. J. Hayes, Honorary Secretary of the Dublin Division of the British Medical Association, explained the objects of the meeting, and amongst others who addressed the meeting were: The President of the Royal College of Physicians, President of the Royal College of Surgeons (Mr. F. Conway Dwyer), Professor McWeeney, Dr. Tweedy, Sir Andrew Horne, and Sir Arthur Chance. A Committee was formed called the Dublin War Emergency Committee, consisting of two representatives of each of the various licensing bodies in Dublin with power to add to their number. Subsequently, on the suggestion of the Central Medical War Committee, the Dublin Committee invited the provincial medical schools in Belfast, Cork and Galway to select representatives to act on the Committee. This invitation was accepted, with the result that the more representative body is now known as the Irish Medical War Committee. Dr. M. R. J. Hayes is Honorary Secretary and the Irish Medical Secretary, Dr. T. Henneasy, Assistant Secretary. The Irish Offices of the British Medical Association, 16, South Frederick Street, Dublin, were placed at the disposal of the Irish Medical War Committee and have been adopted as the official address of the Committee. The Irish Medical War Committee has done excellent work in providing recruits for the Royal Army Medical Corps with the result that the Irish profession has supplied long ago more than its proportion of officers. Nevertheless the Committee is determined that there shall be no falling off in its efforts to keep up a sufficient supply of doctors for service with the Army and Navy as long as the war lasts.

(M) Oversea Branches.

161. The ordinary activities of the Oversea Branches have, as in the case of the Home bodies, been largely in abeyance in view of the claims upon the profession as a result of the War. The Council has noted with much gratification the patriotic way in which many of the Oversea Branches have assisted their respective Governments in connection with the National Emergency, notably in aid of the recruiting of medical men for His Majesty's Forces. A large number of the Oversea members of the Association have been or are on active service. Many other members have been doing part-time service with Forces in their respective districts. In many cases the Military Authorities have expressed to the respective Branch Councils their appreciation of the valuable assistance and support thus rendered by the Branches.

J. A. MACDONALD,

Chairman of Council.

26th April, 1916.

Association Intelligence.

PROCEEDINGS OF COUNCIL.

A MEETING of the Council was held at 429, Strand, W.C., on April 26th.

Present :

Dr. J. A. MACDONALD, LL.D., Taunton, in the chair.
Dr. W. AINSLIE HOLLIS, Hove, Past President.
Mr. E. B. TURNER, London, Chairman of Representative Meetings.

Dr. EDWIN RAYNER, Stockport, Treasurer.

Dr. JOHN ADAMS, Glasgow	Dr. JOHN GORDON, Aberdeen
Lieutenant-Colonel Sir JAMES BARE, M.D., LL.D., Liverpool	Dr. JAMES GREEN, Portsmouth
Surgeon-General P. H. BENSON, I.M.S. (retired), Southwick	Major T. D. GREENLEES, Weymouth
Dr. M. G. BIGGS, London	Dr. MAJOR GREENWOOD, London
Lieutenant-Colonel R. A. BOLAM, Newcastle-on-Tyne	Mr. N. BISHOP HARMAN, London
Mr. H. B. BRACKENBURY, London	Dr. G. E. HASLIP, London
Major RUSSELL COOMBE, Exeter	Colonel W. T. HAYWARD (Australasian Branches)
Dr. J. SINGLETON DARLING, Lurgan	Major ALBERT LUCAS, Birmingham
Mr. E. J. DOMVILLE, Exeter	Dr. H. C. MACTIER, Wolverhampton
Major A. C. FARQUHARSON, Retford	Major GEORGE PARKER, Bristol
Lieutenant E. ROWLAND FOTHERGILL, Hove	Dr. F. J. SMITH, London
Dr. ADAM FULTON, Old Basford	Dr. W. JOHNSON SMYTH, Bournemouth
Mr. T. W. H. GARSTANG, Altrincham	Mr. T. JENNER VERRALL, LL.D., Bath
Dr. THOMAS GOODFELLOW, West Didsbury	Dr. CLAUDE WILSON, Tunbridge Wells
	Dr. O. R. M. WOOD, Woolpit

ABSENT.

Sir Clifford Allbutt, Colonel Galloway, Dr. Campbell, Dr. D. Ewart, Dr. Hamilton, Captain Larkin, Fleet Surgeon Lumley, R.N., Colonel C. H. Milburn, Colonel Munro Moir, and Captain Moorhouse were unavoidably prevented from being present.

NEW MEMBERS.

The CHAIRMAN welcomed, on attending for the first time, Dr. Claude Wilson, the Representative of the Kent, Surrey, and Sussex grouped Branches; also Lieutenant-Colonel Hayward of Adelaide, who again has been returned as the Representative of the Australasian Branches.

OBITUARY.

It was reported that Sir Francis Lovell and Mr. Colin Campbell, former members of Council, had died since the last meeting, and the Chairman was requested to convey an expression of sympathy to the respective families.

COLONEL GALLOWAY, A.M.S.

The Council offered its congratulations to Colonel Galloway on his appointment as Consulting Physician with the British Expeditionary Forces.

FINANCE.

A report containing a Retrospect of the Finances of the Association, covering the last ten years, was approved for presentation to the Annual Representative Meeting. This was published in the SUPPLEMENT of last week.

ENROLMENT SCHEME.

The action of the Treasurer in paying, to the amount of £88, expenses of the meetings of the profession in various centres to stimulate the Enrolment Scheme of the Central Medical War Committee was approved.

ANNUAL BALANCE SHEET, 1915.

The Financial Statement for the year 1915, as certified by the Auditors, was passed for presentation to the Annual Representative Meeting. The detailed accounts are published in this issue with the Report of Council.

QUARTERLY ACCOUNTS.

The accounts for the quarter, amounting to £10,769 6s. 5d., were approved, and the Treasurer authorized to pay same.

THE TREASURER.

Dr. EDWIN RAYNER reminded the Council that his third term of office as Treasurer of the Association would expire at the annual meeting in July, and that he would not seek re-election.

THE WITTENBERG CAMP.

The Council placed on record its abhorrence and condemnation of the barbarity and cowardice of Dr. Aschenbach in his attitude towards the typhus-stricken prisoners in the camp at Wittenberg.

ANNUAL MEETING, 1916.

Friday, July 28th next, is fixed for the holding of the Annual Representative and General Meetings in London.

NEW MEMBERS.

Fourteen candidates were elected members of the British Medical Association.

ANNUAL REPORT OF COUNCIL.

Much of the time of the Council was devoted to matters which are embodied in its Annual Report, published elsewhere in the SUPPLEMENT of this week.

Meetings of Branches and Divisions.

GLASGOW AND WEST OF SCOTLAND BRANCH: LANARKSHIRE DIVISION.

A MEETING of the Lanarkshire Division was held in Glasgow on April 26th. Dr. GRANT (Blantyre), Vice-Chairman, occupied the chair. As the Honorary Secretary was on service Mr. W. S. McKenzie (Larkhall) was appointed Secretary *pro tem*.

The late Dr. Macpherson.—Dr. GRANT paid a tribute to the memory of the late Dr. Macpherson (Bothwell), who had been chairman of the Division, of the Lanarkshire Medical Practitioners' Union, and of the Lanarkshire Local Medical and Panel Committees, a member of the Lanarkshire Insurance Committee, chairman of the Lanarkshire Collieries Medical Service Association, and chairman of the Collieries and Public Works Surgeons Committee for Scotland, and also a member of the War Emergency Committee. The tremendous work he did for his medical brethren was done with energy, capacity, and tactfulness, and it would be impossible to find one to fill his place. It was resolved to enter on the minutes of the Branch an expression of the great sense of the loss sustained by the death of Dr. Macpherson, and to send an excerpt to his widow expressing sympathy for her in her sad bereavement.

Appointment of Chairman and Vice-Chairman.—Dr. Grant was unanimously appointed chairman and Dr. Fotheringham vice-chairman of the Division.

War Emergency Committee.—On the question of appointment or reconstitution of the War Emergency Committee, it was agreed that it should consist of Drs. Grant, Goff, Little, Fotheringham, and Monie, and Mr. Marshall, Clerk to the Insurance Committee.

NORTHERN COUNTIES OF SCOTLAND BRANCH: CAITHNESS AND SUTHERLAND DIVISION.

A MEETING of the Caithness and Sutherland Division has been held in Helmsdale for the purpose of considering a circular from the convener of the Scottish Medical Service Emergency Committee, pointing out the number of men in the area of the Division who held whole-time appointments in connexion with His Majesty's Forces; and asking for the opinion of the Division on the provisional estimate the Committee had made that it should be possible to free for service one other practitioner from the area.

Dr. KYD AITKEN, who is acting as war locumtenent for Dr. Turner, Lochinver, took the chair.

The SECRETARY read apologies of absence from a number of practitioners who found it impossible to attend the meeting, the scarcity of doctors and extra work thereby entailed making it difficult for them to leave their practices for a whole day.

After free discussion it was apparent that there were still a number of medical men in the area who were willing to undertake whole-time military service provided adequate facilities were afforded for carrying on their

work in their absence. The Secretary was instructed to forward the following observations to the Scottish Medical Service Emergency Committee:

1. There are fourteen medical men from the area at present on whole-time military service, eleven of whom offered their services voluntarily since the war began.
2. There are only seventeen practitioners left in the two counties of those normally practising there, and one whole-time officer.
3. There are no young graduates or other unattached medical men now in the area.
4. From the general character of the medical service in the rural parishes of the two northern counties, it is practically impossible for the medical man in one parish to attend to the needs of a neighbouring parish in cases otherwise than where it is at present done.
5. In the burghs of Wick and Thurso, in the medical service of which there are included the parishes of Wick, Watten, Keiss, Bower, Halkirk, Thurso, and Reay, the medical supply is at present hardly adequate.
6. More medical men can be liberated for military service from the area only if they are replaced by locumtenents, who must be able to undertake hard work and long journeys and stand exposure to all weather conditions.

The position of those men in the area of the Division who had not registered with the Emergency Committee, or who had refused to undertake any military duty, was also discussed, and, on the motion of the CHAIRMAN, seconded by Dr. MacLACHLAN (Dornoch) it was unanimously agreed that, as a protest against their attitude, no notice of meetings called in connexion with the present military situation should be sent them.

Association Notices.

ELECTION OF COUNCIL, 1916-1917.

NOTICE is hereby given that nominations for candidates for election as Members of Council by Branches or Groups of Branches in the United Kingdom for the year 1916-17 must be forwarded to reach the Financial Secretary and Business Manager, at the Office of the Association, not later than Saturday, May 20th, 1916. Each nomination must be on the prescribed form, copies of which will be furnished by the Financial Secretary and Business Manager upon application.

Separate forms have been prepared:

- (a) For a nomination by a Division, and
- (b) For a nomination by any three Members of a Branch respectively.

Those applying are requested to state for which purpose the form is desired.

An announcement of the Nominations received will be made in the JOURNAL of May 27th.

* Election will be by voting papers. These papers will contain the names of all duly nominated candidates, and will be issued from the Central Office on Saturday, June 10th, and will be returnable not later than Saturday, June 17th.

The result of the election of Members to the Council will be published in the JOURNAL of June 24th.

By Order of the Council,

GUY ELLISTON,
Financial Secretary and Business Manager.

May 6th, 1916.

ANNUAL REPRESENTATIVE MEETING, 1916.

DATE.

The Annual Representative Meeting of the Association, 1916, will be held at the Connaught Rooms, Great Queen Street, London, W.C., on July 28th and following days as may be required.

DATE FOR NOTICES OF MOTION.

Attention is drawn to the fact that *Notices of Motion*, if any, from Divisions and Branches for consideration by the Annual Representative Meeting must be published in the BRITISH MEDICAL JOURNAL not later than the issue of May 27th, and for this purpose should be received by me not later than May 20th, 1916.

ALFRED COX,

Medical Secretary.

May 3rd, 1916.

BRANCH AND DIVISION MEETINGS TO BE HELD.

LEINSTER BRANCH.—Dr. William Doolin, Acting Honorary Secretary (50, Fitzwilliam Square, Dublin), gives notice that the annual meeting of the Branch will be held at the Irish offices of the Association, 16, South Frederick Street, Dublin, on Monday, May 15th, at 4.30 p.m. Agenda: Appointment of officers. Adoption of revised organization rules and ethical rules. Receive report of financial position. Apply for supplementary grant for 1916 of such amount as the meeting may decide. Any other business.

SOUTH WALES AND MONMOUTHSHIRE BRANCH.—Drs. W. J. Greer and L. Freeman Marks, Honorary Secretaries, give notice that the annual meeting of the Branch will take place in Cardiff on June 8th for the election of officers and other business.

SOUTHERN BRANCH.—Mr. James Green, Honorary Secretary, gives notice that the Council of the Branch, at its meeting on May 18th, will nominate candidates for the following offices for the ensuing year—namely, the president-elect, two vice-presidents, the honorary secretary, and the honorary treasurer. The Honorary Secretary is prepared to receive nominations, in writing, from any three members of the Branch for any such office on or before June 1st; failing the receipt of such nominations, the nominees of the Branch Council will be duly elected, in accordance with Rule 5 (Organization Rules).

MEMBERS ELECTED TO THE BRITISH MEDICAL ASSOCIATION

(SEPTEMBER 1ST, 1915, TO MAY 4TH, 1916).

First List.

BY THE COUNCIL.

Anderson, Alan Douglas, Lieutenant R.A.M.C., M.R.C.S. Eng., L.R.C.P. Lond.
Anderson, Gustave Alexander M., M.B., Ch.B. Edin., Surgeon H.M. Australian Ship Pioneer, care of G.P.O., London
Bantry-White, Harry Ernest, M.B., Captain R.A.M.C. (S.R.)
Barrett, William Thomas, M.D., 643, Courtney Street, Victoria, B.C.
Bowman, Frederick B., Captain R.A.M.C., M.B. (Tor.)
Breton, William Kenneth Dudoit, Staff Surgeon R.N., M.R.C.S., L.R.C.P. Eng.
Clearkin, Peter Alphonsus, M.B., B.Ch., B.A.O., W.A.M.S., Sierra Leone
Clemens, Frederick William T., Surgeon R.N., M.B., B.S. Lond.
Copland, James Ebenezer, M.R.C.S. Eng., L.R.C.P. Lond., Grenada, B.W.I.
De Muth, Otto, M.D., C.M. McGill, Lieutenant R.A.M.C.
De Neef, César Victor Emmanuel, M.D., Brussels, Docteur en Médecine, Chirurgie et Accouchements, A. 172 Calais
Denvir, Joseph Charles, Lieut. R.A.M.C. (T.), M.B., B.Ch.
Edwards, Walter Goldsworthy, Staff Surgeon R.N., L.R.C.P. and S. Edin.

Harty, Arthur Henry, Surgeon R.N., M.B., Queen's Canada, M.R.C.S., L.R.C.P.
Hennessy, Joseph Martin Reeves, L.R.C.P. & S. Edin., Lieutenant I.M.S.
Hodgson-Jones, Russell Walbank, M.R.C.S. Lond., L.R.C.P. Eng., Lieutenant R.A.M.C.
Hughes, Dunbar Bovell Berkeley, M.B., C.M. Edin., Grenada, B.W.I.
Kennedy, Edward Galway, Captain I.M.S., M.B., B.Ch., B.A.O., R.U.I.
Lumley, William, Captain R.A.M.C., L.R.C.P. and S.I.
McKeever, Michael A., Lieutenant R.A.M.C., M.B., B.Ch., B.A., N.U.I.
Miller, Henry Cecil, Lieutenant R.A.M.C., M.B., B.Ch. Dub., B.A.O.
Mitchell, William Steele, M.R.C.S. Eng., L.R.C.P. Lond., Grenada, B.W.I.
Morrison, Michael Wellwood, L.R.C.P. Lond., M.R.C.S. Eng., Grenada, B.W.I.
Nye, Leslie John Jarvis, Lieutenant R.A.M.C., M.B. Sydney
Patterson, Thomas Charles, Surgeon R.N., M.B., Ch.B., N.Z.
Playfair, Kenneth, Lieutenant R.A.M.C. (T.), M.R.C.S., L.R.C.P.
Pollock, Alexander Norman, Surgeon R.N., M.B., B.Ch. Edin.
Rogerson, William, Lieutenant R.A.M.C., M.B. and B.S. Melb.

Sampson, Basil, M.R.C.S., L.R.C.P. Eng., Surgeon R.N.
Samuelson, Gerald Septimus, Capt. R.A.M.C., M.B., C.M., M.D. Ed.
Stewart, John Kilpatrick, Lieutenant R.A.M.C., M.B., B.Ch., B.A.O.
Sullivan, Robert Ievers, M.B., B.Ch., B.A.O., Captain R.A.M.C.
Thwaytes, William Glossop, M.D. Edin., Surgeon R.N.
Waddy, Richard Granville, Captain R.A.M.C., M.B., Ch.M. Syd., D.O., B.Sc. Oxon.
Wells, Dr. Edwin, Grenada
Whiteman, Wilfred Augustus Dixon, M.R.C.S. Eng., L.R.C.P., Grenada, B.W.I.
Wilks, Henry, M.R.C.S., L.R.C.P. Lond., Surgeon, R.N.

BY BRANCH COUNCILS.

Aberdeen Branch.

Anderson, A. S. K., M.B., Lieutenant R.A.M.C., 15, Westburn Drive, Aberdeen
Hutton, Adam, M.B., Old Rayne
Mitchell, Peter, M.D., 526, King Street, Aberdeen

Assam Branch.

Clyne, Charles, M.B., Golaghat P.O., Assam

Bath and Bristol Branch.

Christie, Julia Veronica, M.B., Eastern Dispensary, Cleveland Place, Bath
Grace, Edgar M., Esq., Thornbury

Birmingham Branch.

Acheson, R. W., Lieutenant R.A.M.C.(T.), Military Hospital, Wordsley, Stourbridge
McDon, G. J., M.D., Stourbridge
Richmond, Henry, M.B., Handsworth

Bombay Branch.

Arucha, P. C., M.D., Taj Hotel, Bombay
D Almeida, J. E., Esq., Cherai Street, Thana, via Bombay
Engineer, G. S., M.B., Lieutenant, I.M.S., I.E.E., "E"
Jagosh, Jamshed R., Esq., 77A, Boocher's House, Malabar Hill Port, Bombay
Pardiwalla, H. T., Esq., Bulsar
Phatak, V. D., Esq., 243, Sadashir Peth, Poona City

Border Branch, South Africa.

Howkett, L. Howard, Esq., Idutywa

Border Counties Branch.

Macdonald, James, M.D., 17, Portland Square, Carlisle

British Gulana Branch.

Miller, Robert Sydney, Esq., Georgetown

Cambridge and Huntingdon Branch.

Appleton, A. B., Lieutenant R.A.M.C., Downing College, Cambridge
Coombes, H. R., Esq., 124, Cherrybinton Road, Cambridge

Ceylon Branch.

Arnot, E. W., Esq., Civil Hospital, Kandy
Bartholomewsz, W. A., Esq., Civil Hospital, Kandy
Deutrom, C. F., Esq., Avisawella, Ceylon
Mendis, G. E., Esq., General Hospital, Colombo
Van Dort, V. B., Esq., Moneragala, Ceylon

Dorset and West Hants Branch.

Langton, P. S. B., M.B., Seecroft, Poole
Williams, C. E. C., M.D., Canford Cliffs, Bournemouth
Wilson, Norman, M.D., Greenhill, Sherborne

Dundee Branch.

Andrew, Agnes, M.B., Royal Infirmary, Dundee
Fairlie, Margaret, M.B., Royal Infirmary, Dundee
Ferguson, Mary O., M.B., Royal Infirmary, Dundee

East Anglian Branch.

Barnes, H. Edgar, M.D., Hill House, Eye
Bradley, G. F., M.B., Halstead
Macdonald, Coll, M.B., 2, Ceylon Road, West-cliff-on-Sea
Manning, E. J., Esq., Guiltcross Institution, East Harling
Seth-Smith, D. N., Esq., Bildeston
Stacy, John H., Esq., 2, Camperdown Place, Great Yarmouth
Willans, F. J., Esq., West Newton

East York and North Lincoln Branch.

Bott, Stanley, Esq., Tower House, Caistor
Soutter, J. Stewart, M.B., Soutergate, Hedon

Edinburgh Branch.

Cameron, Margaret W., M.B., 12, Brighton Place, Portobello
Coullie, W. L., Esq., Surgeon R.N., The Manse, Pencaitland, E. Lothian
Fullerton, Edward, M.B., Lieutenant R.A.M.C., Harehead, Duns
Hawkes, Ewart S., M.B., Elm House, Hawick
Jones, David Harris, M.B., Elm House, Hawick
MacNeil, Celia Mary C., M.B., Northfield, Prestonpans
Miller, R. H., M.B., 9, Canaan Lane, Edinburgh
Moir, H. Matland, M.B., Captain R.A.M.C., 30, Shandon Crescent, Edinburgh

Fife Branch.

Scott, A. A. B., M.B., Lieutenant R.A.M.C., Mucoos, St. Andrews
Walker, H., Esq., Craigdenan, Cardenden

Gloucestershire Branch.

Billings, Mrs. Grace S., M.B., Gloucester Lodge, Promenade, Cheltenham

Hong Kong and China Branch.

Bolton, N. H., M.D., 3D, Peking Road, Shanghai
Edwards, G. K., M.B., c/o Rev. G. W. Clarke, Inland Mission, Tientsin

Hang, Chak C in, M.B., 42, Turig Street, Hong Kong
Pringle, Miss Ella F., M.B., Kaiyuen, Manchuria
Reynolds, W. G., Esq., Shaméen, Canton
Scales, Cuthbert, M.B., Captain R.A.M.C., Military Hospital, Hong Kong
Stewart, F. H., M.B., Captain I.M.S., Hong Kong

Jamaica Branch.

Baillie, F. W. W., M.B., Kingston

Kent Branch.

Coke, W. F. H., F.R.C.S., Ashford
Dancy, J. H., Esq., 6, Wellington Crescent, Ramsgate
Myddelton-Gavey, E. H., Major R.A.M.C.(T.), Tunbridge Wells
Walker, E. H., M.B., Ightham

Lancashire and Cheshire Branch.

Bardsley, Henry, Esq., 37, Church Street, Southport
Gee, C. W., Esq., 24, Swinley Lane, Wigan
Griffiths, Geo. Batho, Esq., H.M. Prison, Walton
Gunn, W. G. B., M.B., 822, Ashton Old Road, Higher Openshaw, Manchester
Jaffé, Joseph, M.B., 43, Ash Street, Southport
Lees, C. G., M.B., The Rowans, Elton, Eury
O'Brien, J. P., M.B., 101, Market Street, Earlstown
Maghione, R. G., Esq., 20, Ash Street, Southport
Martin, H. O., Esq., 117, Sussex Road, Southport
Ramsden, Gladys Hilda, M.B., 236, Walmersley Road, Bury
Randall, G. F., Esq., 141, Derby Street, Bolton
Robertson, T. P., M.B., Spring Bank, Irlams-ot'-th'-Height
Robinson, R. A., Esq., Hough Green, Widnes
Smyth, F. G., M.B., Union Infirmary, Burnley
Stansfield, Walter, Esq., Balmaln, Mount Pleasant Road, Liscard
Steel, Richard, M.B., 218, Katherine Street, Ashton-under-Lyne
Williamson, James, M.B., 16, St. Mary's Place, Bury
Wylie, John, Esq., 1, Byron Street, Fleetwood

Metropolitan Counties Branch.

Alexander, J. B., M.B., 1, Grove Villas, Nightingale Lane, Wanstead
Annisson, B. W., Esq., 173, Bowes Road, New Southgate, N.
Berry, P. N., M.B., Lieutenant I.M.S., c/o Messrs. Cox and Co., 16, Charing Cross, S.W.
Birrell, D. A., Lieutenant R.A.M.C., 11, Beresford Street, Camberwell, S.E.
Branchley, A. D., M.D., 57, Denmark Hill, S.E.
Broadbent, F. W., M.B., 78, South Side, Clapham Common, S.W.
Brown, J., M.B., Lieutenant R.A.M.C., c/o Messrs. Holt and Co., 3, Whitehall Place, S.W.
Burgess, Mildred M., M.D. Lond., 6, Church Road, Brixton Hill, S.W.
Carter, R., M.D. Brux., 11, Leonard Place, Kensington, W.
Cunningham, F. W. M., M.D., Captain R.A.M.C., c/o Messrs. Holt and Co., 3, Whitehall Place, S.W.
Frew, R., M.B., Lieutenant R.A.M.C., 28, Buckley Road, Brondesbury, N.W.
George, W. S., M.B., 110, Finchley Road, Hampstead, N.W.
Gibbon, A. H., M.D. Brux., 3, Duke Street, W. Gibbons, A. P., M.B., 21, Finsbury Square, E.C.
Graham, D. L., M.B., Captain I.M.S., c/o Messrs. Grindlay and Co., 54, Parliament Street, S.W.
Griffith, H. S., Esq., 47, Deronda Road, Herne Hill, S.E.
Hairsine, O., Captain R.A.M.C., 39, Buckingham Mansions, W. Hampstead, N.W.
Hempson, G. O., Esq., 9, Granville Park, Blackheath, S.E.
Idris, A. E. W., Lieutenant R.A.M.C., "Avalon," St. Albans Road, Highgate Road, N.W.
Idris, T. H. W., Surgeon R.N., 1, St. Albans Road, Highgate Road, N.W.
Jebb, A. C., M.B., Captain R.A.M.C., 4, Genoa Avenue, Putney, S.W.
Keegan, J. M., M.B., Lieutenant R.A.M.C., Authors' Club, Whitehall, S.W.
Kitching, R. L., M.B., Lieutenant R.A.M.C., 9, Lansdown Road, Blackheath, S.E.
Leay, G. E., M.B., Surgeon R.N., 26, Nightingale Place, Woolwich, S.E.
Lawson, T. E., Captain R.A.M.C.(T.), 33, Rosslyn Hill, Hampstead, N.W.
McEwen, O. R., Captain R.A.M.C., c/o Messrs. Holt and Co., 3, Whitehall Place, S.W.
Pooley, R. C. M., Esq., 20, Park Road, Clarence Gate, N.W.
Saw, N. H. W., Captain R.A.M.C., 11, Vanbrugh Park Road, Blackheath, S.E.
Seyers, B. E. P., Surgeon R.N., H.M.S. Princess Margaret, c/o General Post Office, London
Shepherd, W. H., Captain R.A.M.C., 4, Greyhound Road, Hammersmith, W.
Smith, A. W., M.D., 66, Greencroft Gardens, N.W.

Smith, G. F., Esq., Walden House, Clarendon Road, Watford
Stewart, A. H. L., Esq., 72, Wimpole Street, W.
Tracey, Violet M., L.R.C.P. and S.Ed., Hemel Hempstead
Tongely, Ida Clare, M.D., "Normanburst," Warwick Road, Bishops Stortford
Vercoe, R. H., Esq., Belmont, Western Road, Southall
Warner, H. P., M.B., Rydal, Woodford Green

Munster Branch.

Good, Susanna H., L.R.C.P., Coolbawn House, Kinsale
Hayes, W. B., M.D., 14, Denny Street, Tralee
Hunt, F. J., M.B., Captain R.A.M.C., Rockville, Boreenmana, Cork
MacSweeney, William, M.D., Park Place, Kilarney
O'Riordan, T. J., M.B., Surgeon R.N., Ballinacraig, Farran, co. Cork
Sarsfield, T. H., Lieutenant R.A.M.C., Fairy Hill, Mallow, co. Cork

New South Wales Branch.

Allen, C. G., M.B. Sydney Hospital, Sydney
Aspinall, Wm. R., M.B., Potts Point Sydney
Balls, Raymond, M.B., Muswellbrook
Baret, H. V. D., M.B., Waterfall Sanatorium, Waterfall
Bray, C. W., M.B., Rabaul, New Guinea
Byrne, G. C., M.B., Burwood
Byrne, Kevin, M.B., Ashfield
Clouston, T. B., M.B., Tamut
Connor, F. G., M.B., Chatswood
Coppleson, V. M., M.B., Bondi
Duncan, G. M., M.B., Muttaborra
Farrar, F. M., M.B., Randwick
Gibbes, J. Murray, M.D., Mimmi
Grieve, P. N., M.B., Kempsey
Griffiths, Neville, M.B., Balmaln
Lance, A. L., M.B., Royal Alexandra Hospital for Children, Camperdown
Leahy, H. G., M.B., Sydney Hospital, Sydney
Lexton, E. H., M.B., Royal Alexandra Hospital for Children, Camperdown
Machin, A. E., M.B., Royal North Shore Hospital, North Sydney
McIntyre, Fergus, M.B., Alexandria
Mackechnie, C. A., M.B., Wilcannia
McLelland, H. S., M.B., R.P.A. Hospital, Camperdown
Moreau, S. J. H., M.B., Milson Island, Hawkesbury River
Murphy, P. J. B., M.B., Sydney Hospital, Sydney
Murray, C. W. W., M.B., Paramatta
Robinson, C. F., M.B., St. Andrew's College, Camperdown
Samson, C. M., M.B., Margaret Street, Sydney
Seaforth, Karl H., M.B., Brewarrina
Sinclair, C. W., M.B., Sydney Hospital, Sydney
Sinclair, George W., M.B., Sydney Hospital, Sydney
Skeet, J. G., Esq.
Slattery, M. J., M.B., College Street, Sydney
Solling, F. P. Max., M.B., 61, Woolcott Street, Sydney
Stafford, S. R., M.B., Women's Hospital, Surrey Hills
Wade, B. G., M.B., Wellington
Webb, J. E., M.B., Education Department, Sydney
Wood, Douglas, M.D., Wellington

New Zealand Branch.

Bowie, J. T., M.B., 1, Elder Street, Dunedin
Cross, P. R., Esq., Morrinsville
Dorset, R., Esq., Napier
Ewen, H. B., Esq., The Hospital, Timaru
Gould, H. L., Esq., Napier
Macfarlane, A. A., Esq., Te Puke
MacLeod, M. H., Esq., Milletton
Ward, S. H., Esq., Whangarei
Woodward, K. I., Esq., Takaka

North Lancashire and South Westmorland Branch.

Ferguson, James, M.B., Kingsley, Eden Park, Lancaster
Henderson, J. M., M.B., Barrow-in-Furness
Somervell, L. C., Captain R.A.M.C., Tenter Field, Kendal
Thomas, John W., Esq., Higher Foxholes, Lancaster

North of England Branch.

Aickin, J. B., Esq., Panton House, Ferryhill
Dunbar, Dean, M.B., Aysgarth
Grant, Francis Wm., Esq., Percy Main, Northumberland
Henderson, C. J., M.B., 10, Clifton Road, Newcastle-on-Tyne
Hudson, Wm., M.B., Old Brewery House, Bedlington
Renton, A. C., M.B., St. Mary's House, Chester-le-Street
Saint, A. P., Lieutenant R.A.M.C., Selborne, Monkseaton
Steel, A. R., Esq., Waterloo House, Thornley
Thomson, John Shadden, M.B., Glencairn, Normanby, Eston

REDUCTION OF NOTIFICATION FEES.

DR. ARTHUR H. GREGSON (Blackburn) writes: The chief point about the reduction of the notification fee is whether we will actively oppose it, or whether we will regard one shilling as better than nothing.

If the Government will take away the compulsion as far as the medical man is concerned we cannot complain. If we consider it better to have one shilling than let the parent notify the case, then one shilling is a just amount. In this case we can expect the Government to reduce our panel fees and see if we will take that also lying down.

The course which seems to me the only one likely to be successful is to give the Government the alternative of taking away the compulsion, or hauling each individual doctor (who will fight) before the courts.

I see no reason why the medical profession should bear any special share in retrenchment unless the work also is reduced. Even after the Government protested against the rise in wages they gave rises repeatedly. If they really cannot afford to pay for measles being notified, let them cease to require notification; but they could not raise an additional 10 million before the war, and now they are raising 100 million.

To a great extent our generosity in treating people free is responsible for the Government action. In the days before the Government acknowledged responsibility our generosity would have been right, but the day the Government introduced the Insurance Act they compounded our bad debts and good debts, and acknowledged that the responsibility was upon themselves, even though they did not take it all at once.

DR. HENRY THOS. BARTON (Secretary, Blackpool Local Medical and Panel Committees) writes: I have been present at three Representative Meetings when the question of the British Medical Association becoming a trades union has been under discussion, and on each occasion our leaders from the platform have told us that in their opinion we should gain nothing by such a change. At Liverpool Mr. Hempson was especially emphatic when he asked Representatives what more they wanted than that which the constitution before them already gave.

The Association can now justify these opinions and render the profession a great service by moving effectively in the question of notification fees. In the recent Budget certain taxes have been withdrawn or modified in the face of vigorous protests from parties concerned. Is it not the duty of the Medico-Political Committee to take this matter up and point out to the Government the fallacies in arguments such as those used by Mr. Hayes Fisher in the House on April 11th? We are told that the authorities recognize the Association as the mouthpiece of the profession, and are exhorted to use that fact as an argument in canvassing for new members. In my Division there is a small but important section of practitioners who are antagonistic, and it is quite impossible under present circumstances to influence them. Experience of Representative Meetings has taught me that this state of matters typifies in miniature the whole profession. The Association has now an opportunity of reconciling the malcontents and once more standing where it did in 1912.

DR. S. J. ROSS (Bedford) writes: I think that the Retrenchment Committee might have made a suggestion which would have been of considerable financial benefit to the community, and to which nobody would have taken exception—the saving of the waste of printing and paper in connexion with the Insurance Act. Why are we so subdued over the suggested plan of paying 1s. for notifying cases of infectious disease instead of 2s. 6d.? Possibly because most of our more virile members are on active service, possibly because those of us who remain at home have so much to do that our power of initiative is exhausted; possibly because we were impressed, during the Insurance Act controversy, that we were numerically a negligible body so far as vote catching is concerned. If we had been numerically powerful, even in these days of stress, doubtless our fee would have been doubled, or, I may add, if we had belonged to the Labour party.

Ours is a profession noted for its generous dealing with the community, and so long as we are satisfied with verbal praise we are the most appreciated of the dwellers in this island. *Auti alteram partem* is the motto of the Association; therefore I bid you listen:

Scarlet fever was rife at the time I was called out to Cople, four miles away from Bedford, to see a child with a rash. These people had recently come to Cople, and had no doctor. They

were willing to pay, of course, but they had not the intention of so doing. I went out, and discovered that the child was suffering from scarlet fever. The only fee I obtained was the notification fee of 2s. 6d. A taxicab would have cost more. Now it is proposed to pay 1s. I can only say that if this proposal be carried, and I am called out to a village four miles away to see patients of whom I know nothing, I shall be otherwise engaged. The proposed fee would not cover even the petrol and wear and tear of the car. The Government may accept the 1s. fee, but I shall not.

DR. A. M. ST. JOHN WRIGHT (Liverpool) writes: It is only natural to expect a balanced judgement from such a committee, but is it so in this case?

Either the notifications are worthless (then why were they not fearlessly abolished *in toto* and the entire cost saved?), or if they are worth anything they are worth the paltry 2s. 6d. each. For I contend that a single notification of typhus, small-pox, plague, or cholera is worth the cost of a whole year's fees to the community involved; but to a nation depending on its overseas trade it is inestimable. Slipshod work will be the result of the miserable pittance of a shilling, and other nations will only be too glad to discredit the value of a bill of health given under such conditions from a British port, with the result loss of money, time, and temper by enforcement of quarantine regulations to safeguard their own community.

INSURANCE.

INSURANCE COMMITTEES.

LONDON.

FINES IMPOSED ON PANEL PRACTITIONERS BY THE
INSURANCE COMMISSIONERS.

Protest by the Insurance Committee.

It was reported to the meeting of the Committee on April 27th that the case of a practitioner against whom an accusation of neglect had already been preferred and sustained by the Committee had been further investigated by the Insurance Commissioners. After giving careful consideration to the practitioner's observations, the Commissioners stated that they could not avoid the conclusion that the practitioner did not take sufficient care in his treatment of the insured person concerned to enable him to arrive at a correct diagnosis. He admittedly had suspicions that the patient might be suffering from tuberculous disease, and had ample facilities for having his suspicions verified. The Commissioners accordingly decided to withhold the sum of £10 from the Exchequer grant for medical benefit, which would otherwise be payable to the Committee. The Committee, while resolving to take advantage of the provision in its agreement with the practitioner by which any sum lost to it through his default might be recovered out of the moneys payable to him, added a rider expressing the view that the range of surcharges of the nature of fines for breaches by practitioners of their agreement with the Committee was generally excessive and disproportionate, and beyond what the justice of the cases required.

LOCAL MEDICAL AND PANEL COMMITTEES.

LONDON.

Local Medical War Committees.—At the meeting of the London Panel Committee on April 18th a motion was brought forward by Dr. M. COHEN, seconded by Dr. W. T. PAGE, affirming the desirability that the present members of the Panel Committee representing practitioners on the panel in the various districts of London should be co-opted as members of the Local Medical War Committees in their respective areas. Dr. J. A. ANGUS pointed out that, taking the metropolis as a whole, the panel practitioners were in the majority, and Dr. B. A. RICHMOND said that all that was wanted could be secured by individual action on the part of members of the Committee in their own neighbourhoods. The resolution was carried *nemine contradicente*.

Emergency Settlement of Accounts.—It was stated that the general body of panel practitioners in London had been consulted as to the desirability of pressing for the emergency settlement of their accounts for the medical year 1915, and that 90 per cent. of those who responded were in favour of such a course, the minority deeming it advisable that the final payment should be withheld until the Insurance Commissioners were in a position to calculate the actual figures in each case. It was resolved to

have resort to the expedient of an emergency settlement, and thus avoid the deplorable delay which occurred in connexion with the accounts for 1914.

Analysis of Drugs and Appliances.—In view of the fact that panel practitioners frequently have cause to question the quality or the quantity of the drugs supplied to insured persons by chemists, the Committee decided to urge upon the London Insurance Committee the necessity of a more careful supervision in this respect, stating that at present there was no guarantee that the drugs prescribed were dispensed as ordered.

COUNTY OF SURREY.

At a meeting of the Panel Committee on March 17th it was agreed to accept the degree of inflation of the index register of the county by 13.81 per cent. as also applying to the lists of insured persons for whom doctors dispense.

It was decided to make no alteration in the area to which the special mileage fund applies, but to protest to the Surrey Insurance Committee against the delay in providing the Panel Committee with the statistical data of prescribing in Surrey for the month of January, 1916.

YORK.

At a meeting of the Local Medical and Panel Committee on April 19th, the SECRETARY reported that he had given the clerk a written authorization to make a deduction for the voluntary levy of ½d. per insured person from all those panel doctors who had previously authorized such deduction, with an indemnification against any loss which might occur if any of the deductions were objected to. His action was endorsed.

The Secretary was instructed to ascertain from the clerk to the North Riding Insurance Committee what was being done as regards the question of the case values, and on receipt of his reply to write again to the Commissioners on the matter, pointing out the manifest injustice caused by withholding the final credit for 1914 from York when it had been sent to the North Riding.

A local pharmacopoeia, consisting of ten stock mixtures, was approved and forwarded to the Pharmaceutical Committee for acceptance as the official list of stock mixtures for the York area.

RENFREW COUNTY.

At a meeting of the Panel Committee on March 29th, it was decided to inform the Insurance Committee that the Panel Committee was not in favour of the total prohibition of proprietary medicines. It was reported that the final credits for 1914 were practically ready to be issued to Insurance Committees, and that they disclosed a considerable further credit for medical benefit. The new Panel Committee regulations were submitted, the effect of which is to postpone the election of a new Committee from March 31st, 1916, until "such date, not being later than twelve months after the termination of the present war, as the Commissioners may determine."

KINCARDINESHIRE.

At a meeting of the Local Medical and Panel Committees, on April 21st, the suggestion that the British Medical Association should make representations to the Commissioners on the subject of travelling expenses of members of Committees was approved.

CORRESPONDENCE.

PAY UNDER THE INSURANCE ACT FOR YEAR 1914.

DR. C. H. POWERS (Westend, Hants) writes: The so-called final settlement for 1914, which has recently made its belated appearance, surely puts panel practitioners in a very unenviable position.

When I, with some reluctance, signed the original contract, I foolishly imagined that the words of the agreement were intelligible and definite; and that I, in consideration of the fact that I dispensed for all my patients, would receive 7s. + 2s. per head.

The contract contains this clause: "The practitioner shall be credited with a rate of 1s. 7½d. per quarter in respect of persons included in his list at the commence-

ment of the quarter who are entitled to medical benefit, and a further rate of 1½d. per quarter in respect of persons so included who are eligible for sanatorium benefit."

Certainly some of the regulations were rather verbose (one sentence in one edition contains over 250 words), but, lest there should be any doubt about their interpretation, the Insurance Commissioners brought out "a concise official explanation." Paragraph 22 of this explanation says:

If the object desired is that each practitioner shall know as exactly as possible the income on which he can rely in respect of his liability to give attendance under the head of medical benefit during the year, the method to be adopted is obviously that of simple capitation, under which he will know definitely that if he has 1,000 insured persons on his list for the year he will receive in a district in which he does not dispense at least £325. With the 6d. for treatment of tuberculosis and 6d. from the Drug Suspense Fund (where cost of drugs does not exceed 1s. 6d. per head) it will be £375. In a rural district where the doctor did the dispensing it would be £450.

Again, paragraph 23 ends thus:

The payment for each quarter shall be on the average of those on his list on the first day of the quarter and those on his list on the last day of the quarter. Subject to these small adjustments, the practitioner working on a simple capitation system . . . may confidently rely on receiving at least 7s. (including the 6d. for tuberculosis), and possibly (with the amount derived from the Drug Suspense Fund) as much as 7s. 6d. per head per annum of all the persons on his list.

There appears to be no ambiguity in these words. As a further proof of what was originally intended, payment for 1913 was made as follows:

In August 3s. 6d. for treatment (less sums already received) and 1s. for dispensing.

In October 1s. 9d. for treatment.

In February, when the last payment was made, 1s. 9d. for treatment and 1s. for dispensing.

Up till 1914 all seemed clear, but with our present experience the official explanation might simply have said, "In no case can you get more than 7s. 6d. or 9s. with dispensing"; or "Wait and see, and finally take what can be found for you." We are, as a matter of fact, told that all each doctor can receive depends entirely upon how much the year's working of the Act has been able to provide for the Practitioners' Fund.

It may be of advantage to give details of my own work and pay during 1914. My practice is rural, and the population therefore scattered. I dispense for all. The average number on my list was accepted by myself and by the committee as 246. My record cards showed that 133 were actually attended, and the total number of attendances was 1,026, considerably more than half of which were visits, paid at various hours of the day and night and at various distances. I dispensed about 620 bottles of medicine, chiefly 3viii, 40 bottles of lotions, etc., 50 boxes of ointments, pills, tablets, etc., besides numerous dressings, bandages, etc. In the words of the concise official explanation, I confidently relied upon receiving £110 14s., less a small sum for expenses, and, in addition, an uncertain amount for unallotted persons.

The sum expected for those on my list consists of two different amounts:

	£	s.	d.
For treatment	92	5	0
For dispensing	18	9	0

I now give a copy of the statement received in February, 1916, with cheque in final settlement for 1914:

Professional Services:

	£	s.	d.	£	s.	d.
Your share of £38,592 6s. 3d., being amount allocated from Central Fund to Hampshire doctors for the year ...	88	9	2			
Less paid on account	73	9	3			
				14	19	11

Drug Account:

	£	s.	d.	£	s.	d.
Your share of £2,825 19s. 2d. ...	15	10	4			
Less paid on account	15	5	1			
				0	5	3
				15	5	2

No intimation is here given of how the figures are arrived at, though with each quarterly cheque the number on my list for the quarter and the rate of instalment were mentioned. It appeared that I was to receive £6 14s. 6d. less than the sum confidently relied upon, but

in reality it was much worse, as I discovered that the payment included a sum of, I believe, about £3 for the unallotted, so that I consider that I actually received nearly £15 less than I might naturally have expected. In answer to inquiries, various official explanations have been given, such as

1. That the number on doctors' lists in the county for the year 1914 was 107,245, but the Commissioners reduced this estimate to 92,765, because the year 1914 was eleven days short, and because the lists were said to be inflated.

2. That the words of the agreement do not mean that the practitioner shall be paid 1s. 9d. a quarter for each member.

3. That during 1914 the dispensing rate worked out at 1s. 5½d. instead of 1s. 6d.

With regard to (1) I can quite understand that the eleven days short does mean a certain reduction of the amount payable.

With regard to (3) the payment received by me worked out at a little more than 5d. for each thing dispensed, without counting dressings, or 6d. for each bottle of medicine, and nothing at all for ointment, pills, lotions, liniments, dressings, etc. What am I expected to put in the bottles with the present price of the empty bottle?

Which part am I supposed to look upon as my payment for work done? Certainly not the dispensing. Yet the treatment account comes considerably below the lowest rates of any recognized tariff.

I have given full details because, thinking that they might prove useful, I kept a record, and believe this statement may be interesting at the present moment.

Of course I am unaware whether the majority of panel practitioners are satisfied to be paid in this way for attendance on insured people, with the accompanying labour and worry of certificates, records, etc. I do, however, think that we must all realize what the present position means.

I am told that in the old club days, many doctors used to receive, without demur, whatever cheque the secretary sent and without ever having any list of members. So far as payment goes, the present system appears to be equally bad. Unless we can be assured that the words of the concise official explanation will be carried out, we must remain completely in the dark as to what we are going to receive.

If the lists are inflated, when will they be corrected and when shall we start afresh? At best, is it fair that, granted inflation, a practitioner shall have no opportunity of proving the number on his list? Also, what is the good of practitioners and committees agreeing each quarter as to the number if we are afterwards to be told that the numbers are all wrong? In conclusion, I can only say that our county officials have always dealt most courteously with inquiries, and I appreciate the difficulties of their position as well as of our own.

NON PANEL DOCTORS AND NATIONAL INSURANCE CERTIFICATES.

IN order to minimize as much as possible the inconveniences caused to doctors who attend insured persons in their private capacity, the Association has published books of certificates which, it is believed, will meet the requirements of approved societies, so far as is practicable in the case of certificates not given under the obligations of the official medical certification rules. The form of certificate is sufficiently like the official form to remove many of the difficulties which insured persons who have been attended by private doctors have had in satisfying the requirements of their approved societies, but is sufficiently distinct from the official form to show at once that it is being used by a doctor who is attending the patient in a private capacity—that is to say, either by a doctor who is not on a panel, or by a panel doctor other than the one on whose list the insured person is.

The Association has shown the certificates to the Insurance Commissions for England, Scotland, and Wales, and they raise no objection to the issue of them by the Association to medical practitioners for use when attending insured persons not being their panel patients, and not being persons whom they are attending as medical officers of institutions under Section 15 (4), or in virtue of "own arrangements" under Section 15 (3).

The books are being issued at cost price. They contain 50 certificate forms, and may be obtained from the Financial Secretary and Business Manager, British Medical Association, 423, Strand, W.C., price 6d. each, post free.

INSURANCE NOTES.

The Dundee Insurance Committee has sought to arrange for morning consultations, in addition to the evening hours fixed. A large number of doctors have not replied to the suggestion, and some have refused to give further facilities for consultations. It was decided to raise the matter again when new contracts were entered into.

At a meeting of the Glasgow Insurance Committee it was decided, on the motion of Dr. Lamb, to revert, for the duration of the war, to the practice which existed previous to December last of permitting repeat prescriptions.

Naval and Military Appointments.

ROYAL NAVAL MEDICAL SERVICE.

The following appointments are announced by the Admiralty: Fleet Surgeons L. Kilroy to the *Fidra*, J. W. Craig, M.B., to the *Pembroke*, N. L. Richards to the *Ajax*, P. H. Boyden, M.D., to the *Victory*, additional, for Haslar Hospital; W. K. Hopkins to the *Crescent*, G. E. Macleod to the *For. Surgeons* F. H. Rock, M.D., to the *Pembroke*, A. M. Henry to the hospital ship *Karapara*. Temporary Surgeons C. M. Williams to the *Impregnable*, R. P. Langford-Jones and G. E. Heath to Chatham Hospital, W. C. Wade to Plymouth Hospital, I. H. Lloyd and H. M. Oddy, M.B., to Haslar Hospital. To be temporary Surgeon: H. W. L. Molesworth.

ROYAL NAVAL VOLUNTEER RESERVE.

Staff Surgeon W. B. Betenson to the *Powerful*, vice Fasson; Surgeon Probationer A. E. Gallaher to the *Lydiard*, vice Aylward.

ARMY MEDICAL SERVICE.

Colonel J. M. Irwin, M.B., to be temporary Surgeon-General whilst a Director of Medical Services.

ROYAL ARMY MEDICAL CORPS.

Lieutenant-Colonels to be temporary Colonels whilst Assistant Directors of Medical Services: J. D. Alexander, M.D., A. W. Hooper, C.M.G., D.S.O.

Temporary honorary Lieutenant-Colonel Sir D. Hardie, M.D., having ceased to be employed by the Australian Voluntary Hospital, relinquishes his commission.

Major P. S. Leelan, F.R.C.S., to be temporary Lieutenant-Colonel whilst Assistant Director of Medical Services.

Temporary Captain J. P. Campbell, M.B., to be temporary Major. Captain A. D. Fraser, M.B., to be temporary Major whilst commanding a field ambulance.

Temporary Captain F. Charlesworth, M.B., to be temporary Major. Temporary Lieutenant T. H. Lunney, M.D., relinquishes his commission.

Temporary Lieutenants to be temporary Captains: I. M. Grant, M.D., G. B. Nicholson, A. B. Rendle, M.D., G. D. Fairley, M.B., T. B. Carlyn, W. H. Sheffield, M.B., D. Wood, F.R.C.S., J. Keag, K. H. A. Kellie, M.B., W. Gilbertson, M.D., E. C. Bourdas, M.D., F.R.C.S.E., E. P. Satchell, M.B., H. W. Barnes, M.B., J. H. J. Davys, K. F. Sonntag, M.D., H. A. C. Swertz, M.B., J. B. Walker, H. J. de Brent, A. D. Howard, M.D., P. Kitchen, P. H. Haddfield, J. C. Glen, D. Gillies, A. Emery, M.B., J. B. Alexander, M.B., C. A. Robinson, M.B., J. P. Howe, H. H. Folker, L. H. Walsh, M.D., F. Bryan, M.B., C. C. de B. Daly, M.B., B. H. Leigh, S. C. Dyke, W. N. Parker, M.D., T. W. Kelly, M.D., W. B. Heywood, M.D., R. A. Flynn, W. Beck, E. F. Greene, S. H. Hall, M.B., F. G. Bullmore, H. R. Sedgwick, M.B., E. Allan, M.B., J. D. Gunn, M.D., F.R.C.S.E., D. C. Graham, M.B., R. L. Ritchie, M.B., E. M. J. O'Farrell, F.R.C.S.I., W. C. W. Glenny, J. A. Goutie, M.B., J. C. Rix, W. Hutchison, M.B., J. Wylie, M.B., B. H. S. Aylward, M.B., E. A. Aylward, M.B., A. G. H. Smart, M.B., R. McC. Paterson, W. Haward, M.B., B. S. Browne, M.B., C. Butler, M.D., R. Deaman, J. D. Gimlette, E. B. Stone, W. D. Wilkins, M.B., W. Harvey, M.B., H. B. Taylor, H. B. Shepherd, J. Craig, M.D., P. A. McCarthy, M.D., W. A. Slater, H. Grey, M.D., B. M. Carruthers, M.B., C. H. Armitage, M.B., F. J. Fahy, M.B., E. W. S. Martin, M.B., W. J. F. Symons, M.B., R. A. Banbury, T. Johnston, A. G. Southcombe, M.D., W. V. Robinson, B. W. Cohen, M.B., N. C. Talbot, M.B., F. H. Moran, M.B., C. F. Strange, E. E. Isaac, C. J. Nicholson, F. T. D. Glendinning, N. McI. Falkner, M.D., J. W. Bennett, R. L. Williams, T. D. Jago, C. H. Hopwood, M.B., A. J. H. Boyton, C. B. Dobell, M.D., H. Crichton, M.D., T. Fearnehead, O. L. Chalk, F. L. Underwood, E. M. C. P. Power, G. B. Brown, M.B., L. Rose, M.D., W. Kirk, M.D., T. P. Gray, M.D., J. R. H. Ross, M.B., J. M. Twynman, M.B., M. Hall, A. E. Carsberg, M.D., G. H. S. Leitchworth, C. E. W. Wilmot, M.B., H. A. Upward, M.B., E. V. Hunter, J. B. Mason, M.B., H. H. K. Sparrow, W. Leggett, M.D., J. T. Hurst, M.B., B. B. Ferrar, R. Buchanan, M.B., W. W. Bonham, R. S. Dewar, M.B., G. M. Elliott, M.B., A. C. Profeit, M.D., I. A. Davidson, M.D., N. G. W. Davidson, F.R.C.S., W. Macdonald, M.D., A. H. D. Smith, W. E. Cooke, M.D., W. H. Hooton, F. S. Campbell, M.D., A. A. Rutherford, M.B., D. McK. Reid, M.D., H. H. Robinson, H. T. Prince, A. W. Tabuteau, F.R.C.S.I., O. J. Jenner, J. H. Mason, M.B., W. W. Dickson, M.B., A. L. E. F. Coleman, M.B., A. H. Corley.

Temporary Lieutenant T. Bates, M.B., F.R.C.S., relinquishes his commission.

Temporary honorary Lieutenants to be temporary Lieutenants: J. E. C. Maguire, J. G. Ackland, W. R. White-Cooper. E. C. Wilkinson, M.B., to be temporary honorary Lieutenant whilst employed at No. 5 British Red Cross (Liverpool Merchants') Mobile Hospital).

To be temporary Lieutenants: B. B. Roberts, A. B. Tucker, M.B., F.R.C.S., G. C. W. Williams, F.R.C.S.E., S. Littlewood, M.B., J. G. Ross, M.B., F. W. Davidson, M.B., C. Stanley-Clarke, M.B., W. B. Anderson, M.B., A. E. Harrison, M.B., D. Ross, M.D., S. Robson, M.D., F.R.C.S.E., W. M. Thomas, R. T. Taylor, A. E. Pinniger, M.B., H. L. Morrow, M.B., J. Harvey, M.B., W. Ward Smith, M.D., F.R.C.S., J. R. Hall, M.B., J. P. Lowson, M.D., P. J. Murray, M.B., J. MacF. Donnan, M.B., D. J. Drake, P. Milnes, R. A. Leembruggen, J. F. C. O'Meara, M.B., C. G. Skinner, M.B., A. M. Boyne, M.B., W. Anderson, M.B., B. Butterworth, M.B., A. F. Wright, M.B., J. C. Houston, M.B., W. F. Dunlop, M.B., C. W. Aikman, M.B.

GENERAL RESERVE OF OFFICERS.

ROYAL ARMY MEDICAL CORPS.

Captain T. J. Crean, V.C., D.S.O., to be temporary Major whilst commanding a field ambulance.

SPECIAL RESERVE OF OFFICERS.

ROYAL ARMY MEDICAL CORPS.

Major H. G. Smeeth, M.D., to be temporary Lieutenant-Colonel whilst commanding a field ambulance.
Captain R. G. J. McEntire, M.B., resigns his commission on account of ill health.

To be Lieutenants on probation: Cadet Lance-Corporal D. H. Paterson, M.B., Edinburgh University O.T.C.; G. Irving, M.B.

OVERSEAS CONTINGENTS.

CANADIAN ARMY MEDICAL CORPS.

To be temporary Captains: J. R. Cummings, J. A. M. Campbell, W. P. Freeman, H. C. Hall, C. H. V. Smith, J. B. Swinden, C. E. Preston, E. McA. Campbell, Captain F. A. Brockenshire (Canadian Militia).

TERRITORIAL FORCE.

ARMY MEDICAL SERVICES.

Lieutenant-Colonel E. V. Gosling, from East Anglian Field Ambulance, to be A.D.M.S. East Anglian Division, with the temporary rank of Colonel.

Lieutenant-Colonel T. F. Dewar, M.D., from D.A.D.M.S. to be A.D.M.S. Central Force, with the temporary rank of Colonel.

ROYAL ARMY MEDICAL CORPS.

London Field Ambulance.—Lieutenant (temporary Captain) D. J. Scott, M.D., to be Captain.

London General Hospital.—Lieutenant L. N. Reece to be Captain.

Welsh Field Ambulance.—Captain E. L. Anderson, M.B., from Attached to Units other than Medical Units, to be Captain. R. Griffith (late Major Royal Welsh Fusiliers) to be Major. K. F. R. Davison to be Lieutenant.

East Anglian Field Ambulance.—Captain W. J. Dearden relinquishes his commission on account of ill health.

South Midland Casualty Clearing Station.—Lieutenant C. W. T. Baldwin to be Captain.

South Midland Mounted Brigade Field Ambulance.—Lieutenant A. C. O. Brown to be Captain.

North Midland Mounted Brigade Field Ambulance.—Captain L. A. Dingley, M.D., to be temporary Major whilst in command of a field ambulance. Lieutenant J. B. Maclean, M.B., to be Captain.

Southern General Hospital.—Major A. N. Davis resigns his commission on account of ill health. Captain W. J. Foster, F.R.C.S., from T.F. Reserve, to be Captain, and is seconded for duty with the Reading War Hospital. Lieutenant R. Hitchings to be Captain.

West Lancashire Field Ambulance.—Lieutenant J. St. G. Wilson to be Captain.

Highland Field Ambulance.—R. Grey, M.B., to be Lieutenant.

Attached to Units other than Medical Units.—Captain (temporary Major) M. B. Ray, M.D., to be Major. To be Captains: Surgeon-Captain J. Owen, from Lancs (Fortress) Engineers, Lieutenants S. O. Bingham and G. Johnston, M.B.

Vacancies and Appointments.

NOTICES REGARDING APPOINTMENTS.—Attention is called to a Notice (see Index to Advertisements—Important Notice re Appointments) appearing in our advertisement columns, giving particulars of vacancies as to which inquiries should be made before application.

VACANCIES.

BOLTON INFIRMARY AND DISPENSARY.—Second House-Surgeon. Salary, £200 per annum.

BOOTLE BOROUGH HOSPITAL.—Junior House-Surgeon. Salary, £170 per annum.

BRISTOL ROYAL INFIRMARY.—(1) House-Physicians; (2) House-Surgeons. Salary, £100 per annum in each case.

BURNLEY: VICTORIA HOSPITAL.—Lady House-Surgeon. Salary, £160 per annum.

BURY INFIRMARY.—(1) Lady Senior House-Surgeon; (2) Lady Junior House-Surgeon. Salary, £250 and £150 per annum respectively.

BUXTON: DEVONSHIRE HOSPITAL.—Assistant House-Physician. CAMBERWELL: PARISH OF ST. GILES.—Assistant Medical Officer for the Infirmary and Children's Homes. Salary, £220 per annum, rising to £240.

CARDIFF: KING EDWARD VII HOSPITAL.—Fourth-year Student Dresser. Salary, £26 per annum.

DERBYSHIRE ROYAL INFIRMARY.—House-Physician and Casualty Officer. Salary, £200 per annum.

FEDERATED MALAY STATES.—Assistant Superintendent of the Government Central Lunatic Asylum. Salary, £400 per annum, rising to £600.

HASTINGS: EAST SUSSEX HOSPITAL.—House-Surgeon. Salary, £100 per annum.

LEEDS: PUBLIC DISPENSARY.—Two Resident Medical Officers (ladies). Salary, £200 per annum.

LIVERPOOL HOSPITAL FOR CANCER AND SKIN DISEASES.—Honorary Assistant Surgeon.

LONDON TEMPERANCE HOSPITAL, Hampstead Road, N.W.—Assistant House-Surgeon (non-resident). Honorarium, 120 guineas a year.

MANCHESTER CHILDREN'S HOSPITAL, Pendlebury.—Two Resident Medical Officers. Salary, £100 per annum and £5 per month war bonus.

MANCHESTER NORTHERN HOSPITAL FOR WOMEN AND CHILDREN.—Lady House-Surgeon. Salary, £120 per annum.

NEW HOSPITAL FOR WOMEN, Euston Road, N.W.—(1) Senior Clinical Assistant to Out-patients; (2) Two House-Surgeons; (3) House-Physician and Obstetric Assistant.

SALISBURY GENERAL INFIRMARY.—(1) House-Surgeon; (2) Assistant House-Surgeon. Salary, £150 and £100 per annum respectively.

SHEFFIELD: JESSOP HOSPITAL FOR WOMEN.—Junior Lady House-Surgeon. Salary, £80 per annum.

SHEFFIELD ROYAL INFIRMARY.—House-Physician. Salary, £120 per annum.

VENTNOR: ROYAL NATIONAL HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST.—Assistant Resident Medical Officer.

VICTORIA HOSPITAL FOR CHILDREN, Tite Street, S.W.—House-Physician. Salary, £200 per annum.

WOLVERHAMPTON AND STAFFORDSHIRE GENERAL HOSPITAL.—Senior Student to act as Assistant to House-Surgeons.

CERTIFYING FACTORY SURGEONS.—The Chief Inspector of Factories announces the following vacant appointments: Honiton (Devon), Turton (Lancaster).

To ensure notice in this column—which is compiled from our advertisement columns, where full particulars will be found—it is necessary that advertisements should be received not later than the first post on Wednesday morning. Persons interested should refer also to the Index to Advertisements which follows the Table of Contents in the JOURNAL.

APPOINTMENTS.

BURTON, H., M.D.Durh., District Medical Officer of the Stockport Union.

LAM, P. W., M.B., Ch.B.Edin., Assistant Medical Officer to the Leicester Parish Infirmary.

BIRTHS, MARRIAGES, AND DEATHS.

The charge for inserting announcements of Births, Marriages, and Deaths is 5s., which sum should be forwarded with the notice not later than the first post on Wednesday morning in order to ensure insertion in the current issue.

BIRTH.

HAY.—On May 1st, at Medina Lodge, Cowes, to Dr. and Mrs. Arthur Hay, a daughter.

MARRIAGE.

BACHELOR—KEMPTHORNE.—On April 26th, 1916, at Wyck Bissington, Gloucestershire, Henry Washington Batchelor, Captain R.A.M.C., to Kathleen Mary, younger daughter of Rev. and Mrs. P. H. Kempthorne.

DEATH.

HOWES.—On April 25th, at Lincoln, F. C. P. Howes, M.D.Edin., M.B.C.S.Eng., L.S.A., aged 75 years.

DIARY FOR THE WEEK.

TUESDAY.

RÖNTGEN SOCIETY, Institution of Electrical Engineers, Victoria Embankment, W.C., 8.15 p.m.—Mr. H. E. Donithorne: The Ionization Method of Measuring X Rays. Dr. Martin Berry: A Mercury Interrupter. Major Wilson: A Tungsten Arc Lamp.

WEDNESDAY.

ROYAL SOCIETY OF MEDICINE:

SECTION OF SURGERY: SUBSECTION OF PROCTOLOGY, 5.30 p.m.—Annual General Meeting. Papers on Rectal Wounds in the Present War by Lieutenant-Colonel Cuthbert Wallace and Mr. P. Lockhart Munnery. Cases.

POST-GRADUATE COURSES AND LECTURES.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.

THE POST-GRADUATE COLLEGE, West London Hospital, Hammer-smith, W.—Clinical work; graduates only.

DIARY OF THE ASSOCIATION.

Date.	Meetings to be Held.
MAY.	
5 Fri.	London: Executive Subcommittee of Central Medical War Committee, 3.15 p.m.
11 Thur.	London: Insurance Acts Committee, 2 p.m.
12 Fri.	London: Executive Subcommittee of Central Medical War Committee, 3.15 p.m.
15 Mon.	Leinster Branch, Annual Meeting, Dublin, 4.30 p.m.
19 Fri.	London: Executive Subcommittee of Central Medical War Committee, 3.15 p.m.
26 Fri.	London: Executive Subcommittee of Central Medical War Committee, 2.15 p.m.
JUNE.	
2 Fri.	London: Executive Subcommittee of Central Medical War Committee, 3.15 p.m.
8 Thur.	South Wales and Monmouthshire Branch, Annual Meeting, Cardiff.
JULY.	
28 Fri.	ANNUAL REPRESENTATIVE MEETING, Connaught Rooms, Great Queen Street, London, W.C., and following days as may be required.

SUPPLEMENT

TO THE

BRITISH MEDICAL JOURNAL.

LONDON: SATURDAY, MAY 13TH, 1916.

CONTENTS.

	PAGE
RECRUITING FOR THE NAVAL AND MILITARY MEDICAL SERVICES:	
THE PLEA FOR COMPUSSION	109
PROPOSED ABOLITION OF REPORTS OF FACTORY SURGEONS	110
REDUCTION OF NOTIFICATION FEES	110
ASSOCIATION NOTICES	112

	PAGE
INSURANCE:	
DEPRIVATION OF BENEFIT: APPEAL FROM REFUSAL'S DECISION	111
STOCK MIXTURES	112
VACANCIES	112
BIRTHS, MARRIAGES, AND DEATHS	112
DIARY	112

RECRUITING FOR THE NAVAL AND MILITARY MEDICAL SERVICES.

THE PLEA FOR COMPUSSION.

SIR,—I have read with interest your article in the *BRITISH MEDICAL JOURNAL* of May 6th. p. 661, "Urgent demand for medical officers" for the army.

I wish I could share your hope that the required number of doctors can be obtained by voluntary methods. For my part the sooner I see compulsion applied to our "rising" young surgeons and physicians the better pleased I shall be. My reason for this attitude of mind is best explained by quoting my own case.

When war broke out in August, 1914, I was home on temporary half-pay, as the result of illness contracted on military service in India. At this time also I was medical officer in an institution where the light indoor work suited my state of health. However, on the outbreak of war, after several unsuccessful applications on my part for permission to return to duty, I was finally permitted to join a Territorial unit. Soon after I found myself in France, and for several months did "my bit" to the best of my knowledge and ability. Later my division was ordered to the Balkans. Conditions of life here were different, and after sticking the rigours of climate and service as well as I could I knocked up, was invalidated home, and finally "turned down" by a medical board as unfit for further military service on account of ill health.

To my intense surprise and disgust, on my return home I find vigorous young men still filling posts of house-surgeon and house-physician at various London hospitals. At one special hospital which I have in my mind there are two house-surgeons, senior and junior, while to cap it all an athletic young gentleman is acting as clinical assistant. Another point—but here I must confess personal interest perhaps prejudiced me—I applied for a public health appointment to one of the London boroughs, hoping that such a post would suit my health while permitting me in my spare time to give lectures and demonstrations to R.A.M.C. men in training. What was my surprise to find that five of the six candidates up were men of military age and apparently in the pink of condition, while the man who did get the post already held a similar appointment at the same salary, except that it was in the country and he preferred being in town. Another public health post I applied for was given to a woman. So here I am, Sir, in indifferent health, with my old people to support, no money saved, seemingly no chance of municipal employment while slackers stay at home; but, thank Providence and the War Office, I have £46 gratuity in my pocket, and a firm resolve to keep going till the "Last Post" blows for me.

Yes, Sir, if I had my way I would conscript more doctors in a week than your patriotic appeals would bring in a year; and, after all, mine would be the saner method, as compulsion now, when the need is greatest, is

better than compulsion twelve months hence, when perhaps the harm to our troops would have already been done.—I am, etc.,

May 8th.

CAPTAIN R.A.M.C.(T.).

SIR,—There is now no doubt as to the urgent need of many more medical men for service in the Royal Army Medical Corps. There is also need that many should remain to attend the civil population at home. The ideal to be aimed at is that these should be justly apportioned.

Those who are in all ways—physically, professionally, and by reason of their surrounding circumstances—most suitable, should be compelled to serve, otherwise injustice arises. Under the voluntary system it is the men whose consciences are most acute, who are most willing to put their country's needs before their own, who are the first to offer themselves, while at the other extreme are those, no doubt a very small but still existing minority, who put their own interests first, and would profit by the sacrifices of others. These last it is useless for you to appeal to; but in between are many who would willingly offer their services but who hang back because their responsibilities are great, and their positions more difficult because of those who will not play the game.

The country has decided that compulsion is right and necessary for the fighting services in these times of danger. Why is it otherwise with the medical service?

Sir T. Clifford Allbutt and Sir W. Osler, in their appeal for voluntary enrolment, say, "with conscription the task of selection *might* fall into the hands of local lay tribunals, the voluntary scheme provides that in each district it falls to a local committee of medical men, whose professional knowledge," etc.

If it is possible for Local Medical Committees to deal with an adequate number of men under the voluntary system, why should it not be possible for them to do so under conscription?

Why should compulsion be looked upon, as it appears to be, as something of which to be ashamed? It is compulsion only for those who would shirk their proper responsibilities; for the rest it is merely just and equitable organization, and would, I am convinced, be warmly welcomed by the very great majority of the profession.

In your leading article (May 6th) you say "no man is really in a position to select himself—that is, to decide whether he should enter the medical service or stay at home." That is exactly what the enrolment scheme invites each man to do. Compulsion means that every medical man of military age is bound to offer himself, and the tribunal, which, if properly constituted, as it could be, is best able to judge whether he is suitable, decides for him. I myself am above the present military age, but, should the age limit be raised, I should still more warmly welcome compulsion as relieving me of a great load of responsibility in deciding for me between the calls of home and country, and this I believe to be the view of the great majority of medical men.—I am, etc.,

Edsall, May 6th.

WM. THORNFELLY.

PROPOSED ABOLITION OF REPORTS OF FACTORY SURGEONS.

A joint deputation representing the Incorporated Association of Factory Surgeons and the British Medical Association waited upon the Home Secretary on May 5th with reference to the recommendation of the Committee on Retrenchment in the Public Expenditure that the inquiries and reports of certifying surgeons on accidents occurring in factories and workshops should be dispensed with. Sir Thomas Flitcroft (Bolton), Dr. John Hedley (Middlesbrough), and Dr. W. F. Dearden (Manchester) represented the Certifying Factory Surgeons' Association, and Mr. Bishop Harman (London), Dr. J. W. Bone (Luton), and Dr. Alfred Cox, Medical Secretary, represented the British Medical Association.

Dr. Hedley said that the present was an inopportune moment for any alteration; the inspector in his district was unable to deal with the increased work due to the war. In view of the extraordinary amount of labour which had been introduced, largely female, it was difficult to see how the Act could be carried out unless the number of inspectors were increased.

It was pointed out further that there was a greater responsibility on the Government to see that workpeople were properly protected against accident. One member of the deputation stated that 10 per cent. of the reports of accidents made by employers were framed in such a way as to throw the responsibility on the injured person, who was more willing to tell a surgeon than his employer the true facts. Unless there were factory surgeons a large number of cases would never be reported or would be reported in a misleading manner.

Dr. Dearden presented a number of abstracts from employers' notices and certifying surgeons' reports to demonstrate the systematic sifting out of cases requiring definite action by the Department. They showed, he said, the impossibility of relying upon the employers' notice for a correct account of the nature and causation of an accident; the usefulness of the surgeon's report; the importance of the injured person's evidence as a determining factor in ascertaining causation; and the utility of surgical and scientific knowledge in deciding the actual causation of accidents from machinery, hot liquid explosion, and escape of poisonous fumes. His association was of opinion that the exceptional situation presented by the increase of unskilled labour in factories should be dealt with not by abolition of investigation but by extension of the certifying surgeon's function. He should be temporarily empowered to give instructions respecting safety, and even to direct any fencing of machinery which appeared necessary.

On behalf of the British Medical Association Mr. Bishop Harman said they unanimously supported the case presented by the factory surgeons. The saving of £12,500 seemed to be a policy of penny wise and pound foolish. If it were decided that reports were necessary there was no way in which they could be got so quickly and so cheaply as by employing the certifying surgeon.

Mr. Samuel, in reply, said he had to bear in mind two facts. One was that in respect to a very large class of industrial accidents, or accidents in mines and on railways, there never had been any question of certifying surgeons' reports. The system of controlling accidents in mines and on railways had proceeded without difficulties or drawbacks, the reports on the accidents being made only by persons who had not got medical qualifications. Secondly, Ministers of the Government had to be guided by results of expert inquiry.

A few years ago a committee was appointed to consider the whole question of accidents in workshops. It sat for more than two years, and among its members were three representatives of Labour—Mr. Ramsay MacDonald, Mr. Gill, and Mr. Vivian. Its sole desire was to safeguard every work from accidents, and to perfect the system of dealing with industrial accidents. It reported that the factory surgeons' reports were superfluous, and made a recommendation for their abolition, except in special cases where a special inquiry was thought to be necessary. A certifying surgeon was, of course, not an expert on fencing machinery or other safeguards, and when it was suggested that no one could make a proper report unless he had a knowledge of anatomy he did not know whether it could really be accepted as reasonable. Although a surgeon might be needed in the case of a finger being cut off to cure the wound, a factory inspector, who had been told that the finger had been cut off and saw the

injured person, did not require any anatomical knowledge to recognize the fact. He was advised by those who knew that in the majority of cases the certifying surgeon's report added nothing to the employer's report. There might be exceptional cases, he said, where a certifying surgeon's report might be of real value, but the great majority of them—there were many thousands during the course of a year—added nothing to the inspector's knowledge beyond what employers had told him. If information given by employers was inaccurate, the inspector always sent the report back for further details. The certifying surgeon's work would still, of course, be necessary, in existing circumstances, for certifying fitness, and also for industrial poisons and diseases which had to be dealt with under the Workmen's Compensation Act.

At the present time there was a great demand for doctors' services in every direction arising from the withdrawal of a great number of medical men from civil work to undertake military work, and this was specially a time when it was difficult to justify continuing to require a number of doctors all over the country to spend time in making reports which had been declared by an investigating committee to be superfluous, and which were largely duplicates of reports received from other quarters. So far as the certifying surgeons' fees were concerned, if their functions were limited, the remuneration would, of course, be diminished, but this was a time when adjustments could be made with the least hardship to doctors, as they could make up for any loss by taking over practices of medical men on military duty. Mr. Samuel went on to say that he was laying before Parliament shortly a bill dealing with similar points of economy with regard to the Home Office, and if he did not include this one his position in the House of Commons would be somewhat remarkable. He would be asked whether the economy of £12,500 was recommended by the Retrenchment Committee, whether a similar recommendation was made by a committee a few years ago, and if his own factory department advised him that certifying surgeons' reports were unnecessary and superfluous. To those questions he would have to answer "Yes." He would also be asked if the reports should be continued, and if the expenditure ought to be incurred, and he would have to answer "No." To be consistent, it would be impossible for him to maintain an attitude which would involve the continuance of the expenditure and also involve calling upon doctors to make these reports when their services were demanded elsewhere. He had considered the memorial sent in by the association, and it had not convinced him that a case had been made out. Although the deputation had instanced one or two cases that day which might be weighty, he must frankly say that the statements they had made had not led him to modify the opinion he formed on the documents which had been published.

REDUCTION OF NOTIFICATION FEES.

In connexion with the decision of the Government to reduce the fees paid for the notification of infectious disease, it may be of interest to publish the following communication addressed by the British Medical Association to the President of the Local Government Board and the reply received:

British Medical Association,
429, Strand, London, W.C.
May 1st, 1916.

Sir,

I understand that to-morrow the House of Commons will consider the amendments made by the House of Lords in the Local Government Board (Emergency) Bill. Is it too late to ask that the action of the Government in reducing the fees paid for the notification of infectious diseases shall be reconsidered? We have already made our protest, but our post during the past three weeks shows that this reduction is hotly resented by the great majority of the general practitioners of the country, who freely stigmatize the reduction as an exceedingly shabby piece of legislation and as stealing a march upon the large number of practitioners who are now on active service.

The Association is unwilling at this time to make the task of the Government more difficult by raising any organized opposition on the question, but desires to make it clearly understood that the absence of this opposition does not indicate the want of strong feeling on the subject.

I am instructed to express the hope that even yet you may see your way to drop the clause in the bill to which objection is taken.

I am, Sir, your obedient servant,
ALFRED COX,
Medical Secretary.

The President,
The Local Government Board.

Local Government Board, Whitehall, S.W.,
May 2nd, 1916.

Sir,
I am directed by the Local Government Board to acknowledge the receipt of your letter of the 1st instant and to state that the subject to which it relates will receive the attention of the Board.

I am, Sir, your obedient servant,
(Signed) H. C. MONRO,
Secretary.

The clause providing for the reduction was, as stated last week, finally adopted by the House of Commons on May 2nd.

At a meeting of the Executive Committee of the National Medical Union held at 346, Strand, on May 4th, 1916, the following resolution was passed:

That the Executive Committee of the National Medical Union express their strong disapproval of the action of the Local Government Board in attempting to effect any reduction in the notification fees. They urge that all local non-panel bodies should pass strong resolutions on this matter and forward them direct to their local members of Parliament, and that each secretary be advised to circulate a petition among the local profession and forward these petitions, when complete, to the secretary of the National Medical Union, 346, Strand. Such resolutions and petitions to be then referred to the Parliamentary Committee of the Union with the object of taking such further action as may be necessary to place the matter before both Houses of Parliament.

A COUNTRY DOCTOR writes: Recently an insurance patient of mine developed diphtheria. The local medical officer of health will not disinfect the patient's house until a negative result is obtained by bacteriological examination. In this case three swabs were sent; the postage of each, which I had to pay, was 2½d. So actually I spent, with the postage of the notification, 8½d.; in addition, later I shall have to send in my account. The last time I had to apply three times for the money, and a receipt by post will be expected when the money comes. I can see in the future a fair prospect of the postage alone often coming to more than the Government think the notification worth. It is not a big matter in actual money to the individual practitioner, but I certainly think it is a warning of what we may expect later when the terms of the National Insurance are reconsidered.

INSURANCE.

DEPRIVATION OF BENEFIT.

APPEAL FROM REFEREE'S DECISION.

In the House of Commons, on March 29th, Mr. Stuart-Wortley asked the Chairman of the Joint Committee of Insurance Commissioners the following questions:

Whether it has been found that a woman insured in the approved society conducted by the Prudential Assurance Company, and receiving a weekly allowance as insurance benefit therefrom, could be deprived of that benefit by the individual decision of a referee appointed by the Prudential Company without previous knowledge of the case and without consultation or communication with her panel doctor; whether a woman thus deprived of benefit or otherwise treated with harshness could under No. 13 (30b) of the approved society's rules be required, as a condition of obtaining redress or getting her case submitted for impartial inquiry, to deposit a sum which might amount to so much as £1, and in case of an adverse decision to forfeit the deposit and pay the whole of the expenses of the arbitration; whether along with the notice of deprivation of benefit any information was given to the insured person as to the existence of a right of appeal or the nature of the steps to be taken to bring about such appeal; whether the said Rule 13 was one of forty-eight rules which cover seventy-two pages of the printed book; and whether it was proposed to leave unaltered a state of the law which made benefits so precarious and redress so difficult to persons of small means from whom compulsory contributions had been levied?

Mr. C. Roberts replied as follows: It rests with the society of which an insured person is a member to determine, subject to the member's right of appeal, whether the facts of a given case justify the payment of benefit, and any medical evidence obtained in accordance with the rules is for the guidance of the society in coming to a decision. In the case of the particular society named in the question, I understand that where a member is required to submit herself for special medical examination under the rule referred to, steps are now taken to inform the doctor by whom she has been attended, and that, where the matter is referred to a medical umpire, it is not the society's practice to require any deposit, although the payment of a deposit is authorized by the rule. I am also

informed that in all cases in which payment of benefit is suspended on the report of a medical referee the member is now furnished with information as to the course which she may pursue if dissatisfied with the society's decision. The particulars given in the fourth part of the question are substantially correct. Copies of the rules are available to members on payment of a sum not exceeding 2d. As regards the last part of the question, I am sending the right hon. gentleman a copy of a circular issued by my department in May last on the subject of procedure in disputes between societies and their members.

Mr. Stuart-Wortley: Do the changes which the hon. gentleman has announced date since the inquiry into this particular case?

Mr. Roberts: I am not quite sure of the date, but I think the changes have been made comparatively recently.

We have received from Dr. W. James Susman (Henley-on-Thames), chairman of the Oxfordshire Panel and Local Medical Committee, a letter, in the course of which he writes:

Mr. Charles Roberts's answer in certain particulars is only partially correct, whilst in others he has been absolutely misinformed.

Perhaps it would be as well to state clearly from personal experience what happens when the Prudential Assurance Society suspects that one of its members is malingering. The member receives a written notice either that

- (a) The society's doctor will call on the next day (it is exceptional for a longer notice than twenty-four hours to be given); or
- (b) The member is required to attend at a stated place for examination. In some cases this may involve a whole day's travelling and a complicated railway journey.

At the same time the doctor in attendance on the patient is, as a rule, but not always, notified that the examination is to take place. More often than not this notice only arrives on the day fixed for the examination. In some cases no hour is given for the consultation, and if the time is stated the medical referees usually does not keep to it. From my own experience, I can definitely state that the examination is of the most cursory character—the average time is apparently about three minutes. In not a single case that I have come across (and there are many) has the medical referee had the benefit of hearing the patient's past medical history from his (or her) own medical attendant.

As the result of this medical examination the society has the power, and frequently exercises it, of suspending the member from further sickness benefit. Mr. Charles Roberts states that in these cases "the member is furnished with information as to the course which she may pursue if dissatisfied with the society's decision." I do not know of any case in which a member was provided with this information, but I know of many in which it was not done.

Now if these are facts—and I can guarantee that they are—there is obviously something very wrong.

Quite apart from the discourtesy shown to the medical attendant, such methods cannot provide the society with the requisite information for forming a correct judgement upon the case, and as for the wretched member, such treatment surely savours of the autocratic and brutal methods of the Hun.

Unfortunately, I believe it to be a fact that the Commissioners have no power over the internal affairs of a society. Further, so great is the power that a society like the Prudential exercises, that very few members of Parliament can be induced to take the matter up.

If, then, any change is to be effected it must be by the concerted action of the medical profession, and I would suggest that as a start any medical man having a similar experience to mine should communicate the details to me as soon as possible. By tabulating a large number of cases we may be able to influence public opinion to such an extent that the society will be forced to take action.

I myself know of one case where a patient who had been declared by the authorities at a well-known hospital to be in a serious state of consumption, was considered by the society's referee "fit to resume work," and was sent to work against the advice of the hospital authorities and her own medical attendant. And this after three minutes' examination.

In another case an epileptic domestic servant was declared "fit for work," but unfortunately for her, with her bad medical history, no one will employ her.

STOCK MIXTURES.

As has already been reported, the Association has for some time been conferring with the Pharmaceutical Society of Great Britain with regard to the list of preparations which are, in the opinion of these two bodies, or failing agreement adjudicated by the Commissioners, capable of being stocked in bulk without deterioration. Under the current tariff Panel Committees will be in a position, if they so choose, to select from this list when published a number of formulæ not exceeding ten which shall then be dispensed at the special fee of 2.3d.

The penultimate stage of the protracted negotiations was reached on May 9th when the Commissioners sat to hear representatives of the British Medical Association and Pharmaceutical Society as regards six formulæ as to which agreement had not been reached. After consideration of the arguments on both sides, the Commissioners found in favour of the contention of the Pharmaceutical Society, whereupon the representatives of that body made an alternative suggestion for the composition of the mixtures in question, which was accepted on behalf of the British Medical Association. The list will be issued forthwith by the Commissioners, and will contain twenty-eight formulæ based on a compilation and comparison of the formulæ which appear to be in most common use in insurance practice throughout the country.

ASSOCIATION NOTICES.

BRANCH AND DIVISION MEETINGS TO BE HELD.

LEINSTER BRANCH.—Dr. William Doolin, Acting Honorary Secretary (50, Fitzwilliam Square, Dublin), gives notice that the annual meeting of the Branch will be held at the Irish offices of the Association, 16, South Frederick Street, Dublin, on Monday, May 15th, at 4.30 p.m. Agenda: Appointment of officers. Adoption of revised organization rules and ethical rules. Receive report of financial position. Apply for supplementary grant for 1916 of such amount as the meeting may decide. Any other business.

SOUTHERN BRANCH.—Mr. James Green, Honorary Secretary, gives notice that the Council of the Branch, at its meeting on May 18th, will nominate candidates for the following offices for the ensuing year—namely, the president-elect, two vice-presidents, the honorary secretary, and the honorary treasurer. The Honorary Secretary is prepared to receive nominations, in writing, from any three members of the Branch for any such office on or before June 1st; failing the receipt of such nominations, the nominees of the Branch Council will be duly elected, in accordance with Rule 5 (Organization Rules).

VACANCIES.

NOTICES REGARDING APPOINTMENTS.—Attention is called to a Notice (see Index to Advertisements—Important Notice re Appointments) appearing in our advertisement columns, giving particulars of vacancies as to which inquiries should be made before application.

BAINSLEY: BECKETT HOSPITAL AND DISPENSARY.—House-Surgeon. Salary, £250 per annum.

BELFAST MUNICIPAL SANATORIUM.—Temporary Assistant Resident Medical Officer. Salary, £200 per annum.

BIRMINGHAM GENERAL DISPENSARY.—Resident Medical Officer. Commencing salary, £250 per annum.

BOITON INFIRMARY AND DISPENSARY.—Second House-Surgeon. Salary, £200 per annum.

BOITON UNION.—Senior Assistant Medical Officer for the Townleys Hospitals. Salary, £250 per annum.

BRISTOL ROYAL INFIRMARY.—(1) House-Physicians; (2) House-Surgeons. Salary, £100 per annum in each case.

BURNLEY: VICTORIA HOSPITAL.—Lady House-Surgeon. Salary, £150 per annum.

BURY INFIRMARY.—(1) Lady Senior House-Surgeon; (2) Lady Junior House-Surgeon. Salary, £250 and £150 per annum respectively.

CITY OF LONDON HOSPITAL FOR DISEASES OF THE CHEST. Victoria Park, E.—Assistant Resident Medical Officer. Salary, £150 per annum.

DEWSBURY COUNTY BOROUGH.—Lady Medical Practitioner in connexion with Scheme of Maternity and Child Welfare. Salary, £300 per annum.

DUBLIN: GUEST HOSPITAL.—Assistant House-Surgeon. Salary, £120 per annum.

HASTINGS: EAST SUSSEX HOSPITAL.—House-Surgeon. Salary, £100 per annum.

KENT EDUCATION COMMITTEE, Maidstone.—School Medical Inspector and Medical Officer of School Clinic. Salary, £350 per annum.

KING EDWARD VII HOSPITAL FOR OFFICERS, Grosvenor Gardens, S.W.—Resident Medical Officer.

LABORATORIES OF PATHOLOGY AND PUBLIC HEALTH, 38, New Cavendish Street, W.—(1) Bacteriologist; (2) Laboratory Assistant.

LEEDS PUBLIC DISPENSARY.—Two Resident Medical Officers. Salary, £300 per annum.

LEWISHAM BOROUGH.—Tuberculosis Dispensary Medical Officer. Salary, £250 per annum.

LONDON TEMPERANCE HOSPITAL, Hampstead Road, N.W.—Assistant House-Surgeon (non-resident). Honorarium, 120 guineas per annum.

MANCHESTER CHILDREN'S HOSPITAL, Pendlebury.—Two Resident Medical Officers. Salary, £100 per annum and £5 per month war bonus.

MANCHESTER NORTHERN HOSPITAL FOR WOMEN AND CHILDREN.—Lady House-Surgeon. Salary, £120 per annum.

MANCHESTER: ST. MARY'S HOSPITAL FOR WOMEN AND CHILDREN.—Resident Surgical Officer. Salary, £150 per annum.

NEW HOSPITAL FOR WOMEN, Easton Road, N.W.—(1) Senior Clinical Assistant to Out-patients; (2) Two House-Surgeons; (3) House-Physician and Obstetric Assistant.

PADDINGTON GREEN CHILDREN'S HOSPITAL, W.—House-Surgeon (Lady). Salary, £80 per annum.

ROCHESTER: ST. BARTHOLOMEW'S HOSPITAL.—Clinical Assistant. Salary, £110 per annum.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.—(1) Two Members of the Court of Examiners; (2) Hunterian Professors and Arris and Gale Lecturer.

SALISBURY GENERAL INFIRMARY.—(1) House-Surgeon; (2) Assistant House-Surgeon. Salary, £150 and £100 per annum respectively.

SHEFFIELD: JESSOP HOSPITAL FOR WOMEN.—Junior Lady House-Surgeon. Salary, £80 per annum.

SHEFFIELD ROYAL INFIRMARY.—House-Physician. Salary, £120 per annum.

SHEFFIELD UNION HOSPITAL.—Resident Assistant Medical Officer. Salary, £400 per annum.

VENTNOR: ROYAL NATIONAL HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST. Assistant Resident Medical Officer.

WIGAN: ROYAL ALBERT EDWARD INFIRMARY AND DISPENSARY.—Senior House-Surgeon. Salary, £250 per annum.

To ensure notice in this column—which is compiled from our advertisement columns, where full particulars will be found—it is necessary that advertisements should be received not later than the first post on Wednesday morning. Persons interested should refer also to the Index to Advertisements which follows the Table of Contents in the JOURNAL.

BIRTHS, MARRIAGES, AND DEATHS.

The charge for inserting announcements of Births, Marriages, and Deaths is 5s., which sum should be forwarded with the notice not later than the first post on Wednesday morning in order to ensure insertion in the current issue.

BIRTHS.

BARENDET.—On May 3rd, at 65, Rodney Street, Liverpool, W., the wife of Frank Hugh Barendt, M.D.Lond., F.R.C.S.Eng., of a daughter.

BLACK.—At Springs, Transvaal, South Africa, on the 7th inst., the wife of James Black, M.D.Edin., a son.

JOY.—On the 3rd May, at Manor House, Tamworth, Staffs, the wife of C. H. Joy, M.D., of a son.

DEATH.

JACKSON. Fell asleep on Sunday, April 30th, at 56, Tierney Road, Streatham Hill, Philip John Jackson, M.B.C.S.Eng., L.S.A., Medical Officer, South-East District, General Post Office, aged 65 years.

DIARY FOR THE WEEK.

MONDAY.

MEDICAL SOCIETY OF LONDON, 11, Chandos Street, W., 8 p.m.—Annual general meeting.

TUESDAY.

ROYAL SOCIETY OF MEDICINE: SECTION OF THERAPEUTICS AND PHARMACOLOGY, 4.30 p.m.—Annual general meeting. Discussion on The Treatment of Diabetes by Alimentary Rest, to be opened by Dr. O. Leyton.

SECTION OF PSYCHIATRY, 6 p.m.—Annual general meeting.

THURSDAY.

ROYAL SOCIETY OF MEDICINE: SECTION OF DERMATOLOGY, 4.30 p.m., Exhibition of Cases. 5 p.m., Annual general meeting. Cases.

FRIDAY.

ROYAL SOCIETY OF MEDICINE: SECTION OF OTOTOLOGY, 5 p.m.—Annual general meeting. Mr. W. M. Mollison: Note on the Monochoord. Cases and Specimens.

SECTION OF ELECTRO-THERAPEUTICS, 8.30 p.m.—Annual general meeting. Exhibition of X-ray and Electro-Medical Apparatus, etc.

SOCIETY OF TROPICAL MEDICINE AND HYGIENE, 11, Chandos Street, W., 5.30 p.m.—Major J. M. Atkinson, R.A.M.C.: Cerebro-spinal Fever. Dr. A. C. Stevenson: Nodules in Lung from a case of Morphine Injectors' Septicæmia (Whitmore's Disease), and Cultures of a Bacillus Isolated from the Same.

DIARY OF THE ASSOCIATION.

Date.	Meetings to be Held.
	MAY.
12 Fri.	London: Executive Subcommittee of Central Medical War Committee, 2.30 p.m.
15 Mon.	Leinster Branch, Annual Meeting, Dublin, 4.30 p.m.
17 Wed.	London: Central Medical War Committee 2 p.m. (provisional).
19 Fri.	London: Executive Subcommittee of Central Medical War Committee, 2.30 p.m.
26 Fri.	London: Executive Subcommittee of Central Medical War Committee, 2.30 p.m.

BRITISH MEDICAL JOURNAL.

LONDON: SATURDAY, MAY 20TH, 1916.

CONTENTS.

	PAGE		PAGE
BRITISH MEDICAL ASSOCIATION—CURRENT NOTES:		ASSOCIATION INTELLIGENCE:	
SUPPLY OF PETROL TO DOCTORS.—REDUCTION OF NOTIFICATION FEES.—REPORT OF ROYAL COMMISSION ON VENEREAL DISEASES.—USE OF THE TERM "REP. MIST."—SCOPE OF SERVICE UNDER MEDICAL BENEFIT	113	MEETINGS OF BRANCHES AND DIVISIONS	114
THE INCREASE OF MOTOR LICENCES	114	GRANTS IN AID OF SCIENTIFIC RESEARCH	114
RECRUITING FOR THE NAVAL AND MILITARY MEDICAL SERVICES	114	INSURANCE:	
		TRAVELLING EXPENSES OF PANEL COMMITTEES	115
		CORRESPONDENCE	115
		NAVAL AND MILITARY APPOINTMENTS	115
		VACANCIES AND APPOINTMENTS	116
		DIARY	116

British Medical Association.

CURRENT NOTES.

SUPPLY OF PETROL TO DOCTORS.

THE Medical Secretary has written to the Secretary of the Departmental Committee on Petrol Supplies again urging the special difficulties of doctors, pointing out that in some cases they have been unable to undertake country visits because they could get no petrol; and asking whether a guaranteed supply for professional purposes may shortly be expected.

REDUCTION OF NOTIFICATION FEES.

The chairman of the annual meeting of the London and Counties Medical Protection Society, in his address, as reported last week, criticized the action of the British Medical Association in suggesting that 1s. was an adequate fee for notifying cases of measles. Dr. Fowler's attention has been drawn to the fact that this does not correctly express the course taken by the Association. As stated in the annual report of Council, the deputation to Mr. Hayes Fisher said that if the Government insisted upon the reduction of these fees, against the expressed wish of the profession, medical practitioners might be willing, as their contribution to retrenchment, to accept during the war a nominal fee of 1s. for the notification of measles only. This is, of course, not at all the same as saying that 1s. was an adequate fee for the notification of measles. The Association has repeatedly and strongly protested against any reduction of these fees.

On this subject we are asked to publish the following correspondence:

138, Harley Street, W.
May 15th, 1916.

My dear Harman,

At our annual meeting I wish to ask a question: "Is it true that the deputation from the head office of the British Medical Association to the Local Government Board admitted that 1s. would be a sufficient fee for notification of infectious diseases?" If the answer is "No," the matter drops; if the answer is "Yes," then I move:

That the Marylebone Division expresses its indignant surprise that the British Medical Association should have made such a statement and asks the Representative Meeting to express its disapproval and also its instruction to try to have the 2s. 6d. fee restored.

Yours sincerely,
FRED. J. SMITH.

108, Harley Street, W.
May 16th, 1916.

Dear Dr. Smith,

Cross-examining counsel loves to put to the witness in the box a question and demand a plain Yes or No. There are not many questions that can be answered thus simply. But happily your question can be truly answered in this curt fashion.

You ask—"Is it true that the deputation from the head office of the British Medical Association to the Local Government Board admitted that 1s. would be a sufficient fee for notification

of infectious diseases?" I answer—"No," and without hesitation.

At our interview with the Government representatives we took up a definite and unassailable stand against the statement of the Retrenchment Committee that the filing of a notification form involved no more than "clerical labour worth one shilling." This statement, we maintained, showed a total lack of appreciation on the part of the Government advisers of what the notification of a disease meant and involved. We pointed out that serious responsibility was involved, and one that laid the doctor open to an action at law in case of a real or alleged error on his part. In rubbing in this statement I confined myself to my own knowledge of the notification of ophthalmia neonatorum, and the case was admitted by Mr. Hayes Fisher, the Government representative, who happened to have more than an ordinary knowledge of this disease. Not only did we repudiate the Government position, but we urged that the present fee was all too small for such work. We admitted that the same heavy responsibility did not hold in the case of the notification of measles, for no parent would be likely to be disturbed at the notification of a fever which was unfortunately held by most to be too trivial for the care of a doctor. And that as the fee for the notification of measles was already on a different basis to that of other notifiable diseases the Government might logically claim to treat it separately. But we made it clear that any exceptional fee for measles was to be considered only "as a reduction on taking a quantity," and a war economy concession, and not the concession of the professional position. I should like your permission to publish this correspondence in the medical journals.

Yours sincerely,
(Signed) N. BISHOP HARMAN.

REPORT OF ROYAL COMMISSION ON VENEREAL DISEASES.

The bearing of the recommendations of the Royal Commission on the interests of medical practitioners and hospitals is to be the subject of consideration by a joint meeting of the Medico-Political, Public Health, and Hospitals Committees. The Parliamentary Subcommittees, strengthened for the purpose by representatives of the Public Health and Hospitals Committees, will meet on May 24th to prepare a draft report.

INSURANCE.

The Use of the Term "Rep. Mist."

On May 3rd the Medical Secretary appeared before the Insurance Commissioners on behalf of the Hampshire Panel Committee to support its request that the use of the term "Rep. mist." should be continued in the county under suitable safeguards. Drs. Rogers and Roberts appeared on behalf of the Panel Committee, and the Pharmaceutical and Insurance Committees appeared in opposition, the former being assisted by a representative of the Pharmaceutical Society. The decision of the Commissioners has not yet been made known.

Scope of Service under Medical Benefit: Sight Testing.

On the invitation of the Surrey Local Medical Committee the Medical Secretary on May 10th gave evidence in an inquiry before Medical Referees, the object of which was to settle whether the estimation of refraction by means of test type and trial lenses did or did not come within the services required of a medical practitioner under his agreement with an Insurance Committee. The referees

were Mr. Fischer Williams, barrister-at-law, Dr. Adam Fulton, and Mr. Bishop Harman. Dr. Lankester, chairman of the Surrey Local Medical Committee, conducted the case on behalf of that Committee, Mr. Bell, the Clerk of the Insurance Committee, appeared to support the Panel Committee, and Mr. Gwyer presented the Commissioners' case. The decision is awaited with great interest, as though technically it will only apply to the case in question it will no doubt serve as a precedent, settling whether panel practitioners are expected to test refraction by the means used in this case if they are able to do it.

THE INCREASE OF MOTOR LICENCES.

THE Automobile Association and Motor Union has received a great number of protests against the proposed new taxes from motorists resident in all parts of the United Kingdom. In the main these protests emanate from the professional and business classes, such as surveyors, doctors, clergymen, farmers, commercial travellers, veterinary surgeons, etc., and it is clear that if the present proposals are passed into law they will operate harshly against men of moderate means and the owners of cars used for utilitarian purposes. The Automobile Association and Motor Union has already approached the Chancellor of the Exchequer and recommended (a) reduction of the tax on the 16-26 h.p. class; (b) relief for old cars; (c) abatement or exemption where cars are used for public work, and (d) modification of the proposed taxes on motor cycles and the rejection of the horse-power basis for this class of vehicle. The proposed abrogation of the licences already issued is also being carefully considered. These licences indicate that having paid the amount stated the person in question is entitled to use his car or motor cycle up to December 31st, 1916, without further payment. It is clear that many motorists only paid this duty on the assumption that the terms of the licence would be adhered to by the Government, and that by such payment they were guaranteed the use of their cars for the whole year without further duty being imposed. By reference to paragraph 103 of the annual report of the Council of the British Medical Association, published in the SUPPLEMENT to the JOURNAL of May 6th, it will be seen that on the introduction of the Budget in April the British Medical Association communicated with the Chancellor of the Exchequer to consider the desirability of leaving the present motor taxes untouched, so far as concerned cars used by medical practitioners for professional purposes only, and that a reply had been received that the whole question was again under consideration.

Meetings of Branches and Divisions.

LANCASHIRE AND CHESHIRE BRANCH: ROCHDALE DIVISION.

THE annual meeting of the Division was held at Rochdale on April 27th, when Dr. GEDDES, the Vice-Chairman, presided.

Annual Report.—The SECRETARY read the annual report. The financial statement showed a balance in hand of £3 12s. 3d.

Election of Officers.—The following officers were elected for the year:

Chairman: Dr. Geddes (Heywood).

Vice-Chairman: Dr. Lord (Castleton).

Secretary and Treasurer: James Melvin (Rochdale).

Representative to Annual Meeting: Dr. Lord (Castleton).

Deputy Representative: Dr. Carse (Rochdale).

Executive Committee: The officers, together with Drs. Ashcroft of Littleborough, and Harris, Kilroe, and Wilson of Rochdale.

Ethical Rules.—It was resolved:

That the Rochdale Division hereby adopts the revised rules governing procedure in ethical matters of a Division not itself a Branch, as approved by the Annual Representative Meeting, 1915, without modification and in substitution for any ethical rules now in use by the said Division.

SOUTH-EASTERN OF IRELAND BRANCH.

THE annual meeting of the South Eastern of Ireland Branch was held at Kilkenny on May 3rd, when Dr. JAMES was in the chair. Dr. A. B. Stephenson was installed as President for 1916 and 1917. A cordial vote of thanks was passed to the outgoing President, Dr. J. Quirke.

Election of Officers.—The following officers were elected:

President-elect for 1916-17: Dr. M. Mitchell (Johnstown).

Treasurer: Dr. J. H. Jellett (Waterford).

Honorary Secretary: Dr. P. Grace (Kilkenny).

Representative for Annual Representative Meeting: Dr. T. Laffan (Cashel).

Deputy Representative: Dr. Joseph Power (Ardinnan).

Representative on Irish Committee: Dr. J. V. Ryan (Carlow).

Association Notices.

GRANTS IN AID OF SCIENTIFIC RESEARCH.

THE Council of the British Medical Association is prepared to receive applications for grants in aid of Research into the Causation, Treatment, or Prevention of Disease. Preference will be given to medical practitioners and to applicants who propose to investigate problems directly related to practical medicine.

Applications for grants must be received not later than June 17th, 1916, and must be made on the prescribed form which, together with the Regulations governing such grants, can be obtained on application to the Medical Secretary of the Association, 429, Strand, London, W.C.

BRANCH AND DIVISION MEETINGS TO BE HELD.

EAST YORKSHIRE AND NORTH LINCOLN BRANCH: EAST YORKSHIRE DIVISION.—Mr. H. L. Evans (101, Prince's Avenue, Hull) gives notice that the annual meeting of the Division will be held in the Board Room of the Hull Royal Infirmary, at 8.15 p.m., on Friday, June 9th. Business: To receive the annual report and financial statement. To elect officers.

KENT BRANCH.—Dr. E. A. Starling, Honorary Secretary (Chillingworth House, Tunbridge Wells), gives notice that the third annual meeting of the Kent Branch (which this year will be only for the transaction of necessary business) will be held on Wednesday, June 7th, 1916, at 5.30 p.m., at the Royal Star Hotel, Maidstone. The Council recommends that there should be no change in the officers of the Branch, and also the holding of the annual meeting in Chatham on the usual lines when the country has returned to a more normal condition after the war.

LANCASHIRE AND CHESHIRE BRANCH: ST. HELENS DIVISION.—Dr. F. J. Knowles, Honorary Secretary (Victoria Square, St. Helens), gives notice that the annual general meeting of the St. Helens Division will be held at St. Helens on Tuesday, May 23rd, 1916.

METROPOLITAN COUNTIES BRANCH.—Dr. R. E. Crosse and Mr. N. Bishop Harman (Honorary Secretaries) give notice that the annual general meeting of the Branch will be held at 429, Strand, W.C., on Tuesday, June 27th, at 4 p.m. The business will be: (1) Report of scrutineers as to the election of new officers. (2) The annual reports of council and of representatives of the Branch on the Central Council. (3) Alteration of Rule 7 b. (4) The adoption of the Revised Ethical Rules as approved by the Annual Representative Meeting, 1915. (5) President's address: Medical Administration of Modern Armies.

METROPOLITAN COUNTIES BRANCH: MARYLEBONE DIVISION.—Mr. C. Edward Wallis, Honorary Secretary (13, Queen Anne Street, W.), gives notice that the annual general meeting of the Marylebone Division will be held at No. 108, Harley Street, on Thursday, May 25th, 1916, at 5.30 p.m., to receive the annual report of the Executive Committee; to elect the officers of the Division for the coming year; instructions to Representatives at Representative Meeting on matters referred to Divisions (vide BRITISH MEDICAL JOURNAL SUPPLEMENT, May 6th, 1916); nominations to the Central Council; nomination to the Branch Council; adoption of model ethical rules.

SOUTH WALES AND MONMOUTHSHIRE BRANCH.—Drs. W. J. Greer and L. Freeman Marks, Honorary Secretaries, give notice that the annual meeting of the Branch will take place in Cardiff on June 8th for the election of officers and other business.

RECRUITING FOR THE NAVAL AND MILITARY MEDICAL SERVICES.

WE are informed by the Honorary Secretary (Dr. Sidney C. Lawrence) of the Society of Members of the Royal College of Surgeons of England that the following letter has been addressed, on behalf of this society, to the Royal College of Surgeons of England and the conjoint advisory committee of that College and the Royal College of Physicians of London:

To the Secretary, Royal College of Surgeons of England.
Sir,—At a recent meeting of the Council of this society the resolution, as under, was passed unanimously, and I was

instructed to acquaint you with the same in order that it may be brought to the notice of your Council and of the advisory committee of the English Royal Colleges of Physicians and Surgeons.

Resolution.

That this society is strongly of opinion that the paid services of medical men over military age should be more utilized for whole or part time duty at home barracks, civil and military hospitals, etc., so as to free younger men for active service abroad; that where medical men, ineligible for war duties, could not be found for out-patient departments of civil hospitals or tuberculosis or school medical work, such departments should be at once closed for the duration of the war.

That the Government should withhold their approval of the appointment of men of military age to vacancies arising in the Poor Law or public health services or in any public appointment until the conclusion of the war, and that in every case such appointments be only made for the duration of the war or until six months after the conclusion of peace, as under present conditions fair competition for such posts is impossible, and shirkers are thereby unduly favoured.

INSURANCE.

TRAVELLING EXPENSES OF PANEL COMMITTEES.

THE following letter has been addressed by the British Medical Association to the Secretary of the National Health (Joint) Committee:

British Medical Association,
429, Strand, London, W.C.,
May 8th, 1916.

SIR,

Travelling Expenses of Doctors of Panel Committees.

At different times during the past two years representations have been made to the Association by County Panel Committees in favour of their being allowed to pay the travelling expenses of their members.

The Insurance Acts Committee has circularized the whole of the Panel Committees in England, Scotland, and Wales, inquiring whether they are of opinion that steps should be taken to provide that it should be possible to defray the travelling expenses of members of Panel Committees out of the statutory allotment made towards the expenses of those Committees from the Medical Benefit Fund.

The replies have satisfied the Insurance Acts Committee that there is an undoubted desire that the statutory allotment should be available for this purpose, and it is evident that many Panel Committees believe that the payment of travelling expenses would help to secure a better attendance at their meetings.

The fact that the members of Panel Committees are engaged not only in protecting the interests of insurance practitioners but in doing work which is an essential part of the administration of the National Health Insurance Acts, seems to the Insurance Acts Committee to be an irresistible reason why the Panel Committee should be entitled to use its funds for such a purpose, and the request seems a particularly reasonable and modest one, seeing that the money out of which the expenses would be paid comes out of the pockets of the doctors themselves.

I am therefore instructed to express the hope that the Commissioners will take, on the first available opportunity, the steps that are necessary to allow travelling expenses to be paid by those Panel Committees that are in favour of making such payments.

I am, Sir, your obedient servant,
ALFRED COX,
Medical Secretary.

The Secretary of the National Health (Joint) Committee,
Wellington House, Buckingham Gate, S.W.

CORRESPONDENCE.

PAY UNDER INSURANCE ACT FOR YEAR 1914.

DR. FRANCIS E. TOWNSEND, M.D. (Normanby, Yorks), writes: Dr. Powers's letter in the SUPPLEMENT of May 6th, p. 106, is typical of the treatment the doctors are receiving at the hands of the Committees and Commissioners. I with others quite thought that the Commissioners would act honourably with the contracts made with us, and I regret to say it is not so. We certainly contracted for 7s. a head for attendance and 1s. 6d. drugs + floating 6d. per annum on insured persons, and we who do the whole of the dispensing in country practices where there are no chemists are entitled to the full 2s. (1s. 6d. for drugs and 6d. (floating)). In 1914, we of the North Riding of York-

shire received on the number of patients on our panels at the beginning of each quarter 1s. 9d. for the first three quarters, for the fourth quarter 1s., and for drugs 6d. for the first three quarters and nothing for the fourth quarter; but the Committees deducted 25 per cent. from the drugs account for second and third quarters. They paid the drugs account for temporary residents and mileage (sufficient to buy four tyres for a motor car at the most), and having waited seventeen months for the balance, we have been obliged to sign a final statement for 1914, accepting on the mean number of patients for the year 6s. 8.985d. per patient for attendance and 1s. 9.66d. for drugs and floating 6d., no mention being made, although this is the final settlement of pay, for temporary residents. I have kept all vouchers for the year, and will be pleased to submit same to you. Our work is doubled, not to mention the constant correspondence with the Committee, signing of certificates, and often much unpleasantness caused between the patient and doctor by the certification rules, the keeping of record cards, and the constant signing and posting (we have to pay all postage) of medical cards to Committees. No labourer, from the lowest to the most skilled mechanic, would put up with such treatment from an employer for one week. Can nothing be done by the Association to take a test case to the courts and see if a county court judge would get us our rights?

Naval and Military Appointments.

ROYAL NAVAL MEDICAL SERVICE.

THE following appointments are announced by the Admiralty: Fleet Surgeon L. S. Whitman, M.B., to the Fox; A. W. B. Lyesay to the Victory, additional, for disposal; Staff Surgeons G. E. G. Vickery, M.B., and A. J. Wernet, M.B., to the Pembroke; B. S. Robson, M.B., to the Vivid; H. H. Babbington, to the Vivid, for disposal; E. Cameron, M.B., to the Victory, for disposal; F. J. Gowan to the Fearless; A. D. C. Cummins to the Victory, additional, for disposal; Surgeons K. H. Hole and G. F. Syme have been promoted to the rank of Staff Surgeon for meritorious examinations. Surgeons H. W. Nicholls to the Vivid; G. B. Cockrem, R. F. P. Cory, to the Victory; J. G. Bond, M.B., G. F. Syme, to the Pembroke; A. Fairley to the Victory, additional, for disposal; R. J. G. Parnell to the Hussar, Temporary Surgeons R. B. Boston, M.B., to the Victory; R. Lyon, M.B., H. Wetherbee, and C. M. Williams to the Pembroke; W. G. Robertson to the Vivid; A. C. Ballance, M.B., to the Orin; W. MacMurray, M.B., and A. G. Evans to the Mount Stuart Hospital; P. C. Woodlatt, F.R.C.S., to Penbroke Dock Hospital; R. W. Brander, W. E. Boyd, and G. J. C. Smyth, M.B., to the Pembroke, additional, for disposal; H. F. McNally, M.B., to the Hampshire; S. S. Beare to the Victory, additional, for disposal; A. O. Courtis to the Caesar; H. Whyte to the Victory, additional, for Haslar Hospital.

ROYAL NAVAL VOLUNTEER RESERVE.

Surgeons C. F. A. Hereford to the Vivid, additional, for disposal; O. H. F. Atkinson to the Powerful, for Trevelick Quarters. Surgeon Probationers T. F. Broderick, V. R. O'Connor, S. J. Healy, A. C. Halliwell, T. L. Hillier, L. H. Bartram, H. G. Taylor, T. G. Evans, P. S. Horrocks, E. K. Macdonald, J. D. M. Cardell, D. A. Cunningham, N. T. Williamson, E. R. Peirce, C. R. Bency to the Victory additional, for Haslar Hospital; V. M. Syme to the Peteret. To be Surgeon Probationers: H. Thomson, J. K. Murray, E. Gray, G. E. Iae, N. B. Gadsby, D. L. M. Tod, W. T. Benson, J. N. Gale, SGT. B. B. Gray, J. Allan, J. W. S. Blacklock, D. C. Lamond, M. K. Jardine, G. Paterson, G. W. T. H. Fleming, P. L. Ewan, O. Gray, F. W. Leinarchand, A. B. Macdonald, E. M. Fraser, E. A. Sparks, D. McClean, D. C. Clark.

ARMY MEDICAL SERVICE.

Surgeon-General T. M. Corker, C.B., K.H.P., is retained on the active list under the provisions of Articles 120 and 522, Royal Warrant for Pay and Promotion, 1914, and to be supernumerary.

Colonel J. Maher, C.B., to be temporary Surgeon-General whilst a Director of Medical Services.

Temporary Colonel A. W. Mayo Robson, C.V.O., F.R.C.S., relinquishes his temporary commission.

Temporary Colonel R. R. Sleman, M.D. (Lieutenant-Colonel R.A.M.C.T.F.) relinquishes his temporary commission on vacating his appointment as Assistant Director of Medical Services.

ROYAL ARMY MEDICAL CORPS.

Lieutenant-Colonel H. A. Haines is retained on the active list under the provisions of Articles 120 and 522, Royal Warrant for Pay and Promotion, 1914, and to be supernumerary.

Temporary Major F. M. Humphris, F.R.C.P.E. (Captain R.A.M.C.T.F.), relinquishes his temporary commission.

Majors to be temporary Lieutenant-Colonels whilst in command of field ambulances: W. F. H. Vaughan, A. E. S. Irvine, D.S.O., vice Major (temporary Lieutenant-Colonel) E. M. Pennerather, who relinquishes the rank of temporary Lieutenant-Colonel on reposting, H. H. J. Fawcett.

The following is substituted for the notifications in the London Gazette of April 5th and 11th, 1916, respectively: To be Lieutenant-Colonels whilst commanding casualty clearing stations: Major D. L. Harding, D.S.O., F.R.C.S.I., Major R. F. Ellery.

Major R. B. Hole, M.B., to be temporary Lieutenant-Colonel whilst commanding a casualty clearing station.

Majors to be temporary Lieutenant-Colonels whilst commanding R.A.M.C. training centres: A. H. Safford, B. A. Craig, C. R. Sylvester-Bradley, T. H. Gibbon, M.D.

Granted temporary and honorary rank whilst serving with the British Red Cross Hospital, Netley: As Major: Temporary honorary Captain H. L. T. J. M.D. As Lieutenants: H. J. Wallace, R. S. Totham, M.B., L. W. Sharp.

To be temporary Majors: W. J. Prendergast, M.B., whilst employed at the 1st Birmingham War Hospital, H. French, M.D., F.R.C.P., and

W. C. G. Ashdowne, F.R.C.S., whilst employed at the 1st County of Middlesex War Hospital.

Captains to be temporary Majors whilst in command of field ambulances: C. H. Denyer, V. T. Carruthers, G. H. Dive, vice Major (temporary Lieutenant-Colonel) H. E. J. A. Howley, who relinquishes the rank of temporary Lieutenant-Colonel on reposting.

C. T. Parsons, M.B., to be temporary Major, whilst serving with the Fulham War Hospital (substituted for notifications published in the *London Gazette* of May 15th and July 10th, 1915).

The name of Captain (temporary Major) Thomas T. H. Robinson, M.B., is as now described, and not as in the *London Gazette* of April 18th.

Temporary Captain G. Taylor, M.B., F.R.C.S., to be temporary Major.

H. Dearden to be temporary honorary Captain whilst employed with No. 3 British Red Cross Hospital.

Temporary Lieutenants to be temporary Captains: N. L. Pritchard, M.B., G. Norman, M.B., R. McL. Muir, M.B., R. H. Rollinson-Whitaker, F.R.C.S., J. Dunbar, M.B., J. H. Johnston, E. Weatherhead, M.B., M. Bridgman, M.D., B. T. Saunders, M.B., R. Williams, C. J. Gibson, M.D., W. B. Lawrence, G. A. Renwick, M.D., J. B. MacCulloch, M.B., C. G. Adams, M.B., C. R. R. Huxtable, M.B., J. Connell, M.B., W. J. Hill, M.B., M. H. E. Montesole, M.B., J. W. Heekes, W. F. Abbott, F. A. Hort, M.D., I. Campbell, J. Brown, M.D., C. A. Farrell, E. C. Wallace, R. M. Clarke, M.B., H. H. Clarke, M.D., H. M. Meyrick-Jones, M.D., C. J. Butler, B. Sweeten, M.B., C. H. T. Iott, M.B., R. C. Fuller, G. F. Holt, R. N. Salaman, M.D., J. T. McConkey, C. A. W. Pope, M.B., W. T. Hedley, M.B., T. Strain, M.D., A. G. R. Ritchie, M.B., G. A. Simpson, D. Cowin, M.B., W. S. Langworthy, M. T. MacMahon, C. F. White, M.B., R. Richards, W. C. Gavin, M.B., J. M. Pooley, E. W. Lynch, W. Salisbury, M.B., H. J. Hickin, M.B., V. H. Mason, M.B., H. E. O'Brien, N. Campbell, M.B., P. H. Delamere, A. H. Priestley, M.B., J. R. Robertson, J. H. Moir, M.D., A. M. Cowie, M.B., L. W. Batten, A. D. Bigland, M.D., H. R. Dew, M.B., R. K. Birnie, M.B., J. Morlet, M.B., A. Weigall, M.B., G. C. Scantlebury, M.B., J. G. Sleeman, M.B., W. A. L. H. Henderson, M.B., A. W. Bretherton, M.B., T. E. George, M.B., W. A. Boorman, M.B., W. A. H. Birrell, M.B., W. Rogerson, M.B., W. S. Newton, M.B., G. C. Bury, M.B., G. B. Courtney, M.D., R. McC. Service, M.D., J. Porter, M.B., J. F. Pierce, R. J. Merson, M.B., F. W. S. Stone, L. G. Davies, M.B., T. S. McIntosh, M.D., J. C. Sale, T. D. Kennedy, M.B., K. Simpson, M.B., J. Scott, M.B., H. M. Spoor, M.B., H. F. Nolan, H. H. Moffatt, G. H. Darlington, M.B., F. G. Wrigley, M.D., J. H. Marshall, M.B., A. L. Weakley, M.B., F.R.C.S.E., V. J. Bateson, G. S. Goodwin, M.D., J. Rowat, M.D., J. J. Robb, M.D., A. M. Warwick, M.B., B. E. Wright, M.B., C. S. Crichton, M.D., W. G. Hopkins, G. S. Applegate, R. M. Walker, A. H. Butcher, A. E. Druiett, R. Kenefick, M.B., G. R. Lipp, M.B., T. Stansfield, M.B., W. J. J. Arnold, M.B., W. Carnes, G. W. Stone, R. Stephens, M.B., J. C. Waithman, M.D., W. R. Etches, M.D., F. H. Looney, M.B., R. W. Hogg, M.B., J. Hughston, M.B., W. A. Shann, M.B., N. Grellier, D. Johnston, J. W. Turner, M.B., T. Warner, M.D., F.R.C.S., W. C. Blackham, M.B., A. Gray, M.D.

Temporary honorary Lieutenants to be temporary honorary Captains: E. H. Hicks whilst serving with the British Red Cross Society in France; F. W. Hamilton, M.B., whilst serving with No. 2 British Red Cross Hospital.

Vacancies and Appointments.

VACANCIES.

NOTICES REGARDING APPOINTMENTS.—Attention is called to a Notice (see Index to Advertisements—Important Notice re Appointments) appearing in our advertisement columns, giving particulars of vacancies as to which inquiries should be made before application.

BRISTOL ROYAL INFIRMARY.—(1) House-Physicians; (2) House-Surgeons. Salary, £100 per annum in each case.

BURNLEY: VICTORIA HOSPITAL.—Lady House-Surgeon. Salary, £150 per annum.

BURY INFIRMARY.—(1) Lady Senior House-Surgeon; (2) Lady Junior House-Surgeon. Salary, £250 and £150 per annum respectively.

CANNING TOWN WOMEN'S SETTLEMENT HOSPITAL, Plaistow.—Female Resident Medical Officer. Salary, £150 per annum.

CARDIFF: KING EDWARD VII HOSPITAL.—Fourth-year Student Dresser. Salary, 52 guineas per annum.

DUDLEY: GUEST HOSPITAL.—Assistant House-Surgeon. Salary, £120 per annum.

HUDDERSFIELD ROYAL INFIRMARY.—(1) Senior House-Surgeon; (2) Assistant House-Surgeon. Salary, £150 and £100 per annum respectively.

ISLE OF MAN ASYLUMS BOARD.—Female Assistant Medical Officer for the Lunatic Asylum and Home for the Poor. Salary, £150 per annum.

LABORATORIES OF PATHOLOGY AND PUBLIC HEALTH, 38, New Cavendish Street, W.—(1) Bacteriologist; (2) Laboratory Assistant.

LONDON TEMPERANCE HOSPITAL, Hampstead Road, N.W.—Assistant Resident Medical Officer. Honorarium, £120 per annum.

MANCHESTER CORPORATION.—Female Medical Officer in connexion with Infant Clinics at Maternity and Child-welfare Centres. Salary, £350 per annum.

MANCHESTER NORTHERN HOSPITAL FOR WOMEN AND CHILDREN.—Lady House-Surgeon. Salary, £120 per annum.

NIGERIA: FRED SLAVES HOME.—Lady Medical Missionary.

NOTTINGHAM GENERAL HOSPITAL.—Assistant House-Surgeon. Salary, £250 per annum.

PADDINGTON GREEN CHILDREN'S HOSPITAL, W.—House-Surgeon (lady). Salary, £80 per annum.

QUEEN CHARLOTTE'S LYING-IN HOSPITAL, Marylebone Road, N.W.—(1) Pathologist and Registrar; (2) District Resident Medical Officer (female). Salary, £80 and £60 per annum respectively.

ST. GEORGE'S HOSPITAL, S.W.—Radiographer. Salary, £100 per annum.

SHEFFIELD: JESSOP HOSPITAL FOR WOMEN.—Junior Lady House-Surgeon. Salary, £80 per annum.

SHEFFIELD ROYAL INFIRMARY.—House-Physician. Salary, £120 per annum.

SOUTH LONDON HOSPITAL FOR WOMEN.—Temporary Assistant Physician. Honorarium, 10s. 6d. for each attendance.

STAFFORDSHIRE GENERAL INFIRMARY, Stafford.—House-Surgeon. Salary, £250 per annum.

STOKE-ON-TRENT: INFECTIOUS DISEASES HOSPITAL, Bucknall.—Resident Lady Assistant Medical Officer. Salary, £200 per annum.

STORTHES HALL ASYLUM, Kirkburton, near Huddersfield.—Locumtenent. Salary, £7 7s. per week.

TROAT HOSPITAL, Golden Square, W.—Resident House-Surgeon.

VENTNOR: ROYAL NATIONAL HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST.—Assistant Resident Medical Officer.

WESTMORLAND CONSUMPTION SANATORIUM AND HOME, Meathop.—Second Assistant. Salary, £200 to £250 per annum.

WIGAN: ROYAL ALBERT EDWARD INFIRMARY AND DISPENSARY.—Senior House-Surgeon. Salary, £250 per annum.

CERTIFYING FACTORY SURGEONS.—The Chief Inspector of Factories announces the following vacant appointments: Birmingham, North (Warwick), Chirnside (Berwick).

To ensure notice in this column—which is compiled from our advertisement columns, where full particulars will be found—it is necessary that advertisements should be received not later than the first post on Wednesday morning. Persons interested should refer also to the Index to Advertisements which follows the Table of Contents in the JOURNAL.

APPOINTMENTS.

MACKENZIE, Fede M., M.B., B.S.Lond., Assistant Surgeon to the South London Hospital for Women.

St. Thomas's Hospital.—The following appointments have been made:—Casualty Officers and Resident Anaesthetists: J. C. N. Harris, B.A. Cantab., M.R.C.S., L.R.C.P., H. G. Stormer, M.R.C.S., L.R.C.P., A. H. Clarke, M.R.C.S., L.R.C.P., G. Moulson, M.R.C.S., L.R.C.P. Casualty Officers: D. C. Bluett, N. S. Nairne. Resident House-Physicians: E. H. V. Hensley, A. Mavrogordato, B.A. Oxon., M.R.C.S., L.R.C.P., F. H. Vey, J. B. Harris. Resident House-Surgeons: S. L. Buatia, B.A. Cantab., M.R.C.S., L.R.C.P., O. H. Hyman, A. J. Bado, M.R.C.S., L.R.C.P., E. G. Howell, M.R.C.S., L.R.C.P. House-Surgeon to Block 8 and Resident Anaesthetist: F. E. Higgins, B.A. Cantab., M.R.C.S., L.R.C.P. Obstetric House-Physician: W. M. Crombie, M.R.C.S., L.R.C.P. Ophthalmic House-Surgeon: H. H. Castle, M.R.C.S., L.R.C.P.

BIRTHS, MARRIAGES, AND DEATHS.

The charge for inserting announcements of Births, Marriages, and Deaths is 5s., which sum should be forwarded with the notice not later than the first post on Wednesday morning in order to ensure insertion in the current issue.

BIRTH.

SUDLOW.—On May 16th, at Penton House, Shelton, Stoke-on-Trent, the wife of G. Wray Sudlow, M.B., B.S., of a daughter.

DIARY FOR THE WEEK.

MONDAY.

ROYAL SOCIETY OF MEDICINE:
SECTION OF ODONTOLOGY, 8 p.m.—Annual general meeting. Dr. J. Howard Mummery: Enamel Prisms (especially of the Elephant).

TUESDAY.

ROYAL SOCIETY OF MEDICINE:
SECTION OF MEDICINE, 5.30 p.m.—Annual general meeting.

WEDNESDAY.

ROYAL SOCIETY OF MEDICINE:
SECTION OF HISTORY OF MEDICINE.—4.30 p.m. Annual general meeting. Dr. Michael Foster: Stick pomanders, and other exhibits. 5 p.m., Papers:—Dr. J. A. Nixon and Dr. Charles Singer: Miniatures of the Bristol Guy de Chauliac MS. Dr. Charles Singer: Blood-letting in the Fourteenth, Fifteenth, and Sixteenth Centuries. Mr. R. B. Steele: Scientific Work of Roger Bacon.

THURSDAY.

ROYAL SOCIETY OF MEDICINE:
SECTION OF NEUROLOGY, 8 p.m.—Annual general meeting. Clinical cases.

FRIDAY.

ROYAL SOCIETY OF MEDICINE:
SECTION OF STUDY OF DISEASE IN CHILDREN, 4.30 p.m.—Annual general meeting. Cases. Paper:—Dr. J. Lawson Dick: The Teeth in Rickets.

POST-GRADUATE COURSES AND LECTURES.

LONDON SCHOOL OF TROPICAL MEDICINE, Royal Albert Dock, E.

DIARY OF THE ASSOCIATION.

Date.	Meetings to be Held.
MAY.	
19 Fri.	London: Executive Subcommittee of Central Medical War Committee, 2.30 p.m.
23 Tues.	St. Helens Division, Annual Meeting, St. Helens.
25 Thur.	Marylebone Division, Annual Meeting, 108, Harley Street, W., 5.30 p.m.

SUPPLEMENT

TO THE

BRITISH MEDICAL JOURNAL.

LONDON: SATURDAY, MAY 27TH, 1916.

CONTENTS.

	PAGE		PAGE
GENERAL MEDICAL COUNCIL:		ASSOCIATION NOTICES: NOMINATIONS FOR COUNCIL	122
PRESIDENT'S ADDRESS ...	117	MEETINGS OF BRANCHES AND DIVISIONS ...	123
ELECTION OF COMMITTEES ...	119	INSURANCE:	
RECIPROCITY WITH CANADA ...	119	LETTER TO LOCAL MEDICAL AND PANEL COMMITTEES ...	119
BRITISH MEDICAL ASSOCIATION—CURRENT NOTES:		PROCEDURE IN INQUIRIES BY INSURANCE COMMITTEES ...	121
LIST OF STOCK MIXTURES.—COMPLAINTS AGAINST PANEL		NAVAL AND MILITARY APPOINTMENTS ...	121
PRACTITIONERS BY UNAUTHORIZED PERSONS.—PROPOSED		VACANCIES AND APPOINTMENTS ...	124
ABOLITION OF REPORTS ON ACCIDENTS BY CERTIFYING		BIRTHS, MARRIAGES, AND DEATHS ...	124
FACTORY SURGEONS ...	119	DIARY ...	124
REDUCTION OF NOTIFICATION FEES ...	123		

GENERAL COUNCIL

MEDICAL EDUCATION AND REGISTRATION.

SUMMER SESSION, 1916.

Tuesday, May 23rd, 1916.

Sir DONALD MACALISTER, K.C.B., President,
in the Chair.

THE one hundred and third Session of the General Medical Council began at the offices of the Council, 44, Hallam Street, W., on Tuesday, May 23rd, at 2 p.m.

The following new members took their seats: Professor Harvey Littlejohn, University of Edinburgh; Dr. Johnson Symington, Queen's University, Belfast; Professor A. F. Dixon, University of Dublin.

PRESIDENT'S ADDRESS.

THE HEAD OFFICES.

Gentlemen,—The Council meets to-day in its new chamber, and enters into complete occupation of the building erected for its accommodation under the supervision of the Site Committee. To that body, to the architect Mr. Frere, to the builders Messrs. Chinchin and their craftsmen, to the office staff, and to all who have helped forward the work of construction, equipment, and arrangement under conditions of exceptional difficulty, I would, in the Council's name, express our grateful acknowledgements. Members and the public will find, I hope, that the new offices enable us to transact business in circumstances of greater quiet and comfort than were possible in Oxford Street. Considerations of economy have made us postpone for the present some desirable improvements in matters of furnishing and the like. The essentials have been provided, however, and the rest can be added as times improve. Meanwhile, it is satisfactory to know that the expenditure on the building and its contents has been met from the proceeds of the sale of the Oxford Street premises and from surplus funds in the hands of the Council and its Branches. The building will thus be free from debt, and at the same time the income hitherto derived from the Council's property, on the old site, will be unimpaired. The new offices will, I am persuaded, prove in the end to be thriftier, as well as handier, than the old.

THE LATE SIR WILLIAM TURNER.

Our late president, Sir William Turner, who took a warm interest in the transfer, has not lived to see it completed. His death in February last deprived us of a wise and experienced counsellor and his university of a great

administrator, honoured alike for his scientific eminence and for his sterling character. In remembrance of his long association with the Council I have ventured to place his bust in this chamber. It is the original model for the marble bequeathed to the Anatomical Museum at Edinburgh. Through the courtesy of the sculptor, Mr. Herbert Hampton, I have been enabled to acquire it, and I now offer it for your acceptance as a memorial of my distinguished predecessor.

THE LATE SIR CHARLES BALL.

We have also to lament the loss of our friend and colleague, Sir Charles Bent Ball, who died in the midst of his many activities two months ago. His strong good sense, his professional knowledge and skill, and his genial warmth of manner gained for him an influential position here as elsewhere. We shall miss him greatly, both in the Council and in the committees, whose work he guided with real devotion.

NEW MEMBERS.

Sir William Whitla retires on the completion of his term of office as the representative of the Queen's University of Belfast. His great erudition and practical knowledge in the department of pharmacology and therapeutics were freely placed at the service of the Pharmacopoeia Committee. His colleagues and the editors were constantly indebted to him for willing and able help in the preparation of the new *Pharmacopoeia*.

In his place the Queen's University has appointed Professor Symington. As successor to Sir Charles Ball, the University of Dublin sends us Professor Dixon. The addition of these distinguished anatomists to those who are already valued members of the Council, will ensure that the importance of anatomy as a branch of medical education will not be overlooked. Dr. Harvey Littlejohn, whose appointment in place of Sir Thomas Fraser I intimated in November, takes his seat now. To him, and to the other new members, I desire to offer not only an official but a personal welcome. I am privileged to call them friends as well as colleagues.

THE COUNCIL'S STAFF.

At the end of last year our General Registrar, who is still on military service, was promoted to the rank of Lieutenant-Colonel. He is now in command of a battalion preparing for service at the front. To his great regret his military duties will prevent his attendance here this session. He was especially desirous to be in his place at this inaugural meeting in the new chamber. As you are aware, he ably assisted in the work of the Site Committee, until the inexorable demands of the war absorbed his whole time and strength. Mr. Cockington, as acting registrar, has filled his place most capably. Though the staff has

been depleted, and the extra labour of removal and rearrangement has been heavy, all concerned have worked so zealously that no dislocation of the public service has occurred. It is but right that our officials should know that their efforts, in a difficult situation, are appreciated by the Council. I am assured that they have materially assisted the medical departments of the services.

CENTRAL AND LOCAL MEDICAL WAR COMMITTEES.

The necessary demands of these services for qualified medical officers continue to put a severe strain on the resources of the profession. The Central and Local Committees, which have now been established in the three kingdoms, and recognized for recruiting purposes by the military authorities, are actively engaged in endeavouring to meet these demands, and at the same time to leave a fair provision for the medical needs of the civil population. The task is not easy. It calls for much careful consideration of individual persons, places, and circumstances. This could hardly be given under any general scheme of conscription, or by any but professional committees in touch with practitioners throughout the country. The value of the work already done by these committees is acknowledged by the War Office and the Admiralty. The greater the support and confidence extended to them by the profession the better they will be able to carry through their important operations for the good of all.

REGISTRATION IN 1915.

It had been expected that in 1915, the first complete year since the war began, the number of practitioners added to the *Register*, and available for military or civil work, would show a perceptible decrease. The expectation would probably have been realized but for the decision to recall from the combatant ranks medical students of the senior years, and but for the establishment of reciprocity with the Dominions and with Belgium. In the result it came out that the number of registrations in 1915 was 1,526, or 354 in excess of the average (1,172) for the preceding five years. Of the whole number, 181 appear in the Colonial List and 88 in the Foreign List.

MEDICAL STUDENTS.

The question of maintaining, in this and in future years, a supply of newly-qualified practitioners sufficient for the needs of the country continues to engage the attention of the military authorities and of the Council. The calling up of junior medical students, under the successive systems of recruiting, has undoubtedly given rise to some anxiety. Inquiries were accordingly made, at the instance of Lord Derby, as Director-General of Recruiting, in order to ascertain the facts of the situation. From returns obtained by the Council last January, it appeared that the number of students who during 1915 began medical study in the various professional schools and teaching institutions was 1,935. The number of first-year women students was 456. The number of second-year students was 1,020. The average annual entry of first-year students registered during the preceding five years was 1,441. In 1915 there were thus nearly 500 first-year medical students in excess of the average annual number registered in the preceding five years.

At the beginning of the present year the number of first-year students in actual attendance on instruction at medical schools (apart from teaching institutions) was ascertained to be 1,626.

The expected depletion of students, as compared with normal years, had thus been more than compensated by new entries, and if things remained as they were the position four years hence would not be unsatisfactory. It was thought advisable, however, to recommend that exemption from military service, already conceded to fourth-year and fifth-year students, should be extended to third-year students, who showed their proficiency in the earlier subjects of the curriculum by passing a third-year professional examination in March or April, at the end of the winter session. An Order to this effect was accordingly issued from the War Office. Lord Derby then asked the Executive Committee to appoint a small committee, including two representatives nominated respectively by the President of the Board of Education and the Secretary for Scotland, for the purpose of watching the general situation as regards Great Britain, and reporting upon it to him as Director-General of Recruiting. In view of the fact that

under the attestation and the compulsory systems, many of the medical students of 1915 would by April have been called from their studies, Lord Derby further requested that returns should be obtained of the numbers, belonging to each of the five years, who were in actual attendance on professional courses of instruction at the beginning of the present summer session. The replies to my inquiries on this head, for which I have to thank the authorities of the schools of medicine and teaching institutions, were returnable on May 18th. They are not yet complete, and they have not been fully analysed. But the Council will be interested to learn that so far as they go they give the following results:

Students still pursuing their Professional Studies in May, 1916.

First year	...	1,800
Second year	...	950
Third year and	...	...
Fourth-year	...	1,750
Final year	...	950

The expected depletion is most marked in the third-year and fourth-year group. Owing to the Order I have mentioned, many third-year students are reckoned with fourth-year students for recruiting purposes, and the group cannot readily be divided. Your Committee propose to call Lord Derby's attention to this group, as its present depleted condition indicates that a shortage of newly-qualified practitioners may be expected by the end of the year 1918.

MIDWIVES (SCOTLAND) ACT.

The representations made to the Government on your behalf, respecting the Scottish Midwives Bill, were effective. The bill, which was properly regarded as an emergency measure, became law on December 23rd, 1915. The Scottish Board has since been duly constituted, and the first set of rules for the enrolment of midwives has, after submission to the Executive Committee, been approved by His Majesty in Council.

Revised rules, framed by the Central Midwives Board under the English Act with a view to the better training and supervision of certified midwives, will be submitted to the English Branch Council during the present session. They indicate that the policy of the Central Board is progressive, and that its aim is to increase the efficiency of midwives. In the present emergency the responsibilities of these women must necessarily become greater, and it is the more imperative that the State and the profession should take steps to ensure their entire fitness. That some practitioners have not yet realized their duty with respect to the operations of women, who are not certified as fit to attend mothers in childbirth, is strongly suggested by cases brought before you at the last and at the present session. The Council will doubtless be prepared to consider whether the time has not come to issue a special warning notice on this subject.

ASSUMPTION OF MEDICAL TITLES.

In Scotland an important legal precedent has been established by a decision, on appeal, of the Court of Session. A limited company carries on in Edinburgh an objectionable form of unqualified practice under the style of the "Dr. Temple Company." The Royal College of Physicians, with Dr. Norman Walker, its treasurer, has succeeded in obtaining a perpetual interdict against the company, restraining it from using the word "Dr.," and so pretending to the public that it possessed some medical title to practise. The Royal College has thus vindicated its claim to intervene for the protection of the people of Edinburgh against a gross form of imposition. Company law and administration in England have hitherto failed to check similar abuses. The civic spirit of the Royal College merits our cordial recognition, and its success may well encourage other corporations to re-examine their powers in respect of the medical interests of the public.

In another Scottish court a pretender to medical qualification, who attempted to obtain money by falsely assuming a medical title, has been sentenced to three months' imprisonment, apparently without the option of the fine for mere false assumption provided in Section 40 of the Medical Act, 1858. This also may prove to be a useful precedent, in extension of the meagre safeguards of the statute.

DISCIPLINARY CASES.

Several of the penal cases you will have to consider this week relate to practitioners who have been tried and

convicted elsewhere. It is for the Council to decide whether these practitioners should be allowed to remain on the *Medical Register*.

RECIPROCITY WITH CANADA.

The exigencies of the war have induced certain of the Canadian provinces to reconsider their position with regard to imperial reciprocity. In November I reported that Ontario and Saskatchewan had ranged themselves with the Eastern Provinces. Now I report that legislation for the establishment of reciprocal relations has been effected in Manitoba, and is proceeding in British Columbia. The Province of Alberta alone remains outside the movement. It has expressed a desire for reciprocity, but, so far, we have not learnt that it has taken the necessary action; when it does the Dominion of Canada will, province by province, have fulfilled the conditions laid down in the Medical Act, 1886. There will then be no obstacle to the application of that Act by His Majesty to Canada as a whole, and to our recognition, for purposes of registration here, of the diploma in medicine, surgery, and midwifery granted after examination by the Canada Medical Council. The whole problem of Canadian qualifications would thus at once receive a satisfactory simplification.

Japan.

The empire of Japan, whose university degrees in medicine have long been registrable, has now decreed that in October, 1916, the new law on medical practice, intimated to the Council ten years ago, will come into effective operation. The Japanese authorities will then be able to guarantee that the degree of Bachelor of Medicine, granted by specified medical colleges under Government direction or supervision, will represent a qualification not inferior to the corresponding university degree. The Executive Committee will consider the question of adding this college degree, granted under the new conditions, to the list of qualifications registrable in the Foreign List.

Reports of Committees.

Reports may be expected from the respective committees on the teaching of medical ethics, the revision of the dental curriculum, and other topics of interest.

A reference to the minutes of the Executive Committee will show how numerous and important are the matters with which it has had to deal since last session. Medical and dental legislation throughout the empire has given rise to questions of policy and practice on which the advice of the Committee has been sought by the Privy Council, the Foreign Office, the India Office, and the Colonial Office. In pursuance of the powers delegated to the Committee, such advice has been given and gratefully accepted by the Departments of the State.

ELECTION OF COMMITTEES.

The following Committees were elected:

Business Committee: Dr. Norman Moore (Chairman), the President, Sir Henry Morris, Dr. Norman Walker, Dr. Little.

Executive Committee: The President (*ex officio*), Dr. Norman Moore, Sir Henry Morris, Mr. Tomes, Dr. Langley Browne, Mr. Hodsdon, Dr. Norman Walker, Sir John Moore, Sir Arthur Chance.

Legal Cases Committee: Dr. Saundby, Mr. Tomes, Dr. Norman Walker, and Dr. Little.

Pharmacopœia Committee: The President (Chairman), Dr. Norman Moore, Sir George Philipson, Dr. Caton, Dr. Barrs, Dr. Cash, Sir John Moore, Dr. Norman Walker, and Dr. Little.

Finance Committee: Mr. Tomes (Chairman), the President, Sir Henry Morris, Mr. Hodsdon, Dr. Little.

Dental Committee: The President (Chairman), Sir Henry Morris, Mr. Hodsdon, Mr. Tomes, and Sir Arthur Chance.

Dental Education and Examination Committee: Mr. Tomes (Chairman), the President, Sir Henry Morris, Mr. Hodsdon, Dr. Knox, Sir Arthur Chance, and Dr. Symington.

Students' Registration Committee: Dr. Norman Moore (Chairman), the President, Dr. Langley Browne, Dr. Mackay, Dr. Norman Walker, Sir Bertram Windle, and Dr. Kidd.

RECIPROCITY WITH CANADA.

The PRESIDENT reported that information had been received that a course of professional study extending over five years had been instituted in the province of Saskatchewan of the Dominion of Canada, to which Part II of the Medical Act, 1886, had been applied by an Order in Council dated June 10th, 1915. Consequently, in virtue of the powers conferred upon him, he had instructed the Acting Registrar on April 15th, 1916, to

register any person who produced the Licence of the College of Physicians and Surgeons of Saskatchewan, and who satisfied the prescribed conditions.

APOTHECARIES' HALL EXAMINATIONS.

The PRESIDENT stated, in reply to Dr. MAGENNIS, that the Council exercised its powers under Sections 13 and 18 of the Medical Act, 1858, to pay the deputy appointed to attend and be present on behalf of the General Medical Council at the professional examinations held by the Apothecaries' Hall for the purpose set forth in Section 18 of the Medical Act, 1858, and to report to the Council the general character of such examinations.

(The Council then went into camera and adjourned.)

British Medical Association.

CURRENT NOTES.

INSURANCE.

List of Stock Mixtures.

The list of mixtures capable of being stocked in bulk without deterioration, which has for a considerable time been under discussion by the British Medical Association and the Pharmaceutical Society of Great Britain, has been finally passed by the Commissioners, who have informed the Association that it will be circulated to Insurance Committees, Panel Committees, and Pharmaceutical Committees within the next few days. The list contains twenty-eight mixtures, and Panel Committees desiring to do so will be entitled to select not more than ten of them, which will then be dispensed at a reduced dispensing fee. The Panel Committee must give one calendar month's notice of its selection to the Insurance Committee, which will thereupon give notice to the individual chemists.

Complaints against Panel Practitioners by Persons who are not authorized by the Patient.

The Insurance Acts Committee has been consulted by a Panel Committee in reference to a series of complaints made to an Insurance Committee against panel practitioners by a person acting on behalf of an approved society. In several of these cases it appeared that the insured person concerned had not authorized any complaint to be made. The Committee is taking the opinion of the Solicitor of the Association on the question.

MEDICO-POLITICAL.

Proposed Abolition of Reports on Accidents by Certifying Factory Surgeons.

A letter has been sent to a large number of members of Parliament directing their attention to the proposal of the Government to drop the reports on accidents at present made by certifying factory surgeons, and asking for their help in resisting the proposal. The Association is acting in this matter in co-operation with the Association of Certifying Factory Surgeons.

INSURANCE.

LETTER TO LOCAL MEDICAL AND PANEL COMMITTEES.

Medical Department,
429, Strand, London, W.C.,
May 22nd, 1916.

DEAR SIR,

Proposed Emergency Settlement of Panel Practitioners' Accounts for 1915.

1. The Insurance Acts Committee was received by the Commissioners on April 18th to discuss the question of the settlement of doctors' accounts for the year 1915, and informed the Commissioners that the profession was anxious that some way should be found of settling the accounts for 1915 much more quickly than those for 1914. A long discussion then ensued, in the course of which the Commissioners gave an outline of a possible scheme which the Insurance Acts Committee promised to place before the Panel Committees.

2. Before describing the scheme it is desirable to explain the procedure, laid down by the Regulations, which was used for the settlement for 1914 and resulted in the Insurance Committees not being able to make the final

settlement before April, 1916. Under the Regulations the debit against the approved societies is made on membership statistics derived from the returns of contribution cards and other membership particulars relative to the first half of the year. Therefore if the settlement for 1915 were made according to Regulations it would be necessary to wait for these particulars, and experience has shown that *under war conditions* and allowing sufficient time to ensure that all returns are exhaustive it would be necessary to allow societies until May 31st, 1916, to prepare the necessary returns.

3. The work at the Commissioners' offices would, *under war conditions*, and judging by the experience of 1914, take another eight months, for this work must be done *pari passu* with the similar work that has to be done each half year in connexion with the National Health Insurance Fund. So that if normal procedure were followed under the present abnormal conditions, the settlement for 1915 could not be expected at earliest before the end of 1916.

4. The plan outlined by the Commissioners is as follows:

(a) Take the ascertained number of insured persons entitled to medical benefit in 1914.

(b) Adjust for enlistments. The Commissioners have information to enable them to determine the necessary adjustments.

(c) Adjust for new entrants into medical benefit. This would be estimated from information at the disposal of the Commissioners based on sales of insurance stamps.

The Commissioners are of opinion that these estimates would be so close to the real figures which would emerge from the more lengthy process of the Regulations that it would be impossible for any one to guess in advance whether the result would be just under or just over the real figures. The Insurance Acts Committee satisfied itself by inquiries that a very close estimate could be made by the means suggested.

(d) The Central Medical Benefit Fund having been constituted as above, the rest of the procedure would be precisely as laid down in the Regulations.

5. Any amount by which the total sum distributed under this emergency settlement is greater or less than the sum that would be available under the normal procedure would increase or reduce the liability of the special Exchequer grant, the scheme for the distribution of the grant being modified to effect this. It was suggested to the Commissioners that any payments so made should be on account, any excess or deficit being adjusted later when the actual figures were ascertained. The Commissioners explained that this would not be possible, because some doctors now on the panel might not be on when the balance was paid to, or was required to be returned by, the individual doctor, and besides the new arrangements with the chemists would make such a course one of considerable difficulty. The proposed settlement would, therefore, if accepted, be final and binding as regards individual areas and individual doctors. But the extent of any deficiency or excess in the aggregate payment under the emergency settlement would be ascertained in due course, and it is suggested that such deficiency or excess should be taken into account in constituting the medical pool for a subsequent year so as to leave both the Treasury and the profession as a body virtually unaffected.

6. The Insurance Acts Committee has given this subject very close attention, and is satisfied that it is a fair attempt to deal with the demand of panel practitioners for an earlier settlement, and in fact the only means of securing an earlier settlement, pending the revision of the whole arrangements which is promised after the war. The Insurance Acts Committee has therefore no hesitation in advising committees to accept the proposal. The Commissioners believe that in about six weeks on the average, after they are informed that the Panel Committees agree, the Insurance Committees could be put in a position to effect a settlement with individual doctors.

7. The plan suggested can, however, only be adopted if substantial agreement is arrived at among the Panel Committees as a whole. The alternatives are:

(1) To accept the scheme with the risk that the payment made may be either slightly over or slightly

under the amount that might be proved to be owing if the same elaborate and lengthy calculations were made as was the case for the 1914 accounts. The settlement would be final so far as the individual doctor and individual area are concerned. Any later adjustment would only affect the total sum made available for medical benefit in a subsequent year; or

(2) To await the usual calculations and receive final payment possibly in January, 1917, but not before.

8. You are requested therefore to ascertain, with as little delay as possible, the opinion of your Panel Committee, if necessary calling a special meeting. Your answer must be in my hands not later than June 12th, 1916.

Removal of Names from Panel Lists before Acceptance by another Doctor.

9. Complaints have been received from several Panel Committees of the removal of names from panel lists by Insurance Committees merely on the receipt of notification of change of address, instead of waiting for a notification that the person concerned has been accepted by another practitioner. We shall be glad to know whether your committee has any complaint to make on this score, and, if so, to have specific instances which can be placed before the Commissioners.

Sickness Benefit and Diseases due to "Own Misconduct."

10. The conference of Local Medical and Panel Committees in June, 1915, requested the Insurance Acts Committee to consider the advisability of taking action to secure that patients incapacitated for work by venereal diseases should not for that reason be refused sickness benefit. The Committee has, after mature consideration, arrived at the following conclusion—namely, that when an insured person is suffering from any disease which would cause him to be refused sickness benefit under the Insurance Acts because the disease was due to his own misconduct, he should not be debarred from sickness benefit if, in the opinion of his medical attendant, he cannot be efficiently treated without enforced rest.

The traditions of many of the approved societies are against such a change, and most of them are yet unconvinced that from the financial point of view they would in the long run gain if every case of venereal disease that needs rest were encouraged to take it. The Royal Commission on Venereal Diseases was in favour of the line suggested by this Committee, and it is now hoped that Panel Committees and representatives of the profession on Insurance Committees will do what they can to persuade the representatives of approved societies that their true interests and those of the community lie in curing venereal diseases as quickly as possible, and that the deprivation of sickness benefit compels many sufferers to keep at work when they should be in bed.

Representatives of the Local Medical and Panel Committees on the Insurance Acts Committee.

There are on the Insurance Acts Committee six representatives, elected on a territorial basis, of the Local Medical and Panel Committees of the country. Last year they were elected at the Conference of Local Medical and Panel Committees, and afterwards co-opted to the Committee. If there had been a conference this year the same course would have been taken. But as the opinion of the committees of the country was strongly against holding a conference just now, the meeting has been postponed, and may be held later in the year, or perhaps not until next year. The Committee desires to suggest that the present representatives be re-elected to serve for the session 1916-17, the election for the following session being carried out at the next conference. The present representatives are:

Dr. P. V. Fry, West Riding, Yorks.
Dr. T. Campbell, Lancashire.
Dr. T. Ridley Bailey, Staffordshire.
Mr. H. B. Brackenbury, Middlesex.
Mr. P. Napier Jones, Berkshire.
Dr. J. R. Drever, Glasgow.

I shall be glad to have the opinion of your committee on this suggestion.

Visits of Members of Insurance Acts Committees to Local Medical and Panel Committees.

The Committee is anxious to keep in as close touch as possible with the Local Medical and Panel Committees,

and, especially as there is to be no conference this spring, would suggest the desirability of visits of members of the Committee to meetings of Local Medical and Panel Committees, or preferably to general meetings of panel practitioners. It is very desirable that Panel Committees and their constituents should understand the extent and importance of the work that is done for them by this Committee, and also have some idea of the gravity of the problems that await us in the near future and of the means which are proposed by this Committee for dealing with them. If such local meetings could be arranged this Committee would be glad to send some one to address it—preferably the representative on the Committee of the area in which the meeting is held. If your Committee is prepared to arrange for such a meeting, either alone or in co-operation with some neighbouring Panel Committee, the Insurance Acts Committee will be glad on hearing from you to make the necessary arrangements for a speaker, and, if possible, for the attendance of any speaker for whom a preference is expressed.

This circular will be printed in the *BRITISH MEDICAL JOURNAL SUPPLEMENT* of May 27th. Any Panel Committee which holds its meeting before then can be supplied, on request, with a sufficient number of this circular for each of the members of the committee. But secretaries are urgently requested whenever possible to refer their members to the *SUPPLEMENT*.

I am, yours faithfully,

ALFRED COX,

To Chairmen and Secretaries
of Local Medical and Panel
Committees and Secretaries
of Divisions and Branches B.M.A.

Medical Secretary,
British Medical Association.

QUESTIONS FOR ANSWER.

1. Does your Committee agree to the proposed Emergency Settlement?
2. Does your Committee agree that the present representatives of Local Medical and Panel Committees who have been co-opted to the Insurance Acts Committee should retain office for 1916-17?

NOTE.—The answers to the above questions must be returned at latest by June 12th, 1916.

PROCEDURE IN INQUIRIES BY INSURANCE COMMITTEES.

THE English Commissioners have issued, under date May, 1916, an important memorandum to Insurance Committees on procedure in cases considered by them in a judicial or semi-judicial capacity (Memo. 215/I.C.) It deals with three different varieties of questions that may arise for consideration by Insurance Committees, Panel or Local Medical Committees, or the Medical Service Subcommittee.

Complaints by Insured Persons.

First come questions which may arise, under Article 45 of the Regulations, between insured persons and their panel doctors in respect of the treatment rendered by the doctor, including the granting of certificates, or the conduct of insured persons. All such questions, the Commissioners point out, stand automatically referred to the Medical Service Subcommittee and need no formal reference thereto by the Insurance Committee, which can only take action on the report of the subcommittee. The Regulations, while forbidding the appearance of counsel or solicitors at the hearing, do not forbid either practitioners or insured persons acting by means of agents, whether acting professionally or as friends, but committees are advised that it will always be better to require a written statement of that fact signed by the party. In addition to the questions thus automatically referred, the Insurance Committee may refer to the Medical Service Subcommittee any other question as to the administration of medical benefit. For example, general reports as to the conduct of a panel practitioner or insured person should first be considered by the subcommittee rather than by the Insurance Committee in order to avoid premature publication of allegations which on inquiry might prove to be without foundation. Such cases probably reach the Medical Benefit Subcommittee first, but its duty at this stage will simply be to decide whether there is sufficient *prima facie* evidence to warrant a full inquiry by the Medical Service Subcommittee. It is pointed out that the constitution of the Medical Service Subcommittee

does not suit it to conduct a roving inquiry; the Insurance Committee or some subcommittee ought first to focus and define the issues and charges involved before referring them for judicial inquiry by the Medical Service Subcommittee.

Stress is laid on the necessity before the hearing of a case of forwarding to the parties concerned as precise and explicit a statement of the charges as possible, as the respondent, in the absence of details and particulars, might be placed at a serious disadvantage, and it might be necessary to adjourn the hearing to allow him to meet allegations which had not been sufficiently explicit. For example, vague charges of neglect would be quite unfair to the respondent, and the chairman of the subcommittee and the clerk are advised that they ought, before the hearing, to reduce the charges to definite issues, so that the respondent may be able to prepare his defence. The subcommittee is not precluded from listening to fresh charges made only at the hearing, but in that case it may be necessary to allow an adjournment to give the respondent an opportunity of dealing with them. The duty of the subcommittee is (a) to sift the evidence and embody in their report the facts found; (b) to take up any technical medical points, and, in the light of the expert knowledge of the medical members of the subcommittee, to express an opinion on them; (c) to submit the general inferences and conclusions of the subcommittee; and (d) to submit recommendations as to the action which the Insurance Committee should take.

The Insurance Committee, while bound to accept any facts established to the satisfaction of the subcommittee, is not bound to follow any recommendations, and the Commissioners insist that what are in reality inferences ought not to be put forward as findings of fact. For example, the subcommittee might find as a fact that a doctor after being called to a case failed to attend on certain days. Such a fact the Insurance Committee would be bound to accept as established, but to state that the doctor was therefore guilty of neglect would only be an inference, which the Insurance Committee might refuse to accept.

Emphasis is laid on the advisability of not divulging the names of the parties concerned to the Insurance Committee until the case has been finally settled and the Commissioners have given their decision. Further, it is pointed out that though the Medical Service Subcommittee has a qualified privilege, so that an action for libel could not be successfully founded on any statements contained in its report unless the publication were proved to be malicious, at the same time such immunity would not apply to a member of the subcommittee who discussed with outside persons what had passed at a meeting of the subcommittee.

In speaking of the penalties which may be inflicted on practitioners under Regulation 45, committees are reminded of the conditions on which the Exchequer grant of 2s. 6d. is given for medical benefit, and where the offences might call for a reduction of this grant committees are directed to communicate with the Commissioners before promulgating their decisions. The danger is pointed out of using in a loose sense such words as "negligence," "neglect," and similar terms, and it is to be regarded as of the greatest importance that committees should carefully distinguish between mistaken actions on the part of a doctor and distinct breaches of professional duty.

Allegations of Excessive Prescribing.

The memorandum next deals with the question of deductions on the ground of excessive prescribing. It is carefully pointed out that though prescribing in excess of the average of the area may offer a *prima facie* ground for inquiry, it does not in itself justify the inference of extravagant prescribing. Under the Regulations of 1916 (as well as under the old Regulation 40) practitioners whose prescribing is under question have a right to be heard by a properly summoned meeting of the whole Panel Committee, and this duty cannot be deputed to any subcommittee, though there is no objection to a preliminary investigation of the prescriptions and the facts of the case by a subcommittee. The report of the Panel Committee must be of such a character that the Insurance Committee, which consists mainly of laymen, shall, with the assistance of the technical knowledge placed at its disposal be able to arrive at a reasoned decision. A report that simply states that a practitioner had ordered a particular

drug or preparation, and ought to be surcharged, would be clearly inadequate, and the Insurance Committee might reasonably refer it back for further information. The Insurance Committee has a right to demand not only the facts and conclusions at which the Panel Committee has arrived, but also the reasons which have led to such conclusions, and while the Insurance Committee would properly give full weight to the opinions of medical practitioners on technical matters, it would not be discharging its duties by merely accepting without consideration the recommendations made to it. Panel Committees are distinctly told that though they may suggest the amount of surcharge which they consider meets the case, Insurance Committees may use their own discretion and deduct "such sum as they think fit," and though the extent of the extravagance, so far as it is measurable, is a relevant circumstance, and the deduction should normally bear some relation to it, the primary object is to give the doctor a forcible reminder, and to act as deterrent against extravagance in the future, as it is not the intention of the Regulations that any very precise calculation should be attempted. Under the Regulations of 1916 the Pharmaceutical Committee has no longer any function in this connexion in the proceedings of the Panel Committee, and the latter committee will now be free to deal with questions of extravagance in prescribing without attempting to cover the whole ground, as the chemists are no longer affected by its decisions. It is also observed that the new Regulations require that the report of the Panel Committee shall state fully the facts of the case and the grounds on which its opinion is based, and that it should contain a recommendation as to the amount, if any, which might properly be recovered from the practitioner.

Range of Medical Treatment.

The third question dealt with is as to the range of medical treatment which can properly be required from panel practitioners, and two points are here emphasized: (1) That Article 50 of the Regulations which deals with this only refers to specific questions in particular cases and is not applicable to general or hypothetical cases, and (2) the precise issue on which the Local Medical Committee and the Insurance Committee have to form an opinion is whether in the circumstances of the particular case a specified service was of a kind which could, consistently with the best interests of the patient, properly be performed by a general practitioner of ordinary professional competence and skill. No question, therefore, other than that of "competence and skill" can be considered under this regulation. The question may arise in one of two ways: (1) A practitioner may have declined to perform a service; or declined to do it without a fee, and the insured person may claim it as part of his medical benefit; or (2) a practitioner may have performed the service and claim a fee for it on the ground that it was not a service covered by his agreement. Practitioners are required under their agreement to advise a patient as to the steps that should be taken in order to get any necessary treatment beyond the competence of ordinary practitioners, and if this advice has not been given, the Commissioners consider the practitioner would not be justified in invoking the machinery of Regulation 50. If the question arises in the form of a complaint by an insured person, it stands referred to the Medical Service Subcommittee, and even when no formal complaint is made, it is suggested that this subcommittee might well be used to establish the relevant facts, and the facts as thus established would then constitute the case on which the Insurance Committee and the Local Medical Committee are required to give their opinion.

A definite statement of the facts is of such importance that the Commissioners issue a revised Form 122/I.C., which indicates some of the particulars which should be included in the statement of the case, in addition to a full description of the medical details of the case. Care is to be taken to avoid considering under this article questions other than that of "competence and skill"; the question whether a particular service, in regard to which no question of competence or skill arises, is within the scope of the doctor's duties, cannot be considered under Regulation 50, and must be dealt with by the Insurance Committee as a question of the interpretation of the doctor's agreement, subject to the right of the doctor to appeal to the Commissioners.

Association Notices.

NOMINATIONS FOR COUNCIL, 1916-17.

ENGLAND AND WALES.

North of England, North Lancashire, and South, Westmorland Branches:

*Bolam, Lieut.-Col. R. A., M.D., Newcastle-on-Tyne.

Yorkshire Branch:

*Campbell, Henry Johnstone, M.D., F.R.C.P., Bradford.

Lancashire and Cheshire Branch:

*Barr, Lieut.-Col. Sir James, M.D., LL.D., 72, Rodney Street, Liverpool.

*Garstang, T. W. H., M.R.C.S., D.P.H., Altrincham.

East York and North Lincoln and Midland Branches:

*Fulton, Adam, M.B., Nottingham.

Cambridge and Huntingdon, East Anglian, and South Midland Branches:

*Wood, O. R. M., M.B., Woolpit, Suffolk.

Birmingham and Staffordshire Branches:

*Nason, E. Noël, M.D., Nuneaton.

North Wales, Shropshire and Mid Wales, and South Wales and Monmouthshire Branches: (No return.)

Metropolitan Counties Branch:

Brackenbury, H. B., M.R.C.S., L.R.C.P., 21, Quernmore Road, Stroud Green, N.

Couzens, Alfred John, F.R.C.S., 221, Romford Road, Forest Gate, E.

Galloway, Col. James, A.M.S., M.D., F.R.C.P., 54, Harley Street, W.

Greenwood, Major, M.D., LL.B., 243, Hackney Road, N.E.

Smith, F. J., M.D., F.R.C.P., 138, Harley Street, W.

Bath and Bristol, Gloucestershire, West Somerset, and Worcestershire and Herefordshire Branches:

*Parker, Major George, M.D., Bristol.

Dorset and West Hants, South-Western, and Wiltshire Branches:

*Coombe, Major Russell, F.R.C.S., Exeter.

Oxford and Reading, and Southern Branches:

*Green, James, M.R.C.S., L.R.C.P., Portsmouth.

Kent, Surrey, and Sussex Branches:

*Wilson, Claude, M.D., Tunbridge Wells.

SCOTLAND.

Aberdeen, Northern Counties, Dundee and Perth Branches:

*Gordon, John, M.D., Aberdeen.

Edinburgh and Fife Branches:

*Stevens, John, M.D., F.R.C.P.E., Edinburgh.

Glasgow and West of Scotland Branch (Four City Divisions):

*Adams, John, M.B., Glasgow.

Glasgow and West of Scotland (Five County Divisions), Border Counties and Stirling Branches: (No return.)

IRELAND.

Connaught and South-Eastern of Ireland Branches: (No return.)

Leinster Branch:

*Doolin, Wm., M.B., F.R.C.S., Dublin.

Munster Branch:

*Giusani, Joseph, M.D., Cork.

Ulster Branch: (No return.)

*Returned unopposed.

BRANCH AND DIVISION MEETINGS TO BE HELD.

BIRMINGHAM BRANCH.—Dr. William H. Wynn, Honorary Secretary, gives notice that the annual meeting of the Birmingham Branch will be held on Thursday, June 22nd, at 3.30 p.m. Business: Annual reports; election of officers. The President for the ensuing session, Dr. W. R. Jordan, will deliver his inaugural address.

EAST YORK AND NORTH LINCOLN BRANCH: EAST YORK DIVISION.—Mr. H. L. Evans (101, Prince's Avenue, Hull) gives notice that the annual meeting of the Division will be held in the Board Room of the Hull Royal Infirmary, at 8.15 p.m., on Friday, June 9th. Business: To receive the annual report and financial statement. To elect officers.

KENT BRANCH.—Dr. E. A. Starling, Honorary Secretary (Chillingworth House, Tunbridge Wells), gives notice that the third annual meeting of the Kent Branch (which this year will be only for the transaction of necessary business) will be held on Wednesday, June 7th, at 3.30 p.m., at the Royal Star Hotel, Maidstone. The Council recommends that there should be no change in the officers of the Branch, and also the holding of the annual meeting in Chatham on the usual lines when the country has returned to a more normal condition after the war.

NORTH LANCASHIRE AND SOUTH WESTMORLAND BRANCH: FURNESS DIVISION.—Drs. George Alexander and A. E. Thompson, Honorary Secretaries, give notice that the annual meeting of the Furness Division will be held in the Masonic Hall, Barrow, on Friday, June 9th, at 3.15 p.m. Agenda: Annual report; election of officers; adoption of new ethical rules; discussion on the reduction of notification fees; any other business.

SOUTH WALES AND MONMOUTHSHIRE BRANCH.—Drs. W. J. Greer and L. Freeman Marks, Honorary Secretaries, give notice that the annual meeting of the Branch will take place in Cardiff on June 8th for the election of officers and other business.

Meetings of Branches and Divisions.

EDINBURGH BRANCH:

EDINBURGH AND LEITH DIVISION.

The annual meeting of the Division was held on May 18th, when Dr. W. STEWART, Chairman of the Division, presided. Non-members in the district had been invited to attend the meeting by advertisement in the *Scotsman*.

Reduction of Notification Fees.—The proposal of the Retrenchment Committee, since enacted by Parliament, to reduce the fee for notification of infectious diseases from 2s. 6d. to 1s., was considered. The Senior Secretary (Dr. KEPPIE PATERSON) read a letter he had previously sent to the six local members of Parliament on this subject (SUPPLEMENT, April 29th, p. 75), and also read letters received from the Medical Secretary. Drs. MCCREADIE, STEWART, STEVENS, JOHN McLAREN, R. ROBERTSON, ARMOUR, JAMES RITCHIE, BORROWMAN, and M. DEWAR discussed the subject. On the motion of Dr. STEVENS, seconded by Dr. BORROWMAN, it was resolved:

That this meeting, representative of the whole medical profession in Edinburgh and Leith, approves of Dr. Keppie Paterson's prompt action in addressing the local members of Parliament in opposition to the proposed reduction of the fees for notification of infectious diseases from 2s. 6d. to 1s.; that in the opinion of this meeting this proposal, which has now received parliamentary sanction, viewed especially in connexion with the services being rendered to the country during the war by the medical profession, of whom a large proportion are on active service in the R.A.M.C., must be regarded as derogatory and shabby to the profession, besides being fraught with ulterior effects injurious to the public; that this meeting therefore requests that the subject continue to receive the consideration of the associations representing the profession in order to determine what steps can be taken both by them and by the individual members of the profession to stop the reduction of fees complained of and to secure the fair and honourable treatment which we claim the profession deserves.

Dr. JAMES RITCHIE moved, and Mr. MCCREADIE seconded, the following motion, which was passed unanimously:

The Edinburgh and Leith Division express great dissatisfaction with the inefficient action of the Executive authorities of the Association in relation to the proposal (when it was before Parliament) to reduce the fee for notification of infectious diseases. They further request the Association to bring up the matter at the approaching Representative Meeting with the view of united action being taken to have the fee restored to the former very moderate sum.

Dr. F. PORTER moved, and Dr. GIUSEPPI seconded, the following motion:

That the members of the medical profession in Edinburgh and Leith strongly disapprove of the action of the Government in reducing the fee for the notification of infectious diseases without being referred to the profession for consideration, and they will refuse to notify such cases at the reduced rate.

After discussion, this motion was lost.

War Matters.—War medical matters were reported on by Dr. STEVENS, secretary of the local Medical War Committee, and he was cordially thanked for his statement and for his work for the profession.

Maternity Service and Child Welfare.—The Memorandum of the Local Government Board on this scheme had been sent to each member with the billet for the meeting. The SENIOR SECRETARY explained some matters connected with the subject, and gave an account of his interviews with Dr. Leslie Mackenzie, Local Government Board, and Dr. Williamson, M.O.H. for the city of Edinburgh. Dr. W. STEWART gave an account on the action of the Leith practitioners in relation to the scheme and the result of their conference with the committee of the Leith Town Council. The whole subject was remitted to the Executive for their watchfulness and consideration.

Annual Report.—The annual report of the Division was presented by the SENIOR SECRETARY.

Election of Officers.—As all the members were eligible for re-election, it was agreed unanimously to continue them in office:

Chairman: Dr. W. Stewart.

Vice-Chairmen: Dr. R. A. Lundie and Dr. R. McKenzie Johnston.

Senior Secretary and Treasurer: Dr. G. Keppie Paterson.

Junior Secretary: Dr. J. D. Comrie.

Representatives to Representative Meeting: Dr. J. Stevens and Dr. R. A. Lundie.

Representatives to the Branch Council: Drs. E. F. Armour, J. D. Comrie, J. Lamond Lackie, J. Playfair, and R. Thin.

Executive Committee: Mr. L. Beesly, Drs. L. F. Bianchi, R. H. Blaikie, J. M. Bowie, G. S. Carmichael, A. Goodall, A. Morrison McIntosh, J. McLaren, C. M. Pearson, James Ritchie, I. Venters, and A. Murray Wood.

Annual Representative Meeting.—The annual report of the Council and the Provisional agenda of the Annual Representative Meeting were brought before the meeting by the SENIOR SECRETARY. A proposal regarding the need for provision and for determining the attitude and policy of the profession concerning medico-political affairs was referred to the Executive to be dealt with. The appointment of possible Deputy Representatives was remitted to the Chairman and Senior Secretary with powers.

REDUCTION OF NOTIFICATION FEES.

At a meeting of the medical men of Gorton, Manchester, the proposal by the Local Government Board to reduce the fee for the notification of infectious diseases was discussed, and the opinion strongly expressed that such parsimonious action was dishonourable and ungrateful, particularly at the present time, when extra and heavy calls have been made upon the medical profession for voluntary and charitable work, such as attending the wives and children of soldiers and sailors, signing many thousand certificates a week for those unable to attend at the post office to draw their weekly pay, and attending to the private and panel patients of those doctors who are serving in the forces. In addition was to be reckoned the increase in the price of drugs and chemicals from 50 to 1,000 per cent., and the cost of professional living greatly increased.

M.O.H. writes: In the SUPPLEMENT of May 13th, p. 111, "A Country Doctor" writes concerning the notification of a panel patient with diphtheria. Surely it is the duty of the medical officer of health to procure the swab for a bacteriological examination.

Naval and Military Appointments.

ROYAL NAVAL MEDICAL SERVICE.

THE Admiralty announce the following appointments: Fleet Surgeons H. Spicer, M.B., to the *Vind*; H. L. Morris to the *Indefatigable*, vice Spicer; R. H. Mornement to the *Pembroke*; S. S. H. Woods, M.D., to the *Zealandia*, vice Mornement; C. S. Woodwright to the hospital ship *Soulan*; J. F. Hall to the Medical Department, Admiralty. Staff Surgeons J. L. Barford to the *Patara*, vice Woods; J. McCutcheon to hospital ship *Isawa*, vice Fisher; A. R. Fisher (acting) to the *Hazard*, vice McCutcheon; H. M. Branthwaite to the *Forseight*; Surgeons H. F. Briggs, M.B., to the hospital ship *Dea*, vice MacCarthy; D. Loughlin, M.B., to R.M. Infirmary, Deal; W. H. King to the *Pembroke*, additional, for disposal; S. W. Grimwade to the *Vind*, additional, for disposal; F. L. Gibson to the *Hearty*. Temporary Surgeons J. Morrison, M.B., to the *King Alfred*; J. F. McQueen to the *Vind*; H. E. B. Finlaison to the *Gloamster*; C. B. T. Thomson to the *Pembroke*. Surgeon Probationer A. W. North to be temporary Surgeon.

ROYAL NAVAL VOLUNTEER RESERVE.

Surgeon W. C. MacCarthy, M.B., to the *Vind*; Surgeon Probationer J. L. Wilson to the *Pembroke*. To be Surgeon Probationers: J. L. Taylor, A. D. Brown, W. G. Robertson, J. G. Campbell, F. McVean, R. A. Hickley, S. B. Borthwick.

ARMY MEDICAL SERVICE.

ROYAL ARMY MEDICAL CORPS.

Major L. Cotterill, M.B., is seconded for service as surgeon on staff of Viceroy and Governor-General of India.

To be temporary Majors whilst employed at the Northamptonshire War Hospital: P. N. B. Odgers, Captain R.A.M.C.(T.F.), W. M. Robson, M.D.

Temporary Captain J. J. Abraham, M.D., F.R.C.S., to be temporary Major.

Temporary Captain R. H. McGill, M.D., relinquishes his commission.

H. G. G. Cook, M.D., to be temporary honorary Lieutenant-Colonel whilst in charge of the Welsh Hospital, Netley.

J. W. Nunn to be temporary honorary Captain whilst serving with No. 1 British Red Cross Hospital.

Temporary Lieutenants to be temporary Captains: J. H. Porter, M.B., J. N. Glaister, F. L. Gill.

Lieutenant A. S. Brook, M.B., from Seaforth Highlanders (T.F.), to be temporary Lieutenant (substituted for notification in the *London Gazette* of June 15th, 1915).

To be temporary Lieutenants: E. J. Dyke, M.B., E. G. Saunders, M.B., J. Nollan, M.B., A. C. Pickett, D. J. Jackson, M.D., J. A. Vlasto, M.B., J. J. Walshe, W. Patey, M.D., J. E. Ashby, J. H. Lechler, M.B., W. A. Steen, F. E. Feilden, V. J. P. Clifford, W. S. Alan, M.B., W. H. W. C. Carden, A. Buchanan, M.B., G. A. Francis, H. C. Terry, M.B., S. H. L. Archer, A. F. Searcove, G. J. Adams, M.B., F.R.C.S.E., C. Dundee, M.B., E. H. Alton, S. Pool, M.B., K. Black, F.R.C.S., A. Besley, M.D., H. Collier, M.D., F. A. O'Donnell, J. L. Whalley, C. G. Kemp, M.D., C. D. Hatrick, M.D., C. W. Dixon, M.B., F. H. Simpson,

M.D., A. H. Smith, M.B., F. C. Jobson, C. Cameron, M.B., E. Hudson, C. C. Austen, A. A. Hill, M.D., J. Monroe, M.B., A. D. Millington, M.B., J. V. Watson, W. L. O'Neill, M.B., A. C. Price, M.B., D. A. Chalmers, J. Gray, M.B., R. J. Scurr, R. L. Ferguson, M.D., O. B. Allison, M.B., T. M. Brude, M.D., A. E. Finney, M.D., A. E. Rayner, M.D., E. E. Hughes, M.B., F.R.C.S., J. L. Falconer, M.B., F.R.C.S., P. S. Green, M.B., R. H. Titcombe, M.D., F. F. Carr-Harris, M.D., E. A. T. Green, H. M. Jackson, M.B., T. F. Collins, L. L. McKeever, temporary honorary Lieutenant H. W. Bennett, M.B., J. D. Wright, H. C. Davies, M.B., J. P. Crawford, M.B., A. Ball, M.D., G. J. McGorty, M.B., E. H. Shaw, M.B., L. Walton, M.B., T. D. Miller, M.B., K. M. Walker, M.B., F.R.C.S.

Temporary Lieutenant W. Anderson is dismissed the service by sentence of a general court martial.

To be temporary honorary Lieutenants: P. E. D. Pank, G. P. B. Huddy, T. D. Morgan, J. C. N. Harris, J. C. Norris, E. E. Lightwood, D. S. Pracy.

TERRITORIAL FORCE.

ARMY MEDICAL SERVICES.

Lieutenant-Colonel H. H. C. Dent, M.B., from North Midland Casualty Clearing Station, to be A.D.M.S., North Midland Division, with temporary rank of Colonel.

Lieutenant-Colonel (temporary Colonel) T. F. Dewar, M.D., from A.D.M.S. Central Force, to be A.D.M.S. Home Defence.

Captain A. H. Hogarth, from Attached to Units other than Medical Units, to be D.A.D.M.S. Welsh Division.

Captain H. F. Wilson, F.R.C.S.E., from Attached to Units other than Medical Units, to be D.A.D.M.S., Northumbrian Division.

ROYAL ARMY MEDICAL CORPS.

London Field Ambulance.—Major A. W. French, from South-Western Mounted Brigade Field Ambulance, to be Major, Captain N. C. Rutherford, M.B., to be temporary Major, S. Henry, M.B., to be Lieutenant.

London Sanitary Company.—Lieutenants to be Captains: W. Buddin, E. W. Gregory, R. H. Murray. To be Lieutenants: G. S. Elliott, N. Gebble, M.B.

Welsh Field Ambulance.—Majors J. Evans, M.D., and T. Donovan to be temporary Lieutenant-Colonels whilst commanding field ambulances; Lieutenant J. E. Dunbar, M.B., to be Captain.

Home Counties Casualty Clearing Station.—Captain W. Searisbrick, M.B., from London Field Ambulance, to be Captain; A. Wilson, M.D., to be Lieutenant.

Eastern General Hospital.—Captain O. Inchley relinquishes his commission on account of ill health.

South-Western Mounted Brigade Field Ambulance.—Captain L. H. Hay, M.B., resigns his commission.

Southern General Hospital.—The announcement of the seconding of Captain H. B. Whitehouse, published in the *London Gazette* of March 13th, is cancelled. Captain W. S. V. Stock, M.B., F.R.C.S., to be Major on the permanent personnel.

South Midland Casualty Clearing Station.—Captain C. F. Walters, F.R.C.S., from Southern General Hospital, to be Captain.

South Midland Mounted Brigade Field Ambulance.—Lieutenant E. P. Dawes to be Captain. F. Simmers, M.B., to be Lieutenant.

West Riding Field Ambulance.—Lieutenant C. S. Brown, M.B., to be Captain substituted for notice in the *London Gazette* of January 19th.

Northern General Hospital.—The transfer of Lieutenant-Colonel W. E. Hume, M.B., to the Northumbrian Casualty Clearing Station, announced in the *London Gazette* of December 23rd, 1914, is cancelled. Lieutenant-Colonel W. E. Hume is seconded for duty overseas. Captain (temporary Major) L. R. Braithwaite, M.B., F.R.C.S., and Captain H. J. Macvean, M.B., are seconded for duty with general hospitals.

East Lancashire Casualty Clearing Station.—Lieutenants to be Captains: W. Briggs, J. Ramsay, M.D., T. W. Leighton, M.B.

East Lancashire Field Ambulance.—Major (temporary Lieutenant-Colonel) W. L. Bentley relinquishes his temporary rank on ceasing to command a field ambulance. Lieutenant B. Robertson to be Captain. Lieutenants (temporary Captains) F. Jeaves and W. P. Ferguson, M.D., to be Captains.

West Lancashire Field Ambulance.—Captain (temporary Major) J. Wood to be Major. To be Captains: Captain R. Starkey-Smith, from London General Hospital, Lieutenant W. H. Hill.

Lowland Casualty Clearing Station.—Captain R. B. Carslaw, M.B., from Scottish General Hospital, to be temporary Major whilst in command of a casualty clearing station.

Lowland Division Sanitary Section.—Captain H. L. F. Hulbert, M.D., from Division Sanitary Officer, South Midland Division, to be Captain.

Lowland Field Ambulance.—Lieutenant J. Angus, M.B., to be Captain.

Highland Division Sanitary Section.—Lieutenant A. F. MacBean, M.B., to be Captain.

Attached to Units other than Medical Corps.—T. L. Fennell, M.B. (late Major Cheshire Regiment), to be Major. To be Captains: Lieutenants W. H. Buckley, F. H. Laverick, G. H. Ranis, J. Muir, W. E. Lee, M.D. To be Lieutenants: J. R. Bulman, M.B., J. Wilson, M.D., J. F. Russe (late Lieutenant Royal Welsh Fusiliers). Lieutenant P. A. Chilcott relinquishes his commission on account of ill health.

Vacancies and Appointments.

VACANCIES.

NOTICES REGARDING APPOINTMENTS.—Attention is called to a Notice (see Index to Advertisements—Important Notice re Appointments) appearing in our advertisement columns, giving particulars of vacancies as to which inquiries should be made before application.

BRADFORD: ROYAL EYE AND EAR HOSPITAL.—Non-Resident House-Surgeon or paid Clinical Assistant.

BURNLEY: VICTORIA HOSPITAL.—Lady House-Surgeon. Salary, £160 per annum.

BURY INFIRMARY.—Lady Junior House-Surgeon. Salary, £150 per annum.

CANNING TOWN WOMEN'S SETTLEMENT HOSPITAL, Plaistow.—Female Resident Medical Officer. Salary, £130 per annum.

CHESTERFIELD AND NORTH DERBYSHIRE HOSPITAL.—Second House-Surgeon. Salary, £150 per annum.

DEVON COUNTY EDUCATION COMMITTEE.—Oculist. Salary, £7 7s. per week.

DUDLEY: GUEST HOSPITAL.—Assistant House-Surgeon. Salary, £120 per annum.

EXETER: ROYAL DEVON AND EXETER HOSPITAL.—House-Physician. Salary, £150 per annum.

HASTINGS: EAST SUSSEX HOSPITAL.—House-Surgeon. Salary, £150 per annum.

HUDDERSFIELD ROYAL INFIRMARY.—(1) Senior House-Surgeon; (2) Assistant House-Surgeon. Salary, £150 and £100 per annum respectively.

LANCASHIRE COUNTY ASYLUM, Whittingham, Preston.—Assistant Medical Officer. Salary, £250 for first year, rising to £300 second year.

LIVERPOOL PARISH.—Resident Assistant Medical Officer for the Brownlow Hill Institution. Salary, £300 per annum.

LONDON TEMPERANCE HOSPITAL, Hampstead Road, N.W.—Assistant Resident Medical Officer. Honorarium, £120 per annum.

MANCHESTER NORTHERN HOSPITAL FOR WOMEN AND CHILDREN.—Lady House-Surgeon. Salary, £120 per annum.

MIDDLESBROUGH: NORTH ORMESBY HOSPITAL.—Assistant House-Surgeon. Salary, £150 per annum.

QUEEN CHARLOTTE'S LYING IN HOSPITAL, Marylebone Road, N.W.—Pathologist and Registrar. Salary, £80 per annum.

ST. GEORGE'S HOSPITAL, S.W.—Radiographer. Salary, £100 per annum.

SHEFFIELD ROYAL INFIRMARY.—House Physician. Salary, £20 per annum.

SOUTH LONDON HOSPITAL FOR WOMEN.—Temporary Assistant Physician. Honorarium, 10s. 6d. for each attendance.

STAFFORDSHIRE GENERAL INFIRMARY, Stafford.—House-Surgeon. Salary, £250 per annum.

VENTNOR ROYAL NATIONAL HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST.—Assistant Resident Medical Officer.

WOMEN'S MISSION HOSPITAL IN INDIA, Berhampore, Madras.—Lady Doctor.

To ensure notice in this column—which is compiled from our advertisement columns, where full particulars will be found—it is necessary that advertisements should be received not later than the first post on Wednesday morning. Persons interested should refer also to the Index to Advertisements which follows the Table of Contents in the JOURNAL.

APPOINTMENTS.

DEAN, Henry J., L.R.C.P., L.R.C.S., Medical Officer of Health for Willenhall, Staffs, vice J. P. T. desley, M.B., deceased.

HAY, P. J., M.D. Edin., Honorary Ophthalmic Surgeon to the Sheffield Royal Hospital, vice Stanley Risley, M.D. Edin., deceased.

BIRTHS, MARRIAGES, AND DEATHS.

The charge for inserting announcements of Births, Marriages, and Deaths is 5s., which sum should be forwarded with the notice not later than the first post on Wednesday morning in order to ensure insertion in the current issue.

MARRIAGE.

BRIGGS—BURKITT.—On May 22nd, at the Whitwick Parish Church (by licence), John C. Briggs, Captain 5th R. 10 Leicestershire Regiment, to Doris Burkitt, eldest daughter of Major Burkitt, M.D., B.A.M.C., and Mrs. Burkitt.

DEATH.

STEVENS.—On May 13th, at Southampton, after a long and painful illness, George Stevens, F.R.F.P.S.Glas., late of Norton, Suffolk, aged 75 years.

DIARY FOR THE WEEK.

TUESDAY.

ROYAL SOCIETY OF MEDICINE:
SECTION OF PSYCHIATRY, 4 p.m.—Mr. H. F. Stephens: The Compuetic Reaction in America.

THURSDAY.

ROYAL SOCIETY OF MEDICINE:
SECTION OF DERMATOLOGY, 5 p.m.—Adjourned Discussion on Mr J. E. R. McDonagh's paper on The Rationale and Practice of Chemiotherapy.

FRIDAY.

WEST LONDON MEDICO-CHIRURGICAL SOCIETY, West London Hospital, 8.30 p.m.—Dr. J. Dundas Grant: Diagnosis and Treatment of Diseases of the Throat, Nose, and Ear.

POST-GRADUATE COURSES AND LECTURES.

LONDON SCHOOL OF TROPICAL MEDICINE, Royal Albert Dock, E.

DIARY OF THE ASSOCIATION.

Date.	Meetings to be Held.
MAY.	
26 Fri.	London: Executive Subcommittee of Central Medical War Committee, 2.30 p.m.
31 Wed.	London: Central Medical War Committee, 2 p.m.
JUNE.	
2 Fri.	London: Executive Subcommittee of Central Medical War Committee, 2.30 p.m.
6 Tues.	London: Central Ethical Committee, 2 p.m.

SUPPLEMENT

TO THE

BRITISH MEDICAL JOURNAL.

LONDON: SATURDAY, JUNE 3RD, 1916.

CONTENTS.

	PAGE		PAGE
British Medical Association.		INSURANCE:	
ANNUAL REPRESENTATIVE MEETING, 1916: NOTICES OF MOTION	125	THE FINANCE OF APPROVED SOCIETIES (Interim Report of Departmental Committee).—TRAVELLING EXPENSES. OF PANEL COMMITTEES.—IRELAND: PAYMENT OF MEDICAL CERTIFIERS.—PARLIAMENTARY NOTES.—CORRESPONDENCE	129
CURRENT NOTES: SUPPLY OF PETROL	125	NAVAL AND MILITARY APPOINTMENTS	131
MEETINGS OF BRANCHES AND DIVISIONS	126	VACANCIES AND APPOINTMENTS	132
ASSOCIATION NOTICES: MEETING OF COUNCIL, ETC.	126	BIRTHS, MARRIAGES, AND DEATHS	132
GENERAL MEDICAL COUNCIL:		DIARY FOR THE WEEK... ..	132
ALLEGED COVERING OF UNCERTIFIED MIDWIVES: DISCIPLINARY CASES; PROPOSED WARNING NOTICE	127	DIARY OF THE ASSOCIATION	132
NUMBER OF MEDICAL STUDENTS	129		
REDUCTION OF NOTIFICATION FEES	129		

SPECIAL NOTICE TO MEMBERS.

Every member is requested to preserve this "Supplement," which contains matters specially referred to Divisions, until the subjects have been discussed by the Division to which he belongs.

BY ORDER.

MATTERS REFERRED TO DIVISIONS.

ANNUAL REPRESENTATIVE MEETING AT LONDON,

JULY 28th AND FOLLOWING DAY(S).

NOTICES OF MOTION.

No Notices of Motion for the Annual Representative Meeting, 1916, having been received by the date (May 20th) specified in the SUPPLEMENT of May 6th, no notices were published in the SUPPLEMENT of May 27th.

The following Notices, since received, will be included in the Agenda of the Meeting as amendments or riders to the recommendations or paragraphs of the Annual Report of Council to which they respectively relate:

A. IN CONNEXION WITH WAR EMERGENCY.

Composition of Central Medical War Committee, 1916-17.

1. *Amendment* by North Staffordshire to Motion contained in Item 6 of Provisional Agenda (SUPPLEMENT, May 6th, p. 77):

That the Central Medical War Committee be increased by the addition of 4 representatives of general practitioners from provincial industrial areas, 2 of whom should preferably be of military age.

B. AFFECTING ADMINISTRATION OF ASSOCIATION.

Supplement.

2. *Amendment* by Reigate to Motion contained in Item 11 of Provisional Agenda (SUPPLEMENT, May 6th, p. 78):

That the Council be instructed to consider the advisability of issuing the SUPPLEMENT to the JOURNAL to members of the Association only.

C. AFFECTING POLICY OF ASSOCIATION.

Membership of Association.

3. *Amendment* by North-East Essex to Motion contained in Item 10 of Provisional Agenda (SUPPLEMENT, May 6th, p. 78):

That in view of the fact that the financial position of medical practitioners is being seriously affected by the rise in the cost of living, and is likely to be further affected in the future by this and by economies of public departments, it is urgent that the membership

of the British Medical Association, which is the only body that voices the opinion of the profession and carries weight with the Government and with the public, be greatly increased.

Reduction of Fees for Notification of Infectious Diseases.

4. *Amendment* by Edinburgh and Leith to Motion contained in Item 19 of Provisional Agenda (SUPPLEMENT, May 6th, p. 78):

That this Meeting expresses great dissatisfaction with the inefficient action of the Executive Authorities of the Association in relation to the proposal (when it was before Parliament) to reduce the fee for notification of infectious diseases. That this Meeting resolves to take united action to have the fee restored to the former very moderate sum.

Patent Medicines.

5. *Rider* by Reigate to Motion contained in Item 19 of Provisional Agenda (SUPPLEMENT, May 6th, p. 78):

That it be an instruction to the Council to keep before the profession and the public the report of the Select Committee on Patent Medicines, so that when the opportunity occurs full use may be made of the report of that Committee for the furtherance of legislation as recommended in the report.

By order,

ALFRED COX,
Medical Secretary.

May 31st, 1916.

British Medical Association.

CURRENT NOTES.

SUPPLY OF PETROL.

MANY letters continue to be received complaining of the difficulty which practitioners in some areas experience in securing a continuous supply of petrol. These complaints are at once transmitted to the Secretary of the Departmental Committee on Petrol Supplies. In some cases where the difficulty has been very great and sufficient particulars have been given—as, for example, the name of the usual supplier and the brand of petrol generally used—it has been possible to get temporary relief, but, so far as can be ascertained, there is no likelihood of any permanent relief until the report of the Departmental Committee has been presented. The right of the medical profession to exceptional treatment is, however, fully recognized by the

authorities. It may be suggested to Panel Committees in areas where the difficulties of getting a supply of petrol are acute that they should make urgent and direct representations to the Commissioners, asking them to bring pressure to bear on the authorities to relieve the difficulty pending more permanent arrangements.

Meetings of Branches and Divisions.

LANCASHIRE AND CHESHIRE BRANCH:

SOUTHPORT DIVISION.

The annual meeting of the Southport Division was held at the Medical Library, Lord Street, Southport, when Dr. CORKHILL was in the chair.

Annual Report and Financial Statement.—The annual report of the Executive Committee and statement of accounts were read and accepted.

Election of Officers.—The following officers were elected for 1916-17, no change being made in the chairmanship and vice-chairmanship so as to coincide with the Medical Society, whose officership has been unchanged this year in consequence of its operations being in abeyance due to the war:

Chairman: Dr. Corkhill.

Vice-Chairman: Dr. Penrose.

Secretary and Treasurer: Dr. Harris.

Representative at Representative Meetings: Dr. Baildon.

Deputy: Dr. Schofield.

Representatives on Branch Council: Dr. Baildon (*ex officio*), Dr. Harris.

Members of Executive Committee: Drs. Schofield, Pridie, Limont and Lewis.

A discussion took place as to the desirability of service on the Committee of Drs. Limont and Lewis, they being eligible for military service, and the Executive Committee as such having been constituted the Local Medical War Committee with power to adjudicate on the claims for exemption of enrolled men. Eventually, on the motion of Dr. CAIRNS, seconded by Dr. HORN, it was resolved unanimously:

That Drs. Schofield, Pridie, Limont, and Lewis be elected members of the Executive Committee on the understanding that Drs. Limont and Lewis would withdraw from its deliberations when the Committee had to execute judicial functions.

Annual Representative Meeting.—Matters referred to Divisions and the Annual Report of the Council of the Association (SUPPLEMENTS, April 29th and May 6th) were then considered. The CHAIRMAN referred to several points deserving the special consideration of members, and the Division expressed its appreciation of the work of the Council of the Association as set forth in the annual report, and requested its representative at the Representative Meeting to use his own judgement in accordance with what he knew to be the feeling of the Division with regard to the details of the numerous recommendations concerning which he has received no definite instructions.

Election of Direct Representatives and to the Central Council.—Attention was drawn to the desirability of supporting the candidature of Drs. Langley Browne, H. A. Latimer, J. A. Macdonald, and T. Jenner Verrall at the election of Direct Representatives on the General Medical Council; also to Mr. Garstang's candidature for the Council of the Association.

Presidency of the Branch.—Dr. BAILDON explained the further postponement, in consequence of the war, of the meeting of the Branch arranged to be held in Southport, and the meeting confirmed its former recommendation that Dr. Baildon accept the presidency of the Branch Council.

METROPOLITAN COUNTIES BRANCH:

MARYLEBONE DIVISION.

The annual meeting of the Division was held on May 25th, when Mr. BISHOP HARMAN, Chairman of the Division, presided. It was agreed that no meetings should be held during the coming year, except in case of emergency.

Election of Officers.—The officers for the preceding year were re-elected, with Miss May Thorne to take the place of Lady Barrett, and Mr. Edward Wallis to be Honorary Secretary.

Annual Report.—The annual report of the Division was agreed to.

Ethical Rules.—The adoption of the revised rules of procedure in ethical cases was adopted after some discussion and explanation by Dr. NEAL as to their method of working.

ST. PANCRAS AND ISLINGTON DIVISION.

The annual meeting of the St. Pancras and Islington Division was held at the Midland Grand Hotel on May 19th, when Dr. ALEXANDER BROWN, Chairman, presided. There were present only six members who were not members of the Executive Committee. The HONORARY SECRETARY read his annual report.

Election of Officers.—The Executive Committee in the notice convening the meeting announced that they made "no nominations" for officers for the ensuing year, and on those offices being submitted in succession to the meeting from the chair no names whatever were proposed.

Association Notices.

MEETING OF COUNCIL.

The next meeting of Council will be held on Wednesday, June 28th, in the Council Room, 429, Strand, London, W.C.

By order,

GUY ELLISTON,

Financial Secretary and Business Manager.

June 1st, 1916.

CHANGES OF BOUNDARIES.

AMALGAMATION OF CARLOW AND KILKENNY DIVISIONS.

The following change has been made in accordance with the Articles and By-laws, and takes effect as from the date of publication of this notice:

That the Carlow and Kilkenny Divisions of the South-Eastern of Ireland Branch be amalgamated to form one Division of that Branch, to be known as the Carlow and Kilkenny Division.

Representation in Representative Body.—Unaffected.

BRANCH AND DIVISION MEETINGS TO BE HELD.

BIRMINGHAM BRANCH.—Dr. William H. Wynn, Honorary Secretary, gives notice that the annual meeting of the Birmingham Branch will be held on Thursday, June 22nd, at 3.30 p.m. Business: Annual reports; election of officers. The President for the ensuing session, Dr. W. R. Jordan, will deliver his inaugural address.

EAST YORK AND NORTH LINCOLN BRANCH: EAST YORK DIVISION.—Mr. H. L. Evans (101, Prince's Avenue, Hull) gives notice that the annual meeting of the Division will be held in the Board Room of the Hull Royal Infirmary, at 8.15 p.m., on Friday, June 9th. Business: To receive the annual report and financial statement. To elect officers.

FIFE BRANCH.—Dr. G. C. Anderson, Honorary Secretary (Denbeath House, near Methil, Fife), gives notice that the annual meeting of the Branch will be held in the Station Hotel, Kirkcaldy, on Friday, June 9th, at 3.15 p.m., when it is proposed to adopt the ethical rules approved by the Annual Representative Meeting, 1915.

KENT BRANCH.—Dr. E. A. Starling, Honorary Secretary (Chillingworth House, Tunbridge Wells), gives notice that the third annual meeting of the Kent Branch (which this year will be only for the transaction of necessary business) will be held on Wednesday, June 7th, at 3.30 p.m., at the Royal Star Hotel, Maidstone. The Council recommends that there should be no change in the officers of the Branch, and also the holding of the annual meeting in Chatham on the usual lines when the country has returned to a more normal condition after the war.

METROPOLITAN COUNTIES BRANCH.—Dr. R. E. Crosse and Mr. N. Bishop Harman (Honorary Secretaries) give notice that the annual general meeting of the Branch will be held at 429, Strand, W.C., on Tuesday, June 27th, at 4 p.m. The business will be: (1) Report of scrutineers as to the election of new officers. (2) The annual reports of council and of representatives of the Branch on the Central Council. (3) Alteration of Rule 7 b. (4) The adoption of the Revised Ethical Rules as approved by the Annual Representative Meeting, 1915. (5) President's address: Medical Administration of Modern Armies.

NORTH LANCASHIRE AND SOUTH WESTMORLAND BRANCH: FURNESS DIVISION.—Drs. George Alexander and A. E. Thompson, Honorary Secretaries, give notice that the annual meeting of the Furness Division will be held in the Masonic Hall, Barrow, on Friday, June 9th, at 3.15 p.m. Agenda: Annual report; election of officers; adoption of new ethical rules; discussion on the reduction of notification fees; any other business.

GENERAL COUNCIL OF MEDICAL EDUCATION AND REGISTRATION.

SUMMER SESSION, 1916.

Wednesday, May 24th, 1916.

Sir DONALD MACALISTER, K.C.B., President,
in the Chair.

ALLEGED COVERING OF UNCERTIFIED MIDWIVES.

The Council proceeded to the consideration of penal cases. Mr. Bodkin attended as Legal Assessor. Mr. Harper appeared as Solicitor to the Council.

DISCIPLINARY CASES.

During the hearing of these cases Sir Francis Champneys, President of the Central Midwives Board, withdrew, and the PRESIDENT announced that he would take no part in the proceedings.

The Council proceeded to the consideration of the case adjourned from November 4th, 1915, against Herbert Midgley Reeve, registered as of Bournemouth Park Road, Southend-on-Sea, M.R.C.S.Eng. 1899, L.R.C.P.Lond. 1899, M.B.U.Lond., 1899 (see SUPPLEMENT, November 27th, 1915, p. 198). Testimonials as to Dr. Reeve's professional conduct during the past six months were submitted from Dr. Maxwell of Southend, Dr. John Walker who was Chairman of the South Essex Division of the British Medical Association, Dr. Pugh, M.O.H. Southend, and from Councillor Cooper, Chairman of the Borough Insurance Committee.

Mr. BERTRAM, on behalf of the Central Midwives Board, said it had heard with much gratification the nature of the evidence tendered on behalf of Dr. Reeve, and had nothing further to submit to the Council.

Dr. REEVE, in reply to the PRESIDENT, expressed his regret for what had occurred, and assured the Council it should not occur again.

Strangers and the parties were directed to withdraw. On readmission, the PRESIDENT announced the judgement of the Council as follows:

Mr. Reeve, I have already informed you on behalf of the Council of the grave view it takes of the nature of the offence specified in the charge which had been proved against you, but having regard to your assurances as to your conduct in the future the Council has not seen fit to direct the Registrar to erase your name from the *Medical Register*.

The Council then proceeded to the consideration of the case of Frederick Robinson, registered as of 96, Clough Road, Masbro, Rotherham, L.R.C.P.Edin. 1880, who had been summoned to appear before the Council on the following charge:

That being a registered medical practitioner you by your assistance knowingly enabled a Mrs. Fisher, a woman not certified under the Midwives Act, 1902, to attend women in childbirth under cover or pretence that such women were attended or to be attended by you or by her under your direction, thereby enabling the said Mrs. Fisher in contravention of the said Act to practise as if she were certified thereunder. And that in relation thereto you have been guilty of infamous conduct in a professional respect.

The complainants were the Central Midwives Board.

Mr. BERTRAM, solicitor, supported the charge.

Mr. HARPER, Solicitor to the Council, stated that a telegram had been received from Dr. Robinson saying that he declined to attend and answer the charge. He had sent in two or three letters by way of defence, so that there was no doubt he had received the notice of inquiry.

Mr. BERTRAM contended that the evidence he would adduce, if unanswered, would prove a direct contravention of the Council's warning notice with regard to covering. He respectfully suggested that in ascertaining the motives which operated on the parties regard should be had to the facts and the conduct of the parties before proceedings were taken, and that the Council should depend less upon what was said in explanation subsequently. He put in the record of the records for acting as an unqualified midwife of Mrs. Fisher, and also the record of her acquittal in respect of charges in which Dr. Robinson was involved.

Mr. G. W. DUNCAN, Secretary to the Central Midwives Board, having produced certain documents in connexion with the case.

Mr. CHARLES LEE DES FORGES, Town Clerk of Rotherham, stated that his Council had found the Midwives Act beneficial in so far as it secured competent attendance on the poorest class of women in childbirth. In the past his Council had had difficulty with Mrs. Fisher, as was shown by the list of her convictions. She was an undesirable person to attend a maternity case under any circumstances.

Mr. BERTRAM then called a number of female witnesses who proved that Mrs. Fisher attended them in their confinement and she invariably, either on being asked to do so or without, sent for Dr. Robinson to attend them; one witness further deposed to the fact that Mrs. Fisher told her that "Dr. Robinson always followed her."

Mr. BODKIN then read two letters received from Dr. Robinson in which he denied the accusations brought against him, and also the telegram saying he declined to attend.

Strangers and the parties were then directed to withdraw. On readmission, the PRESIDENT announced the judgement of the Council as follows:

I have to announce that the Council have judged Frederick Robinson to have been guilty of infamous conduct in a professional respect and have directed the Acting Registrar to erase from the *Medical Register* the name of Frederick Robinson.

The Council began on May 24th the consideration of the case of Daniel Evans Powell, registered as of 101, High Street, Tooting, S.W., M.B., C.M. 1894, U.Glasg., who had been summoned to appear before the Council on the following charge:

That being a registered medical practitioner you by your assistance knowingly enabled one Jenny Walter, a woman not certified under the Midwives Act, 1902, to attend women in childbirth under cover or pretence that such women were attended or to be attended by you or by her under your direction, thereby enabling the said Jenny Walter in contravention of the said Act to practise as if she were certified thereunder. And that in relation thereto you have been guilty of infamous conduct in a professional respect.

Mr. Bertram, solicitor, appeared on behalf of the complainants, the Central Midwives Board.

Dr. Powell attended in answer to his notice accompanied by Mr. J. A. C. Keeves, his counsel, instructed by Messrs. Webster, Butcher, and Sons, solicitors.

Mr. BERTRAM, before opening his case, sought leave to take the evidence of two witnesses whose attendance the next day it would be difficult to obtain. Mr. KEEVES did not object, and the witnesses were called accordingly, and at the conclusion of their examination the Council adjourned.

When the case was resumed on May 25th Dr. Powell again attended, accompanied by Mr. Philip Webster Butcher, of the firm of Messrs. Webster, Butcher, and Sons, solicitors.

Mr. BERTRAM informed the Council that as he had been unable to procure any shorthand report of the proceedings against Mrs. Jenny Walter at Bow Street, and had been refused access by the Public Health Committee of the Wandsworth Borough Council to the notifications of births, he had difficulty in tendering first-hand evidence, but proposed to put in evidence as to the proceedings in the form of the notes and oral testimony of the solicitor who conducted the prosecution. Mr. BUTCHER intimated that he took no exception to the proposal.

Mr. BERTRAM, in opening the case, said that a woman named Jenny Walter owned a maternity home at Tooting in which a large number of married and unmarried women went for the purposes of their confinement. Proceedings were instituted against her at the instance of the London County Council for contravention of certain sections of the Midwives Act. In these proceedings she alleged that she was acting in all the cases alleged against her under the directions of a qualified medical practitioner, and called Dr. Powell to support her contention, who gave evidence to that effect. The evidence then given disclosed the further fact, which Dr. Powell admitted, that there was a verbal working arrangement between Mrs. Walter and himself by which when women were confined in this home they received medical attention, or at any rate inspection, by him. It appeared from the evidence that at none of the cases referred to was Dr. Powell present at the actual delivery; and it was clear that there was no illness mentioned which specially necessitated the presence of a medical man. There was the further element of suspicion

that in all these cases the notification of birth to the local authority was given by Dr. Powell. He (Mr. Bertram) had applied for the actual notifications, but the Wandsworth Public Health Committee had passed a resolution that these were not to be produced except under a subpoena.

He then called a number of witnesses to support the statutory declarations which they had made who deposed to facts which he had laid before the Council in opening.

Dr. POWELL, examined by Mr. BUTCHER, said he first came in contact with Mrs. Walter through an emergency call, and in conversation she informed him she had had great difficulty in securing the attendance of a medical man, and he at once agreed to attend cases at a uniform charge of 10s. 6d. He accordingly attended cases at her house, including the cases deposed to in the present case. He frequently notified the birth to the medical officer of health in cases where he attended.

Cross-examined by Mr. BERTRAM: In Tooting it was impossible to get certified midwives to do the work, and unqualified practice by women was rife there before he took up work with Mrs. Walter, who, he believed, was a skilful nurse. He signed the notifications of birth at the request of Mrs. Walter. Under his arrangement with her he had to attend all cases there and medically supervise them.

By the LEGAL ASSESSOR: Why, if Mrs. Walter was such a skilful practitioner; was it because she was an unregistered woman?

The WITNESS: Yes; that was the reason.

By the PRESIDENT: He had attended every confinement in the home since he was first called in, except two cases, when he was away. Mr. Butcher was constrained to admit that the way this home had been conducted under the direction of Dr. Powell was not proper. Dr. Powell desired to express his sincere regret for what he had done, and would undertake never to be party to such a proceeding again. In conclusion, he could only urge that Dr. Powell had been indiscreet, but guilty never.

Mr. BERTRAM did not desire to add anything by way of reply.

Strangers and the parties were directed to withdraw. On readmission, the PRESIDENT announced the decision of the Council as follows:

Mr. Daniel Evans Powell, the Council has carefully considered the charge made against you, which, in effect, was that you had by your assistance knowingly enabled a woman not certified under the Midwives Act, 1902, to attend women in childbirth under cover or pretence that such women were attended or to be attended by you, or by her under your direction, thereby enabling her to practise as if she were certified.

The facts alleged against you in the charge the Council has found to be proved.

The Council takes a very grave view, in the public interest, of the danger which arises from medical practitioners lending their names for such a purpose and "covering" the practice of unqualified or uncertified women, under whatever pretext they practise midwifery or otherwise attend and treat women in labour. But in order to give you an opportunity of reconsidering your position in relation to this matter, the Council has postponed judgement in your case till the next session, in November, of which you will receive due notice. You will then be required to attend, and to produce testimony from your professional brethren as to your character and conduct in the interval.

PROPOSED WARNING NOTICE.

Sir FRANCIS CHAMPNEYS on May 27th moved:

That it be remitted to the President, in consultation with the legal advisers of the Council, to draw up, for submission to the Council, a warning notice with regard to the "covering" by practitioners of midwifery practice carried on by women other than certified midwives.

The question of covering uncertified women by medical men had caused considerable trouble to the Central Midwives Board, as it was really an attempt to evade the provisions of the Midwives Act. That Act had reduced puerperal mortality in a very marked degree. Until the last few years statistics with regard to mortality from puerperal sepsis had shown very slight improvement. In 1902 the number of deaths from this cause per million females living was 118; in 1907 the rate had fallen to 81, and in 1911 to 72. Before 1902 the deaths from this cause per 1,000 births was never less than 4.41; in 1907 that had fallen to 3.83, and in 1911 to 3.67. In other words, the lives of 621 women were saved in 1907 which would have been lost in 1902. These figures showed that the passing of the Midwives Act was followed by a sudden

and considerable fall, and that there had since been gradual, although comparatively slight, improvement. He mentioned this to show the importance of getting the terms of the Act enforced. It was plain that the reduction in puerperal mortality coincided with the introduction of the Midwives Act. This had been attributed to the elimination of uncertified midwives, and it followed almost certainly that if the Act were suspended or not administered efficiently puerperal mortality would go up again. It was said that it was not desirable to be strict in enforcing observance of the Act during the war, but in his view the war made it all the more important that more lives than ever should be saved and that the Act should be administered efficiently. On the whole, there was no shortage of midwives. The total number of midwives on the roll was 37,231, and the total number of practising midwives was estimated at 14,223. There were plenty of midwives in some districts and a deficiency in others. It was a question of distribution and not of absolute numbers, and it did not follow that if the number of midwives were considerably increased that there would not be districts where there was not still a deficiency. What the Council had to do, therefore, was to see that the Act was efficiently administered and that the covering of uncertified midwives by medical men should cease. Various reasons were given in individual instances why the practitioner had covered the unqualified woman, but none of them would hold water. The General Medical Council had in a sense been entrusted with the health of the nation in so far as the standard of the medical profession was concerned, and it must take care that all safeguards were maintained. If the Council did not act in its administrative capacity it would run the risk of a return to the old days before the mortality for puerperal sepsis had been cut down.

Mr. PYE-SMITH, who seconded, said that members of the Council appreciated the danger, but what was wanted was that the whole profession should have a like appreciation of it. It was very evident from what the Council had heard during the session that some members of the profession did not appreciate the danger, and therefore it was most desirable that a warning notice should be issued.

Dr. MACDONALD thought a great deal of ignorance existed among general practitioners with regard to this matter, and that some such step as suggested in the motion was necessary. Many did not understand the risk they ran in working with uncertified women, and if the fact were carefully brought home to them a great deal of good would be done. It had been stated that there was no real scarcity of midwives, but those who lived in the country districts knew the contrary. This, to some extent, could be met by a proper distribution, which could not be carried out without some system of subsidy, as certified midwives would not stay in country districts where they could not earn a living wage.

Dr. NEWSHOLME said that the services of midwives in districts where they could not earn a proper wage were already being subsidized. The Government for the last two or three years had offered to pay to any council one half the total expenditure of placing midwives in remote country districts where otherwise they would not be able to earn a living wage, and in towns to pay half the fee, where the mother could not afford to pay the whole, if the Council would pay the other half; further, it had offered to pay half the doctor's fee in emergency cases, so that given the co-operation of the Government and county councils and borough councils there was no reason why this need should not be met at once. It was, therefore, desirable that the medical profession should know what was ready to be done, and that it was to its interests that the provisions of the Act should be strictly carried out.

Sir HENRY MORRIS asked whether steps had been taken to ensure enforcement of the provisions of the Act by local authorities so that duly certified midwives should receive protection from competition of unqualified persons which it afforded.

Dr. NORMAN MOORE endorsed the views expressed by Dr. Macdonald. He hoped that the warning notice would be so drafted as to present a sort of argument in order that the general practitioner might clearly understand the matter. No doubt there were many practitioners who did not know what the offence of covering uncertified persons involved.

Sir JOHN MOORE, in supporting the motion, took the opportunity to inform the Council that it was the unanimous wish of the profession in Ireland to have a Midwives Act applicable to that country.

Dr. LANGLEY BROWNE said that the expression in the Act to the effect that women who were not midwives must not undertake midwifery except under the supervision of a medical man should be clearly defined, as at present general practitioners did not appreciate its meaning.

Sir FRANCIS CHAMPNEYS, in reply, said he had seen a good many letters from certified midwives complaining bitterly of the want of protection in country districts from the competition of uncertified women; there was no doubt that local authorities in many places had been extremely slack in enforcing the provisions of the Act. It was very difficult to induce them to take action. Many of the difficulties were occasioned by the wording of the Act, which could only be got over by an amending Act. This he hoped would be passed in due time, and then the campaign against puerperal fever could be more successfully carried on than in the past.

The motion was carried unanimously.

(To be continued.)

NUMBER OF MEDICAL STUDENTS.

We are indebted to the President of the General Medical Council for a copy of the following return (dated May 30th, 1916) of medical students in actual attendance in May, 1916, on courses of professional instruction at medical schools and approved teaching institutions:

	Men.	Women.	Total.	Men under 18.	Men from Outside the United Kingdom.
First year ...	1422	636	2058	183	102
Second year ...	783	295	1078	21	129
{ Third year* ...	519	163	682	0	146
{ Fourth year* ...	1078	145	1223		
Final year ...	922	140	1062	0	115

* A number of third-year students who passed a professional examination at the end of the winter session have been transferred to the fourth year class by direction of the military authorities.

REDUCTION OF NOTIFICATION FEES.

SIR,—Regarding Mr. Bishop Harman's letter to Dr. Smith printed in the SUPPLEMENT of May 20th, 1916, I would like to point out that I think he is in error in there stating that "the fee for the notification of measles was already on a different basis to that of other notifiable diseases." There is no difference in the fee (see Statutory Rules and Orders, 1915, No. 1,155).

I desire also to enter my protest against what is implied in the phrase, "A reduction on taking a quantity." There is no such thing in medicine as taking patients in the mass. Each case must be considered individually.

I think the time has come for the Association to make an earnest endeavour to erase from the Statute Book the necessity of our notifying the authorities as to any case of infection. We should be compelled to notify such cases to the head of the family or household, and the onus should be on him to notify the M.O.H. Of course no fee would be payable to the attending doctor for carrying out this manifest duty.—I am, etc.,

Southampton, May 29th.

A. A. MACKIEITH.

We referred this letter to Mr. Bishop Harman, who writes as follows in reply:

SIR,—There are three novel points in the Order making measles compulsorily notifiable which, I think, justify my statement that the notification of this disease was on a different basis to that of other notifiable diseases.

1. The notification is not for each case, but for the first case in a household or institution, and the one notification covers all cases occurring on those premises for the two months succeeding.

2. On receipt of notification the medical officer of health is required, under the memorandum accompanying the Order, to "verify the nature of the case," so that it would appear that the ultimate responsibility for the correctness of the notification rests with the medical officer of health.

3. Medical assistance and nursing may be provided by the local authorities under the Order.—I am, etc.,

London, W., May 30th.

N. BISHOP HARMAN.

INSURANCE.

THE FINANCE OF APPROVED SOCIETIES.

INTERIM REPORT OF DEPARTMENTAL COMMITTEE.

THE Departmental Committee on Approved Society Finance and Administration has issued an interim report, dated May 11th, embodying the conclusions reached at that date. The Treasury Minute of January 27th appointing the Committee gave it as reference—

to consider and report upon any amendments in the financial scheme of the National Insurance Acts which experience of the administration of sickness, disablement, and maternity benefits may suggest as desirable, within the existing limits of contributions and benefits and, apart from further Exchequer grants before the completion of any valuations of approved societies, and further to consider how far the work of approved societies could be simplified and its cost reduced without detriment to the interests of insured persons by amendments of the Act and Regulations, and to make recommendations thereon.

It is thus seen that the working of medical and sanatorium benefits was not included in the Committee's reference. The greater part of the present report is concerned with the financial basis of the Acts, leaving a fuller consideration of the administration till later.

Women.

It is made perfectly clear in the report that the sickness-rate among women was greatly under-estimated when the Act was framed, owing to the want of reliable data, and the position as regards women is now so serious that radical modifications of the financial basis are absolutely necessary. This is only partly due to sickness arising from pregnancy. It is pointed out that the employment of married women tends to be intermittent and a large number of them are outworkers—that is to say, they are not employed at fixed times in factory or workshop, but work at home in their own time; this causes a peculiar difficulty in applying the statutory test of incapacity for work which constitutes the title to benefit. The Committee was precluded by its reference from showing the bearing of these facts on the position of the panel practitioner, but the profession may well keep in mind, when there is any reconsideration of the terms of medical remuneration, the fact now established that the amount of sickness, and consequently the medical treatment required by insured women, was greatly under-estimated when the present terms of remuneration were fixed.

Effect of the War on the Sickness-rate of Men.

It is of interest, too, to know what the Committee has to say as to the probable future effect of the war on the sickness-rate of insured men. Already a very considerable number of men have been discharged from the army permanently ruined in health, and constantly needing treatment from the panel doctors, though before the war they were among the best lives on the doctors' lists. The effect of this on the funds of societies has not been overlooked by the Committee, though it puts against this the possible improvement in health that other men may experience from a long course of outdoor physical training. Though the Committee does not think well to express any definite opinion as to the net effect which the war will have in the future on the sickness funds, it deems it necessary to recommend that a special reserve fund should be formed to meet any remote rise of the sickness curve of men in general as the effect of war conditions. At the same time it declines to be a party to any proposal which involved placing upon the funds of the National Insurance a burden which should properly be borne by the community at large. Here again the medical profession may well urge when the time comes that it would be equally unfair to place on the panel practitioners any burden the cost of which should properly be borne by the community at large.

The Committee's Recommendations.

It will be seen from the above that the Departmental Committee's present inquiries may ultimately have a direct bearing on the medical profession. Without entering into the details of the report, which most directly affects the finances of approved societies, it is sufficient here to summarize the recommendations. The Committee recommends:

That part of the contributions at present carried to the Sinking Fund for the redemption of reserve values should be released.

The moneys thus released to be applied:

- (a) To increase the income available for women's benefits.
- (b) To establish a fund, to be known as the "Women's Equalization Fund," with the aid of Exchequer grants, to support and equalize the special risks of married women.
- (c) To establish a Men's Special Reserve Fund to provide against the more remote effects of war service upon the health of insured men.
- (d) To establish a Valuation Reserve in each society, to be known as the "Contingencies Fund."
- (e) To establish a common protective fund, to be known as the "Special Risks Fund," to provide against special occupational or other risks affecting either men or women.

Suggestions for the management of these funds are given, and special recommendations of the greatest importance to approved societies are made as to the pooling provisions of the Act under which branches of societies, and in certain cases societies, are liable to have to contribute up to one-third of any available surplus which they may have towards the deficiencies of other branches or societies. It is recommended that the present provision of the Act referring to this should be repealed, and modified arrangements are suggested.

It is further recommended that the rate of interest assumed in the financial basis of the Act should be maintained at 3 per cent. and not raised to $3\frac{1}{4}$ per cent., as has been suggested in various quarters, in view of the present general rates of interest. The valuations of societies, it is suggested, should be at quinquennial instead of triennial intervals.

The foregoing recommendations are to run for a period of ten years, with the effect of extending the term of the Sinking Fund by about six years—that is, from 1932 to 1938.

Apparently it is not thought that it will be possible to estimate for some years to come what the future cost of disablement benefit will be or the ultimate effect that the present war conditions will have on the general sickness-rate of the insured population. In the meantime arrangements are to be made for obtaining full statistical data as to the experience of men and women respectively, and though compulsory separation of men's and women's funds is not recommended, it is recommended that facilities for their separation should be given when desired by any society.

The report is signed by all the members of the committee except Mr. P. Rockliff, who desired to give a special report explaining his own views as to the need of Exchequer grants for relieving valuation deficiencies of societies. The Treasury, however, ruled that the recommendations made in his memorandum were outside the terms of the Committee's reference, and so could not be printed with the report. The letter from the Treasury conveying this decision says with regard to such Exchequer grants, "The present financial position of the country necessarily precludes such a course, which, moreover, is, in the opinion of His Majesty's Treasury, not warranted either by the principles of the Acts or the necessities of the situation."

TRAVELLING EXPENSES OF PANEL COMMITTEES.

The following reply has been received from the National Health Insurance Joint Committee in answer to the letter from the British Medical Association, published in the SUPPLEMENT of May 20th, p. 115:

National Health Insurance Joint Committee,
Buckingham Gate, London, S.W.,
May 15th, 1916.

SIR,

With reference to your letter of the 8th instant, with regard to the question of the payment of travelling expenses of members of Panel Committees, I am directed by the National Health Insurance Joint Committee to state that, as your Council are doubtless aware, the proposal to defray such travelling expenses out of the statutory allotment made towards the expenses of Panel Committees from the Medical Benefit Fund is one which, as the Joint Committee are advised, would require legislation.

The proposal has been noted for consideration in connexion with any suitable occasion which may arise.

I am, Sir, your obedient servant,
(Signed) R. W. HARRIS.

The Medical Secretary,
British Medical Association,
429, Strand, W.C.

IRELAND.

PAYMENT OF MEDICAL CERTIFIERS.

SIR,—Permit me to inform those medical practitioners in Ireland who have signed agreements to act as medical certifiers for the purposes of the National Insurance Acts, and who have not received their quarterly pay due on March 31st last, that the delay in this respect is entirely due to the failure of almost half the medical certifiers to return to the National Health Commission, as requested by them in their circular letters of April 20th and May 16th, the blocks of the certificates issued and other particulars which are necessary for the distribution of the grant available for medical certification. Doctors who issued no certificates should furnish *nil* returns, and those doctors who have issued certificates should at once, where they have not already done so, send the blocks and other information to the Commissioners in the form requested by them.—I am, etc.,

T. HENNESSY,
Medical Secretary, Irish Medical
Committee.

Dublin, May 29th.

INSURANCE ACT IN PARLIAMENT.

ENLISTMENT OF MEMBERS OF APPROVED SOCIETIES.

In reply to a question by Mr. MacCallum Scott, on May 11th, as to the confusion which has arisen in approved societies through members failing to notify the society that they had been enlisted, Mr. C. Roberts said that arrangements had been made with the Army Council under which every insured person on being called to the colours was being given by the military authorities a printed postcard showing his regimental particulars and the date of the beginning of his service. The man was instructed to forward the postcard to his approved society or, if not a member of a society, to the Insurance Commissioners, and also to forward to his society any stamped contribution card in his possession at the time of being called up.

CORRESPONDENCE.

HOW IS THE INSURANCE SYSTEM WORKING?

DR. T. J. FLETCHER (Castle Donington) writes: As the National Insurance Act has been in force for more than three years now, I should like to state the impressions of a country panel practitioner of its working (1) as affecting the panel patient, (2) the patients outside the panel, and (3) the panel doctors themselves.

1. Most of those engaged in country practice will, I am sure, bear me out when I say that the effect is not good. The Insurance Commissioners exact a weekly toll from these poor people and offer them in exchange an avowedly restricted imperfect medical service, the medical man being warned against over-prescribing and the unfortunate patient solemnly admonished not to be taken ill in the night and not to expect more than the minimum of medical attendance. Now, Sir, most of us have been taught that the practitioner who does not give his patients of the best that is in him had better leave them alone. There is no room in our calling for the *diletante*. The moral effect, too, is not good. It makes the not very scrupulous man a lazy, deceitful malingerer, and as for the one of better moral fibre, he either does not take the advantage he has paid for, or, if he falls ill and has a long illness, he is subject to several petty annoyances—among them the not always agreeable visits from "insurance nurses and doctors" dispatched by the several insurance societies in their efforts to free themselves from liabilities that they had better not have incurred.

2. Owing to the diminished output from the medical schools and the serious strain on the profession at this unhappy time, it will soon become impossible for the panel doctor to give his private patient the attention that he desires or deserves, for, as the many insist upon overmuch medical aid, even if it be of a superficial nature, it follows that the few must go short at times.

3. To my mind the saddest part of the whole business is the bad effect that this benevolent co-operative stores, curative agency must have on the average member of our profession. Instead of a patient and not always unsuccessful attempt to arrive at the correct diagnosis and appropriate treatment of disease, there is now a distinct danger that his time will be frittered away in a hasty and superficial attendance on the chronic invalid and the malingerer, in the marking of cards, writing certificates,

doing clerical work for the clerks of the Committees, and "humping generally." All this soul-clogging, brain-destroying work is being done, as calculated from my last quarter's payment, for something between 4s. and 5s. a head per annum.

If the profession as a whole is willing to go on making bricks without straw, there is of course no more to be said, but now is the time for us to make a protest or else for ever hold our peace.

PAY UNDER THE INSURANCE ACT FOR YEAR 1914.

Dr. C. M. STEVENSON (Cambridge) writes: I have seen several letters lately in your correspondence column from panel doctors who complain that they have received for 1914 less than the amount that they expected from the numbers on their lists.

That this experience is not universal is shown by the figures for the practice in which I am a partner.

Number of patients on lists are 2,300; amount expected (including Tuberculosis and Drug Suspense Fund, which we receive in full in this area), 7s. 6d. per patient, £862 10s.; amount actually received, *circa* £950.

The excess, of course, is accounted for by the unallotted, but as they are estimated to be about 10 per cent., the amount received practically balances the amount expected.

I presume it largely depends on the efficiency in the office of the Clerk to the Insurance Committee.

Some clerks are careless, and allow their lists to become badly inflated; others do not.

Naval and Military Appointments.

ARMY MEDICAL SERVICE.

SURGEON-GENERAL SIR WILLIAM BARTIE, V.C., K.C.M.G., C.B., to be a Director of Medical Services at the War Office.

Colonel R. Kirkpatrick, C.M.G., M.D., on completion of four years' service in his rank, is retained on the active list under the provisions of Articles 120 and 522, Royal Warrant for Pay and Promotion, 1914, and to be supernumerary.

ROYAL ARMY MEDICAL CORPS.

Temporary Captains relinquish their commissions: S. L. Walker, M.B., C. E. Murphy, F.R.C.S., E. A. Evans, Sir Vincent Nash, A. Waugh, M.B., N. L. Prichard, M.B.

Temporary Captain H. O'Callaghan, M.B., relinquishes his commission on account of ill health.

E. D. Pullon, M.B., to be temporary Captain.

Temporary Lieutenants to be temporary Captains: A. S. Seabrooke, M.B., M. Kirtton, J. O. Thomas, J. N. Wheeler, M.B., C. E. Bashall, A. P. Yonge, M.B., R. T. Cooke, D. M. Callender, M.B., F.R.C.S.E., G. A. Jelly, F.R.C.S.E., R. W. T. Clappett, M.B., J. A. R. Lee, S. J. A. Beale, M.B., F. J. Dunne, M.B., G. I. Moriarty, M.B., G. H. Wood, M.B., C. Armstrong-Dash, M.D., I. Macfarlane, M.B., A. Thomson, M.B., B. N. Weekes, C. M. Willmott, C. Checchi, M.B., A. J. Trinca, M.D., R. W. Ryan, M.B., N. S. Gilchrist, M.D., H. A. Hancock, J. W. N. Roberts, M.B., F. W. Stone, M.B., C. C. Finlator, M.D., H. S. Davidson, M.B., F.R.C.S.E., W. D. Perry, W. Penberthy, J. Boyd, M.B., A. T. Marshall, M.B., B. W. Mudd, M.B., R. C. Phelps, M.B., J. H. Bogan, D. F. O'Kelly, C. Gibson, M.B., E. S. Cuthbert, J. M. McKenzie, M.B., J. M. MacKay, M.B., D. McD. McIntyre, M.B., T. Huddock-West, M.B., J. H. N. F. Savy, M.B., H. Adams, M.B., C. G. Shearer, M.B., A. G. B. Duncan, M.B., J. Ross, M.B., W. F. Stevenson, T. H. Scott, M.B., J. E. Judson, A. St. Johnston, T. B. Jobson, M.D., J. H. Jones, G. D. Hindley, M.B., J. H. E. Davis, R. E. Roche, J. R. Dixon, M.B., J. B. Woodrow, M.D., A. L. Jackson, M.B., E. C. Abraham, W. Raffle, M.B., C. T. Denny, G. T. MacLean, M.B., G. A. Bird, M.B., D. Fleck, M.B., C. T. Hiltton, M.B., W. B. Reith, M.B., J. S. Bookless, M.B., F.R.C.S., R. D. Neil, G. E. Lockyer, J. Kean, R. T. Herron, M.D., E. E. Frazer, M.D., A. Crawford, M.D., R. H. G. Weston, M.B., C. C. Cragg, M.D., Richmond, M.B., G. McMullan, M.D., A. McK. Clark, M.B., R. F. Yencken, A. J. C. Tingey, J. R. Pate, M.B., C. E. Price, W. S. Nason, M.B., G. S. Miller, M.B., R. J. Ledlie, M.B., J. H. Hebb, M.B., C. Coventry, M.B., R. T. Cox, M.B., J. Howe, M.B., W. R. Main, A. J. Mountcastle, W. F. G. Scott, T. G. Williams, M.B., O. Heath, M.B., J. McKenzie, M.B., H. D. Field, R. H. Cox, F.R.C.S.I., C. Cramer, M.B., S. D. Adam, W. Wallace, M.D., J. Ash, J. H. Saunders, M.B., T. H. Phillips, W. R. Watt, M.B., R. D. Brinton, M.D., G. D. Kerr, E. P. Carey, M.B., G. S. Ware, M.B., J. F. Wolfe, M.B., S. Wyborn, R. M. Stewart, M.D., H. Spinks, T. F. B. Reid, M.B., F. W. Rowland, M.D., C. C. Harris, M.D., E. R. Park, M.D., E. W. Blake, B. Pickering, M.B., H. H. Proudfoot, M.B., J. T. Macnamara, A. G. K. Ledger, M.D., A. Randle, M.D., R. A. M. Macleod, M.D., B. H. Shaw, M.D., M. A. McKeever, M.B., J. H. Hart, N. Devereux, J. H. Drew, M.D., J. G. Murray, W. G. B. Macanley, G. M. Bluet, R. T. Raine, H. Harvey, W. A. Rogerson, D. L. Hutton, W. J. Harris, J. B. Dalton, M.B., C. M. Brophy, C. E. Fenn, M.D., E. G. Sworder, M.B., A. D. Blakeley, M.B., T. M. Crawford, A. L. Paliologos, R. Hughes, M.B., H. P. D'A. Benson, M.D., F.R.C.S.E., M. Ashley, M.B., W. S. Stalker, M.D., C. Loddiges, W. M. S. Robinson, A. F. Wright, M.B., A. Adams, M.D., R. F. Russell, M.B., G. Holroyde, W. Russell, M.B., H. E. Griffiths, F.R.C.S.E., R. W. Long, E. T. Larkham, M.D., A. E. Quine, M.B., F.R.C.S., C. R. H. Crawford, E. O. Pratt, R. J. Bonis, H. M. Agnew, A. W. Forrest, M.B., J. S. Baird, M.B., J. D. Batt, J. F. Broughton, M.B., J. L. Waller, J. J. Robertson, M.B., H. H. Carleton, M.D., E. G. Rawlinson, M.D., E. J. Morton, M.B., F.R.C.S.E., E. A. C. Swainson, M.B., C. Bennett, J. W. Innes, M.B., R. R. Pirrie, M.D., J. W. McCagie, G. S. Douglas, E. H. Walker, M.B., J. Coutts, M.B., A. J. McCreadie, M.B., G. Miller, R. MacN. Marshall, M.D., C. L. G. Powell, J. Muirhead, M.B., H. M. Brown, M.D., A. J. Hickey, R. R. Duncan, M.B., E. T. Roberts, M.D., A. W. D. Coventon, M.D., F.R.C.S., E. G. D. Pineo, J. V. Brown, M.B., A. F. Mavety, M.B., R. E. Horkins, M.B., R. L. Shields, P. J. Maguire,

W. F. Dunlop, M.B., G. J. Adams, M.B., F.R.C.S.E., J. F. Carruthers, M.D., J. M. MacPhail, M.D., A. A. Cooper, C. H. Newton, M.B., T. F. Dillon, M.B., T. Gilchrist, F.R.C.S.I., H. C. Thorp, M.B., G. W. Thompson, M.D., J. D. MacKinnon, M.B., V. H. Blake, M.B., R. J. Batty, M.B., W. J. Dunlop, J. C. Turnbull, M.D., G. B. Simpson, W. Harmsen, M.B., C. B. Pearson, M.B., B. Jones, M.D., L. Lane, D. McF. Livingstone, M.D., F. B. G. Stableford, M. A. Milne, M.B., J. M. Morrirey, F.R.C.S.I., H. F. Vandermin, M.D., G. N. Urie, M.D., J. W. Sutherland, M.B., M. H. Paterson, G. C. Anglin, M.B., J. F. McLay, M.B., L. M. Dawson, M.D., J. E. Knox, M.B., O. J. Day, M.B., K. G. McKenzie, M.B., H. Crassweller, M.B., T. O. Hutton, M.B., C. G. Sutherland, M.B., S. C. H. Moberley, O. Shields, M.D., H. Yellowlees, M.B., A. T. Nankivill, M.B., R. H. King, M.D., J. M. Elliott, M.B., J. M. Campbell, M.B., J. Buchanan, M.D., D. A. I. Hamilton, J. M. Young, M.B., L. F. V. Every-Clayton, M.D., F.R.C.S., G. H. Russell, S. Waddell, M.B., J. D. Marshall, M.B., L. A. J. Graham, A. B. Gordon, M.B., F.R.C.S.E., G. H. Keene, M.D., S. V. P. Pill, J. F. Hammond, W. A. Anderson, M.B., C. Reidy, M.D., W. P. Cooney, J. Dixon, A. C. B. McMurtrie, M.D., F.R.C.S., H. T. Newling, H. E. Collier, M.B., H. L. Attwater, M.B., F.R.C.S., T. Jays, J. E. L. A. Turnley, G. Stoddart, M.B., S. J. Rowntree, J. A. W. Watts, M.B., A. V. Craig, M.B., G. W. R. Rudkin, A. Ferguson, M.B.

Officers of the Canadian Army Medical Corps to be temporary Lieutenants: Captain H. B. Maxwell, Lieutenants C. E. A. Trow, M.B., G. Stewart, M.B., L. B. W. Braine, M.D., T. W. F. MacKnight, M.D., E. C. A. Reynolds, M.D., R. A. McKay, M.B., J. E. O'Donnell, M.D., D. L. MacKenna, M.B., H. G. Joyce, G. F. Nelson, M.D.

To be temporary Lieutenants: D. P. Lucey, M.B., R. C. B. Briscoe, F. B. Wilson, M.B., G. H. Fraser, M.B., P. A. Rostant, M.B., J. Dickson, M.B., C. Harris, M.B., H. E. H. Tracy, G. W. Ronaldson, M.B., G. Stivala-Aspinall, R. J. Arundel, M.D., A. R. C. Doorley, M.B., E. L. K. Sargent, M.B., D. J. Roantree, M.B., R. M. de Mowbray, M.B., A. E. A. Carver, M.D., H. F. Bodvel-Roberts, J. M. Johnstone, M.B., J. F. Penman, M.B., C. T. Darwent, D. Corry, M.B., S. J. W. Donald, M.B., J. S. Rowlands, M.D., W. MacAdam, M.D., T. G. Evans, M.D., D. J. Harries, M.D., F.R.C.S., S. A. Burn, V. A. Clinks, H. R. Helsby, F.R.C.S.E., A. K. Henry, M.B., F.R.C.S.I., J. Keyms, M.D., A. W. Owen, M.D., E. H. Price, D. Ranker, F.R.C.S., T. L. Jones, M.B., W. Reynolds, S. R. Turner, R. L. McK. Wallis, H. R. Hodgkinson, M.B., F.R.C.S.E., J. Cairns, M.B., W. G. Marsden, M.B., G. N. Brandon, J. M. W. Morison, M.B., W. Turner, F. Shannon, M.B., J. Elliot, E. H. Montgomery, M.D., H. M. Drake, G. Arthur, M.B., D. I. Dakeyne, M.B., J. J. Moriarty, M.B., C. A. R. McCay, C. W. von Bergen, M.B., J. A. Hope, M.B., H. F. Ferguson, M.B., J. McGarrity, M.B., W. Fraser, M.B., R. W. Miller, M.B., R. D. L. Greene, M.B., E. J. B. Moynihan, D. Gaston, M.B., H. H. Crickitt, A. Smirithwaite, M.B., A. Campbell, F.R.C.S.E., R. H. Balfour-Barrow, M.B., G. W. Doran, M.B., W. T. Evans, M.B., H. M. Gray, D. M. Smith, J. Manuel, M.B., H. Joslen, M.B., P. L. Blaber, W. Spiteri, M.D., C. T. Cheale, A. T. Thurston, F.R.C.S.I., H. S. Raper, M.B., D. A. Farquharson, M.B., J. A. H. Vanderwert, K. Elmes, temporary honorary Lieutenants H. Lewis, A. Wilson, A. Sutherland, P. O'B. Phillips, L. Gameson, M.B., A. T. Edwards, F.R.C.S., S. W. Burrell.

To be temporary honorary Lieutenants: G. Moulson, H. K. Graham-Hodgson, M.B., E. G. Howell, N. N. Hayson, K. D. Ateridge, L. W. Evans, P. S. Clarke, H. L. Hughes, A. H. Clarke.

To be temporary honorary Lieutenants whilst employed with the Welsh Hospital, Netley: A. B. Jones, M.B., J. Boyd, E. V. Jones, M.B.

INDIAN MEDICAL SERVICE.

The services of the Honourable Surgeon-General Sir C. P. Lukis, K.C.S.I., M.D., F.R.C.S., K.H.S., Director-General, Indian Medical Service, have been placed temporarily at the disposal of His Excellency the Commander-in-Chief in India.

Colonel H. Hendley, M.D., Inspector-General of Civil Hospitals, Punjab, has been appointed to hold charge of the office of the Director-General, Indian Medical Service, in addition to his own duties, with effect from the date on which he assumes charge of that office.

The following promotions have been made:—To be Surgeon-General: Colonel W. R. Edwards, C.B., C.M.G., M.D., vice Surgeon-General G. F. A. Harris, C.S.I., M.D., F.R.C.S., K.H.S., Bengal, retired; with effect from April 1st, 1915. To be Colonel: Lieutenant-Colonel J. T. Daly, M.B., vice Colonel W. R. Edwards, C.B., C.M.G., M.D., Bengal, promoted Surgeon-General; with effect from April 1st, 1915. Lieutenant-Colonel G. J. H. Bell, C.I.E., M.B., vice Colonel G. W. P. Denny, Bengal, retained as supernumerary; with effect from June 21st, 1915. Lieutenant-Colonel H. Fooks, vice Colonel C. J. Bamber, M.V.O., Bengal, retired; with effect from July 12th, 1915. Lieutenant-Colonel W. H. B. Robinson, vice Colonel F. J. Drury, M.D., Bengal, deceased; with effect from December 1st, 1915.

Colonel G. W. P. Denny, C.I.E., Bengal, is retained in the service for one year, with effect from June 21st, 1915, or for the period of the war, whichever is less, and will be borne supernumerary in his rank and grade.

Lieutenant-Colonel Sir James Roberts, Kt., C.I.E., M.B., F.R.C.S., to be Civil Surgeon, Simla (West), with effect from April 16th.

Lieutenant-Colonel F. E. Swinton to be Deputy Director-General, Indian Medical Service, substantively *pro tempore*, with effect from February 21st.

The services of Lieutenant-Colonel C. H. James, C.I.E., F.R.C.S., Civil Surgeon, Simla (West), are replaced at the disposal of the Government of the Punjab with effect from April 16th.

Major G. Tate, M.B., Surgeon to His Excellency the Commander-in-Chief, is appointed to be in charge of the current duties of the Civil Surgeon, Simla East, in addition to his own duties, with effect from April 2nd, 1916.

Captains to be Majors (March 1st, 1916): C. C. C. Shaw, M.D., J. W. H. Babington, M.D., A. S. M. Peebles, M.D.

The promotion to present rank of Majors A. T. Gage, M.B., and W. Lethbridge, M.D., is antedated from January 28th, 1910, to July 21st, 1909.

The promotion to present rank of Major T. C. Rutherford, M.D., is antedated from January 31st, 1915, to July 31st, 1914.

TERRITORIAL FORCE.

ROYAL ARMY MEDICAL CORPS.

London Field Ambulance.—A. J. A. McCabe-Dallas to be Lieutenant. London General Hospital.—Lieutenants to be Captains: W. K. Churchouse, J. A. Willett, M.D.

London Sanitary Company.—W. F. Lanchester to be Lieutenant. East Anglian Field Ambulance.—Alexander D. Reid, M.B., to be Lieutenant (substituted for announcement published in the London Gazette of August 6th, 1915).

South Midland Field Ambulance.—Major (temporary Lieutenant-Colonel) B. M. H. Rogers, M.D., relinquishes his temporary rank on ceasing to command a field ambulance, and is seconded for duty at the Military Hospital, Bulford. Captains W. Stobie, M.B., and G. L. Wilkinson, from general hospitals, to be Captains. Captain W. V. Wood, from a mounted brigade field ambulance, to be Captain.

South Midland Mounted Brigade Field Ambulance.—Captain E. Whicello, M.B., from a casualty clearing station, to be Captain.

South-Western Mounted Brigade Field Ambulance.—G. L. Findlay, M.B., to be Lieutenant.

Southern General Hospital.—Majors seconded for duty with a field ambulance: E. C. M. Foster, A. T. Waterhouse, M.B. Captains seconded for duty with a field ambulance: J. A. Nixon, M.B., F.R.C.P., A. G. T. Fisher, M.B., J. F. Robinson, F.R.C.S., T. B. Marshall, C. L. Pander, T. M. Jamieson, W. H. Way, P. H. Green, M.B., J. E. F. Palser. Captain M. D. Wood, M.D., is seconded for duty with a territorial field division, Army Service Corps. Lieutenants to be Captains: T. S. Stafford, S. E. Whitnall, M.B.

Welsh Casualty Clearing Station.—Captain A. C. Devereux, M.B., from Welsh Field Ambulance, to be Captain.

Welsh Field Ambulance.—Lieutenant O. C. Sullivan, M.B., to be Captain.

Western General Hospital.—To be Captains, whose services will be available on mobilization: O. W. Morgan, C. B. Gratte, R. J. Coulter, M.B., F.R.C.S.

Yorkshire Mounted Brigade Field Ambulance.—To be Lieutenants: W. O'Brien, M.B., W. Cook, M.B., J. H. Paul, M.B., R. S. Weir, M.D.

West Lancashire Casualty Clearing Station.—Lieutenant D. F. Hunter, M.D., to be Captain.

Lowland Field Ambulance.—M. T. G. Clegg (late temporary Captain, London Brigade, R.F.A.), to be Captain.

Highland Field Ambulance.—Temporary Captain A. B. Whitton, M.B., to be temporary Major.

Supernumerary for Service with the O.T.C.—Lieutenant (temporary Captain) G. A. Williamson, M.D., to be Captain.

Attached to Units other than Medical Units.—Surgeon-Majors A. C. Turner, from West Riding Division, R.E., and H. Stallard, M.B., from Notts and Derby Regiment, to be Majors. Captains A. W. W. Swettenham and C. H. R. Pentreath, M.B., relinquish their commissions on account of ill health. Captains from a general hospital to be Captains: A. Radford, M.B., K. H. Gill, M.B., A. P. Thomson, C. B. Hawthorne, R. W. Acheson, A. P. Phillips, T. S. Stafford. Captain J. M. Taylor, M.B., from a mounted brigade field ambulance, to be Captain. Lieutenant A. N. Worsley, M.B., from a general hospital, to be Lieutenant.

Vacancies and Appointments.

VACANCIES.

NOTICES REGARDING APPOINTMENTS.—Attention is called to a Notice (see Index to Advertisements—Important Notice re Appointments) appearing in our advertisement columns, giving particulars of vacancies as to which inquiries should be made before application.

BELFAST MUNICIPAL SANATORIUM, Whiteabbey.—Temporary Assistant Resident Medical Officer. Remuneration, £5 5s. a week.

BURY INFIRMARY.—Junior House-Surgeon. Salary, £150 per annum.

CHESTERFIELD AND NORTH DERBYSHIRE HOSPITAL.—Second House-Surgeon. Salary, £150 per annum.

DEWSBURY COUNTY BOROUGH.—Lady Medical Officer in connexion with Maternity and Child Welfare Scheme. Salary, £300 per annum.

DUDLEY: GUEST HOSPITAL.—Assistant House-Surgeon. Salary, £120 per annum.

EXETER: ROYAL DEVON AND EXETER HOSPITAL.—House-Physician. Salary, £150 per annum.

GROSVENOR SANATORIUM, Kennington, Ashford, Kent.—Assistant Resident Medical Officer. Salary, £200 per annum.

HASTINGS: EAST SUSSEX HOSPITAL.—House-Surgeon. Salary, £150 per annum.

HEALTH OF MUNITION WORKERS COMMITTEE.—Medical Women to supervise the Medical and Physical Welfare of Women Workers in Munition Factories.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton.—Assistant Resident Medical Officer. Salary, £100 per annum.

HUDDERSFIELD ROYAL INFIRMARY.—(1) Senior House-Surgeon; (2) Assistant House-Surgeon. Salary, £150 and £100 per annum respectively.

KING'S COLLEGE HOSPITAL, Denmark Hill, S.E.—Assistant Obstetric and Gynaecological Surgeon.

LEAMINGTON SPA: WARNEFORD GENERAL HOSPITAL.—Two Resident Medical Officers. Salary, £250 and £150 per annum.

LONDON TEMPERANCE HOSPITAL, Hampstead Road, N.W.—Assistant Resident Medical Officer. Honorarium at the rate of £120 per annum.

MANCHESTER NORTHERN HOSPITAL FOR WOMEN AND CHILDREN.—Lady House-Surgeon. Salary, £120 per annum.

METROPOLITAN HOSPITAL, Kingsland Road, N.E.—Surgeon for Diseases of Women.

MIDDLESBROUGH: NORTH ORMESBY HOSPITAL.—Assistant House-Surgeon. Salary, £150 per annum.

NAVAL AUXILIARY HOSPITAL.—Resident Assistant Surgeon. Salary, 20s. a day.

NEW HOSPITAL FOR WOMEN, Euston Road, N.W.—(1) Senior Clinical Assistant in Out-patient Department. (2) Anaesthetist; honorarium, £10 10s. per annum. (3) Clinical Assistants in Out-patient Department.

PLYMOUTH: SOUTH DEVON AND EAST CORNWALL HOSPITAL.—House-Surgeon. Salary, £250 per annum.

SHEFFIELD CITY HOSPITAL FOR INFECTIOUS DISEASES.—Assistant Medical Officer. Salary, £225 per annum.

SHEFFIELD ROYAL INFIRMARY.—House-Physician. Salary, £120 per annum.

STOKE-ON-TRENT: NORTH STAFFORDSHIRE INFIRMARY, Hartshill.—House-Surgeon. Salary, £200 per annum.

SUNDERLAND COUNTY BOROUGH.—Temporary Tuberculosis Medical Officer. Salary, £500 per annum.

WOMEN'S MISSION HOSPITAL IN INDIA, Berhampore, Madras.—Lady Doctor.

CERTIFYING FACTORY SURGEONS.—The Chief Inspector of Factories announces the following vacant appointments: Faringdon (Berks), Tregaron (Cardigan).

To ensure notice in this column—which is compiled from our advertisement columns, where full particulars will be found—it is necessary that advertisements should be received not later than the first post on Wednesday morning. Persons interested should refer also to the Index to Advertisements which follows the Table of Contents in the JOURNAL.

APPOINTMENTS.

CAMPBELL, Andrew, M.B., Ch.B., Edin., Resident Surgical Officer to the Birmingham and Midland Eye Hospital.

CARLETON, A. E. M., M.B., B.Ch., Q.U. Belf., Assistant Medical Officer of the Brownlow Institution of the Liverpool Parish.

CIEH, Ying-Jue, M.R.C.S., L.R.C.P. Lond., Assistant Medical Officer of the Islington Parish Infirmary.

HANBURY, S. W., M.R.C.S., L.R.C.P., District Medical Officer of the Poplar Parish.

HOLLAND, Eardley, M.D. Lond., F.R.C.S. Eng., Assistant Obstetric Physician to the London Hospital.

BIRTHS, MARRIAGES, AND DEATHS.

The charge for inserting announcements of Births, Marriages, and Deaths is 5s., which sum should be forwarded with the notice not later than the first post on Wednesday morning in order to ensure insertion in the current issue.

MARRIAGES.

DAVIES—WALL-ROW.—On May 16th, at St. Peter's Church, Chester, by the Rev. W. S. Jones (brother-in-law of the bridegroom), Lieutenant Purser Davies, R.A.M.C., son of the late Cynfig Davies, to Lily Evelyn Wall-Row, daughter of the late G. Wall-Row and Mrs. L. Gough, Stafford Cottage, 12, Palace Street, Buckingham Gate.

SMITH—SYDENHAM.—On May 13th, at St. Margaret's Church, Olton, Captain Herbert Smith, M.B., B.Ch., R.A.M.C., third son of Mr. and Mrs. R. B. Smith, Model School, Galway, to Florence Evelyn, only daughter of Mr. and Mrs. Albert Sydenham, Olton, Warwickshire.

TREASURE—COURTNEY.—On June 1st, at St. Paul's Church, Bedford, by the Rev. Canon Speck, Major Reginald William Crawford Treasure, R.F.A., only son of Dr. Crawford Treasure, J.P., of Cardiff, to Ilfred Lillian Winifred Courtney, daughter of the late Major Lionel James Courtney, 2nd Battalion South Wales Borderers.

DEATH.

BURROWS.—Charles William Grimes Burrows, M.R.C.S. Eng., L.S.A. Lond., aged 62, at 10, Grange Road, Bermondsey.

DIARY FOR THE WEEK.

TUESDAY.

RÖNTGEN SOCIETY, Institution of Electrical Engineers, Victoria Embankment, W.C.—Annual General Meeting, 8.15 p.m. Professor J. W. Nicholson: Homogeneity of Visible Radiation. Exhibition of Apparatus and Demonstrations.

THURSDAY.

ROYAL SOCIETY OF MEDICINE: OBSTETRICS AND GYNAECOLOGY, 8 p.m.—Dr. H. Russell Andrews: (1) Haematoma of Abdominal Wall. (2) Primary Abdominal Pregnancy. Dr. John Phillips: Acute Hepatic Toxaemia complicating Pregnancy and Labour. Specimens.

POST-GRADUATE COURSES AND LECTURES. LONDON SCHOOL OF TROPICAL MEDICINE, Royal Albert Dock, E.

DIARY OF THE ASSOCIATION.

Date.	Meetings to be Held.
JUNE.	
2 Fri.	London: Executive Subcommittee of Central Medical War Committee, 2.30 p.m.
6 Tues.	London: Central Ethical Committee, 2 p.m.
7 Wed.	Kent Branch, Annual Meeting, Maidstone, 3.30 p.m.
8 Thur.	London: Medico-Political, Public Health, and Hospitals Committees, Conjoint Meeting, 2.15 p.m.
	South Wales and Monmouthshire Branch, Annual Meeting, Cardiff.
9 Fri.	London: Executive Subcommittee of Central Medical War Committee, 2.30 p.m.
	Fife Branch, Annual Meeting, Kirkcaldy, 3.15 p.m.
	Furness Division, Annual Meeting, Barrow, 3.15 p.m.
13 Tues.	London: Organization Committee, 2.15 p.m.
14 Wed.	London: Medico-Political Committee.
15 Thur.	London: Insurance Acts Committee.
16 Fri.	London: Executive Subcommittee of Central Medical War Committee, 2.30 p.m.
21 Wed.	London: Finance Committee, 2 p.m.
22 Thur.	Birmingham Branch, Annual Meeting, 3.30 p.m.
27 Tues.	London: Metropolitan Counties Branch, Annual Meeting, 4 p.m.
28 Wed.	London: Council Meeting.
JULY.	
28 Fri.	ANNUAL REPRESENTATIVE MEETING, Connaught Rooms, Great Queen Street, London, W.C., and following days as may be required.

BRITISH MEDICAL JOURNAL.

LONDON: SATURDAY, JUNE 10TH, 1916.

CONTENTS.

	PAGE		PAGE
POSITION OF MEDICAL MEN UNDER THE MILITARY SERVICE ACT:		ASSOCIATION INTELLIGENCE:	
REGULATIONS FOR PROFESSIONAL COMMITTEES IN RESPECT OF DULY QUALIFIED MEDICAL PRACTITIONERS ...	133	CURRENT NOTES	136
CIRCULAR TO TRIBUNALS BY THE LOCAL GOVERNMENT BOARD	134	MEETINGS OF BRANCHES AND DIVISIONS	136
POOR LAW MEDICAL OFFICERS IN NAVAL OR MILITARY SERVICE	134	ASSOCIATION NOTICES	137
GENERAL MEDICAL COUNCIL:		INSURANCE:	
DENTAL BUSINESS: PRACTICE OF DENTISTRY BY UNQUALIFIED PERSONS	135	IRELAND: DEFERRED PAYMENTS FOR THE CERTIFICATION OF SICKNESS BENEFITS	138
PUBLIC HEALTH	136	NOTES.—CORRESPONDENCE	138
REDUCTION OF NOTIFICATION FEES	139	LOCAL MEDICAL AND PANEL COMMITTEES	139
		NAVAL AND MILITARY APPOINTMENTS	139
		VACANCIES AND APPOINTMENTS	140
		BIRTHS, MARRIAGES, AND DEATHS	140
		DIARY	140

THE POSITION OF MEDICAL MEN UNDER THE MILITARY SERVICE ACT.

THE regulations made under Section 7 of the new Military Service Act, according to which claims for exemption made by medical practitioners on any ground other than that of conscientious objection must be referred by the tribunal to a professional committee, were promulgated by an Order in Council made on June 1st, 1916,* as follows:

ORDER IN COUNCIL.

Whereas by Section 7 of the Military Service Act, 1916 (Session 2), His Majesty may, by Order in Council, make regulations with respect to the establishment of Professional Committees to deal with claims for exemption made by duly qualified medical practitioners, and with respect to the reference to such Committees of applications by duly qualified medical practitioners for certificates of exemption:

Now, therefore, His Majesty is pleased, by and with the advice of His Privy Council, to make the Regulations in the Schedule annexed hereto:

This Order may be cited as the Military Service (Professional Committees Regulations) Order, 1916.

June 1st, 1916.

ALMERIC FITZROY.

SCHEDULE. REGULATIONS

For Professional Committees in respect of duly qualified Medical Practitioners under the Military Service Acts, 1916.

1.—(1) Subject as hereinafter provided, there shall be a Central Professional Committee for England and Wales, and a Central Professional Committee for Scotland, consisting in each case of not less than twelve nor more than twenty-five members, appointed by members of the medical profession in such manner as the Army Council may approve, and representative of the profession, to which all applications for certificates of exemption made to a tribunal in England or Wales or in Scotland as the case may be by or in respect of practitioners on any ground other than that of conscientious objection shall be referred by the tribunal to which such applications are made.

(2) If the Army Council are satisfied that any existing Professional Committee which has been recognized by them for the purpose of making arrangements for the selection of practitioners for service during the war in the Naval and Military Forces of the Crown has been appointed by members of the profession and is representative of the profession, they may, if they think fit, and subject to such conditions as they may impose,

approve such Committee for the purpose aforesaid, and in that case the Professional Committee so approved shall be the Central Professional Committee for the purposes of these Regulations.

(3) The Central Professional Committee may, with the approval of the Army Council, appoint or recognize such local professional committees as they may think necessary for the purposes hereinafter mentioned.

2.—Where an application for a certificate of exemption on any ground other than that of conscientious objection is made by or in respect of a practitioner to a Tribunal, the Tribunal shall forthwith notify the appropriate Central Professional Committee that the application has been made and shall send to that Committee the application together with any statement or particulars furnished to the Tribunal by or in respect of the practitioner.

3.—(1) The Central Professional Committee shall, subject as hereinafter provided, thereupon consider the matter, and, if they are satisfied on the facts before them that a certificate of exemption (whether absolute, conditional, or temporary) ought to be granted, they shall make a recommendation to the Tribunal accordingly.

(2) The Committee in any case in which they are of opinion that the application does not give the required or sufficient particulars, or does not disclose *prima facie* grounds for considering the application, may require further and better particulars or grounds, as the case may be, to be given; and if such further and better particulars or grounds are not delivered to the Committee within seven clear days after such notification has been sent, or within such extended time as may be allowed by the Committee, the Committee may make forthwith such recommendation as they think appropriate.

(3) For the purpose of ascertaining the facts relevant to the decision of an application, the Committee may, and if so required by the practitioner in respect of whom the application is made, shall, hear the practitioner and such witnesses as he may desire to call, and may take into consideration any written statements sent by or in respect of any practitioner.

(4) At least seven clear days before the hearing of an application the Committee shall send to the practitioner notice in writing of the time and place fixed for a hearing.

4.—(1) Subject as hereinbefore provided, the Central Professional Committee may, if they think fit, and before hearing the practitioner or coming to a decision upon the application, refer any application to the local professional committee of any area in which the practitioner resides or carries on medical practice, for consideration and report on all or any of the matters connected therewith, and may in that case forward to the local committee for the purpose any documents in their possession relating to the application.

(2) The local professional committee shall make such inquiries into the circumstances of the case as they think fit and may invite the practitioner to appear before them and to call such witnesses as he may desire, and shall as

* The Order is placed on sale, and can be obtained through any bookseller, price 1d.

soon as may be report any facts ascertained by them, and their opinion on the case, confidentially in writing to the Central Professional Committee.

5.—(1) In the case of an application for a certificate of exemption other than on the ground of conscientious objection which is made by or in respect of a practitioner who is a member of the staff (including the residential and teaching staff) of any hospital or medical school situated within the Administrative County of London, or by or in respect of any other practitioner in England or Wales where the Army Council or the Central Professional Committee deem it advisable, the Central Professional Committee shall forthwith refer the application for consideration to a Committee of Reference appointed by the Royal College of Physicians of London and the Royal College of Surgeons of England and approved for this purpose by the Army Council, and in such case the recommendation shall be made by the Committee of Reference and shall be transmitted by them to the Central Professional Committee and by that Committee to the Tribunal.

(2) The provisions of Article 3 (2) of these Regulations shall apply in the case of applications referred to the Committee of Reference, but, subject as aforesaid, the procedure of the Committee of Reference on the consideration of an application shall be such as the Committee of Reference may determine.

(3) The Army Council may, if they think fit, and subject to such conditions as they may impose, approve for the purposes aforesaid any existing Committee of Reference recognized by them which has undertaken similar duties in connexion with the selection of practitioners for service during the War in the Naval and Military Forces of the Crown.

6.—(1) The Central Professional Committee shall elect a chairman who shall preside at all meetings of the Committee held for the purpose of dealing with matters arising under these Regulations, and if the chairman is absent from any meeting the members present shall choose one of their own number to preside, and that member shall for the time being have all the powers of the chairman.

(2) The quorum of the Committee shall be such number of members, not being less than five, as the Committee may decide.

(3) Proceedings of any Committee under these Regulations shall not be open to the public.

7.—Questions before the Central Professional Committee shall be decided by a majority of the members present and voting, and, in the event of an equality of votes, the chairman shall have a second or casting vote.

8.—(1) A practitioner may appear at any hearing before the Central Professional Committee personally, or, in any case where the Committee so permit, by a representative.

(2) The Committee at any hearing may, if they think fit, hear witnesses other than the witnesses, if any, called by the practitioner, and the practitioner or his representative may put to such witnesses such questions as appear to the Committee to be relevant.

9.—Notices and applications required to be delivered to the Central Professional Committee shall be sent to the office of the Committee, and may be delivered at or sent by post to that office, and notices required to be sent to a practitioner in respect of whom an application for a certificate of exemption is made may be sent by post to or delivered at his usual place of residence.

10.—Subject as hereinbefore provided the Central Professional Committee shall, as soon as they have considered an application and come to a decision thereon, communicate their recommendation in writing to the Clerk of the Tribunal by which the application has been referred; and a register of all applications and of the decisions thereon shall be kept by the Central Professional Committee.

11.—The Military Service Regulations (Amendment) Order, 1916, shall not apply to an application by or in respect of a practitioner for a certificate of exemption where those Regulations are inconsistent with the provisions of these Regulations.

12.—In these Regulations "practitioner" means a duly qualified medical practitioner.

CIRCULAR TO TRIBUNALS BY THE LOCAL GOVERNMENT BOARD.

The Local Government Board has issued a circular letter to local tribunals and appeal tribunals transmitting this Order in Council, and also another Order made on the same day containing regulations dealing generally with all other persons to whom the Act applies. The circular

contains the following paragraph with reference to medical practitioners:

7. *Medical Practitioners.*—Medical practitioners who come within the operation of the Acts and wish to be exempted must, as hitherto, apply to the appropriate Local Tribunal.

But in view of the special position of the medical profession, their services being in great demand both by the Army and by the civil population, the Act makes provision for applications for exemption from medical practitioners being considered by professional committees which will be fully aware of the special arrangements which can be made in any case, and will be able to deal with each case from the point of view of the needs and resources of the country as a whole, not simply of those of a particular locality.

It has, therefore, been provided that each application for exemption by, or in respect of, a duly qualified medical practitioner, other than an application solely on conscientious grounds, shall be forthwith referred by the Local Tribunal to a central professional committee, and that the recommendation of this committee shall be binding on the Tribunal. If an application is made by a medical practitioner both on conscientious and on other grounds, it is to be referred forthwith to the professional committee for their recommendation on the other grounds. On receipt of the recommendation from the professional committee, the Tribunal will then, unless the recommendation is for absolute exemption, consider the application on conscientious grounds, after due notice, and will decide whether the certificate, if any, should be confined to the recommendation made by the professional committee in respect of the other grounds, or whether it should be modified in favour of the applicant in view of the conscientious objection. The Tribunal will not in any case be able to grant a certificate less favourable to the applicant than has been recommended by the professional committee.

A copy of the separate Regulations which have been issued in this matter is enclosed for the information of the Tribunal. It will be observed that power is given to the central professional committee to refer a case to a local professional committee for investigation if this is thought desirable.

Communications to the Central Professional Committee concerning cases in England and Wales should be addressed to the Secretary, Central Medical War Committee, 423, Strand, London, W.C.

[The address of the Scottish Medical Service Emergency Committee is the Royal College of Physicians, Edinburgh.]

POOR LAW OFFICERS IN NAVAL OR MILITARY SERVICE.

THE Local Government Board (England and Wales) has issued a circular,¹ dated May 26th, 1916, to boards of guardians and other Poor Law authorities, drawing attention to certain provisions of the Local Government (Emergency Provisions) Act, 1916.

Section 1 gives the guardians power to grant leave of absence to any officer or servant for as long a period as may be necessary to enable him to serve in or with His Majesty's Forces, and, while he is serving, to pay him or his wife or other dependants nominated by him an allowance which shall not, without the sanction of the Local Government Board, exceed his civil remuneration (including emoluments) after deducting therefrom his naval or military pay. Any resolution, promise, sanction, or permission passed or given by the guardians to any officer or servant before the passing of the Act, with a view to his serving in or with His Majesty's Forces, is declared to be binding on the guardians. The memorandum points out that the Act also enables the guardians to pay allowances exceeding those indicated above in cases that may arise in future, provided the sanction of the Local Government Board be obtained. The memorandum continues as follows:

This power is only intended to be used in exceptional cases, and applications for sanction will only be entertained in cases of that nature. An allowance which brings the total income up to an amount exceeding civil pay could not usually be justified, but an allowance slightly exceeding that generally legalized by the Act might not be unreasonable in some cases of married men holding commissions as officers.

There are also cases such as those in which an arrangement has been made by the guardians with a medical officer, so that while serving in or with His Majesty's Forces he continues to draw his full civil salary, but provides at his own cost a deputy,

¹ The circular will, it is stated, shortly be placed for sale, and may be ordered through any bookseller.

approved by the guardians, to perform his duties. The Board do not think that the arrangements made in such a case need ordinarily be referred to them for their approval, and they hereby sanction generally the continuance of those arrangements. They reserve, however, to themselves the power of intervening to review the arrangements in any individual case if circumstances should render it desirable to do so.

A question has been raised as to the application of this section in the case of a temporary employee of a local authority, and particularly in that of a person who has been engaged to take temporarily the place of an officer or servant who has been given leave of absence with a view to his serving in or with His Majesty's Forces. Mr. Long is advised that, if such an employee is engaged for a fixed period of time he cannot be given leave of absence, or an allowance under the section for a period extending beyond the expiration of his period of engagement, and that, if such an employee is expressly engaged as a substitute for some officer or servant, he is probably not within the section.

On the application of the guardians the Local Government Board may determine any question as to what amount may be paid under this section.

Section 2 of the Act removes any doubt as to the power of a local authority to pay the widow or other dependants of an officer or servant who dies while serving in or with His Majesty's Forces, or in consequence of wounds or disease received or contracted during such service, whatever sums would have been payable to her or them under any superannuation scheme had he died while in the actual service of the local authority. The section further legalizes any such payments which may already have been made in such circumstances by a local authority. The provisions of this section would not generally be applicable to the case of officers and servants of poor law authorities.

Section 3 provides that for the purposes of any statutory superannuation fund service in or with His Majesty's Forces shall be reckoned as service with the guardians, and that the officer or servant shall contribute the same amounts (if any) to the superannuation fund as if he had remained in the actual service of the guardians at his normal remuneration. Where, however, the guardians have already agreed to exempt the officer or servant from the payment of such contributions during his naval or military service, the Act will not require the payment to be made.

For the purposes of the Act, or for such of them as may be specified by the Local Government Board, service in connexion with naval or military operations which the Board consider may properly be treated in the same manner as actual naval or military service is to be deemed service with His Majesty's Forces. It appears to the Board that for the purposes of Section 3 of the Act all work in connexion with the supply of munitions and all service or employment in or about any institution used for the accommodation of sick or wounded sailors or soldiers, or for other purposes in connexion with the present war which may be undertaken with the permission of the guardians by their officer or servant may properly be treated in the same manner as actual naval or military service. For these purposes, therefore, this work is to be deemed to be service with His Majesty's Forces, and no further application need be made to the Board as regards the application of these provisions to such persons.

GENERAL COUNCIL

OF

MEDICAL EDUCATION AND REGISTRATION.

SUMMER SESSION, 1916.

Sir DONALD MACALISTER, K.C.B., President,
in the Chair.

DENTAL BUSINESS.

In accordance with the recommendation from the Dental Education and Examination Committee, the dental diploma newly instituted at the University of St. Andrews, the title of which is Licentiate in Dental Surgery, was recognized for entry on the *Dentists' Register*.

PRACTICE OF DENTISTRY BY UNQUALIFIED PERSONS. *Report.*

The report of the Committee also dealt with the subject of the practice of dentistry by unqualified persons. At a meeting of the Council on November 26th a motion was made by Dr. Newsholme, seconded by Dr. Verrall, in the following terms:

That in view of the large amount of practice of dentistry by unqualified persons, and of the fact that the number of dentists on the *Dentists' Register* has not increased since the *Register* was formed, the several licensing bodies be asked at the same time to make suggestions as to any modifications or curtailments of the curriculum which, in their opinion, may be practicable, without lowering the standard of dental practice.

The motion was referred to the Dental Education and Examination Committee for consideration and report. The report now presented pointed out that the motion

obviously opened the question not merely of the curriculum, but of any other causes which might be at work to deter students from entering, and questions submitted to the licensing and educational authorities were extended in this direction. The report stated that the replies were now complete, and continued as follows:

There is absolute unanimity in attributing any shortage there may be mainly to the inadequacy of the Dentists Act, and in the opinion of the majority this is the sole cause. This is also the unanimous opinion of your Committee.

With regard to the effect of the preliminary examinations, which are the same as those required of medical students, one body alone considers them too stringent—the Glasgow Incorporated Dental Hospital. The others agree that they are only deterrent to those unfit to enter upon professional study with advantage. But several bodies are of opinion that there should be more opportunity given for option in the subjects of examination, and especially that Latin should be an optional subject.

Your Committee, without expressing any opinion upon the subjects of the Preliminary Examination, are unanimous in considering that it should be the same for Dental as for medical students.

With regard to the length and stringency of the curriculum as a deterrent, there is a general opinion expressed that its effect is slight as compared with that of the legal position, and that without lowering the standard of dental practice no curtailment of the four years required is possible. The National University of Ireland, University College, Cork, however, advocates a shortening to three years for the present. But many suggestions, some of them entering into full detail, are made for the improvement of the curriculum, and for some rearrangement of the examinations.

In general terms the modifications suggested are in the direction of closer adaptation to the special needs of the dental practitioner, and involve material limitation of teaching in general subjects such as anatomy, physiology, surgery, and medicine.

In face of the body of opinion offered your Committee feel that these suggestions should be carefully co-ordinated, and the Committee's recommendations on the subject of the dental curriculum be considered in relation to them. This, however, involves work which will take time, and cannot be reported upon at this session.

It was moved by Dr. Magennis, seconded by Sir Bertram Windle, and agreed to:

That as it is expedient that the public should be enabled to distinguish between qualified and unqualified practitioners of medicine or of dentistry, and as a large number of persons who are practising dentistry under such conditions as to lead the public to believe they are qualified dentists, the General Medical Council do refer the question to the Dental Education and Examination Committee to take into consideration the best method for protecting the public from being deceived by such persons.

Your Committee, however, regret that they do not see any means which the Council could adopt which would be effective in preventing the public being deceived short of attempting to procure an amendment of the Dentists Act, a course which at the present juncture does not appear practicable.

Discussion.

The Chairman of the Committee, Mr. C. S. TOMES, in moving the adoption of the recommendation, suggested that those bodies which had not given detailed information but had suggested that modifications of the curriculum were desirable, should be invited to forward such information, and that the Committee should bring up a report next session on a comparison of the suggestions.

Dr. SAYNDBY inquired if the question of expense to the student, which was the most crucial matter, had been considered.

Mr. TOMES replied that certain bodies had called attention to it, but the fees were fixed by the schools over which the Council had no control.

Dr. NEWSHOLME moved that the report be referred back to the Committee for further consideration. The recommendation was entirely academic. The desirability of distinguishing between qualified and unqualified practitioners was recognized in 1914. The real question the Committee was asked to consider was whether any modification of the curriculum were possible and desirable without lowering the standard of practice. Although there had been an increase in the number of practitioners, it could not be maintained that it was commensurate with

the enormously increased demands on dentistry during the last thirty or forty years. The State had a large stake in the matter at the present time, as it had made itself responsible for the medical treatment of a third of the whole population. The treatment in a large proportion of cases was rendered futile by the presence of sepsis due to bad teeth; the treatment of tuberculosis also had been rendered less efficacious owing to defective teeth. The medical inspection of school children had produced a large and increasing demand for dentists throughout the country. There were 5,000 qualified dentists and 20,000 unqualified in this country. The condition would remain a grave reflection on the General Medical Council until it had taken every practical step to secure an increased number of qualified dentists; that object might be attained by a modification and also a curtailment of the curriculum. Without infringing the principle that there should be no lowering of the standard of practice, the Council was entitled to a report from the Dental Committee on the questions—first, whether there was a shortage of dental surgeons; secondly, whether a modification of the curriculum was practicable; and, thirdly, whether, in the opinion of the Committee, curtailment was possible without lowering the standard of practice.

Sir BERTRAM WINDLE seconded. The qualified dentist was at a disadvantage because he was under restrictions to which unqualified men were not subjected. That was the kernel of the whole situation, and until it was altered a large increase in registered practitioners could not be expected. He did not think a modification or curtailment of the curriculum would produce an appreciable increase, but great improvement could doubtless be introduced into it. The question of an adequate supply of dentists was of extreme importance to the country, and especially in Ireland.

Sir HENRY MORRIS was of opinion that it was impossible to alter the curriculum so as to diminish the time, and thereby the cost, but it might be modified so as to make it applicable to the career of a dentist after qualification, and bring it within four years instead of prolonging it to five, as it was now sometimes. He asked the mover and seconder of the amendment to accept in place of their amendment the following:

That a copy of the report be sent to each of the licensing authorities or dental schools. That the Committee consider any further communications which may be received from these on the subject of the curriculum, and the Committee be instructed to prepare for submission to the Council such proposals as may be deemed desirable for the modification of the curriculum.

Dr. MACKAY pointed out that the Council was dealing with an interim report which stated that the matters remitted to the Committee were still under consideration. He suggested that the Chairman of the Committee should not insist on the adoption of the report, and that the proposal to remit it back to the Committee should be withdrawn.

Sir HENRY MORRIS said in that case he would withdraw his suggestion to send the report to the licensing authorities concerned.

Dr. NEWSHOLME, with the consent of Sir Bertram Windle, accepted Sir Henry Morris's motion in place of his amendment.

Mr. TOMES, with the consent of the Council, then withdrew his motion for the approval of the report in favour of the amendment.

The PRESIDENT put the motion as modified:

That the Committee consider any further communications which may be received from the licensing authorities or dental schools on the subject of the curriculum, and the Committee be instructed to prepare for submission to the Council such proposals as may be deemed desirable for the modification of the curriculum.

This was carried, whereupon Mr. HODSDON moved:

That in the opinion of this Council it is urgently necessary in the public interest that steps be taken to amend the Dentists Act in order that the public may be enabled to distinguish qualified from unqualified practitioners as dentists.

In his opinion the real point which gave rise to the discussion was not so much the curriculum as the law.

Dr. LANGLEY BROWNE seconded.

Dr. LATIMER was strongly in favour of seeking further legislation, and that the Council should be consulted as to the drafting of it.

Dr. MACDONALD thought that a penal clause should be inserted in any new Act which would protect qualified practitioners from those who had possibly spent nothing on their curriculum.

The motion was then put and adopted, whereupon Sir BERTRAM WINDLE moved, Dr. SAUNDY seconded, and it was resolved:

That the Dental Committee be requested to obtain statistics as to the relative cost of the dental and of the medical curriculum.

Whereupon Dr. CATON moved, Sir JOHN MOORE seconded, and it was resolved:

That Dr. Newsholme be added to the Dental Committee until further order.

PUBLIC HEALTH.

The Council received the report of the Public Health Committee, which stated that it had considered the replies of the licensing bodies to a circular letter calling their attention to the figures in the statistical table presented to the Council on November 4th, 1915, and suggested that the further consideration of the statistics relating to the examinations for qualifications in public health should be deferred until the next session of the Council.

(To be continued.)

British Medical Association.

CURRENT NOTES.

NATIONAL COUNCIL FOR COMBATING VENEREAL DISEASES.
In reply to the request of the Council of the Association the Chairman of Representative Meetings (Mr. E. B. Turner, F.R.C.S.) has been placed on the Executive Committee of the National Council for Combating Venereal Diseases. This is a recognition not only of the official position of Mr. Turner but of his long experience and deep interest in the work for which the National Council has been established.

MEETINGS OF INSURANCE PRACTITIONERS.

In the last circular letter sent to Panel Committees the Insurance Acts Committee suggested that it might be helpful to insurance practitioners if Panel Committees or combinations of such would organize meetings to be addressed by some member of the Insurance Acts Committee of the Association to consider the National Health Insurance problems which will arise at the end of the war, if not before, and the ways in which the Association proposes to deal with them. The idea has been very favourably received and already arrangements are being made for meetings at Leicester, Liverpool, Coventry, and Newcastle-on-Tyne with the prospect of many more later in the year.

Meetings of Branches and Divisions.

DORSET AND WEST HANTS BRANCH.

THE annual meeting of the Branch was held at Wimborne on May 17th, when Dr. C. D. MUSPRATT, President, was in the chair.

Annual Report and Financial Statement.—The annual report of the Branch Council, presented by the HONORARY SECRETARY, showed a decrease in the membership of six. The financial statement for the year ending December 31st, 1915, which showed a balance in hand of £57 17s. 3d., was passed. The council reported that it had decided to pay the travelling expenses of members of the council in future.

Summer Meeting.—It was arranged to hold the summer meeting at Weymouth during the first fortnight in July.

Presidential Address.—The President-elect, Dr. W. H. L. MARRINER, then took the chair, and delivered his presidential address on "The nose, ear, and throat in general medicine."

Clinical Cases.—Dr. LE FLEMING of Wimborne showed a case of actinomycosis and a case of Raynaud's disease.

Luncheon.—The President and President-elect entertained the members to luncheon at the Crown Hotel.

Tea.—The proceedings closed with tea, at which the members were the guests of the Wimborne practitioners.

METROPOLITAN COUNTIES BRANCH

LAMBETH DIVISION.

A MEETING of the Lambeth Division was held at the Bethlem Royal Hospital on May 26th.

Election of Officers.—The following gentlemen were elected:

Chairman: Dr. G. B. Scott.
Vice-Chairman: Dr. F. H. Lane.
Honorary Secretary and Treasurer: Dr. T. H. Parkes Peers,
20, Surrey Square, S.E.
Representative at Representative Meetings: Dr. J. C. V. Denning.
Representative on Branch Council: Dr. H. H. Norton.
Executive Committee: Drs. S. S. Brook, A. R. French,
T. Huston, D. McCarthy, J. M. Stoker, M. Moran, G. R. Elwin,
E. Herrington, E. L. M. Rusby, A. R. Moore, F. J. Porter
Smith, R. Larkin.

Nominations for Branch Council.—The following were nominated for the Branch Council:—*President-elect:* Dr. Hawthorne.
Vice-Presidents: Drs. Brackenbury, Crosse, Durno, and T. H. Parkes Peers. *Treasurer:* Mr. Betham Robinson. *Secretaries:* Drs. Harman and Kingdon.

Payments under the Insurance Acts.—The recommendations of the Insurance Acts Committee for the settlement of accounts for 1915 were discussed and agreed to.

Fees for Notification of Infectious Diseases.—On the motion of Dr. PORTER SMITH, seconded by the SECRETARY, it was unanimously agreed to send the following resolution to the Secretary of the Local Government Board and also to the Chairman of the Central Council:

The members protest against the reduction of the notification fee for infectious diseases from 2s. 6d. to 1s. as being unfair to the medical profession, who have given their time and services for the country in every possible way at home and on war service.

MIDLAND BRANCH:

HOLLAND DIVISION.

THE annual meeting of the Division was held at the White Hart Hotel, Boston, on May 19th, when Dr. PILCHER, Chairman, presided.

Annual Report.—The SECRETARY reported a balance in hand on December 31st, 1915, of £6 4s. 8d. The report of the Executive Committee was received and adopted.

Election of Officers.—The following officers were elected:

Chairman: Dr. Witham.
Vice-Chairman: Dr. Pilcher.
Secretary: Dr. R. Tuxford.
Executive Committee: Drs. Braithwaite, Galloway, Morris, Munro, South, Walker, White, and Wright.
Representative on Branch Council: Dr. Mason.

At a joint meeting of the Holland and Kesteven Divisions held on the same day Dr. Tuxford was appointed Representative to the Representative Meetings.

LINCOLN DIVISION.

THE annual general meeting was held at Lincoln on May 26th, when Dr. GENNEY took the chair.

Annual Report.—The annual report stated that the number of members on December 31st, 1915, was sixty, as compared with fifty-seven at the corresponding period of 1914; that the balance in hand on December 31st was £1 11s. 3d.; and that twelve members of the Division were on active service, including the Honorary Secretary of the Division (Dr. Rainforth). The report was adopted.

Election of Officers.—The following officers were elected:

Chairman: Dr. Carline.
Vice-Chairman: Dr. Darbyshire.
Honorary Secretary and Treasurer: Mr. Godfrey Lowe (Lincoln).
Representative for Representative Meeting: Dr. McFarland.
Representative on Branch Council: Dr. Genney.
Executive Committee: Mr. E. C. Clements, Dr. E. B. Denny, Dr. Willoughby Smith.

Annual Representative Meeting.—It was decided to defer the consideration of the Provisional Agenda for the Annual Representative Meeting till the full agenda was available.

ULSTER BRANCH:

BELFAST DIVISION.

At the annual meeting of the Division, held in the Medical Institute on May 18th, Dr. SR. GEORGE (Lisburn) in the chair, the following officers were elected for 1916-17:

Chairman: Dr. W. R. Davison (Ballymena).
Treasurer and Secretary: Dr. W. L. Storey (Belfast).
Executive Committee: Drs. W. M. Burnside, *M. F. Cahill, T. C. D. Cathcart, *T. A. Davidson, J. R. Davison, *D. Gray, R. M. Fraser, *S. T. Irwin, R. W. Leslie, W. M. Lorinan,

*A. G. Robb, J. Rusk, F. C. Smyth, D. H. Tweedie, R. Watt, all of Belfast; *H. J. Boyd (Hillsborough), J. A. Clarke (Carrickfergus), A. McN. D'Evelyn (Ballymena), W. D. Donnan (Holywood), C. K. Darnell (Bangor), *R. Reid (Whiteabbey), *D. P. Gausson (Dunmurry), G. St. George (Lisburn).
Representative to Annual Representative Meeting: Dr. W. L. Storey.

* On the Branch Council.

YORKSHIRE BRANCH:

SHEFFIELD DIVISION.

THE annual meeting of the Sheffield Division was held on May 23rd, and to it members of the Rotherham Division were invited for the purpose of electing members to represent the constituency of Sheffield and Rotherham on the Representative Body.

Election of Officers.—The following officers were elected:

Chairman: Dr. Dawes.
Vice-Chairman: Dr. O. H. Hudson.
Honorary Secretary: Dr. Sophia Wits.
Honorary Auditors: Drs. Brown and Kilham.
Representatives on Branch Council: Drs. Forbes, Sinclair White, Garrick Wilson and Husband.
Representatives on Representative Body: Drs. Husband and Slack.

Members of Executive: Drs. P. Bennett, Forrest, Innes Smith, G. Mathieson, Hardy, Holroyd, A. E. Barnes, King, Herbert Hallam, Furey, Mylan, Caiger, J. H. Wilson, Harrison, Johnston, S. Barber, McKenna, France, Gordon, Paterson, Helm, Wiseman, Nutt, Kilham, Sime, Kemp and Thompson.

Contract Practice.—The rules, to govern contract practice, which were brought before the meeting, were referred back to the Executive Committee.

Association Notices.

MEETING OF COUNCIL.

THE next meeting of Council will be held on Wednesday, June 28th, in the Council Room, 429, Strand, London, W.C.

By order,

GUY ELLISTON,
Financial Secretary and Business Manager.

June 1st, 1916.

GRANTS IN AID OF SCIENTIFIC RESEARCH.

THE Council of the British Medical Association is prepared to receive applications for grants in aid of Research into the Causation, Treatment, or Prevention of Disease. Preference will be given to medical practitioners and to applicants who propose to investigate problems directly related to practical medicine.

Applications for grants must be received not later than June 17th, 1916, and must be made on the prescribed form which, together with the Regulations governing such grants, can be obtained on application to the Medical Secretary of the Association, 429, Strand, London, W.C.

UNITED KINGDOM CONSTITUENCIES IN
REPRESENTATIVE BODY, 1916-17.

THE Council in January, 1916, provisionally grouped the Home Divisions in constituencies for the election of Representatives in the Representative Body, 1916-17, in the same way as for 1915-16. A list of the 1915-6 constituencies was published in the SUPPLEMENT TO THE BRITISH MEDICAL JOURNAL of July 3rd, 1915 (p. 9), and copies (D 4) were also forwarded to the Divisions and Branches on December 6th, 1915.

The Organization Committee, under instructions of the Council, has considered the latest membership figures, and has decided that such changes of Division memberships as have occurred since the provisional scheme of constituencies, 1916-17, as above, was adopted by the Council do not call for any change in the grouping.

The Home Constituencies in the Representative Body, 1916-17, will thus be the same as for 1915-16.

Constituencies are reminded that, under the By-laws, Representatives must be elected not less than four weeks before the Annual Representative Meeting, 1916, to be held in London on July 28th, and that their names must be notified to the Medical Secretary by July 7th. Representatives can, if necessary, be elected and instructed by one and the same meeting of the constituency.

By order,

ALFRED COX,
Medical Secretary.

June 6th, 1916.

BRANCH AND DIVISION MEETINGS TO BE HELD.

BIRMINGHAM BRANCH.—Dr. William H. Wynn, Honorary Secretary, gives notice that the annual meeting of the Birmingham Branch will be held on Thursday, June 22nd, at 3.30 p.m. Business: Annual reports; election of officers. The President for the ensuing session, Dr. W. R. Jordan, will deliver his inaugural address.

EAST YORK AND NORTH LINCOLN BRANCH: EAST YORK DIVISION.—Mr. H. L. Evans (101, Prince's Avenue, Hull) gives notice that the annual meeting of the Division will be held at 12.30 p.m., in the Lloyd Hospital, Bridlington, on Thursday, June 29th. Business: To receive the annual report and financial statement. To elect officers.

FIFE BRANCH.—Dr. G. C. Anderson, Honorary Secretary (Denbeath House, near Methil, Fife), gives notice that the annual meeting of the Branch will be held in the Station Hotel, Kirkcaldy, on Friday, June 9th, at 3.15 p.m., when it is proposed to adopt the ethical rules approved by the Annual Representative Meeting, 1915.

METROPOLITAN COUNTIES BRANCH.—Dr. R. E. Crosse and Mr. N. Bishop Harman (Honorary Secretaries) give notice that the annual general meeting of the Branch will be held at 429, Strand, W.C., on Tuesday, June 27th, at 4 p.m. The business will be: (1) Report of scrutineers as to the election of new officers. (2) The annual reports of council and of representatives of the Branch on the Central Council. (3) Alteration of Rule 7 b. (4) The adoption of the revised ethical rules as approved by the Annual Representative Meeting, 1915. (5) President's address: Medical Administration of Modern Armies.

METROPOLITAN COUNTIES BRANCH: EAST AND WEST HERTFORDSHIRE DIVISIONS.—Dr. H. D. Ledward and Dr. C. Herbert Hall, Honorary Secretaries respectively of the East and West Hertfordshire Divisions, give notice that the annual meetings of the Divisions will be held jointly at 3 p.m. on Wednesday, June 21st, at the offices of the Association, 429, Strand, W.C. Business: To receive the annual reports, elect officers, and consider the agenda of the Annual Representative Meeting.

NORTH OF ENGLAND BRANCH: NEWCASTLE-ON-TYNE DIVISION.—Dr. James Hudson gives notice that the annual meeting of the Newcastle-on-Tyne Division is to be held at 23, Ridley Place, on June 16th, at 8.30 p.m.

NORTH LANCASHIRE AND SOUTH WESTMORLAND BRANCH: FURNESS DIVISION.—Drs. George Alexander and A. E. Thompson, Honorary Secretaries, give notice that the annual meeting of the Furness Division will be held in the Masonic Hall, Barrow, on Friday, June 9th, at 3.15 p.m. Agenda: Annual report; election of officers; adoption of new ethical rules; discussion on the reduction of notification fees; any other business.

INSURANCE.**IRELAND.****DEFERRED PAYMENTS FOR THE CERTIFICATION OF SICKNESS BENEFITS.**

The National Health Commissioners (Ireland) have written to the Medical Secretary of the Irish Medical Committee, stating that the delay in making payments to the panel doctors for the quarter ending December 31st, 1915, is due to the impossibility of obtaining definite figures as to the diminution in the number of insured persons due to recruiting during the war. Deductions of payment were provisionally made on account of recruiting from the amounts which would ordinarily have been due to the panel doctors for the periods ended December, 1914, and March, 1915, and as the panel system ceased on December 31st last, payments for the final period could not be made until the proper adjustments are made in doctors' accounts in respect of the amounts deducted in previous periods. The required figures are now available, and the Commission hope to have the adjusted payments for the December quarter made at an early date.

The delay in paying for the certification of sickness benefits for the quarter ended on March 31st last is altogether due to the failure of a very considerable number of doctors to forward their returns to the Commissioners, notwithstanding that they were requested to do so on two different occasions. In this respect, however, matters have very much improved within the past week. The Commissioners complain that many doctors have neglected to mention in the certificate blocks the dispensary district in which the insured person resides, thus causing them much unnecessary trouble, particularly as they agreed last December, when in negotiation with

the representatives of the profession, to make the dispensary district in rural areas the unit for the distribution of the grant for certification. It is to be hoped in these small matters, as the result of experience, the Commissioners will have little reason to complain when they come to pay the doctors for the June quarter.

INSURANCE NOTES.**THIRD PARTIES AND COMPLAINTS AGAINST PANEL PRACTITIONERS.**

At a meeting of the London Insurance Committee on May 25th the frequency with which cases of complaint against panel practitioners are brought forward by third parties, very often, apparently, without the knowledge and consent of the insured person, came up for discussion, and a recommendation was agreed to that the Medical-Service Subcommittee be empowered to obtain a written statement from the insured person that it is by his wish that the question has been raised, the practitioner being otherwise under no contractual obligation to answer a question raised by a third party. This, of course, does not apply to questions raised by approved societies with regard to certificates, nor to complaints relative to deceased insured persons.

DENTAL TREATMENT.

In reply to Mr. Raffan, who on June 1st asked a question as to whether an approved society could expend any portion of its funds upon the provision of dental benefits for its members, Mr. C. Roberts said that, in accordance with Section 37 of the Act of 1911, the additional benefits specified in Part II of the Fourth Schedule to the Act could only be provided in a society whose funds showed a surplus on valuation. It was, however, within the competence of a society to make subscriptions or donations under Section 21 of the Act to a charitable institution having among its objects the provision of dental treatment which was available for the members of the society. A society could, he believed, only give dental benefit to its members directly after a valuation and as the result of a declaration.

CORRESPONDENCE.**PROPOSED EMERGENCY SETTLEMENT OF PANEL PRACTITIONERS' ACCOUNTS FOR 1915.**

CAPTAIN GORDON WARD, R.A.M.C., writes: I wish to protest emphatically against the agreement for the payment of our fees suggested and blessed by the Insurance Acts Committee in the SUPPLEMENT of May 27th.

In common with the majority of panel practitioners, I have never acknowledged the right of the Commissioners to employ any method of calculation which has the effect of setting aside for our payment any sum less than 7s. (7s. 6d. or 9s. in some cases) a head a year. Also, in common with the majority of panel practitioners, I look forward and, as far as may be, prepare for the time when we shall be able to enforce our demands by effective combined action.

The arrangement or agreement referred to approves of an even less controllable method (and thereby amount) of payment. That this new method is likely to produce results in the least commensurate with our proper claims is not suggested by the Insurance Acts Committee, then why for the sake of still highly problematical gains in punctuality of payment does this Committee tacitly admit the justice of the extraordinary methods by which our remuneration is calculated? The Insurance Acts Committee "satisfied itself by inquiries that a very close estimate could be made by the means suggested." A close estimate to what? Not, be it noted, to our just claims, but to the results (frankly underpaying us) which have been attained hitherto.

As a profession we are, I think, honest men. We pay our servants what we have promised to pay them, and not a penny less. We expect our leaders to exact such terms for us. We do not expect them to enter into collateral agreements which inferentially admit the justice, or even the expediency, of any other course.

At present the existence of an appalling national emergency is being used to keep us quiet while we are officially robbed (reduced notification fees, inflated deductions for enlistments, continued use of expensive aqua dest., long-deferred payments, increased clerical work by abolition

of "Rep. mist." etc.). Later, a huge national indebtedness will no doubt be used as an excuse for further robbery. One can very well foresee how the politician will insinuate that the doctors are not willing to pay their share of the war if we dare to protest against further reductions of fees.

Do our leaders in the Association see and foresee these things? There is, one notes with regret, but little sign of it. Is there one member of the Insurance Acts Committee who asked, when this new agreement received approval, that it should be plainly stated that it must in no way prejudice our claim for full payment as originally promised? Is there a member who even saw that it did prejudice that claim? There is no sign that such members existed.

So do we fall a ripe and ready prey into the hands of the politicians, and thereto the Association leads us. I am proud to belong to a Panel Committee that is consciously and continually preparing for the fight for our rights (except that I am in no way proud but profoundly humiliated in that circumstances have forced me to have anything to do with the Acts at all), and, I should add, for the rights of the insured, too. The feeling of that committee I know well. It has tried to regard the Association as the guardian of our rights and the leader-to-be of our resistance.

At present it views the Association with precisely the confidence and respect with which it views, for instance, the promises of Sir Robert Morant.

LOCAL MEDICAL AND PANEL COMMITTEES.

DUREAM COUNTY.

At a meeting of the Panel Committee on March 17th a scheme for the payment to practitioners for the supply of drugs and appliances in pursuance of Clause 12 of their agreement at a capitation rate of 1s. 6d. per 100 insured persons on their lists resident at a distance of one mile or less from the place of business of the nearest chemist, and at a capitation rate of 1s. per 100 insured persons for all other insured persons on their lists, was adopted and forwarded to the Insurance Committee for approval.

A scheme for the distribution of any special fund made available in the area for the payment of mileage to practitioners in respect of the year ended December 31st, 1915, was provisionally approved.

EAST SUSSEX.

At the May meeting of the Local Medical and Panel Committees it was resolved to ask the British Medical Association to endeavour to secure (1) that practitioners supplying drugs and appliances should have extra remuneration corresponding with the rise in cost; and (2) a special reduction in the price of petrol used by practitioners, and the cost of their motor licences.

REDUCTION OF NOTIFICATION FEES.

THE NOTIFICATION OF INFECTIOUS DISEASES.

SIR, -With your permission I desire to say a word in support of Dr. A. A. Mackeith's suggestion (BRITISH MEDICAL JOURNAL, June 3rd, 1916, SUPPLEMENT, p. 129), that the profession should attempt to escape from the statutory duty of notifying the occurrence of infectious diseases to the public authorities. The practitioner is summoned not as a Government official but as the private adviser of the patient, and he ought not to be compelled to reveal what he learns in this capacity. Let him give the needed information to the head of the household, from whom the law may force any revelation which the public interest requires. This interest, to take a further point, demands early notification in order that the risk of epidemic extension may be lessened. But under the existing conditions the practitioner is compelled to postpone his certificate until he is confident of a specific diagnosis. The public advantage would be much better served were it sufficient for the practitioner to tell the responsible householder that there was reason to believe that the patient was suffering from "an infectious disease." When the householder had conveyed this information to the medical officer of health it would be for the latter to take the necessary steps for the protection of the public. The present practice promotes delay where promptness is required; it invades the confidential relations which ought to exist between doctor and patient; and while compelling the practitioner to act as a Government servant, it fails to provide him with Government protection. So long as the profession accepts without protest these conditions, it allows the invasion of a claim which it is a public interest to maintain, namely, the confidential character of the communications made by a patient to his medical adviser. -I am, etc.,

London, W., June 5th.

C. O. HAWTHORNE.

Naval and Military Appointments.

ROYAL NAVAL MEDICAL SERVICE.

The following notifications are announced by the Admiralty: Fleet Surgeons P. H. Boyden, M.D., and W. G. Thwaytes, M.B., to the President; P. H. Bannister to the *Falmouth*; J. P. H. Greenhalgh, M.D.; T. T. Jeans, M.B., and E. R. Grazebrook to the *Victory*; J. E. Coad, M.B., to the *Neptune*. Fleet Surgeon R. S. Bernard is placed on the retired list. Staff Surgeons R. Kennedy to the *Pembroke*, additional; N. H. Harris to the *Pembroke*; B. S. Robson to the *Birmingham*; G. F. Syms to the President, additional. Surgeon A. R. Price to R.N. Hospital and Yard, Bermuda. Temporary Surgeons A. D. Milligan, M.B., R. S. Lawson to the *Pembroke*, additional; C. Y. Eccles to the *Indomitable*; R. P. Ninnis, M.B., to the *Neptune*; A. W. North to Haslar Hospital; A. L. P. Gould, M.B., to the *Vivid*, additional; P. W. Carruthers, M.B., to the *Pembroke*; H. Wetherbee to the President, additional for R.N.A.S.; E. M. Molesworth, M.B., to the *Sydney*.

ARMY MEDICAL SERVICE.

To be temporary Colonels whilst Assistant Directors of Medical Services: Brevet-Colonel F. Smith, C.M.G., D.S.O., Lieutenant-Colonels J. Poe, D.S.O., M.B., A. W. N. Brown, R. J. Blackham, C.I.E.

ROYAL ARMY MEDICAL CORPS.

Temporary Colonel R. T. Leiper, M.B., relinquishes his commission. Lieutenant-Colonel C. T. Blackwell, M.D., is retained on active list under the provisions of Articles 120 and 522 Royal Warrant for Pay and Promotion, 1914, and to be supernumerary.

Temporary Captain H. W. M. Tims, M.D., to be temporary Major. Temporary Captain R. B. Llewellyn, M.B., relinquishes his commission.

To be temporary Captains: Captain G. H. Clark, M.D., Unattached List, T.F., J. A. Turner, C.I.E., M.D., temporary Lieutenants F. W. Milne, M.D., A. D. Forbes, M.B., A. W. Owen, M.D.

Temporary Captain R. E. N. Martyn-Clark is dismissed the service by sentence of a general court-martial.

Officers of the Canadian A.M.C. to be temporary Lieutenants: L. E. Bolster, M.D., W. G. Shaw, W. A. Cardwell, M.B.

Lieutenants, Canadian Army Corps, to be temporary Lieutenants: J. W. Evans, M.D., M. A. Mackinnon, M.B., R. Stipe, M.D.

To be temporary Lieutenants: S. H. Calneek, A. T. Thurston, F.R.C.S.I., J. J. Shennon, M.B., A. P. MacMahon, M.B., A. Morton, M.B., T. S. Paterson, M.B., W. J. Poole, M.B., W. M. Stewart, M.B., J. L. Torley, M.B., R. Lindsay, M.B., J. W. Macfarlane, M.B., D. McLaren, M.B., F. R. Martin, M.B., W. W. Morrison, M.B., D. H. Coats, M.B., W. K. Connell, M.B., A. S. Cook, M.B., W. D. Allan, M.B., T. H. V. King, P. C. Foulkes, M.B., S. G. Harrison, N. H. Smith, M.B., H. H. Lawrence, J. A. Tobin, M.B., R. G. Gillies, M.D., R. H. C. O. Wisdom, A. A. Greenwood, M.B., G. Fehrsen, W. B. Knobel, M.D., P. S. Marshall, G. T. Garraway, J. P. Pegum, W. J. Moir, M.B., A. N. Haworth.

Temporary honorary Lieutenants to be temporary Lieutenants: J. G. Jones, V. C. James, N. M. Cummins, M.B., L. G. Jacob, R. H. Fleming, M.B., R. O. G. Michelmore, T. T. B. Watson, W. G. Newcomb.

To be temporary honorary Lieutenants: R. H. Maingot, H. G. E. Williams.

INDIAN MEDICAL SERVICE.

Surgeon-General Sir C. P. Lukis, K.C.S.I., M.D., F.R.C.S., K.H.S., has been appointed to be temporary Director Medical Services in India, with effect from April 15th, 1916.

The following Lieutenant-Colonels have been advanced to the higher position of their rank under Article 8 of the Royal Warrant of May 28th, 1913: Lieutenant-Colonel D. T. Lane, M.D., from April 1st, 1915; Lieutenant-Colonel R. C. Macwatt, M.B., F.R.C.S., C.I.E., from April 1st, 1915; Lieutenant-Colonel W. H. E. Woodwright, F.R.C.S.I., from June 21st, 1915; Lieutenant-Colonel W. J. Buchanan, M.D., C.I.E., from July 12th, 1915; Lieutenant-Colonel J. K. Close, M.D., from December 1st, 1915.

Major G. E. Stewart, M.B., F.R.C.S.E., has been confirmed in civil employment under the Government of Bombay with effect from November 18th, 1915.

SPECIAL RESERVE OF OFFICERS.

ROYAL ARMY MEDICAL CORPS.

Lieutenant (on probation) D. H. Paterson, M.B., is confirmed in his rank.

Lieutenants to be Captains: P. B. Corbett, M.B., W. W. Blair, M.B., W. W. S. Sharpe, M. J. Graham, M.B., P. W. Edwards, M.B., W. B. A. D. Sutton, O. D. Price, M.B., J. B. Cavanagh, M.B.

Lieutenants on probation confirmed in their rank: J. A. Crawford, M.B., G. Morris, M.B., R. P. Brown, M.B., H. D. Wright, M.B., W. H. Ferguson, M.B.

To be Lieutenants on probation: A. A. Dear, M.B., Ex-Cadet Sergeant H. S. Evans, Cambridge University Contingent, O.T.C.

OVERSEAS CONTINGENTS.

CANADIAN ARMY MEDICAL CORPS.

Lieutenant-Colonel W. A. Scott to be temporary Colonel. To be temporary Lieutenant-Colonels: A. W. Tanner, C. A. Peters, S. W. Hewetson, G. E. Beauchamp, P. J. Decarie, Z. Rheumay, Majors E. G. Davis, E. J. Williams, J. McCombe, F. W. E. Wilson, H. A. Chisholm, D.S.O. To be temporary Majors: J. Macoun, T. McLeask, A. T. Bazin, F. H. Mayhoad, N. K. Wilson, J. O. Lacroix, G. Bourgeois, H. M. Du Hamel, G. Archambault, J. A. Lussier, A. N. Rivet, and Captains W. B. Howell, J. G. Browne, P. K. Menzies, W. H. K. Anderson. To be temporary honorary Major: C. W. Buckley. To be Captains: R. Parsons, W. L. Tyrer. To be temporary Captains: A. E. Cote, C. H. C. Beil, C. D. Hewett, H. W. Wadge, C. W. Johnston, A. A. Drinnan, J. T. Mulvey, H. H. Eyres, J. C. Tull, F. J. Tees, D. Waterston, A. Ross, G. O. Wood, C. G. Gunn, J. A. Reid, B. J. Washburn, H. G. Chisholm, A. W. Park, R. Sanson, J. J. Jamieson, A. Lawther, E. P. Lewis, R. Tessier, J. U. Gariepy, L. de G. Joubert, L. Collin, J. A. Tournais, E. G. Dagenais, L. Blagdon, A. Larose, J. J. Trudel, J. A. Tournais, J. McCaffrey, M. Dolbec, A. Lamontagne, A. J. Lafleur, P. Gauthier, J. E. N. De Haire, F. Demers, E. Mallette, A. Dumont, G. Lefebvre, J. W. Ladouceur, H. C. Clermont, J. B. Trudelle, D. B. Lazier, Sergeant C. K. Dowson, E. L. Pope, C. E. Hanna, G. F. Seaborn, Private H. G. Gillissie from 52nd Canadian Inf. Batt., V. Bourgeault; Lieutenants J. G. Gunn, B. B. Almqvist, A. E. Fope, C. A. Langmaid, L. L. Stauffer, H. G. Wood, A. J. Martin, H. C. Moses, D. G. Turnbull, M. E. Graham, L. B. Graham, E. J. Manion, C. R. Walsh.

TERRITORIAL FORCE.

ROYAL ARMY MEDICAL CORPS.

London Casualty Clearing Station.—J. C. Newman, M.B., F.R.C.S., to be Lieutenant.

London Field Ambulance.—To be Captains: M. T. G. Clegg, late Lieutenant (temporary Captain), London Brigade, R.F.A.; Captain G. H. L. Whale, M.D., F.R.C.S., from a general hospital.

London Mounted Brigade Field Ambulance.—Captain (temporary Major) W. P. Thomas, M.D., relinquishes his temporary rank on ceasing to command a field ambulance.

London Sanitary Company.—Lieutenants to be Captains: H. J. L. Barefoot, R. E. Hebblethwaite.

Home Counties Field Ambulance.—Captain G. W. C. Hollist, from a casualty clearing station, to be Captain.

South Midland Mounted Brigade Field Ambulance.—Captain A. Leggett, M.B., to be temporary Major whilst commanding a field ambulance.

East Anglian Field Ambulance.—To be Captains: Lieutenants E. J. Staddon and R. J. R. Mcreedy. To be Lieutenant: N. R. Williamson, M.B.

Northern General Hospital.—Lieutenants to be Captains: F. Harvey, N. J. Wigram.

West Riding Field Ambulance.—Lieutenant H. A. Beetham, M.B., to be Captain.

East Lancashire Field Ambulance.—Captain F. C. Bentz, M.B., relinquishes his commission on account of ill health; Lieutenant C. W. Fort, M.B., to be Captain.

West Lancashire Field Ambulance.—Lieutenant A. S. Parkinson, M.D., from a Lancashire Field Ambulance, to be Lieutenant.

Wessex Division Sanitary Section.—Lieutenant W. H. Biggs to be Captain.

Welsh Field Ambulance.—Major A. R. Wilson, M.D., to be Lieutenant-Colonel.

Lowland Mounted Brigade Field Ambulance.—Captain (temporary Major) R. Y. Anderson, M.B., to be Major.

Highland Field Ambulance.—Majors A. E. Kidd, M.B., and D. Rorie, M.D., to be temporary Lieutenant-Colonels whilst in command of a field ambulance.

Supernumerary for Service with O.T.C.—Lieutenant E. W. Walker to be temporary Captain while serving with the Medical Unit of a University Contingent, Senior Division, O.T.C.

Attached to Units other than Medical Units.—Major J. Griffiths relinquishes his commission on account of ill health. Captain (temporary Major) H. F. Everett relinquishes his temporary rank on ceasing to command a field ambulance. Lieutenant W. C. D. Hills to be Captain. A. Iredale, M.B., to be Lieutenant.

TERRITORIAL FORCE RESERVE.

ARMY MEDICAL SERVICES.

Lieutenant-Colonel (temporary Colonel) H. T. Challis, M.D., from A.D.M.S., to be Lieutenant-Colonel.

Vacancies and Appointments.

VACANCIES.

NOTICES REGARDING APPOINTMENTS.—Attention is called to a Notice (see Index to Advertisements—Important Notice re Appointments) appearing in our advertisement columns, giving particulars of vacancies as to which inquiries should be made before application.

BOURNEMOUTH: ROYAL VICTORIA AND WEST HANTS HOSPITAL.—House-Surgeon. Salary, £150 per annum.

BRIGHTON COUNTY BOROUGH ASYLUM, Hayward's Heath.—Locumtenent Assistant Resident Medical Officer. Salary, £6 6s. per week.

BURY INFIRMARY.—Junior House-Surgeon. Salary, £150 per annum.

DARLINGTON HOSPITAL AND DISPENSARY.—House-Surgeon. Salary, £160 to £200 per annum.

DUBLIN UNIVERSITY.—Chair of Surgery.

DUDLEY: GUEST HOSPITAL.—Assistant House-Surgeon. Salary, £120 per annum.

GRAVESEND HOSPITAL.—House-Surgeon. Salary, £200 per annum.

GREAT YARMOUTH HOSPITAL.—House-Surgeon. Salary, £200 per annum.

HAMPSTEAD GENERAL HOSPITAL, Haverstock Hill, N.W.—Resident House-Physician. Salary, £200 per annum.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton.—Assistant Resident Medical Officer. Salary, £100 per annum.

HUDDERSFIELD ROYAL INFIRMARY.—(1) Senior House-Surgeon; (2) Assistant House-Surgeon. Salary, £150 and £100 per annum respectively.

LEAMINGTON SPA: WARNEFORD GENERAL HOSPITAL.—Two Resident Medical Officers. Salary, £250 and £150.

LEEDS GENERAL INFIRMARY.—(1) Resident Aural Surgeon. (2) Resident Obstetric Officer. (3) Resident Medical Officer at the Ida and Robert Arthington Hospitals. Salary, £100, £50, and £60 per annum respectively.

LONDON TEMPERANCE HOSPITAL, Hampstead Road, N.W.—Assistant Resident Medical Officer. Honorarium, £120 a year.

MANCHESTER NORTHERN HOSPITAL FOR WOMEN AND CHILDREN.—Lady House-Surgeon. Salary, £120 per annum.

METROPOLITAN HOSPITAL, Kingsland Road, N.E.—Surgeon for Diseases of Women.

MIDDLETON-IN-WHARFEDALE SANATORIUM, near Ilkley.—Lady Assistant Medical Officer. Salary, £300 per annum.

NAVAL AUXILIARY HOSPITAL.—Resident Assistant Surgeon. Salary, 20s. a day.

OXFORD EYE HOSPITAL.—House-Surgeon. Salary, £100 per annum.

PRESTON: COUNTY ASYLUM, Whittingham.—(1) Assistant Medical Officer; salary, £250 for first year and £300 for second year. (2) Locumtenent; £7 7s. per week.

PRESTON ROYAL INFIRMARY.—Resident Medical and Surgical Officer.

ST. MARK'S HOSPITAL FOR CANCER, FISTULA, Etc., City Road, E.C.—House-Surgeon. Salary, £150 per annum.

SHEFFIELD ROYAL INFIRMARY.—House-Physician. Salary, £120 per annum.

STOKE-ON-TRENT: NORTH STAFFORDSHIRE INFIRMARY, Hartshill.—House-Surgeon. Salary, £200 per annum.

SUNDERLAND COUNTY BOROUGH.—Temporary Tuberculosis Medical Officer. Salary, £500 per annum.

WOMEN'S MISSION HOSPITAL IN INDIA, Berhampore, Madras.—Lady Doctor.

WORCESTERSHIRE ASYLUM, Barnsley Hall, Bromsgrove.—Locumtenent Medical Officer. Terms, £7 7s.

CERTIFYING FACTORY SURGEONS.—The Chief Inspector of Factories announces the following vacant appointment: Gainsborough (Lincs).

MEDICAL REFEREES.—Medical Referees under the Workmen's Compensation Act, 1906, for County Court Circuit No. 50. Applications to the Private Secretary to Secretary of State, Home Office, by July 1st.

To ensure notice in this column—which is compiled from our advertisement columns, where full particulars will be found—it is necessary that advertisements should be received not later than the first post on Wednesday morning. Persons interested should refer also to the Index to Advertisements which follows the Table of Contents in the JOURNAL.

APPOINTMENTS.

CARRUTHERS, N. S., M.R.C.S., L.R.C.P., Certifying Factory Surgeon for the Acle District, co. Norfolk.

CHERRINGTON, D. G., B.A.Cantab., M.R.C.S., L.R.C.P., District Medical Officer of the Rye Union.

BIRTHS, MARRIAGES, AND DEATHS.

The charge for inserting announcements of Births, Marriages, and Deaths is 5s., which sum should be forwarded with the notice not later than the first post on Wednesday morning in order to ensure insertion in the current issue.

BIRTHS.

HODDER.—On the 26th May, at 160, Sandon Road, Stafford, the wife of Lieutenant-Colonel A. E. Hodder, R.A.M.C.(T.), of a daughter.

MACKENZIE.—On June 2nd, 1916, at Rose Hill, Dorking, the wife of S. Morton Mackenzie, M.A., M.B., B.C.Cantab., of a son.

MARRIAGES.

KINGDON-KEAYS.—On April 26th, at St. Leonards Church, Streatham Hill, by the Rev. E. V. Kingdon, M.A., brother of the bridegroom, C. T. Cory Kingdon, M.D., second son of C. B. Kingdon, Esq., J.P., of Stamford Hill, Stratton, North Cornwall, to Dorcas Louise Keays, only daughter of the late Captain Keays, of Jerbourg, Guernsey.

STOPFORD TAYLOR-BUCKLEY.—On the 1st June, at St. Nicholas Church, Blundellsands, by the Rev. Dr. Guest, M.A., Major R. Stopford Taylor, R.A.M.C.(T.F.), to Marion Gertrude, only daughter of William Buckley, J.P., Salisbury House, Blundellsands, Liverpool.

DIARY FOR THE WEEK.

FRIDAY.

SOCIETY OF TROPICAL MEDICINE AND HYGIENE, 11, Chandos Street, W., 5.30 p.m.—Annual General Meeting. Mr. James Cantlie: Topography of the Liver in Relation to Liver Abscess. Dr. G. C. Low: An Interesting Case of Syphilitic Pyrexia in an Indian Native. The Value of a Positive Wassermann Reaction in Diagnosis.

POST-GRADUATE COURSES AND LECTURES.

LONDON SCHOOL OF TROPICAL MEDICINE, Royal Albert Dock, E.
NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.

DIARY OF THE ASSOCIATION.

Date.	Meetings to be Held.
JUNE.	
9 Fri.	London: Executive Subcommittee of Central Medical War Committee, 2.30 p.m. Fife Branch, Annual Meeting, Kirkcaldy, 3.15 p.m. Furness Division, Annual Meeting, Barrow, 3.15 p.m.
13 Tues.	London: Organization Committee, 2.15 p.m.
14 Wed.	London: Medico-Political Committee, 2 p.m.
15 Thur.	London: Insurance Acts Committee.
16 Fri.	London: Executive Subcommittee of Central Medical War Committee, 2.30 p.m. Newcastle-on-Tyne Division, Annual Meeting, 23, Ridley Place, 8.30 p.m.
21 Wed.	London: Finance Committee, 2 p.m. East and West Hertfordshire Divisions, Joint Annual Meeting, 429, Strand, W.C. Edinburgh Branch, Annual Meeting, Royal College of Surgeons, Nicolson Street, 4 p.m.
23 Thur.	Birmingham Branch, Annual Meeting, 3.30 p.m.
23 Fri.	London: Executive Subcommittee of Central Medical War Committee, 2.30 p.m.
27 Tues.	London: Metropolitan Counties Branch, Annual Meeting, 4 p.m.
28 Wed.	London: Council Meeting.
JULY.	
28 Fri.	ANNUAL REPRESENTATIVE MEETING, Connaught Rooms, Great Queen Street, London, W.C., and following days as may be required.

SUPPLEMENT

TO THE

BRITISH MEDICAL JOURNAL.

LONDON: SATURDAY, JUNE 17TH, 1916.

CONTENTS.

	PAGE
POSITION OF MEDICAL MEN UNDER THE MILITARY SERVICE ACTS:	
LETTER FROM THE DIRECTOR-GENERAL, A.M.S. ...	141
MEMORANDUM ON THE NATIONAL ORGANIZATION OF THE MEDICAL PROFESSION ...	142
SCOTTISH MEDICAL SERVICE EMERGENCY COMMITTEE ...	145
ASSOCIATION INTELLIGENCE:	
CURRENT NOTES ...	147
ASSOCIATION NOTICES ...	147
NAVAL AND MILITARY APPOINTMENTS ...	148

	PAGE
GENERAL MEDICAL COUNCIL:	
EDUCATION IN MEDICAL ETHICS ...	145
PHARMACOPOEIA COMMITTEE ...	145
FINANCE ...	146
DISCIPLINARY CASES ...	146
CONSTITUTION OF COMMITTEES ...	147
VACANCIES ...	148
BIRTHS, MARRIAGES, AND DEATHS ...	148
DIARY ...	148

THE POSITION OF MEDICAL MEN UNDER THE MILITARY SERVICE ACTS.

The following letter and memorandum have been issued by the Director-General, Army Medical Service:

LETTER FROM THE DIRECTOR-GENERAL, A.M.S.

War Office, Whitehall, S.W.,
7th June, 1916.

To Members of the Medical Profession.

DEAR SIR,

I am extremely anxious to draw your attention to the particular provisions of the Military Service Acts, and of the Regulations now made thereunder, which concern the medical profession. For this purpose I have thought it may be convenient that a special Memorandum should be prepared on the subject, which should note the main points of practical importance to practitioners and the chief considerations, medical, military, and civil, that have been involved in the problem.

I enclose such a Memorandum with this letter, and I am convinced that it is of the highest importance that every practitioner should familiarize himself at once with the exact position, in regard to himself and to the profession generally, which has been brought about by the new conditions, as therein set out.

I desire to emphasize the fact, which will be clear to you, I think, on reading the terms of the Memorandum, that the scheme must, of necessity, depend for its successful working upon the support and co-operation of the whole profession. It is, I believe, impossible to exaggerate the importance of this effective co-operation; by this alone will it be possible to justify and maintain the very special arrangements now sanctioned by Parliament for the medical profession in relation to military service.

I need hardly remind my professional brethren that in the present circumstances of the nation the medical profession is under a very great responsibility for the welfare both of H.M. Forces and of the civil population. The profession has now been entrusted, in a very special manner, as is explained in the Memorandum, with the responsibility of working out, in co-operation with the Government, what I may perhaps call the mobilization of the whole of the medical services of this country for its civil needs; on such lines as shall enable the pressing requirements of the Army to be met with the least possible injury to the civil population. A higher responsibility, a more inspiring opportunity, could hardly be imagined for any profession; and, as a member of the medical profession myself, I make no apology for being proud that this call has come to it.

I should like to state how deeply sensible I am of the spirit in which large numbers of medical men have rendered and are rendering essential service to the nation; and I wish to make it absolutely plain that the purpose of the Scheme described in the Memorandum is to assist the profession in this great task which I am assured it is most anxious to fulfil—the task of securing the best possible disposal of the energies of the medical men throughout the country by the utilization of the skill of each practitioner in the sphere in which he is found to be most needed at a given time.

I am convinced by my close and continuous observation of the problem that it is only by means of such a national organization of medical services, effected by the profession itself, that the profession can be assured of serving the country with the maximum of efficiency and with the minimum of disturbance and friction in the case of individual practitioners.

Under the Scheme shown in the Memorandum—given the keen co-operation of the whole profession—I earnestly hope it will prove possible to meet the urgent and ever-varying needs of the Naval and Military Forces for medical officers, and at the same time to maintain, without risk of a breakdown, those medical services which are indispensable to the general civil population—services that are especially vital in time of war in those industrial areas where medical provision is, even in normal circumstances, no more than adequate for essential requirements. This great task can only be achieved, on the lines shown in the Memorandum, by the strenuous and continued efforts of all the members of the profession in all parts of the country.

There is one further point of very great moment which I must emphasize, and on which I must make a personal appeal to those of my professional brethren whom it directly concerns. While the smooth working of the Scheme can, as already shown, only be effected by engaging the patriotic support of every practitioner, I am bound in a very special manner to beg the attention of men between 41 and 45 years of age to the manner in which they in particular have it in their power to mar or to contribute to its success.

To every practitioner between these ages, I would say that, while not liable to the provisions of the Military Service Acts, it is open to him (I hope each one will consider whether it is not indeed incumbent on him) to offer himself, by enrolment, as one who may be selected, if needs be, for professional service with the Forces, at home and abroad. It is estimated, on a careful investigation of available figures, that the full acceptance, by the men of these ages, of this opportunity of rendering service to their country would secure an addition of some 40 per cent. to the number of practitioners now otherwise eligible for

selection (if required) for commissions in the Royal Army Medical Corps.

Practitioners between 41 and 45 years of age are, in fact, in a position, by now enrolling, to assist in a peculiarly important degree the achievement of the objects of this Scheme for the organization of the profession, thus enabling the Government both to meet the pressing needs of the Forces at home and abroad, and to ensure the maintenance of an adequate medical service for the civil population.

I desire to commend the whole Scheme to your careful consideration.

I am, yours very truly,

ALFRED KEOGH,
Director-General, Army Medical Service.

MEMORANDUM.

THE NATIONAL ORGANIZATION OF THE MEDICAL PROFESSION IN RELATION TO THE NEEDS OF H.M. FORCES AND OF THE CIVIL POPULATION AND TO THE MILITARY SERVICE ACTS.

IN virtue of the compulsory provisions of the Military Service Acts, doctors up to the age of 41, whether married or single, are under the same statutory obligation as other citizens to serve in H.M. Forces for the duration of the war. The medical man, however, is in a very special position in the following respects: firstly, he is needed in the Navy and Army to render there the same kind of services that he fulfils in civil life; secondly, arrangements can be made in a large number of cases for carrying on his civil work, when he joins the forces, in a manner that will conserve to him or his family, in addition to his military pay, a substantial proportion of the remuneration he would have received had he remained in civil life; thirdly, this bringing about of an arrangement for carrying on his civil duties is often essential in the interests of the civil population and a necessary element in determining which of the men in a given place can most wisely be selected for the Army Medical Service; but, fourthly, the making of such arrangements must rest, of necessity, with the members of the medical profession.

For these reasons, two special arrangements have been provided under the Military Service Acts in regard to the medical profession: (i) A special procedure as to questions of exemption of doctors from ordinary military service; and (ii) a special procedure for selecting, and at the right time in each case, the particular men who can be spared from their civil work to serve as doctors with H.M. Forces with least injury to the civil population, and for retaining in their civil work those who are most needed there in the public interest.

Since both of these processes can be made properly efficient by means only of a *professional* body, having full professional knowledge, Parliament has enacted in Section 7 of the new Military Service Act that the question whether a given doctor is to be taken to serve the Army, or is to continue to do his work for the civil population, shall be decided by a Central Professional Committee, instead of by the ordinary Tribunals.

Now it is clear that before any Central Professional Committee can arrive at a wise decision in any given case, it must be in a position to make an accurate comparison of the situation (in different areas, and as between different doctors) as regards the existing supply of medical attendance, of the various types necessary for the civil population. This is especially important in regard to the poorer areas, where the provision in normal times is often barely sufficient for the minimal needs of the people; whereas in several places there can be found a considerable redundancy of medical men, many of whom can quite well be spared before the local supply of doctors would be brought down to the level obtaining in normal areas. (The proportion of doctors to population is known to vary very widely, being as low as one to 5,000 in some areas, and as high as one to 800 in others.) And in order to be able to make the necessary comparisons equitably, it is necessary in the first place that the whole supply of doctors of various types in all parts of the country shall have been carefully surveyed, not only on a basis of detailed local knowledge, but also on a comparative basis, from one central standpoint. It is further important that in the process of comparison and selection there shall be within the field of consideration the largest possible number of doctors, including particularly all those in the areas of redundancy as well as the others; for, though many thus included will be over the age for military-medical service, these can be brought into effective count by their taking practical part in arrangements for carrying on the civil practice of some

of the men who can in that event, but not otherwise, be spared for the Royal Army Medical Corps.

This very important task of organized selection requires for its proper performance the existence of organizations for collecting detailed local information in all parts of the country, and of a central body, in close connexion therewith, for appraising the information, when collected, on a sound comparative basis, with a reasonably uniform standard, upon equitable profession principles, from a central standpoint, entirely free from personal bias or local prejudice. It is therefore obviously not a task that could have been undertaken at a moment's notice, nor properly achieved if only entered upon at this advanced period of the war.

There was, however, available to the Government an organization of the kind required, both local and central, which has for some time past been in effective operation, in England and Wales, and a similar one also in Scotland, having been set up by the Medical Profession itself, in the early months of the war, with the co-operation of the Medical Department of the War Office, for these purposes, long before there was any question of compulsory service.

This National Organization of the Medical Profession is now in three parts:

- (a) The Central Medical War Committee for England and Wales, a body composed of representative medical men of all types in the profession (*see list below*).
- (b) The Committee of Reference appointed (*see list below*) by the Royal College of Physicians of London and the Royal College of Surgeons of London, and consisting of Fellows of those Colleges, to consider cases of doctors on the staffs of hospitals and medical schools in the Metropolis, and such other special cases in England or Wales as may be referred to it; and
- (c) The Scottish Medical Service Emergency Committee for doctors in Scotland, comprising representative men of all types in the profession in Scotland (*see list below*).

The first and third of these bodies have local Professional Committees under them, each serving a particular geographical area, which represent and were appointed by the medical men in that area.

This comprehensive and representative professional organization has already been utilized by the War Office in many ways, and also by the Central Tribunal under the Military Service Act in the decision of particular doctors' cases; but its main function has been the selection, from time to time, of suitable medical men to be offered commissions in the R.A.M.C., and in particular the establishing and conducting, with the Army Council's approval, of a comprehensive Enrolment Scheme† for all qualified medical men up to 45 years of age—this being the limit for general service in the R.A.M.C.

This Enrolment Scheme is an officially approved arrangement whereby any duly qualified medical man under 45 years of age, who is willing, is able to enter his name on the Enrolment Register of these Professional Committees as prepared to accept a commission in the R.A.M.C., if and when offered one, undertaking thereby to accept service accordingly, at whatever time (if any) the Committee, after considering all relevant circumstances, shall consider that it is his turn to be selected by the War Office for that purpose. In recognition of the voluntary character of the service thus offered, the Army Council have undertaken that a man thus offering himself should have always at least a month's notice before being taken, that he should not be called on to fulfil his obligation of commissioned service for more than twelve months consecutively, and that he should have a certain stated rate of remuneration during the present war.

Under this Scheme a very large number of doctors have enrolled, and the Central Committees have compiled a Register from the detailed information collected and sent up by their local Professional Committees, indicating the available men of various types in each area, with useful particulars of various kinds in regard to them.

The Government Departments having official relations with the medical profession, *e.g.*, the Local Government Board, the Insurance Commissioners, and others, have worked in close co-operation with the Scheme, and representatives of those Departments and of the War Office attend the meetings of the Committee.

This being the officially recognized organization for coordinating the voluntary offers of medical service for the

* An analogous committee exists also in Ireland; but the present memorandum deals only with Great Britain.

† In Scotland the term used is Registration, but in this memorandum the one word only is used throughout for convenience.

Naval and Military Forces, steps were taken by the War Office on the passing of the first Military Service Act, and the consequent introduction of compulsory military service for all unmarried doctors under 41 years of age, to secure that those who had thus volunteered should not be prejudiced thereby, and that the fullest use should be made of the Scheme in all its possibilities.

With this object the Army Council arranged and announced publicly, firstly, that no doctor who had signified his willingness to accept a commission in the R.A.M.C. would be taken as an ordinary combatant; and, secondly, that *men who had enrolled under the national organization scheme of the profession above described would not be called up under the compulsory provisions of the Act, but would be left automatically by the Recruiting Authorities in the reserve until selected for a commission in the Royal Army Medical Corps.* This was laid down in Army Council Instruction 485, which has been made widely known through the professional press.

Since that date this enrolment has continued, and the Professional Committees have largely extended the scope of their information; and when the introduction of the second Military Service Bill brought into view the application of compulsion for all medical men (as for other citizens), married as well as single, up to 41, thus vastly increasing the number of doctors that would be liable to compulsory service, it became evident that the Government must make still further use of the Professional Organization, in order to cope with the task of solving equitably and with due regard to the needs of the civil population the many difficult questions involved in the selection of the doctors to be used for the medical service of the Army, and the doctors to be left in civil practice respectively. A clause was accordingly inserted in the Bill, which is now section 7 in the Act as passed, authorizing the recognition of Professional Committees in place of the Local and other Tribunals, for deciding the cases of all qualified medical practitioners, married or single, seeking exemption (on other than conscientious grounds) from compulsory service under the Acts.

The requisite Regulations under this section have now been made and issued, and the three Professional Committees named on page 2 above (p. 142) are the Committees to be recognized thereunder. It has thus become a matter of great importance to every medical man to know and to realize thoroughly the present position in respect of the profession, generally and individually, both in relation to the Acts and also to the whole question of obtaining a sufficient supply of medical men for our Naval and Military Forces, with as little injury as possible to the medical needs of the civil population.

It is with a view to facilitating the full comprehension of the various points involved in these questions that the present official memorandum is issued; and it is hoped that the preceding historical and explanatory paragraphs may help in some measure to elucidate the present position as set out in the paragraphs here following.

THE PRESENT POSITION.

It will be found convenient for these purposes to consider the medical profession, for the time being, in three categories:

- A.—Doctors under 41* who enrol.
- B.—Doctors under 41* who do not enrol.
- C.—Doctors over 41*.

A.—THOSE UNDER 41 WHO ENROL.

(i) As explained earlier in this memorandum, every doctor under 41, single or married, enrolled or not, is, in the same manner as other citizens, under the compulsory provisions of the new Acts; but, if he is enrolled, he will, by virtue of the arrangements given in Army Council Instruction 485 (above referred to), *not be called up by the Military Authority; that is to say, the War Office refrains from applying to him its compulsory powers as to combatant service if and so long as he is enrolled and undertakes to serve, and (if required) serves, as a commissioned officer in the R.A.M.C. whenever this may be found necessary in his particular case. It is therefore important that every doctor, under 41, not yet enrolled should at once enrol himself by applying to the Central Professional Committee and signing the form which will be sent him immediately on application; this should be addressed, if he is in England or Wales, to the Central Medical War Committee, 429, Strand, W.C., and if he is in Scotland to the Scottish Medical Service Emergency Committee, c/o the Royal College of Physicians, Edinburgh.*

* NOTE.—These age limits mean, in the case of a married doctor, that he is under or over 41 on June 24th, 1916, and of a single doctor, that he was under or over 41 on March 2nd, 1916.

To remove certain misconceptions believed to be prevalent, it may be well here to repeat that an *enrolled* doctor does not have to make any application to a Local Tribunal for exemption, for the reason that the summons to compulsory service, against which alone would he have any occasion to appeal to a Local Tribunal, does not reach him. He thus has no concern with any Local Tribunal, nor any Local Tribunal with him. For an enrolled doctor is not (where it is known to the Military Authority that he is enrolled) called up by the Military Authority; and if any enrolled doctor does in fact receive a notice paper from the Military Authority calling him up for service, all he need do is to send at once to that Military Authority a certified copy of the Certificate of Enrolment that he has previously received from the Central Committee in London or in Edinburgh; and the Military Authority will then, in accordance with A.C.I. 485, cancel the notice and the practitioner will remain in reserve unless and until selected for a commission in the R.A.M.C.

(ii) Being thus in the reserve, the doctor will remember that, as explained earlier, the decision as to whether or when he is to be selected for a commission in the R.A.M.C. and taken from his civil practice to serve as a doctor with the Forces, has been delegated to the Central Professional Committees. Thus, every doctor enrolled under the Scheme will remain in the Reserve unless and until he is notified that it is proposed to select him for receiving a commission in the R.A.M.C.

If, and when he is thus selected, he will receive a notification of this fact officially from the Central Professional Committee, and on receiving this notification, if he is of opinion that his personal or professional circumstances, or any other considerations, would justify his claiming to be left in his civil practice till a later date, or even throughout the war, he must communicate, in writing, at once to the same Central Committee to that effect, when a form will be sent him on which to send full particulars of his case.

He will then receive from the Central Committee a statement of their procedure for considering his case, and of any further information which they may require from him; and in due course the Committee, after consulting the appropriate local committee,* and after hearing the doctor if he so desires, will make a final decision.

In cases where the doctor is on the staff of a hospital or medical school in the London County area, the Central Committee will hand on the doctor's application to the Committee of Reference described earlier in this memorandum, and that Committee will consider and decide the case on such evidence as they think fit, with the same kind of procedure as above, and will communicate their decision to the Central Committee, who will transmit it to the individual and to the War Office.

If it is decided that the doctor is not then to be taken, or not to be taken till some specified later date, he will be informed accordingly by the Central Committee; and in any event he will be given at least a month's notice of the date of commencing service.

If, on the other hand, he is selected, he will be offered by the War Office, on the date indicated to him by the Central Committee, a commission in the R.A.M.C. which he will accept in accordance with the obligation that he entered into when he enrolled under the Scheme. In that event his commissioned service will on that occasion be for a period not longer (unless he is willing) than twelve consecutive months, and the terms and conditions of service will be the same as those hitherto obtaining with R.A.M.C. commissions in the present war. (Information on this can be obtained at any time from the War Office.)

In this connexion, a point arises on which it is important that doctors should clearly understand the position under the new Acts. Before these Acts the doctor was able at the end of the period of his commissioned service in the R.A.M.C. to return to civil life with no further obligations. But the Military Service Acts make an important difference; for now, on his return to civil life, compulsion applies to him, and, if he does not at once enrol again, so as to obtain the conditional immunity from calling up that is then given him by Army Council Instruction 485, he will necessarily be called up for ordinary service by the Military Authorities, and will only be able to obtain exemption (if at all) from such service through the procedure described under B. below. He should, therefore, in order to avoid this, immediately enrol himself again, and thus put himself again, for the time being, outside the compulsory provisions of the Acts and come again into the position of being amongst those from whom the Central Professional Committee can select doctors for commissioned

* The Central Committee will not communicate to the local committee any information as to his personal affairs given them by the doctor which the latter has requested them to treat as confidential.

service in the R.A.M.C.; and he will be thus selected if and when the Committee thinks it is his turn to be taken again. How soon the Committee will determine it to be his turn (that is to say, how long the interval will be between the end of his first period and the beginning of his second) will be determined by the appropriate Central Professional Committee, who will take into account all the relevant considerations, *e.g.*, the needs of the Army, the needs of the civil population, the number of doctors available, the number who have served for a period, the number who have not, and so forth. Doubtless, when the Committee is making its selections of doctors month by month for the R.A.M.C., men who have not previously served at all will, wherever on a general view of the circumstances it seems possible, be taken before a doctor who has served a period; and therefore doctors may hope that it will usually be found possible to arrange that the second period of commissioned service need not be directly consecutive on the first period, but that an interval will be possible; it being clear, however, as regards doctors under 41, that, in virtue of the compulsory provisions of the Acts, their statutory liability to military service holds good, as with other citizens, for the whole period of the war.

B.—THOSE UNDER 41 WHO DO NOT ENROL.

A doctor under 41 who is not enrolled does not have any of the advantages conferred by Army Council Instruction 485 explained above, so that an unmarried doctor (not enrolled) under 41, is liable at any time since March last to be called up by the recruiting officer for ordinary combatant service under the compulsory provisions of the Acts unless excepted by an Exemption Certificate; and a married doctor (not enrolled) under 41 is similarly liable after June 24th, 1916. If, on being thus called up, he desires exemption from ordinary service he must apply to the Local Tribunal for it; his claim will (unless it is on the ground of conscientious objection) invariably be sent on by the Local Tribunal, under section 7 of the Act, to the Central Professional Committee in London or in Edinburgh, as the case may be. This Committee (or, where he is on the staff of a hospital or medical school in the London County area, the Committee of Reference to whom every such case is referred by the Central Committee) will determine whether it is, or is not, necessary that he should be allowed to remain in his civil practice, the procedure for investigation being on the same lines as above explained in respect of enrolled doctors.

If it is decided that he should so remain, whether for a time or indefinitely, the Committee will recommend exemption for such period and subject to such conditions as they deem suitable, and the Local Tribunal will give the doctor a Certificate of Exemption accordingly.

If on the other hand it is decided that it is not necessary that he should be retained, the Committee will so recommend, and the Local Tribunal will then, under section 7 of the Act, refuse him exemption accordingly. The Military Authority will then call him up for ordinary service under the compulsory powers of the Military Service Acts, and the War Office will then (unless they think him unsuited for the R.A.M.C.) offer him a commission in the R.A.M.C.

Those who, on the Committee's recommendation, obtain temporary exemption, will similarly be called up by the Military Authority at the expiration of the period fixed.

As every doctor coming under this heading B, whether refused exemption or exempted only temporarily, will have been brought in under the compulsory provisions of the Acts, and as (by not enrolling) he has not availed himself of the privileges offered under A.C.I. 485, his term of R.A.M.C. service will be for the whole period of the war and on the ordinary rates of pay, *without any of the special arrangements as to pay, or 12 months periods, or otherwise, that have been accorded to doctors who offer themselves for service in the R.A.M.C. in this war.*

C.—DOCTORS OVER 41.

Doctors are eligible up to 45 years of age for commissions in the R.A.M.C. for general service. But doctors over 41 are not within the compulsory provisions of the Acts*; they can only be obtained for the R.A.M.C. by their consent. If they have already enrolled and thus given an undertaking to accept a commission in the R.A.M.C., they have pledged themselves to no more than 12 consecutive months of service; and this will also be the case as regards any doctors outside the limits of compulsion who now or hereafter enrol under the Scheme. Many doctors over 41 may, on inquiry, be found willing to undertake an enhanced obligation, *i.e.*, to serve a second period

after such interval (if any) as the Central Professional Committee may think applicable in each particular case. But as men over 41 are under no statutory obligation to serve, the War Office has no intention of requiring this enhanced obligation to be undertaken by any of these men who volunteer to accept a commission in the R.A.M.C.; this matter will be left, in their case, wholly to the option of the individual, and the hitherto existing terms and conditions of commissioned service in the R.A.M.C. in this war will continue applicable to all doctors outside the limits of compulsion who offer themselves for these commissions.

The Army Council earnestly hope that all the doctors between 41 and 45 who have not yet enrolled will now enrol, and thus bring themselves into the list of possible candidates for commissions in the R.A.M.C. Doubtless, just as in the case of those under 41, many of them cannot be spared from their civilian medical work, or are so placed financially and otherwise that the Committee would decide that they ought not to be taken at all, or not until very late. Possibly a large proportion of them will not be required. But, on the other hand, the addition, by enrolment, of all the doctors between 41 and 45 to the number of those under 41 remaining available now that so many of the much younger men have already joined the Army, would mean an addition of nearly 40 per cent. to the field of selection, and thus obviously tend to diminish very greatly the difficulties arising both for their professional brethren under 41, for the needs of the civil population, and for the requirements of the Naval and Military Forces, in the pressing exigencies of the present war.

War Office,
7th June, 1916.

CENTRAL MEDICAL WAR COMMITTEE.

- Sir T. Clifford Allbutt, K.C.B., M.D., F.R.S., Regius Professor of Physics, University of Cambridge.
Sir James Barr, M.D., LL.D., Consulting Physician, Liverpool Royal Infirmary.
Lieut.-Col. R. A. Bolam, M.D., M.R.C.P., Hon. Phys., Royal Victoria Infirmary, Newcastle-upon-Tyne; Prof. of Med. Jurispr., University of Durham.
Charles Buttar, M.D., D.P.H., M.R.C.S., L.R.C.P. (Chairman of Executive Sub-Committee).
Major Russell Coombe, F.R.C.S., Consulting Surgeon, Devon and Exeter Hospital.
Colonel J. Galloway, M.D., F.R.C.P., F.R.C.S., Senior Physician, Charing Cross Hospital.
Sir Rickman Godlee, Bart., K.C.V.O., LL.D., M.B., M.S., F.R.C.S., Consulting Surgeon and Emeritus Prof. of Surgery, University College Hospital; late Pres. of the Royal Coll. of Surgeons of England.
Major W. J. Greer, F.R.C.S.I., Hon. Surgeon, Royal Gwent Hospital, Newport, Mon.
N. Bishop Harman, M.B., F.R.C.S., Senior Ophthalmic Surgeon, West London Hospital.
Thomas Hennessy, F.R.C.S.I., Secretary of the Irish Joint Medical War Committee.
Prof. Harvey Littlejohn, M.B., F.R.C.S., Dean of the Medical Faculty, Edinburgh University.
Major Albert Lucas, F.R.C.S., Hon. Surgeon, General Hospital, Birmingham.
J. A. Macdonald, M.D., LL.D., Hon. Physician, Taunton and Somerset Hospital; Chairman of Council, British Medical Association.
Sir Alexander Ogston, K.C.V.O., M.D., LL.D., Consulting Surgeon, Aberdeen Royal Infirmary; Emeritus Regius Professor of Surgery, University of Aberdeen; Surgeon in Ordinary to his Majesty the King in Scotland.
Sir William Osler, Bart., M.D., LL.D., F.R.C.P., F.R.S., Reg. Prof. of Med. Univ. of Oxford.
Edwin Rayner, M.D., F.R.C.S., Consulting Surgeon, Stockport Infirmary.
B. A. Richmond, M.D., M.R.C.S., L.R.C.P., Secretary of the London Panel Committee.
A. E. Shipley, F.R.S., Master of Christ's College, Cambridge.
T. W. Shore, M.D., L.R.C.P., M.R.C.S., Dean of the Medical School of St. Bartholomew's Hospital.
Frederick Taylor, M.D., F.R.C.P., Consulting Physician, Guy's Hospital, President of the Royal College of Physicians of London.
E. B. Turner, F.R.C.S., London, Chairman of Representative Meeting, British Medical Association.
T. Jenner Verrall, LL.D., L.R.C.P., M.R.C.S., Direct Representative on General Medical Council (Chairman of the Committee).
N. Bishop Harman } Secretaries, 429, Strand, W.C.
Alfred Cox, M.B. }

It is proposed to enlarge the Committee by the addition of two members having experience of provincial industrial practice.

COMMITTEE OF REFERENCE.

- Representatives of Royal College of Surgeons, England:—
Surgeon-General Sir Watson Cheyne, Bart., K.C.M.G., C.B., President of the Royal College, for whom when absent Sir Rickman J. Godlee, Bart., K.C.V.O. (ex-President of the Royal College), is deputed to act.
Lieut.-Col. William F. Haslam, F.R.C.S.
Lieut.-Col. D'Arcy Power, F.R.C.S.
Charles Ryall, F.R.C.S.
Representatives of the Royal College of Physicians, London:—
Frederick Taylor, M.D., F.R.C.P., President of the Royal College (Chairman).
Major Sidney Martin, M.D., F.R.C.P.
Lieut.-Col. W. Pasteur, M.D., F.R.C.P.
Capt. H. G. Turney, M.D., F.R.C.P., F.R.C.S.
Secretary:—F. G. Hallett, Conjoint Board.

* That is, single doctors over 41 on March 2nd, and married doctors over 41 on June 24th, 1916.

SCOTTISH MEDICAL SERVICE EMERGENCY COMMITTEE.
 The President of the Royal College of Physicians of Edinburgh.
 The President of the Royal College of Surgeons of Edinburgh.
 The President of the Royal Faculty of Physicians and Surgeons of Glasgow.
 The Dean of the Faculty of Medicine, University of St. Andrews.
 The Dean of the Faculty of Medicine, University of Glasgow.
 The Dean of the Faculty of Medicine, University of Aberdeen.
 The Dean of the Faculty of Medicine, Edinburgh University.
 Dr. John C. McVail, Deputy Chairman, National Health Insurance Commission (Scotland).
 Dr. Robert Muir, Professor of Pathology, University of Glasgow.
 Dr. T. K. Monro, Regius Professor of the Practice of Medicine, University of Glasgow.
 Dr. J. R. Hamilton, Chairman, Scottish Committee, British Medical Association.
 Dr. John Adams, Vice-Chairman, Scottish Committee, British Medical Association.
 Dr. John Playfair, President of the Edinburgh Medical Guild.
 Dr. John Gordon, President, Aberdeen Branch, British Medical Association.
 Dr. John Stevens, Secretary, Edinburgh Branch, British Medical Association.
 Dr. G. C. Anderson, Secretary, Fife Branch, British Medical Association.
 Dr. J. B. Currie, Senior Medical Officer, National Health Insurance Commission (Scotland).
 J. A. Fleming, K.C., Vice-Dean of the Faculty of Advocates.
 Dr. Norman Walker, M.D., F.R.C.P. Edin., Convener.
 T. H. Graham, Secretary, Royal Coll. of Phys., Edin.

SCOTTISH MEDICAL SERVICE EMERGENCY COMMITTEE.

A MEETING of the General Committee was held on June 10th in the Hall of the Royal College of Physicians, Edinburgh, the following members attending: The President of the Royal College of Physicians, the President of the Royal College of Surgeons, the President of the Royal Faculty of Physicians and Surgeons of Glasgow, the Deans of the Faculties of Medicine of the Universities of St. Andrews, Glasgow, and Aberdeen, Dr. J. C. McVail, Professor Robert Muir, Professor T. K. Monro, Dr. John Adams, Dr. John Playfair, Dr. John Gordon, Dr. John Stevens, Dr. G. C. Anderson, Dr. Norman Walker (Convener). Sir Donald MacAlister, K.C.B., was also present, and Mr. T. H. Graham (Secretary).

The Convener, in reviewing the position of medical men of military age under the Military Service Acts, gave an account of the negotiations with the authorities of the War Office resulting in the establishment of Central Professional Committees for Scotland and England respectively to deal with claims by or in respect of medical men for exemption.

Sheriff James A. Fleming, K.C., Vice-Dean of the Faculty of Advocates, was appointed a member of the General Committee, and has agreed to act as legal assessor. Dr. Norman Walker was elected chairman of the Central Professional Committee for Scotland, and it was decided that five should form a quorum.

It was remitted to the Executive Committee to appoint or recognize such local professional committees as it might think necessary under the regulations. A statement was submitted showing that out of about 4,000 qualified medical practitioners in Scotland 1,617 had rendered service in one or other of the forces of the Crown since the outbreak of the war. In addition 95 applications for commissions had been recently transmitted to the War Office, making a grand total up to date of 1,712.

GENERAL COUNCIL

MEDICAL EDUCATION AND REGISTRATION.

SUMMER SESSION, 1916.

Sir DONALD MACALISTER, K.C.B., President,
in the Chair.

EDUCATION IN MEDICAL ETHICS.

THE Education Committee, to which had been added for the purpose Dr. McVail and Dr. Newsholme, presented a report in accordance with the instruction of the Council of November 4th, 1915, on the education of medical students in the ethical relationships of medical practitioners to the State, to their patients, and to each other. The report stated that a letter addressed to all the teaching bodies had elicited the information that in most cases the subject was dealt with as part of the regular work in the courses of forensic medicine and public health, to some extent also in other classes, and occasionally in special lectures. In a number of instances, however, no regular instruction had hitherto been given. The Committee expressed the

opinion that it was advisable that the subject should not be neglected in the education of the medical student, but recognized that the special arrangements adopted for conveying the instruction may naturally vary among the different bodies. The report concluded by advising that a general recommendation dealing with the teaching of medical ethics should be added to the "Resolutions of the General Medical Council in regard to professional education" as adopted on June 6th, 1912. Such a general recommendation was adopted by the Council in the following terms:

Instruction should be given, in the courses of forensic medicine and public health, or otherwise, on the duties which devolve upon practitioners in their relationship to the State, and upon the generally recognized rules of medical ethics. Attention should be called to all notices on these subjects issued by the General Medical Council.

Dr. McVAIL said that he felt sure that the recommendation would be of benefit to students in enabling them to avoid pitfalls, and particularly those with regard to the Midwives Act.

REPORT BY THE EXAMINATION COMMITTEE.

Apothecaries' Hall of Ireland.

The report of the Examination Committee contained the following recommendation:

1. That, inasmuch as the Court of Directors of the Apothecaries' Hall of Dublin have expressed their utmost willingness to comply in every respect with the requirements of the General Medical Council in regard to the Course of Study and the Examinations at Apothecaries' Hall, it be referred to the Examination and Education Committees, acting conjointly, to prepare for the Executive Committee a statement of the respects in which the said Course of Study and the said Examinations have been found to be defective or insufficient; and of the suggestions they desire to make for amendment in these respects. That, further, it be delegated to the Executive Committee to communicate to the Court or the Hall the statement so prepared on behalf of the Council.

At a meeting of the Executive Committee on May 25th it was resolved to forward a copy of the suggestions to the authorities of the Apothecaries' Hall, Dublin, with the request that the suggestions should receive the serious attention of those authorities.

Indian Subordinate Medical Department.

The Examination Committee reported that it had learnt from the India Office that the course of professional study for the Indian Subordinate Medical Department would be extended in the future from four to five years, and that prior to its commencement candidates would be required to pass a preliminary examination recognized by the General Medical Council. On November 16th, 1915, the India Office had forwarded for the information of the Council a proof copy of the revised prospectus relating to the military assistant surgeon branch of the Indian Subordinate Medical Department, but on April 24th, 1916, it had intimated that in consequence of certain difficulties which had arisen it had been decided to defer for another year the introduction of the scheme for improving the education and training of military assistant surgeons. In these circumstances the Committee did not offer any observations on the revised prospectus.

PHARMACOPOEIA COMMITTEE.

The British Pharmacopoeia, 1914.—The report presented by the Pharmacopoeia Committee stated that the number of copies of the *British Pharmacopoeia* sold between November 1st, 1915, and May 20th, 1916, was 960, making a total of 25,400 copies since January 1st, 1915, and that of the second issue of 10,000 copies, 3,200 remained in stock. It was also reported that there was a misprint in the eighth line from the foot of page 29, under the heading "*Adeps Lanae*," the words "0.2 gramme" should read "2.0 grammes," and that the misprint would be corrected in the next impression.

Laudanum.—The report also stated that the Committee's recommendations having been approved by the Council (SUPPLEMENT, November 13th, 1915, p. 186), a communication was addressed to the Lord President suggesting that in the public interest, all preparations or mixtures containing 0.75 or more per cent. of morphine should be included in Part I of the schedule of the Pharmacy Act. The suggestion was conveyed by the Lord President to the Council of the Pharmaceutical Society of Great Britain, who in virtue of its powers under the Pharmacy Acts submitted a resolution in favour of the suggested amendment of the schedule for the approval of the Privy Council. An

Order on the Council was thereupon issued on February 9th, 1916 (BRITISH MEDICAL JOURNAL, February 19th, p. 236), which enacts the amendment in the manner prescribed by law. The result, the report pointed out, was that all tinctures of opium, whether described as "*Laudanum B.P. 1893*" or otherwise, which contain three-fourths of 1 per cent. of morphine, must now be sold to the public only under the more stringent conditions attached to the sale of the poisons in the first part of the schedule.

FINANCE.

The report of the Finance Committee was entered on the minutes and approved on the motion of the Treasurers, Mr. TOMES and Sir HENRY MORRIS. It stated that the income of the General and Branch Councils for the year ending December 31st, 1915, was £10,040, and the expenditure £6,471, leaving a surplus of £3,569. The income of the General Council, £2,067, was £945 more than in 1914, owing to the abnormal number of colonial and foreign registrations. Numerous colonial practitioners had come over to help in the naval and military forces, and many Belgian doctors were enabled to maintain themselves by practising and to take the place of British practitioners who have gone to the front. The income of the English Branch showed a decrease of £640, and the Scottish of £326, but the Irish Branch had a small increase, £36. As many senior students had been recalled from the colours to complete their studies, the British registrations should not show a large decrease at present, and colonial and foreign registrations might continue at a high figure, but probably there were lean years ahead, and the Council's finances would need careful watching if they were to continue satisfactory. The number of students registered was 1,918, as against 1,600 in 1914, and 1,480 in 1913; out of the 1,918 between 400 and 500 were women. This was considered to be satisfactory, as giving ground for the expectation that in due course the wastage of the war was likely to be made up. The expenditure of the General Council showed a decrease of £1,184; the sessions, owing to their brevity, had cost £321 less, and the printing of the *Register* £342 less, as under the new contract there was a greater saving when fresh entries were fewer. The fact that no circulars were issued for the correction of the *Register* accounted for a saving of £263. The cost of reporting on the Apothecaries' Hall examinations was £121 less, and £431 less was paid for interest on mortgage and loan. General printing had cost £60 more, owing to increased prices during the war; £192 more was paid for rent, and house expenses were £62 higher. In building its new premises the Council had been much handicapped by having to do the work at a largely increased cost during the war, but it was hoped that the annual expenditure would not be much, if at all, increased by the change, which had greatly contributed to the comfort and convenience of the members, the staff, and the public. The conversion of consols held by the English and Scottish Branches into 4½ per cent. war loan at the end of 1915 showed an apparent loss of capital, owing to the price at which consols had been valued or bought. Though the surplus in 1915 was £3,569, as compared with £2,299 in 1914, the prospect of a probable decrease in fees for some years to come and the cost of elections of direct representatives which were only postponed, led the Committee to utter a word of warning against undue optimism. The Dental Fund showed a surplus of £671 of receipts over expenditure, almost exactly the same amount as in 1914. The expenditure was £196 more, principally because a proportion of office expenses more in accordance with the work involved was charged to the fund. The sum of £1,391 had been written off the value of consols on conversion, but after deduction of the surplus the net decrease in assets was £720.

DISCIPLINARY CASES.

Charge of Adultery.

The case of James Andrew Baird Thompson, registered as of 37, Bolina Road, South Bermondsey, London, S.E., M.B., C.M. 1877, M.D. 1879, U.Glasg., was considered on May 25th and 26th. He had been summoned to appear before the Council on the following charge:

That being a registered medical practitioner you abused your position by committing adultery with a Mrs. Grigson, whom and whose husband and child you had attended professionally, which adultery you were found to have committed by the

verdict of a jury given at the trial of the case of Grigson v. Grigson and Thompson in the Probate, Divorce, and Admiralty Division (Divorce) of the High Court of Justice, on October 20th, 1915, and in which the decree was made absolute on May 8th, 1916. And that in relation thereto you have been guilty of infamous conduct in a professional respect.

Mr. HARPER supported the charge. Dr. Thompson appeared in person.

Mr. HARPER said he understood that Dr. Thompson admitted the adultery, but denied that at the time the relation of doctor and patient existed between him and Mr. and Mrs. Grigson or any member of the household.

Dr. THOMPSON said that that was so. The relationship did not exist at the dates mentioned in the charge.

Mr. HARPER put in the decree nisi and the decree absolute and the shorthand writer's notes of the evidence in the divorce proceedings which had been verified by statutory declaration.

Dr. THOMPSON called Mrs. Grigson, who denied that at the time the acts of intimacy occurred professional relations existed. Dr. Thompson, giving evidence on his own behalf, confirmed Mrs. Grigson's evidence. He did not defend the divorce proceedings under advice, although he contended he had a good defence. His object in not doing so was as much as possible to avoid publicity. Dr. Thompson addressed the Council on his own behalf, and said that he had endeavoured to show beyond doubt that the professional relationship of medical man and patient did not exist between himself and Mr. Grigson and his family at the time of the misconduct. He also put in certain letters and testimonials.

The COUNCIL'S SOLICITOR briefly replied, and after the Council had deliberated on the case *in camera* the PRESIDENT announced the judgement of the Council as follows:

Dr. Thompson, I have to inform you that the Council has judged you to have been guilty of infamous conduct in a professional respect and have directed the Registrar to erase your name from the *Medical Register*.

Convictions for Misdemeanour.

The Council on May 24th considered the case of Kenneth Ram Gujral Shaw, registered as care of Thomas Cook and Son, Ludgate Circus, E.C., M.B.Ch.B. 1912, U.Edin., who had been summoned to appear before the Council on the following charge:

That being a registered medical practitioner you were convicted of the following misdemeanour, namely:

1. On September 17th, 1915, at the Thames Police Court, of being drunk and disorderly, in respect of which offence you were bound over in the sum of 60s. to be of good behaviour for six months.

2. On September 21st, 1915, at the County of London Sessions, of exposing your person, in respect of which offence you were on October 12th, 1915, bound over in the sum of £5 to appear for judgement if called upon within twelve months.

Mr. HARPER put in certified copies of the convictions, and also reports by the police, which had been forwarded to the Council by the authorities at Scotland Yard. The notice of inquiry had been posted by registered letter to his registered address, and Messrs. Thomas Cook and Son, Ludgate Circus, had informed him (Mr. Harper) that the same had been forwarded on instructions to "Mr. Shaw, M.E.F., Egypt." Inquiry had been made of the Director-General, Army Medical Service, and also of the Admiralty, but in each case no record could be found of any commission having been granted to Kenneth Ram Gujral Shaw. In case he should have accepted a post as ship's surgeon inquiry had been made of various steamship lines, with a like result. Mr. Harper then called evidence to identify Mr. Shaw as the person named in the certificates of convictions.

Strangers and the parties were directed to withdraw. On readmission, the PRESIDENT announced the judgement of the Council as follows:

I have to announce that Mr. Kenneth Ram Gujral Shaw, having been proved to have been convicted of the misdemeanours alleged against him in the notice of inquiry, the Acting Registrar has been directed to erase his name from the *Medical Register*.

The Council being satisfied that Henry William West, registered as of 352, Vernon Road, Old Basford, Notts, M.R.C.S.Eng. 1892, L.R.C.P.Lond. 1892, had been convicted at the City of Nottingham Assizes on November 1st, 1915, of feloniously killing and slaying a woman and sentenced to seven years' penal servitude, directed his name to be removed from the *Medical Register*.

The Council being satisfied that John Thomas Dickie, registered as of 37, Lauriston Place, Edinburgh, L.R.C.P. and S. Edin. 1881, had been convicted in the High Court of Justiciary on two separate charges of culpable homicide by using instruments in the bodies of two pregnant women and causing them to abort, and had been sentenced to five years' penal servitude, directed his name to be erased from the *Medical Register*.

On May 26th the Council considered the case of William Joseph Ryan, registered as c/o the British Medical Association, 429, Strand, W.C., L.R.C.P. and S. Edin. and L.F.P.S. Glasg. 1888. The charge was that on several occasions he had been convicted of being drunk and disorderly or drunk and incapable. Mr. HARPER proved the service of the notice of inquiry by registered post, and said that he communicated with the Financial Secretary and Business Manager of the British Medical Association, who had informed him that Dr. Ryan had used the address of the Association without authority, and that a registered letter for Dr. Ryan was still lying at the office of the Association. Mr. Harper put in certificates of conviction and proofs of identity of Dr. Ryan as the individual named therein, and also read correspondence from Dr. Ryan, in which he offered various excuses for his condition. The Council directed Dr. Ryan's name to be erased from the *Medical Register*.

DENTAL DISCIPLINARY CASE.

The Council considered on May 26th the report of the Dental Committee on the case of William Bonallo, whose address in the *Dentists' Register* for the current year was Cramlington Hall, Cramlington, Northumberland. The Committee stated that it had evidence that on November 2nd, 1915, the said William Bonallo was convicted at the Northumberland Assizes of feloniously using a certain instrument with intent to procure miscarriage, and was sentenced to three years' penal servitude. The Council directed his name to be erased from the *Dentists' Register*.

RESTORATION TO REGISTER.

The PRESIDENT announced on May 25th that the Acting Registrar had been directed to restore the name of Casper Denis Dowling to the *Medical Register*.

CONSTITUTION OF COMMITTEES.

The nominations to the following Committees were approved:

Examination Committee.—Dr. Taylor, Dr. Saundby, Dr. Caton (from English Branch Council), Dr. Russell, Dr. Knox, Dr. Norman Walker (Scottish Branch Council), Sir John Moore, Sir Arthur Chance, Dr. Kidd (Irish Branch Council).

Education Committee.—Dr. Norman Moore, Sir G. Philipson, Sir Francis Champneys (English Branch Council), Dr. Mackay, Mr. Hodsdon, Dr. Knox (Scottish Branch Council), Sir Arthur Chance, Sir Bertram Windle, Dr. Little (Irish Branch Council).

Public Health Committee.—Dr. Newsholme, Dr. Latimer, Mr. Verrall (English Branch Council), Mr. Littlejohn, Dr. Cash, Dr. McVail (Scottish Branch Council), Sir John Moore, Dr. Magennis, Dr. Kidd (Irish Branch Council).

British Medical Association.

CURRENT NOTES.

LOCAL CONFERENCES TO INAUGURATE SCHEMES FOR DIAGNOSIS AND TREATMENT OF VENEREAL DISEASES.

At a joint meeting of the Medico-Political, Public Health, and Hospitals Committees of the Association, held on June 8th, attention was drawn to the fact that it is the intention of the National Council for Combating Venereal Diseases to hold in all counties and county boroughs under the auspices of the county authorities or mayor a series of conferences to discuss the inauguration of local schemes for dealing with the diagnosis and treatment of venereal diseases. Some of these conferences have already been held and others are in contemplation. The joint meeting of the Committees considered that it was of the utmost importance that at all such conferences the local medical profession should be well represented. It is hoped, therefore, that chairmen and secretaries of Divisions and Branches of the Association will be on the look-out for the calling of the conferences and will take steps to call the local profession together beforehand in order to secure a good attendance of representatives of the profession and united action on the part of those who attend. The Council of the Association will

very shortly issue a detailed report on the recommendations of the Royal Commission on Venereal Diseases, one of the main points in which will be the insistence on the necessity for adequate representation of the medical profession on all committees set up to deal with local schemes.

Association Notices.

MEETING OF COUNCIL.

The next meeting of Council will be held on Wednesday, June 28th, in the Council Room, 429, Strand, London, W.C., at 11 a.m.—By order,

GUY ELLISTON,

June 1st, 1916.

Financial Secretary and Business Manager.

GRANTS IN AID OF SCIENTIFIC RESEARCH.

The Council of the British Medical Association is prepared to receive applications for grants in aid of Research into the Causation, Treatment, or Prevention of Disease. Preference will be given to medical practitioners and to applicants who propose to investigate problems directly related to practical medicine.

Applications for grants must be received not later than June 17th, 1916, and must be made on the prescribed form which, together with the Regulations governing such grants, can be obtained on application to the Medical Secretary of the Association, 429, Strand, London, W.C.

[Owing to pressure on our space, it has been necessary to postpone the publication of a number of meetings of Branches and Divisions, and also matter relating to Insurance.]

BRANCH AND DIVISION MEETINGS TO BE HELD.

BIRMINGHAM BRANCH.—Dr. William H. Wynn, Honorary Secretary, gives notice that the annual meeting of the Birmingham Branch will be held on Thursday, June 22nd, at 3.30 p.m. Business: Annual reports; election of officers. The President for the ensuing session, Dr. W. R. Jordan, will deliver his inaugural address.

EAST ANGLIAN BRANCH.—Dr. B. H. Nicholson (East Lodge, Colchester) gives notice that the annual meeting of the East Anglian Branch will be held in the Crown and Anchor Hotel, Ipswich, on Thursday, June 22nd, at 4 p.m., for the transaction of business.

EDINBURGH BRANCH.—Drs. John Stevens and John Eason, Honorary Secretaries (78, Polwarth Terrace, Edinburgh), give notice that the annual meeting of the Edinburgh Branch will be held in the Hall of the Royal College of Surgeons, Nicolson Street, on Wednesday, June 21st, at 4 p.m. Tea will be served from 3.40 to 4 o'clock. Business: Report of Branch Council. Treasurer's financial statement. Election of office-bearers. Report of election of Dr. John Stevens as member of the Council of the Association for 1916-17 for the Edinburgh and Fife Branches. Election to annual vacancy on the Board of Management of the Queen Mary Nursing Home; Branch Council nominate Dr. Lamond Lackie. Report of Proceedings of Scottish Committee. The work of the Scottish Medical Service Emergency Committee, etc. Annual Report of Council and Provisional Agenda for Annual Representative Meeting (SUPPLEMENT, May 6th); reduction of fees for notification of infectious diseases from 2s. 6d. to 1s. Any other competent business.

METROPOLITAN COUNTIES BRANCH: EAST AND WEST HERTFORDSHIRE DIVISIONS.—Dr. H. D. Ledward and Dr. C. Herbert Hall, Honorary Secretaries respectively of the East and West Hertfordshire Divisions, give notice that the annual meetings of the Divisions will be held jointly at 3 p.m. on Wednesday, June 21st, at the offices of the Association, 429, Strand, W.C. Business: To receive the annual reports, elect officers, and consider the agenda of the Annual Representative Meeting.

SOUTH-WESTERN BRANCH.—Mr. Russell Coombe, Honorary Secretary, gives notice that the seventy-seventh annual meeting will be held on Wednesday, June 21st, at the rooms of the Plymouth Medical Society, at 4.15 p.m., when Major Woolcombe will resign the chair to Mr. Ackland. The report of the Branch Council for 1915-16 and the financial statement for the year 1915 will be presented, and the officers of the Branch will be elected for 1916-17. In view of the continuance of the war the meeting will be restricted to the purely formal and necessary business.

STAFFORDSHIRE BRANCH.—Dr. Harold Hartley, Honorary General Secretary (Bosford, Stoke-on-Trent), gives notice that the forty-third annual meeting of the Branch will be held at the Victoria Hotel, Wolverhampton, on Thursday, June 22nd, at 5.25 p.m., when an address will be delivered by the new President, Dr. Henry Malet. The report of the Council and the financial statement will be presented and officers for the ensuing year elected. An alteration in Rule 7 of the Agreement of Affiliation of the Staffordshire County Nursing Association during the continuance of the war will be proposed. Members have the privilege of introducing friends. Dinner at 7 p.m.; charge 5s.

WORCESTERSHIRE AND HEREFORDSHIRE BRANCH.—Dr. S. C. Legge gives notice that the annual meeting of the Worcester Division will be held at 2 p.m., and the annual meeting of the Worcestershire and Herefordshire Branch at the Salter's Hall, Droitwich, on Friday, June 30th, at 3 p.m., when the President, Dr. Wilkinson, will deliver an address on The Brine Baths of Droitwich.

Naval and Military Appointments.

ROYAL NAVAL MEDICAL SERVICE.

THE following appointments are announced by the Admiralty: Surgeons-General D. T. Hoskey, M.B., to the *Pembroke*, additional, for Chatham Hospital; G. Welch to the *Victory*, additional, for Haslar Hospital. Fleet Surgeons J. D. Hughes to the *Temeraire*, H. Clift to Marine Barracks, Chatham; F. Bolster to the *Pembroke*. Staff Surgeons T. W. Jeffery to the *Pyramus*, vice Phipps; E. R. Townsend to the *Fulcan*, vice Jeffery; P. T. Nicholls and E. Thompson to the *Victory*. Temporary Surgeons F. L. Cassidy, M.B., to the *Leander*, vice Kilbride; G. W. Carte, M.B., to the *Vivid*, E. R. Bailey to the *Vengeance*, H. Danvers to the *Attentive*, E. L. Sturdee to the *Lion*, vice Moon; H. L. Ollerhead, W. F. R. Castle to Haslar Hospital; P. G. Gibson to Plymouth Hospital, G. S. Mitchell to Chatham Hospital, H. Clough to the *Pembroke*.

ARMY MEDICAL SERVICE.

LIEUTENANT-COLONEL A. L. A. WEBB, C.M.G., to be Deputy Assistant Director-General vice Lieutenant-Colonel H. P. W. Barrow.

ROYAL ARMY MEDICAL CORPS.

Temporary Lieutenants to be temporary Captains: T. M. Horsfall, M.B., F. M. Kirwan, J. H. Robertson, M.B., L. F. E. Jeffcoat, M.B., D. Kelly, H. Webb, R. J. Bruce, M.B., W. S. Pickup, M.B., K. M. B. Simon, M.B., D. A. Hutcheson, M.D., H. Bates, M.D., F. E. McGee, E. I. P. Pellett, W. H. McKinstry, M.B., W. E. L. Fowler, E. R. Welsh, M.B., H. S. Millar, M.D., T. L. Kenion, W. M. Thunder, M.B., G. R. C. Wilson, B. Beamish, T. MacKinlay, M.B., W. H. Hardy, M.B., C. G. Gibson, N. G. Meade, B. S. Taylor, R. T. Herdman, M.D., A. D. Forbes, M.B., J. E. M. Wigley, M.B., J. Macqueen, M.B., H. B. Elton, M.B., J. D. Wilkinson, S. Cross, M.B., B. Cuppage, M.B., A. J. Davoren, M.B., H. Blundell, M.D., A. Cameron, M.B., R. Donald, M.D., F. W. Fawcett, M.B., A. U. Millar, M.B., A. B. McPherson, M.B., A. R. Moore, W. Oliver, M.B., V. J. Rutledge, M.B., T. Readman, H. D. Smart, M.D., H. K. Wallace, M.D., J. J. K. Pentony, M.B., J. N. Martin, A. Farquhar, M.B., G. Haggood, G. H. Thompson, B. M. Hunter, M.B., A. H. Thomas, M.B., I. H. S. Hawes, M.B., W. A. Wheeldon, M.B., A. Whitby, G. W. Stanley, T. H. Fowler, A. J. Dempsey, M.B., T. Bennett, C. L. Lakin, M.D., R. Grant, M.B., G. W. B. Waters, J. R. Burn, M.B., B. N. Norman, S. H. Booth, M.D., J. J. Foley, W. J. Jameson, M.D., J. E. Forster, M.D., P. L. Watkin, Williams, F.R.C.S., J. C. Osborne, M.B., H. B. Wilson, E. J. Tyrrell, M.B., J. D. Benjafield, M.D., R. Power, M.B., A. E. Henton, W. R. Honeyburne, M.D., W. J. G. Henderson, M.B., W. Cooper, J. F. West, G. Clarke, M.D., J. M. Coates, M.D., C. W. Wilson, M. J. Gallagher, M.B., S. Batchelor, R. Hamilton, M.D., H. W. Binks, M.B., G. J. Fraser, M.B., H. S. Groves, L. R. Lemprière, M.B., R. McLean, M.B., G. McNeil, M.B., F.R.C.S.E., A. Verling, M.B., A. S. Wilson, M.B., W. F. Rhodes, F. E. Chapman, M.B., G. Hamilton, M. Macnicol, M.D., P. Templeton, E. R. Lyth, M.B., F. M. Harvey, T. B. Evans, M.B., F. R. Brown, M.B., A. McL. Cato, E. G. Goldie, M.D., J. M. D. Mitchell, M.D., G. P. Taylor, M.B., J. C. Mitchell, J. Low, M.B., E. B. Collings, J. Anderson, M.B., E. S. White, T. T. Apsimon, M.B., H. G. Davison, M.D., J. Clark, M.B., T. Kirkwood, M.B., A. E. Thompson, M.D., A. B. Northcote, M.D., H. R. Hurry, F. W. W. Griffin, M.D., A. N. Clemenger, D. C. Evans, E. R. Scott, M.B., L. W. Shelly, I. Allan, J. L. Williams, M.D., F. E. Reynolds, C. B. Heald, M.D., J. Cunningham, M.B., L. G. McCune, M.B., B. G. Klein, M.D., W. T. Buchan, M.B., E. Coleman, M.B., J. Proctor, M.B., D. C. Welsh, M.B., W. L. Christie, M.D., F.R.C.S., J. L. Dimond, M.B., D. A. Powell, H. E. Brennan, M.B., W. A. Easton, H. P. Sheppard, M.B., A. M. Assey, M.B., W. R. Meredith, J. Corcoran, F. B. Gurd, M.D., P. M. O'Sullivan, M.B., L. E. Williams, M.D., D. E. S. Wishart, M.B., G. Allison, M.B., H. C. Martin, M.B., T. D. Cumberland, M.B., R. C. Costaworth, M.B., M. E. Gorman, M.B., T. H. Crews, M.B., H. P. Hamilton, M.B., F. W. Clement, M.B., W. Edmondson, C. Salkeld, M.B., A. J. Clayton, J. K. M. Dickie, M.D., F.R.C.S., H. W. Scott-Wilson, M.B., L. A. Carr, M.B., J. T. Courtice, M.D., H. A. Cates, M.B., A. E. Lyster, M.D., L. E. Ashley-Emile, R. Nunn, M.D., N. W. Jenkin, A. J. Lewis, M.D., J. H. McCurrah, P. A. Doyle, K. B. J. Vickers, M.B., G. B. Crawford, M.D., D. Fettes, M.B., B. N. Sinclair, M.B., J. L. Callaghan, W. H. Brown, M.B., A. S. Richmond, M.B., D. A. Fletcher, M.B., G. M. Shaw, M.B., J. V. Williams, M.B., H. G. Murray, M.B., C. H. MacLean, M.D., M. Manson, M.B., H. W. Scavins, M. O'Brien, K. Fraser, M.D., W. D. Lawrie, M.D., F.R.C.S.E., W. E. Campbell, M.D., N. A. A. Hughes, L. W. Evans, M.B., R. N. Porritt, D. W. Torrance, M.D., R. I. Douglas, M.B., J. B. Scott, M.B., C. A. Brisco, M.B., F. W. Campbell, P. B. Browning, C. W. Green, M.D., W. J. B. Brown, M.B., J. F. Ryan, M.B., G. B. Burwell, M.B., E. F. G. Ward, M.B., D. A. Macfarlane, M.B., K. E. Millan, M.B., J. S. Stewart, M.B., N. M. Grace, M.B., G. S. Cronk, M.B., W. F. Clark, M.B., J. H. Box, M.B., A. G. Howson, M.B., H. L. Jarman, M.B., W. B. J. Symes, M.B., M. A. Collins, M.D., W. J. Grant, M.B., G. A. Greaves, M.D., T. L. Wormald, M.D., A. W. C. Lindsay, D. Macnish, M.B.

VACANCIES.

NOTICES REGARDING APPOINTMENTS.—Attention is called to a Notice (see Index to Advertisements—Important Notice re Appointments) appearing in our advertisement columns, giving particulars of vacancies as to which inquiries should be made before application.

BRADFORD CITY.—Two temporary Women Medical Officers. Salary, £8 8s. per week.
BURY INFIRMARY.—Junior House-Surgeon. Salary, £150 per annum.
DERBYSHIRE ROYAL INFIRMARY.—House-Surgeon. Salary, £200 per annum.
DEVON COUNTY EDUCATION COMMITTEE, Exeter.—Temporary Oculist. Salary, £8 8s. a week.
DUBLIN UNIVERSITY.—Chair of Surgery.

DUDLEY: GUEST HOSPITAL.—Senior Resident Medical Officer. Salary, £150 per annum.
GREAT YARMOUTH HOSPITAL.—House-Surgeon. Salary, £200 per annum.
LEEDS HOSPITAL FOR INFECTIOUS DISEASES AND TUBERCULOSIS.—Assistant Medical Officers. Salary, £250 per annum.
LONDON COUNTY COUNCIL.—Assistant Organizers of Children's Care Work. Salary, £100 per annum, increasing to £150.
LONDON TEMPERANCE HOSPITAL, Hampstead Road, N.W.—Assistant Resident Medical Officer. Honorarium, £120 per annum.
MANCHESTER CHILDREN'S HOSPITAL.—Locumtenant Lady Resident Medical Officer.
MANCHESTER NORTHERN HOSPITAL FOR WOMEN AND CHILDREN.—Lady House-Surgeon. Salary, £120 per annum.
MIDDLETON-IN-WHARFDALE SANATORIUM, near Ilkley.—Lady Assistant Medical Officer. Salary, £300 per annum.
NEW HOSPITAL FOR WOMEN, Euston Road, N.W.—(1) Two House-Surgeons. (2) House-Physician. Salary, £50 per annum.
PLYMOUTH: SOUTH DEVON AND EAST CORNWALL HOSPITAL.—House-Physician. Salary, £150 per annum.
SHEFFIELD ROYAL INFIRMARY.—House-Physician. Salary, £120 per annum.
SOUTH LONDON HOSPITAL FOR WOMEN.—Pathologist (female). Salary, £250 per annum.
STOKE-ON-TRENT: NORTH STAFFORDSHIRE INFIRMARY, Hartshill.—House-Surgeon. Salary, £200 per annum.
SUNDERLAND: ROYAL INFIRMARY.—Lady House-Surgeon. Salary, £150 per annum.
WIGAN: ROYAL ALBERT EDWARD INFIRMARY AND DISPENSARY.—Senior House-Surgeon. Salary, £250 per annum.
To ensure notice in this column—which is compiled from our advertisement columns, where full particulars will be found—it is necessary that advertisements should be received not later than the first post on Wednesday morning. Persons interested should refer also to the Index to Advertisements which follows the Table of Contents in the JOURNAL.

BIRTHS, MARRIAGES, AND DEATHS.

The charge for inserting announcements of Births, Marriages, and Deaths is 5s., which sum should be forwarded with the notice not later than the first post on Wednesday morning in order to ensure insertion in the current issue.

BIRTHS.

KEMP.—June 13th, at Brook House, Carbrook, Sheffield, the wife of Jas. Kemp, M.B., Ch.B., of a son.
WRAITH.—On June 11th, 1916, at Gwynant, Hampton Park, Hereford, the wife of Oswald S. Wraith, M.D., F.R.C.S.E. (late temporary Lieutenant, R.A.M.C.), of a son.

MARRIAGES.

WILLIAMSON—MARSDEN.—On the 8th inst., quietly, at Zion Church, Morecambe, James Williamson, M.B., of Bury, to Lois, daughter of J. W. Marsden, Esq., of Baco, Morecambe.

DEATHS.

BARNES.—On June 9th, at Down Hall, Wembdon, Bridgwater, George Barnes, late of Axminster, aged 81 years. R.I.P.
CATHCART.—Killed in action, on June 4th, Second Lieutenant Francis John Cathcart, R.F.A., aged 21, only son of Charles W. Cathcart, F.R.C.S., Edinburgh.

DIARY FOR THE WEEK.

FRIDAY.

WEST LONDON MEDICO-CHIRURGICAL SOCIETY. West London Hospital, Hammersmith W., 8.15 p.m.—Cavendish Lecture by Sir John Bland-Sutton: The Fate of Patients who have had Stones Removed from the Kidneys.

DIARY OF THE ASSOCIATION.

Date.	Meetings to be Held.
JUNE.	
16 Fri.	London: Executive Subcommittee of Central Medical War Committee, 2.45 p.m. Newcastle-on-Tyne Division, Annual Meeting, 23, Ridley Place, 8.30 p.m.
21 Wed.	London: Finance Committee, 2 p.m. East and West Hertfordshire Divisions, Joint Annual Meeting, 423, Strand, W.C. Edinburgh Branch, Annual Meeting, Royal College of Surgeons, Nicolson Street, 4 p.m. South-Western Branch, Annual Meeting, Plymouth, 4.15 p.m.
22 Thur.	Birmingham Branch, Annual Meeting, 3.30 p.m. East Anglian Branch, Annual Meeting, Ipswich, 4 p.m. Staffordshire Branch, Annual Meeting, Wolverhampton, 5.25 p.m.; Dinner, 7 p.m.
23 Fri.	London: Executive Subcommittee of Central Medical War Committee, 2.45 p.m.
27 Tues.	London: Metropolitan Counties Branch, Annual Meeting, 4 p.m. West Somerset Branch, Annual Meeting, Taunton, 3.30 p.m.
28 Wed.	London: Council Meeting, 11 a.m.
29 Thur.	East York Division, Lloyd Hospital, Bridlington, 12.30 p.m.
30 Fri.	London: Executive Subcommittee of Central Medical War Committee, 2.45 p.m. Worcestershire and Herefordshire Branch, Annual Meeting, Droitwich, 3 p.m.; Worcester Division, Annual Meeting, 2 p.m.
JULY.	
5 Wed.	Sussex Branch, Annual Meeting, Eastbourne, 2.30 p.m.
6 Thur.	Midland Branch, Annual Meeting, Derby, 3 p.m.
12 Wed.	Southern Branch, Annual Meeting, Winchester, 2.30 p.m.
19 Wed.	Dorset and West Hants Branch, Summer Meeting, Weymouth, 3 p.m.
28 Fri.	ANNUAL REPRESENTATIVE MEETING, Connaught Rooms, Great Queen Street, London, W.C., and following days as may be required.

SUPPLEMENT

TO THE

BRITISH MEDICAL JOURNAL.

LONDON: SATURDAY, JUNE 24TH, 1916.

CONTENTS.

	PAGE		PAGE
RECRUITING FOR THE NAVAL AND MILITARY MEDICAL SERVICES:		ASSOCIATION INTELLIGENCE:	
CENTRAL PROFESSIONAL COMMITTEES	149	MEETINGS OF BRANCHES AND DIVISIONS	149
COMMISSIONS FOR MEDICAL MEN BETWEEN 45 AND 55	149	ELECTION OF COUNCIL, 1916-17: LIST OF MEMBERS ELECTED	153
IRISH MEDICAL WAR COMMITTEE	149	NOTICE OF ANNUAL REPRESENTATIVE AND ANNUAL GENERAL MEETINGS	153
INSURANCE:		BRANCH AND DIVISION MEETINGS TO BE HELD	153
SCOTLAND: DOMICILIARY TREATMENT OF TUBERCULOSIS:		NAVAL AND MILITARY APPOINTMENTS	155
TREATMENT OF TUBERCULOSIS IN MIDLOTHIAN	154	VACANCIES AND APPOINTMENTS	156
PAYMENTS UNDER THE INSURANCE ACT FOR THE YEAR 1914... ..	154	BIRTHS, MARRIAGES, AND DEATHS	156
		DIARY	156

RECRUITING FOR THE NAVAL AND MILITARY MEDICAL SERVICES.

CENTRAL PROFESSIONAL COMMITTEES.

As announced last week, the Central Medical War Committee for England and Wales and the Scottish Medical Service Emergency Committee have been recognized by the Army Council as the Central Professional Committees for England and Wales and Scotland respectively, under the regulations made by the Order in Council in compliance with the provisions of the Military Service Act, 1916 (Session 2). The Reference Committee appointed by the Royal College of Physicians of London and the Royal College of Surgeons of England has also been approved by the Army Council under paragraph 5 (1) of the regulations.

The constitution of the Central Medical War Committee and the Committee of Reference of the Royal Colleges in England and the Scottish Medical Service Emergency Committee were set out in the SUPPLEMENT to the JOURNAL of last week, p. 144, as an appendix to the War Office memorandum. As Colonel Galloway is now serving abroad with His Majesty's forces he cannot be an effective member of the Central Medical War Committee, and his place must therefore be filled up. The Army Council requires that two other members with experience in provincial and industrial practice shall be placed on the Committee, one of them being a practitioner in Wales. There are thus three vacancies to be filled up. The Army Council has also requested the Committee to forward a scheme for the appointment or recognition of local professional committees, and a note as to their character and procedure, in order that it may be considered by the Army Council with a view to the requisite approval under Section 1 (3) of the regulations. The regulations were published in the SUPPLEMENT to the JOURNAL of June 10th.

The Military Service Acts do not apply to Ireland, but members of the profession in Ireland are invited to volunteer for commissions R.A.M.C. They should communicate, in the first place, with the secretaries of the Irish Medical War Committee, 16, South Frederick Street, Dublin.

COMMISSIONS FOR MEDICAL MEN BETWEEN 45 AND 55.

We are informed that medical men between 45 and 55 are urgently and immediately needed to take whole-time commissions in the R.A.M.C. for service at home. As announced last week, the War Office has resolved to make this offer in order to liberate for service abroad officers R.A.M.C. of military age now serving at home. Application may be addressed direct to the Secretary, War Office, London, S.W., or through the secretaries of the Central Medical War Committee (England and Wales), 49, Strand, W.C.; the Secretary of the Scottish Medical Service Emergency Committee, Royal College of Physicians, Edinburgh; or the secretaries of the Irish Medical War Committee, 16, South Frederick Street, Dublin.

IRISH MEDICAL WAR COMMITTEE.

A meeting of the Irish Medical War Committee was held on May 30th at the Royal College of Physicians, Dublin, when Mr. WILLIAM TAYLOR, President of the Royal College of Surgeons, was in the chair, and the following members were present: Dr. E. Coey Bigger (Local Government Board), Dr. D. J. Coffey (University College), Mr. F. Conway Dwyer (Royal College of Surgeons), Professor A. Dixon (Trinity College), Colonel Hearn, R.A.M.C., Dr. W. J. Maguire (Insurance Commission), Dr. R. J. Rowlette, with Dr. M. R. J. Hayes, Secretary, and Dr. T. Hennessy, Assistant Secretary. A large amount of correspondence was dealt with.

SOUTHAMPTON.

The following resolution was adopted at a joint meeting of the Southampton Medical War Committee and the medical men in the area:

That this meeting considers that, judging by the position in Southampton, no more doctors can be spared unless the Government grants statutory powers to the local medical war committees to mobilize the whole profession in each area to organize the work.

MARYLEBONE.

A meeting of the registered medical practitioners of St. Marylebone will be held at the house of the Royal Society of Medicine on Monday next at 9 p.m. for the purpose of electing a local professional committee representing all the practitioners of the borough under the provisions of the Military Service Act, 1916 (Session 2), and the regulations made thereunder. Nominations should be sent to the chairman, Mr. Charles Ryall, 62, Harley Street, W.

Meetings of Branches and Divisions.

LEINSTER BRANCH.

THE annual meeting of the Leinster Branch was held at the Irish Offices, 16, South Frederick Street, Dublin, on May 15th, when Sir WILLIAM THOMPSON was in the chair. Dr. R. L. HEARD was installed as President for 1916 and 1917.

Election of Officers.—The following officers were elected:

President-elect: Dr. J. M. Day.
Vice-Presidents: Dr. H. Jellett and Mr. A. Blayney.
Secretary and Treasurer: Mr. W. Doolin.
Representative to Annual Meeting: Mr. W. Doolin.
Representatives on Irish Committee: Dr. J. Craig and Dr. J. B. Kenny.

Rules.—The revised ethical rules and the revised organization rules were adopted.

President's Address.—Dr. R. L. HEARD, after expressing his thanks for the honour done him by his election as President, made appropriate reference to the death of Dr. Arthur White, late honorary secretary, a man of kindly nature and one who for a number of years took much interest in medical politics. Dr. Heard then passed to the subject of his address—Some aspects of general practice. "If," he said, "we have eyes to see and ears to hear, and

if we take, as we ought to do, an intense intelligent interest in our work, we often have the privilege of seeing disease and individual cases of illness in the incipient and early stages, even from the time the patient perhaps merely complains but of an indefinite feeling of illness, and we must hold our hand in doubt as to what is exactly presented to us to deal with—a period when by timely care and nursing such may at times be nipped in the bud and much suffering, loss of health, even death itself, be thereby averted." The work of a general practitioner had a very definite charm of its own; it had its very real disadvantages—work not so well remunerated, greater uncertainty of time, increased liability to disturbance, especially at night, no freedom on Sundays, and greater difficulty in arranging for holidays, were some of the more obvious drawbacks. On the other hand, the general practitioner made many real friends. It was certainly good to be the trusted guardians of many a family history; good to be consulted not only upon professional matters but also on subjects unconnected therewith. To be looked upon not merely as a doctor but as a trusted friend was indeed a reward. Asepsis with its wonderful possibilities and triumphs in the realm of surgery rendered it the more incumbent on all practitioners to keep themselves abreast with knowledge, so as to be in a position to advise their patients upon the many new procedures and operations from time to time devised for the relief of conditions that aforesaid could only be treated, and that not always satisfactorily, by medicinal and mechanical means—conditions of which enteroptosis, pyloric and other strictures, intestinal stasis, abdominal adhesions, hepatic cirrhosis, and that intensely distressing ailment, pruritus ani, might serve as samples. Asepsis had robbed midwifery of its chief anxiety for the doctor, whilst making possible successful interference, by way of Caesarean section, in cases of contracted pelvis and placenta praevia—cases which otherwise would almost certainly have been attended by the death of the child and by suffering and possibly death to the mother. Asepsis had also rendered it possible to treat radically and with practical impunity those too frequent cases of appendicitis which in former years were dealt with by expectant methods only. It was almost impossible for one engaged in busy practice to do much in the way of bacteriological work, blood counts, elaborate chemical analysis, and like procedures; but the more conversant the general practitioner was with these matters and the more he understood their bearing on his everyday work the better would he be able to appreciate the valuable assistance the specialist could so often afford him, not only in diagnosis, but also in treatment. The x rays would often correct mistakes and assist efforts to collaborate with Nature in the healing of the sufferer. It was, however, not infrequently extremely difficult, no matter how much the doctor might so desire it and how near the patient might be to such assistance, to get the latter to consent, on the ground of expense, to the use of various means of diagnosis and treatment; nevertheless, Dr. Heard considered that in any doubtful or difficult case such help should be urged upon the patient, and the responsibility thrown upon him or her of deciding for or against. It was even sometimes desirable to defray the cost out of one's own pocket rather than risk the loss of reputation which might so readily ensue. In this connexion he urged the advantage of belonging to one or another of the different associations in existence for medical defence. "As regards our relations with our professional brothers," Dr. Heard continued, "we must all face the facts that patients have a perfect right to change their medical attendant as often as it may please them to do so. The reasons that induce patients thus to act are frequently trivial and may seem to us absolutely unreasonable, but nevertheless we must put up with it with as good a grace as possible, and a little experience will soon convince us that if patients go from us to others those of others will come to us for equally weighty reasons. As a working rule I consider that whilst one man should never do anything to induce another's patient to come to him, he is perfectly at liberty to treat that patient if he chooses to come to him, provided the patient has definitely ceased to be under the other man's care and is not known to be in his debt. As the late Sir Charles Ball said to me some years ago when on this subject, 'If a patient wishes to leave me I am always in a much greater hurry to be rid

of him than he of me,' and it is a good rule. It is pleasant when one is on such friendly relations with one's neighbours that though patients may interchange everything will be above-board, and one may with confidence leave his work in another's care knowing that he will not be superseded through any act of the man in charge."

BORDER COUNTIES BRANCH:

DUMFRIES AND GALLOWAY DIVISION.

The annual meeting of the Division was held at the Royal Infirmary, Dumfries, on May 19th. In the absence of the President (Lieutenant A. Chalmers, R.A.M.C.) and the Vice-President (Dr. J. McLachlan) Dr. REID occupied the chair.

Election of Officers.—The office-bearers were re-elected for another year.

Financial Statement.—The financial report was submitted and approved.

Annual Representative Meeting.—The Council's report was then discussed, most of the recommendations receiving the assent of the meeting, and the Representative, Dr. Martin, was instructed accordingly.

Notification of Births.—It was unanimously agreed that a fee of 2s. 6d. should be paid by the local authorities for every notification of birth.

Petrol Supply.—The question of the petrol supply was found to be very acute, and universal complaints as to shortage and actual lack of it were made. The secretary was instructed to write to the M.P. for the county stating the position of the medical men, and the hardships involved through failure of local supplies.

Memorial to the late Dr. Bird.—A letter from Dr. Barnes (Carlisle) was submitted by the SECRETARY, drawing attention to the memorial on behalf of the late Dr. Bird of that city.

The late Dr. Gilroy.—Reference to the death of Dr. J. Gilroy (Waterbeck) was made by the CHAIRMAN, who paid a fitting tribute to his many qualities as a medical man and his usefulness as a member of the Division.

EDINBURGH BRANCH:

SOUTH-EASTERN COUNTIES DIVISION.

The annual meeting of the Division was held at Newton St. Boswells on June 1st, when Dr. J. YOUNG (Earlston), Chairman of the Division, presided.

Treatment of Dependants of Soldiers and Sailors.—The SECRETARY reported that correspondence with officials of the Soldiers' and Sailors' Families Association regarding the indiscriminate distribution of books entitling the holders to free medical attendance showed that the association would not undertake to make inquiries into the circumstances of the recipients, and that the only course open to members of the Division was to give free medical attendance at their own individual discretion to such persons as they considered suitable applicants without regard to the possession by the applicants of the association's books or otherwise.

Election of Officers.—The following officers were elected:

Chairman: Dr. W. T. Barrie (Hawick).

Vice-Chairman: Dr. J. W. Somerville (Galashiels).

Representative to Representative Meeting: Dr. Blair, re-elected.

Deputy Representative: Dr. J. R. Hamilton (Hawick).

Representative to Branch Council: Dr. J. Carlyle Johnstone, re-elected.

Executive Committee: Drs. Fairfax, S. Davidson, J. S. Muir, Dixon, Tyrrell, and Young.

Honorary Secretary and Treasurer: Dr. M. J. Oliver, re-elected.

Vote of Thanks.—Dr. Young, having vacated the chair, was succeeded by Dr. BARRIE, who proposed a vote of thanks to his predecessor for the admirable manner in which he had fulfilled the duties of chairman during the past year. This was cordially endorsed by the meeting and suitably acknowledged by Dr. YOUNG.

Annual Representative Meeting.—The annual report of the Council and the provisional agenda for the Representative Meeting were considered, and it was decided to instruct Dr. Blair to support in general the proposals of the Council, and in particular the measures calculated to relieve conditions due to the shortage of petrol and heavy taxation of cars used for medical practice, and to strongly oppose any reduction in the fees for the notification of infectious diseases.

Reports.—The annual report and financial statement were approved, and the SECRETARY presented a report from the local War Committee, showing the present position of affairs with regard to the calling up of medical practitioners. The Committee was reappointed.

Legislation and Medical Work.—The SECRETARY made a statement with reference to recent legislation and medical work, and expressed the opinion, with regard to the establishment of medical treatment which it was expected would follow the medical inspection of children, that in country districts treatment would best be given by the local practitioners, while the school medical officer should attend to the organization of the work and select the children that required treatment.

GLASGOW AND WEST OF SCOTLAND BRANCH.
The annual general meeting of the Branch was held in the Faculty Hall, Glasgow, on May 31st. In the unavoidable absence of Colonel Mackintosh, Dr. JOHN GOFF occupied the chair. In the course of his remarks the CHAIRMAN made sympathetic reference to the death of Dr. A. T. Campbell of Maryhill, and Dr. W. G. Macpherson, Bothwell. He appealed for increased membership of the Association, and then called upon the President-elect, Dr. W. F. BROWN (Ayr), to take the chair as President of the Branch. In doing so, Dr. BROWN expressed his thanks for the honour done him, and his wishes for a successful year.

Annual Report and Financial Statement.—The annual reports of the Secretary and Treasurer were presented and agreed to.

Election of Officers.—The following officers were elected for the ensuing year:

President: Dr. W. F. BROWN (Ayr).

President-elect: Dr. John Adams.

Honorary Secretary: Dr. William Bryce.

Interim Honorary Secretary and Treasurer: Dr. Wishart Kerr.

Treatment of Dependants of Soldiers and Sailors.—After some discussion with reference to the medical attendance on necessitous dependants of soldiers and sailors it was unanimously resolved, on the motion of Dr. ADAMS, seconded by Dr. JOHN GOFF:

In view of the great reduction in the number of medical men available for general practice, and of the improved financial position of the dependants of soldiers and sailors, this Branch is of opinion that the free attendance on such dependants should be discontinued.

The Secretary was instructed to forward this resolution to the head office, and to the secretaries of the City Divisions.

STIRLING BRANCH.

The annual general meeting of this Branch was held at Stirling on May 25th.

Election of Officers.—The following were elected office-bearers for the ensuing year:

President: Dr. Lumsden (Denny).

Vice-President: Dr. Park (Kilsyth).

Honorary Secretary: Dr. Dyer (Alloa) (on service).

Interim Honorary Secretary: Dr. Yellowlees (Stirling).

Members of Council: Drs. Young (Bonnybridge), Spencer (Grangemouth), Vost (Stirling), and Lawrence (Poinsett).

Medical Referees under the Insurance Act.—The meeting discussed the question of fees for medical referees work under the Insurance Act. It was pointed out that some members had suffered for their loyalty to the recommendation of the Association that no less fee than 10s. 6d. be accepted for such work. The feeling of the meeting was that the whole question should be reopened at the Annual Representative Meeting, as the present position does not reflect the attitude of the bulk of the members.

Treatment of Dependants of Soldiers and Sailors.—In view of the introduction of compulsory service, the meeting resolved that free attendance on dependants of soldiers and sailors be discontinued after the end of June, and that a graduated scale of fees for such attendance be adopted, as is at present the case in the town of Stirling, namely: Where the total family income is 21s. a week or less, a fee of 1s. a visit; between 21s. and 30s., 1s. 6d. a visit; over 30s., 2s. a visit.

NORTH WALES BRANCH:

NORTH CARNARVON AND ANGLESEY DIVISION.

The annual meeting of the Division was held at Bangor on May 26th, when the Chairman-elect, who was home on leave, was introduced.

Election of Officers.—The following officers were elected for 1916-17:

Chairman: Mr. J. H. Morris-Jones (Colwyn Bay).

Vice-Chairman: Dr. Marion E. Mackenzie (Beaumaris).

Honorary Secretary: Dr. J. R. Prytherch (Llangefni).

Representative for Representative Meeting: Dr. E. O. Price (Bangor).

Deputy Representative for Representative Meeting: Dr. J. R. Prytherch (Llangefni).

Representatives on Branch Council: Re-elected.

Executive Committee: Re-elected.

It was decided to protest against the reduction of the fee for notification of infectious diseases, and to urge a plea for uniformity, since the authorities at present issued a set of books for notifying various diseases which were very troublesome.

The model ethical rules were adopted.

The work of keeping record cards of absent colleagues being considered arduous and difficult to perform accurately, it was decided that the Commissioners should be urged to waive their claim in this respect, since in many cases the doctors remaining at home did the work for the sole benefit of their absent colleagues.

The treatment of dependants of soldiers and sailors was said to be abused, as the books appeared to have been distributed indiscriminately. The Secretary was instructed to communicate with all the secretaries of the fund in the areas in the Division asking them to meet the local doctors with a view to revising the list, and not to issue further books except to those cases agreed to by the local practitioners.

DORSET AND WEST HANTS BRANCH:

WEST DORSET DIVISION.

The annual meeting of the West Dorset Division was held on May 30th.

Election of Officers.—The following officers were elected for the year:

Chairman: Dr. P. W. Macdonald (Weymouth).

Vice-Chairman: Dr. Whittingdale (Sherborne).

Honorary Secretary: Dr. Miller (Weymouth).

Representative for Representative Meeting: Surgeon-Lieutenant-Colonel Decimus Curme (Child Okeford).

Representatives on Branch Council: Drs. T. MacCarthy, Marsh, Cosens, Edwards, Macdonald, Curme, and Miller.

Executive Committee: Drs. Luther, Drury, Bartlett, Kitson, Watts-Silvester.

Work for Absent Colleagues.—The meeting recommended the adoption of the suggestions of the Central War Committee in place of those adopted in September, 1914, as being fairer to all concerned.

EAST ANGLIAN BRANCH:

NORTH-EAST ESSEX DIVISION.

The annual meeting of the Division was held at Colchester on May 25th.

Election of Officers.—The following officers were elected:

Chairman: Dr. P. W. Rowland (Colchester).

Vice-Chairman: Dr. W. M. Burgess (Frinton-on-Sea).

Honorary Secretary: Dr. A. N. Fell (St. Mary's, Church Street North, Colchester).

Representative for Representative Meeting: Dr. Agnes Estcourt-Oswald (Colchester).

Representatives on Branch Council: Drs. S. W. Curl and J. H. Salter.

Executive Committee: Drs. Sidney Bree, S. M. D. Campbell, F. B. H. Caudwell, W. F. A. Clowes, P. Coleman, Ben. Hall, J. L. Meynell, C. G. Roberts, H. Whitby, S. E. Worts; and *ex officio*, P. W. Rowland, A. N. Fell, W. M. Burgess, Agnes Estcourt-Oswald.

It was decided not to elect an Ethical Committee.

Annual Representative Meeting.—The provisional agenda for the Annual Representative Meeting (SUPPLEMENT, May 6th) was considered. It was decided to support the motions and recommendations therein, and the Representative was instructed to vote accordingly.

Membership of the Association.—The following motion was carried unanimously:

That in view of the fact that the financial position of medical men was being seriously affected by the rise in the cost of living, and was likely to be further affected in the future by this and by economies of public departments, it was urgent that the membership of the British Medical Association, which is the only body that voices the opinion of the profession and carries weight with the Government and with the public, should be greatly increased.

Vote of Thanks.—A vote of thanks to Dr. Burgess for his services as chairman during the past year was carried *unanimously*.

LANCASHIRE AND CHESHIRE BRANCH:

BURNLEY DIVISION.

THE annual meeting of the Division was held on May 31st, when the following office-bearers and members of committee were duly elected:

Chairman: Dr. J. W. Clegg (Rose Grove).
Vice-Chairman: Dr. A. C. Glashan.
Honorary Secretary and Treasurer: Dr. James Gardner.
Representative for Representative Meeting: Dr. H. J. Robinson.
Representative on Branch Council: Dr. J. M. Ferguson.
Executive Committee: Drs. C. A. Anderson, A. Edward Bird, F. E. Crossley, H. S. Dixon, G. S. Pullon, T. M. Scott (Burnley), J. A. Mackenzie (Padiham), F. H. Flack, A. E. Normington (Nelson), A. W. Eadie (Colne), J. S. Wilson (Brierfield), A. Falconer (Earby).

Local War Committee.—The following were elected a special medical war committee for Burnley:

Drs. C. A. Anderson, A. Edward Bird, F. E. Crossley, James Gardner, H. J. Robinson, T. M. Scott (Burnley), H. C. Alderton (Barnoldswick), A. Findlay (Nelson), C. S. Storrs (Colne), J. A. Mackenzie, (Padiham), with Dr. J. M. Ferguson (Ridge House, Burnley) as honorary secretary.

Tariff Fees.—The local tariff minimum scale of fees was revised, and it was resolved to call a special meeting of the Division to consider the advisability of reopening negotiations with the board of guardians as to the dispute between the district medical officers and the public vaccinators and the guardians.

ST. HELENS DIVISION.

At the annual meeting, May 24th, the following alterations in the officers for the ensuing year were made:

Chairman: Dr. J. Masson (St. Helens).
Vice-Chairman: Dr. G. H. Cooke (St. Helens).
Executive Committee: Dr. Unsworth in place of Dr. Masson become *ex officio* member.

METROPOLITAN COUNTIES BRANCH:

CITY DIVISION.

A MEETING of the Division was held at the Metropolitan Hospital on May 31st, when Dr. LESLIE DURNO, Chairman, presided. The reports of the chairman and treasurer were received and accepted from the chair.

Central Medical War Committee.—On the motion of Dr. EVAN JONES, seconded by Dr. VAUGHAN PRYCE, it was resolved:

That the Representative at the Representative Meeting shall move that the Central War Committee should consist of one in three of general practitioners.

Notification of Pregnancy.—It was resolved:

That the Representative be instructed to oppose notification of pregnancy. Also to try to get a flat rate of 7s. 6d. adopted for referees.

The Interests of the Profession.—On the motion of Dr. VAUGHAN PRYCE, seconded by Dr. EVAN JONES, it was resolved:

That this Division of the British Medical Association views with increasing alarm the neglect of the British Medical Association to take adequate means to protect the interests of the profession.

Dr. GREENWOOD strongly opposed this and declared that the Association had done a great deal.

HAMPSHIRE DIVISION.

THE annual meeting of the Division was held on May 31st, when Dr. COLLINGWOOD ANDREWS, Vice-Chairman, presided. *Annual Representative Meeting.*—It was resolved:

That the Representative at the Representative Meeting be empowered to use his own discretion with regard to the matters referred to the Divisions.

Executive Committee.—Dr. W. L. George was elected a member of the Executive Committee in the place of Dr. A. H. Thompson, resigned. The other members were re-elected.

Vote of Thanks.—A vote of thanks was passed to the Honorary Secretary for his services to the Division for the past year.

Local Medical Panel Committee.—It was decided to support the action of the Local Medical Panel Committee.

Branch Organization.—Dr. C. W. CUNNINGTON gave a short address on certain proposals at present before the Organization Committee of the Branch, which have for their object the increase of the membership of the Branch. The proposal to deliver a series of lectures on one subject of interest to general practitioners during the year by members of the Association skilled in certain branches

of medicine or surgery was warmly welcomed as a suitable stimulus. The suggestion was that such a course of lectures should be free to members and open to non-members on payment of a fee.

Election of Officers.—The following officers were elected for the year:

Chairman: Dr. W. Coode Adams.
Vice-Chairman: Dr. E. C. Andrews.
Honorary Secretary and Treasurer: Dr. L. Barnett.
Representative for Representative Meeting: Dr. C. W. CUNNINGTON.
Representative on Branch Council: Dr. G. E. Shuttleworth.
Executive Committee: Drs. De Souza, Dewar, Lowbury, Pidcock, Shuttleworth, W. L. George.

SOUTHERN BRANCH:

PORTSMOUTH DIVISION.

THE annual meeting of the Portsmouth Division was held in the Medical Library, Southsea, on June 1st, when Mr. C. A. SCOTT RIDOUT, F.R.C.S., presided. The annual report and financial statement were received and adopted.

Election of Officers.—The following officers and Executive Committee were elected for the ensuing year:

Chairman: Mr. C. A. Scott Ridout, F.R.C.S.
Vice-Chairman: Mr. H. S. Thomas.
Secretary and Treasurer: Mr. L. K. H. Hackman.
Clinical Secretary: Dr. E. F. S. Green.
Librarian: Dr. W. Carling.
Representative at Representative Meetings: Dr. D. A. Sheahan (Deputy, Mr. L. K. H. Hackman).
Representatives on Branch Council: Dr. L. Cole-Baker, Messrs. A. B. Wright and C. A. Scott Ridout.
Executive Committee: Drs. W. A. Salmond, George MacGregor, E. B. Bird, H. E. Crawley, C. Lamplough, F. C. H. Muggleton, C. P. Childe, T. A. Mulcahy, J. E. F. Palmer, and B. A. W. Stone. *Ex officio:* Mr. James Green (Central Council) and Mr. J. H. F. Way (Secretary Local Medical and Panel Committee).

Annual Representative Meeting.—The provisional agenda of the Annual Representative Meeting was submitted and the paragraphs were discussed seriatim. The following amendments and resolutions were passed:

Par. 94: That Recommendation B, subparagraph (ii) be amended by the insertion of the word "local" between "of" and "practitioners" (second line).

Par. 107: That the Portsmouth Division expresses its profound dissatisfaction with the action of the Central Executive in allowing a reduction of the fees for the notification of infectious diseases without attempting to secure the combined opposition of the organized profession; and urges the Representative Body to take such steps as will prevent similar ineptitude of the Executive in future.

Par. 118: That in the opinion of this Division the Association's facilities for acquiring information of all bills in Parliament affecting the status and emoluments of the profession are unsatisfactory; and that the Council should take prompt steps to remedy this defect.

Par. 119: Recommendation E, supporting the candidature of Drs. L. Browne, H. A. Latimer, J. A. Macdonald, and T. J. Verrall at the election of Direct Representatives on the General Medical Council was agreed to.

Par. 122: That considering (1) that some 4,000,000 of the healthiest of the insured men have enlisted, (2) that many of the insured women have been occupied at more hazardous employments, and that (3) many of our navy and army will return more or less chronic invalids, it follows that panel practitioners have had their insurance work much increased; and therefore the Representative Body should take action to secure an increase also of the emoluments of panel practitioners.

Par. 135: That the refusal to allow the phrase "Rep. mist." when repeating prescriptions entails much unnecessary work; is irksome and harassing; and this meeting expresses its great dissatisfaction that the Insurance Acts Committee did not strenuously oppose the "New Agreement, 1916."

Par. 146: That this meeting is of opinion that part-time medical referees should be appointed on the recommendation and nomination of the Local Medical and Panel Committees.

That our Representative vote in accordance with the resolutions passed at this meeting, but on other questions be free to exercise his own judgement.

Conference of Secretaries.—Regret was expressed at the abandonment of the conference of secretaries, as such meetings were considered to be practical and very useful.

SOUTH-WESTERN BRANCH:

EXETER DIVISION.

THE annual meeting of the Division was held at the Royal Devon and Exeter Hospital on May 23rd.

Election of Officers.—The following officers were elected:

Chairman: Dr. R. V. Solly (Exeter).
Vice-Chairman: Dr. W. H. Evans (Colyton).

Representative: Mr. Russell Coombe, F.R.C.S. (Exeter).
Honorary Secretary and Treasurer: Dr. R. Eager (Devon County Asylum).
Honorary Secretary and Treasurer pro tem.: Mr. A. C. Roper, F.R.C.S. (Exeter).
Representatives on Branch Council: Dr. G. V. Burd (Okehampton), Dr. G. G. Gidley (Cullompton).
Executive and Ethical Committee: Dr. G. V. Burd, Mr. Russell Coombe, F.R.C.S., Dr. M. Cutcliffe, Dr. W. H. Evans, Dr. G. G. Gidley, Dr. W. Gordon, Dr. G. F. Welsford, Mr. A. C. Roper, F.R.C.S. (Exeter).

Vote of Congratulation.—A resolution was passed congratulating Lieut.-Colonel Ransom Pickard, R.A.M.C. (T.), on the honour of C.M.G., recently conferred on him, in recognition of his services at the front.

Association Notices.

ELECTION OF COUNCIL, SESSION 1916-17.

Notice is hereby given that the following have been duly elected members of the Council for the 1916-17 Session:

BRANCHES IN THE UNITED KINGDOM.

Lieut.-Col. R. A. BOLAM, M.D.: North of England, and North Lancashire and South Westmorland Branches.
 Dr. H. J. CAMPBELL: Yorkshire Branch.
 Lieut.-Col. Sir JAMES BARR, M.D., LL.D., and Mr. T. W. H. GARSTANG: Lancashire and Cheshire Branch.
 Dr. ADAM FULTON: East York and North Lincoln, and Midland Branches.
 Dr. O. R. M. WOOD: Cambridge and Huntingdon, East Anglian, and South Midland Branches.
 Dr. E. NOEL NASON: Birmingham and Staffordshire Branches.
 Mr. H. B. BRACKENBURY, Colonel JAMES GALLOWAY, A.M.S., Dr. MAJOR GREENWOOD, and Dr. F. J. SMITH: Metropolitan Counties Branch.
 Dr. GEORGE PARKER: Bath and Bristol, Gloucestershire, West Somerset, and Worcestershire and Herefordshire Branches.
 Major RUSSELL COOMBE: Dorset and West Hants, South-Western and Wiltshire Branches.
 Mr. JAMES GREEN: Oxford and Reading, and Southern Branches.
 Dr. CLAUDE WILSON: Kent, Surrey, and Sussex Branches.

Scotland.

Dr. JOHN GORDON: Aberdeen, Northern Counties, Dundee, and Perth Branches.
 Dr. JOHN STEVENS: Edinburgh and Fife Branches.
 Dr. JOHN ADAMS: Glasgow and West of Scotland Branch (4 City Divisions).
 Major J. LIVINGSTONE LOUDON: Glasgow and West of Scotland (5 County Divisions), Border Counties, and Stirling Branches.

Ireland.

Dr. WM. DOOLIN: Leinster Branch.
 Dr. JOSEPH GIUSANI: Munster Branch.
 Dr. A. GARDNER ROBB: Ulster Branch.

COLONIAL RETURNS.

Lieutenant-Colonel W. T. HAYWARD, LL.D.: South Australian, Tasmanian, Victorian, and Western Australian Branches.
 Dr. T. DUNCAN GREENLEES: South African, etc., Group of Branches.
 Sir ALLAN PERRY: Ceylon and Indian Branches.
 Dr. FRANCIS WM. CLARK: Hong Kong and China and Malaya Branches.

By Order of the Council,

GUY ELLISTON,

Financial Secretary and Business Manager.

June 24th, 1916.

MEETING OF COUNCIL.

The next meeting of Council will be held on Wednesday, June 28th, in the Council Room, 429, Strand, London, W.C., at 11 a.m.—By order,

GUY ELLISTON,

June 1st, 1916.

Financial Secretary and Business Manager.

ANNUAL REPRESENTATIVE MEETING, 1916.

DATE OF MEETING.

THE Annual Representative Meeting of the Association, 1916, will be held at the Connaught Rooms, Great Queen Street, London, W.C., on Friday, July 28th, 1916, at 10 a.m., and following day(s) as may be required.

RETURNS OF REPRESENTATIVES.

Honorary Secretaries of Divisions who have not yet forwarded to the head office the names and addresses, and dates of election, of the Representatives appointed by their Constituencies for 1916-17, are asked to forward me these particulars by the earliest possible date. Under the By-laws, Representatives must be elected not more than nine months nor less than four weeks before the Annual

Representative Meeting, and their names must be notified to the head office by at latest July 7th. A Representative can, if necessary, be elected and instructed by one and the same meeting of the Constituency. The provisional Agenda of the Annual Representative Meeting, including the Annual Report of Council, was published in the SUPPLEMENT of May 6th, and certain Notices of Motion by Divisions in the SUPPLEMENT of June 3rd. The Supplementary Report of the Council will appear in the SUPPLEMENT of July 1st or 8th.

By order,

ALFRED COX,

Medical Secretary.

June 21st, 1916.

ANNUAL GENERAL MEETING.

NOTICE is hereby given by the Council that the Annual General Meeting of the British Medical Association will be held at the Connaught Rooms, Great Queen Street, London, W.C., on Saturday, July 29th, 1916, at 2 o'clock in the afternoon.

Dated this 24th day of June, 1916.

By order,

GUY ELLISTON,

Financial Secretary and Business Manager.

429, Strand, London, W.C.

BRANCH AND DIVISION MEETINGS TO BE HELD.

DORSET AND WEST HANTS BRANCH.—Mr. Percy A. Ross (Kensington, Boscombe Spa Road) gives notice that the summer meeting of the Branch will be held at Weymouth on Wednesday, July 19th, at 3 p.m.

EAST YORK AND NORTH LINCOLN BRANCH: EAST YORK DIVISION.—Mr. H. L. Evans (401, Prince's Avenue, Hull) gives notice that the annual meeting of the Division will be held at 12.30 p.m., in the Lloyd Hospital, Bridlington, on Thursday, June 29th. Business: To receive the annual report and financial statement. To elect officers.

KENT BRANCH: ISLE OF THANET DIVISION.—Dr. H. M. Raven, Honorary Secretary (Barfield House, Broadstairs), gives notice that the annual meeting of the Division will be held in the Parish Room, Broadstairs, immediately after the meeting of medical practitioners in Thanet for the election of a new War Committee, called for 8.30 p.m. on June 28th, 1916. Agenda: To elect officers for the year and an executive committee. To receive a report of the work and finances of the Division. To consider the agenda of the Annual Representative Meeting (see SUPPLEMENT, May 6th and May 27th, BRITISH MEDICAL JOURNAL).

METROPOLITAN COUNTIES BRANCH.—Dr. R. E. Crosse and Mr. N. Bishop Harman (Honorary Secretaries) give notice that the annual general meeting of the Branch will be held at 429, Strand, W.C., on Tuesday, June 27th, at 4 p.m. The business will be: (1) Report of scrutineers as to the election of new officers. (2) The annual reports of council and of representatives of the Branch on the Central Council. (3) Alteration of Rule 7 b. (4) The adoption of the revised ethical rules as approved by the Annual Representative Meeting, 1915. (5) President's address: Medical Administration of Modern Armies.

MIDLAND BRANCH.—Dr. Adam Fulton, Acting Honorary Secretary, gives notice that the annual meeting of the Midland Branch will be held at the Royal Infirmary, Derby, on July 6th, at 3 p.m. Business: Annual reports; election of officers; adoption of revised organization rules; discussion on The Dangers of Official Medicine, to be opened by the President, Dr. Cassidi.

NORTH WALES BRANCH.—Dr. J. R. Prytherch, Acting Honorary Secretary (Doldir, Llangefti), gives notice that the annual meeting of the Branch will be held at the University College, Upper Bangor, on Tuesday, June 27th, at 2.30 p.m., when the president-elect will take the chair, the annual report of the Council will be submitted, and officers will be elected. At 3 p.m. a meeting of the profession will be held at the same place, when Sir William Osier will deliver an address on the proposed national medical school for Wales.

SOUTHERN BRANCH.—Mr. James Green, Honorary Secretary (Brandon House, Mile End, Portsmouth), gives notice that the annual meeting of the Branch will be held at the Royal Hampshire County Hospital, Winchester, on Wednesday, July 12th, at 2.30 p.m., Dr. C. F. Routh (Southsea) in the chair. Agenda: Return of election of officers of the Branch for 1916-17; annual report of Council; balance sheet of Branch; balance sheet of Belgian Doctors' and Pharmacists' Fund; general business. At the conclusion of the business Dr. Routh will vacate the chair in favour of Dr. Bodington (Winchester). On account of the war there will be no luncheon or other social function, except that tea will be served at the end of the meeting by the kindness of Dr. Bodington. The golf competition for the Childie challenge cup will take place at the Royal Winchester Golf Links at 3.30. Tea will be served at the golf-house. Members who intend to be present at the meeting will oblige by notifying the Honorary Secretary.

SOUTH MIDLAND BRANCH: BUCKINGHAMSHIRE DIVISION.—Dr. A. E. Larking, Honorary Secretary (Buckingham), gives notice that the annual general meeting of the Buckinghamshire

Division will be held at the Crown Hotel, Aylesbury, on Friday, June 30th, at 4 p.m. Members wishing to bring subjects forward will please inform Secretary at once.

SUSSEX BRANCH.—Dr. A. M. Daldy, Honorary Secretary (14, Palmeira Avenue, Hove), gives notice that the annual meeting of the Sussex Branch will be held at the Grand Hotel, Eastbourne, on Wednesday, July 5th, at 2.30 p.m.

WEST SOMERSET BRANCH.—Dr. W. B. Winckworth, Acting Honorary Secretary (Sussex Lodge, Taunton), gives notice that the seventy-fourth annual meeting of this Branch will be held at the Taunton and Somerset Hospital on Tuesday, June 27th, at 3.30 p.m., when the chair will be taken by the incoming President, Mr. S. G. Graham. Agenda: Annual report and balance sheet, and election of officers; adoption of new ethical rules; discussion on matters referred to Divisions (contained in the *BRITISH MEDICAL JOURNAL SUPPLEMENT* of May 6th); other business. After the meeting those present will be entertained to tea by Mr. S. G. Graham.

WORCESTERSHIRE AND HEREFORDSHIRE BRANCH.—Dr. S. C. Legge gives notice that the annual meeting of the Worcester Division will be held at 2 p.m., and the annual meeting of the Worcestershire and Herefordshire Branch at the Salter's Hall, Droitwich, on Friday, June 30th, at 3 p.m., when the President, Dr. Wilkinson, will deliver an address on The Brine Baths of Droitwich.

INSURANCE.

SCOTLAND.

DOMICILIARY TREATMENT OF TUBERCULOSIS.

The Scottish Insurance Commissioners have issued to insurance committees a circular stating that the Commissioners have been in consultation with the Local Government Board of Scotland with regard to the arrangements for domiciliary treatment of insured persons suffering from tuberculosis in cases in which the committee may have exhausted its sanatorium benefit fund before the end of the year, and also with regard to the provisions of Section 17 of the Insurance Act of 1911. It is pointed out that the panel practitioners provide medical attendance for these cases, even when they have not been recommended for sanatorium benefit, and medicines are also provided from the insurance funds, and the only function of the local health authority in these cases is the provision of medical comforts and other requisites outside the scope of medical benefit. Such a divided authority is so clearly undesirable that the Commissioners suggest that in order that the insurance committees may remain in charge of all insured persons in need of domiciliary treatment, each committee should, at the beginning of each year, set apart out of the sanatorium benefit fund such a sum as may safely be regarded as sufficient to defray the cost of the necessary medicines and medical comforts required for domiciliary treatment during the year. If the sum proves to be more than sufficient, the balance should be handed over to the local authority where, owing to exhaustion of the sanatorium benefit fund, the authority has incurred expenditure in respect of the institutional treatment of insured persons; otherwise the balance to be carried forward to the next year. Insurance committees are urged to give the local authorities timely notice where there appears to be danger that the sanatorium benefit fund will be exhausted, so that the authority may consider what steps to take to deal with the cases.

Accompanying the circular there is a copy of one sent to local authorities by the Local Government Board. The authorities are reminded that it will be necessary for them to provide medical attendance for cases which have not their own private doctor, or are not provided for as insured persons. The Board considers that such attendance should as far as possible be given by the tuberculosis officer or the dispensary staff, but in cases of emergency it may be necessary for the authority to call in the nearest medical practitioner. This, however, is not to be done as a routine practice, and the authority is to exercise the closest control over the expenditure for this purpose, setting apart a fixed sum out of which to remunerate practitioners thus called in. All arrangements proposed for this purpose are to be submitted to the Board. In sparsely populated districts where it might be impossible for the tuberculosis officer or dispensary staff to give personal attendance, the authority might make arrangements with local practitioners who would be paid out of the sum annually set apart for the purpose, but the tuberculosis officer would be expected to keep all such cases under regular supervision,

and to terminate the attendance by the private practitioner whenever that could safely be done.

With regard to insured persons who, on account of the exhaustion of the sanatorium benefit funds may not be recommended for sanatorium benefit, they will receive medical attendance from their panel doctors and such medicines as may be prescribed for them, but the insurance committees cannot supply medical comforts, and where necessary these will have to be supplied by the local authorities. The authorities are therefore notified of the above arrangements suggested by the Commissioners to insurance committees with regard to the setting apart of a sum of money each year for this purpose. Local authorities are required, as a condition of participation in the tuberculosis maintenance grant to maintain the same standard for domiciliary treatment for non-insured persons as those required for insured persons. Special attention is to be paid to preventing the treatment of tuberculosis in overcrowded houses, and where the housing conditions cannot be made immediately suitable, either shelters should be provided or the patients removed to sanatoriums or hospitals, or other institutions. The authorities are further reminded that where the insurance committees cannot or do not for any reason grant or continue sanatorium benefit, either institutional or domiciliary, to insured persons, it is the duty of the local authority to deal properly with the cases. No insured person has a right to sanatorium benefit unless he is specially recommended for it by the insurance committee, and the local authorities have no right to question the decision of an insurance committee in this matter. The Board states definitely that failure on the part of a local authority to deal properly with such cases may involve a refusal to allow participation in the tuberculosis maintenance grant.

TREATMENT OF TUBERCULOSIS IN MIDLOTHIAN.

A report on the administration of sanatorium benefit in Midlothian has been presented to the County Insurance Committee. It deals with the period from the commencement of the Act to December 31st, 1915, and shows that 87 men and 47 women had applied to the Committee for sanatorium benefit. Treatment was given to 75 men and 34 women. A number of the applicants had refused to accept treatment after being recommended for it. Forty-six men and 22 women had received sanatorium treatment; 17 men and 9 women had received both sanatorium and domiciliary treatment; whilst 12 men and 3 women had received domiciliary treatment exclusively in the course of the period. Treatment was given to 12 persons between the ages of 16 and 20, to 55 between the ages of 20 and 30, to 22 between the ages of 30 and 40, to 11 between the ages of 40 and 50, and to 9 over 50 years of age. The occupations of those who received treatment were:

Miners, 20; factory and mill workers, 14; domestic servants and housekeepers, 14; farm workers, 7; pithead workers, labourers, and shopkeepers, 6 each; gardeners, 5; office workers, 4; tailoring, 3; laundry workers, engineers, railwaymen, quarrymen, and nurses, 2 each; blacksmith, fisherman, potter, lithographer, joiner, cooper, oil worker, hallkeeper, postman, 1 each; and 5 soldiers who had been discharged from the army, being recommended by the army authorities to the Committee for a period of institutional treatment.

The clerk reported that every case of tuberculosis was now being followed up.

CORRESPONDENCE.

PAYMENTS UNDER THE INSURANCE ACT FOR YEAR 1914.

Dr. F. W. HOPE ROBSON (Honorary Secretary, Southampton Panel Committee) writes: That Dr. Stevenson's figures on the settlement for 1914, given in his letter in your issue of June 3rd, are open to quite a different interpretation to that which he suggests, the following returns supplied by the Insurance Commissioners to the Southampton Panel Committee will show:

Aggregate count of the Index Registers of Insurance Committees in England, 11,864,641.

Amount available for payment for medical benefit (including drugs and appliances, but not including the 6d. for domiciliary treatment of tuberculosis), £4,239,137 6s. 4d.

Return of Southampton Register, 39,982.

Amount apportioned to Southampton, £14,285 4s. 8d.

11,864,641 insured persons cost £4,239,137 6s. 4d.—that is, 7s. 1½d. a head.

39,982 insured persons cost £14,285 4s. 8d.—that is, 7s. 1½d. a head.

The above figures show that on the counts of the registers supplied by the different Insurance Committees, 7s. 1½d.

was paid, as against 8s. 6d., or a reduction on account of inflation, lapses, deaths, and enlistments, of about one-sixth. Each panel area is credited with the proportion of the gross amount corresponding to the number of insured persons returned by the Insurance Committee of that area (vide Southampton credit). Those areas, therefore, whose returns are inflated, have the advantage; it was for this reason that the Southampton Panel Committee were opposed to the 1914 figures being used as a basis for an emergency settlement for 1915. If the Cambridge doctors generally fare as well as Dr. Stevenson, and unless some other explanation of their good fortune can be supplied, the inference is that the Cambridge doctors, owing to the return of the Cambridge register being largely inflated, received a undue proportion of the gross medical benefit fund.

Dr. A. CAMPBELL (Chairman Gloucestershire Local Medical and Panel Committee) writes: On June 3rd I received a cheque in final settlement for 1914. My index cards were carefully kept and checked by the Insurance Committee. The average number for the four quarters was 620. All but 17 I supplied with drugs; in addition an average number of unassigned persons was added to my list—100 altogether. The total amount due for the 620 indexed cards was £277. The amount due on the unassigned persons was £45—a total of £322. I received in all £262. I may add that I was only paid 1s. 7d. a head for drugs, that no "floating 6d." balance was mentioned, and that the total sum received was £15 under the amount due on my accepted patients, while not a single halfpenny was received for the 100 unassigned "surplus." I have no reason to think that I am in a different case from any other doctor in our county.

Naval and Military Appointments.

ROYAL NAVAL MEDICAL SERVICE.

The following announcements are notified by the Admiralty: Fleet Surgeon G. T. Broatch, M.B., to be Deputy Surgeon-General. Fleet Surgeons F. Bolster to the *Pembroke*; E. T. Meagher to Yarmouth Hospital; R. Miller, M.B., to the *Victory*. Surgeon R. M. Riggall to the *Deaf*, vice Sankey. Surgeon (Emergency) W. J. Stitt to the *Victory*. Temporary Surgeons D. J. Max to the *Cumberland*, vice Buddle; R. Buddle, C. E. Leake, M.B., and A. T. McDonald, M.B., to the *Vivid*.

ROYAL NAVAL VOLUNTEER RESERVE.

Staff Surgeon A. D. Cowburn to the *Vivid*, additional. Surgeon T. D. McEwan to the *Vivid*, additional, for disposal. Surgeon Probationers G. Millar to the *Lance*; F. W. Lemarchant to the *Fortune*; St. G. B. D. Gray to the *Staunch*; J. L. Wilson to the *Express*; J. M. Bickerton to the *Lawford*, vice Byrn; E. R. Pearce to the *Ferret*, vice Fotheringham; E. A. Sparks to the *Lightfoot*; D. C. Clark to the *Lysander*. To be Surgeon Probationers: A. G. Morison, P. Lloyd-Williams, J. Stewart, F. A. Evans, R. E. R. Sanderson, R. F. Boltman, J. K. Steel, J. Paterson, W. M. Anthony, R. MacGarrol, E. J. G. Sargent, M. Brown, P. McMurray, A. H. Shelswell, J. R. Hughes, J. S. Lewis, E. Piggett, S. H. Waddy.

ARMY MEDICAL SERVICE.

Lieutenant-Colonels to be temporary Colonels whilst Assistant Directors of Medical Services of Divisions: T. P. Jones, M.B., H. V. Prynn, F.R.C.S., D. D. Shanahan.

ROYAL ARMY MEDICAL CORPS.

H. G. G. Cook, M.D., to be temporary Lieutenant-Colonel whilst in charge of the Welsh Hospital, Netley (substituted for notification in the *London Gazette* of May 16th).

Temporary Captain R. C. Brown, M.D., relinquishes the rank of temporary Major on ceasing to be employed at the Springburn and Woodside Hospital, Glasgow.

Temporary Captains to be temporary Majors: A. Phillips, E. Black. Temporary Captain C. W. Donald, M.D., F.R.C.S.E., relinquishes his commission.

Temporary Captains relinquishing their commissions on appointment to the I.M.S.: J. H. Grove-White, M.D., U. J. Bourke.

Temporary Lieutenant T. H. T. Frampton, F.R.C.P., to be temporary Major.

To be temporary Captains: B. J. Collingwood, M.D., H. F. Strickland, F.R.C.S., and temporary Lieutenants A. D. Forbes and G. Fleming.

Temporary honorary Lieutenants to be temporary honorary Captains whilst serving with No. 6 British Red Cross (Liverpool Merchants' Mobile) Hospital: H. Browning, H. W. Jones, M.B., F. C. Wilkinson, M.B.

Temporary honorary Lieutenant E. M. Eaton, M.D., to be temporary honorary Captain whilst serving with No. 2 British Red Cross Hospital.

E. A. Bell to be temporary honorary Captain whilst serving with No. 5 British Red Cross Hospital.

Temporary honorary Lieutenants to be temporary Lieutenants: P. A. Dargan, L. M. Davies, L. W. Jones.

To be temporary Lieutenants: J. N. Cruikshank, M.B., A. Davidson, M.B., J. B. Fisher, M.B., M. M. Frew, M.B., T. B. Fulton, M.B., G. Kirkhope, M.B., D. Kennedy, W. N. Montgomery, M.B., W. C. Gore, M.B., R. E. J. St. J. Griffin, J. S. Kinross, M.B., D. W. Smith, M.B., R. G. Russell, E. H. Eastwood, M.B., N. B. Capon, M.B., C. E. Wise, M.D., F. W. Clark, M.B., J. Jaffe, M.B., B. P. McLaren, M.B., O. C. M. Davis, M.B., J. Devine, J. Cross, J. Glaister, M.B., Z. A. Green, H. R. Tighe, F.R.C.S.I., T. W. Bailey, J. Crean, M.B., A. G. L. Smith, J. G.

Forbes, M.D., R. O. Lee, M.B., D. H. A. Galbraith, S. F. Harris, C. R. Reckitt, J. W. Thomas, T. H. Jackson, W. S. King, M.B., T. O. Robson, M.B., A. E. Burroughs, M.D., W. H. T. Jones, J. A. Giles, M.B., E. N. Glover, H. J. C. Gibson, M.B., J. A. Edmond, M.B., E. J. Mannix, M.B., E. Lanzon, M.D., R. B. Bryan, M.B., A. W. C. Lindsay, J. D. W. Beavis, J. F. Penson.

Temporary Lieutenants relinquishing their commissions on appointment to the I.M.S.: H. M. Collins, G. B. Hanna.

To be temporary honorary Lieutenants: F. C. Ormerod, A. G. Morris, D. G. C. Tasker, S. Hutchinson, A. J. Bade.

Temporary Lieutenant W. H. Harris, M.B., is dismissed the service by sentence of a general court-martial.

The notification regarding temporary Lieutenant J. Campbell, M.B., in the *London Gazette* of May 25th, is cancelled.

The name of temporary honorary Lieutenant N. N. Haysom is as now described, and not as in the *London Gazette* of May 25th.

Temporary Lieutenants relinquish their commissions: R. Moore, M.D., D. Stewart, M.D., A. Turnbull, M.B., B. Fryer, P. W. L. Camps, M.B., F.R.C.S., F. W. Woods, J. M. Logie, M.B., E. R. D. Macdonochie, M.B., F.R.C.S.E., A. F. Horn, M.B., C. E. Dashwood, A. H. MacKenzie, M.B., G. B. Bartlett, D. Fisher, M.B., J. B. H. Davson, E. J. G. Jones, M.D., C. H. Martin, M.B., C. F. Fridham, R. M. Chance, M.D., W. S. Hawthorne, M.B., R. A. G. Whiting, F. Slater, M.B., E. M. McKay, M.B., T. A. Fuller, M.B., A. J. Campbell, M.D., J. S. H. Lewis, M.B., P. E. Middleton, W. E. Burrows, M.D., J. A. R. Glennie, M.B., F. Brickwell, M.B., A. E. Campbell, M.B., E. G. Kaye, C. H. W. McCullagh, M.D., A. Fisher, M.B., J. B. Gething, M.B., W. A. G. Russell, M.B., A. McGrath, M.D., W. C. P. Barrett, M.B., T. G. Wormald, M.D., M. J. Petty, M.B., F.R.C.S., H. G. L. Gilchrist, H. B. Shillingford, S. G. Trail, M.B., H. B. Ibbotson, M. Remers, W. D. Knocker, M.B., G. N. Mottram, H. M. Moran, M.B., F.R.C.S.E., F. G. M. Simpson, M.B., J. Campbell, E. A. Bulmore, F.R.C.S.E., T. E. Dobbs, T. H. Gandy, M.B., T. A. Collinson, N. T. Bond, M.B., G. C. Blackley, M.D., G. C. Stowart, M.B., A. E. Stanning, M.B., J. C. Martin, T. Wright, M.D., G. H. Cuyverwell, M.D., J. H. Huddle, S. F. Smith, G. F. C. Walker, M.B., W. Magner, M.B., T. Clifford, M.B., M. G. McElligott, F.R.C.S., D. V. O'Connor, S. J. Wareham, F.R.C.S., D. O. Twining, F. S. Beecheroff, R. Harrison, J. M. Bennion, M.D., F. Jubb, J. Bowes, M.D., A. S. Welby, W. E. Cooper, J. Campbell, M.B., E. Robertson, M.B., W. F. S. Yeates, M.B., H. W. Ward, M.B., A. H. Melville, M.B., W. C. Marsden, C. G. McAdam, M.B., H. A. C. Wall, M.B., E. W. Richards, M.B., R. B. Minnett, M.B., R. P. Thomson, M. H. Sorokiewicz, M.B., L. B. Graham, M.B., J. J. McConnell, H. H. R. Clarke, T. H. Harker, M.D., H. G. G. Jeffreys, S. E. Holder, G. E. Kennerley, J. MacDonald, M.B., J. L. Atkinson, M.D., M. J. McCarthy, D. Moodie, J. Rae, M.D., M. S. Fraser, M.D., F.R.C.S., D. G. Perry, M.D., F.R.C.S., R. Hamer, M.B., W. H. Mackinlay, M.B., G. Gardner, M.D., R. Spears, T. G. Elsworth, M.D., J. P. Kitson, M.B., A. S. McNeil, J. Jones, M.D., P. K. Muspratt, M.B., H. W. Kerfoot, J. A. Evans, M.B., R. H. Bonnycastle, M.B., G. A. Wron, M.B., J. Coffey, F.R.C.S., J. T. Dickson, M.B., J. M. Taylor, M.B., F. Radcliffe, M.B., W. Stewart, M.B., P. MacDonald, M.D., A. W. G. Murray, M.B., E. V. Frederick, M.B., W. J. M. Marcy, R. L. B. Smith, D. T. C. Frew, M.B., R. E. Martin, M.B., R. J. Weidner, M.B., R. W. Tennant, W. A. Dakin, M.D., G. W. M. Smith, M.D., O. W. Colbeck, M.B., S. A. Millen, R. Dowden, J. H. White, M.B.

Temporary Lieutenants relinquish their commissions on account of ill health: E. Saxton, P. Hall, I. D. Hayes, M.B., A. W. Jones, R. M. Chance (substituted for notification in the *London Gazette* of May 15th).

SPECIAL RESERVE OF OFFICERS.

ROYAL ARMY MEDICAL CORPS.

Lieutenants to be Captains: J. F. Mackenzie, T. R. Davies. Lieutenant (on probation) G. C. L. Woodroffe is confirmed in his rank.

OVERSEAS CONTINGENTS.

CANADIAN ARMY MEDICAL CORPS.

Major D. McGillivray to be temporary Lieutenant-Colonel; Major W. E. Nelson (Canadian Militia) to be temporary Major; Captain C. H. Dickson to be temporary Major; D. A. Rose to be temporary Captain; Sergeant-Major D. Widdowson to be temporary Lieutenant.

TERRITORIAL FORCE.

ROYAL ARMY MEDICAL CORPS.

London Field Ambulance.—Major J. W. Bird, D.S.O., to be temporary Lieutenant-Colonel. Lieutenant E. N. Butler to be Captain.

London General Hospital.—Lieutenant-Colonel W. Pasteur, M.D., is seconded for duty at a military hospital. Major L. B. Rawling is seconded for duty with a general hospital.

London (City of London) Field Ambulance.—Major J. A. Masters, M.D., to be temporary Lieutenant-Colonel, November 3rd, 1914 (substituted for announcement in the *London Gazette* of May 15th, 1915).

London (City of London) Sanitary Company.—Lieutenants to be Captains: R. J. S. McDowell, M.B., S. A. Mann, J. P. Elias, M.B.

London Sanitary Company.—C. G. Moor to be Lieutenant, August 26th, 1914 (substituted for announcement in the *London Gazette* of August 25th, 1914).

London Mounted Brigade Field Ambulance.—Lieutenant F. P. Smith to be Captain.

London Sanitary Company.—Lieutenant P. E. Lander to be Captain.

Homes Counties Casualty Clearing Station.—Lieutenants to be Captains: T. W. Hancock, W. L. Hibbert, A. G. Williams, H. B. Parsloe. To be Lieutenants: L. A. Celestin, F. T. Hare, M.B.

Homes Counties Field Ambulance.—Captain G. Eustace, M.D., from Attached to Units other than Medical Units, to be Captain. To be Lieutenants: T. B. McKee, M.B., and E. B. C. Mays, late temporary Lieutenants E.A.M.C.

Eastern General Hospital.—Lieutenant-Colonel J. B. Bradbury, M.B., resigns his commission.

South-Eastern Mounted Brigade Field Ambulance.—Major F. B. Treves, M.B., to be temporary Lieutenant-Colonel while commanding a field ambulance.

Southern General Hospital.—Major R. Coombe, M.D., F.R.C.S., is restored to the establishment.

Wessex Casualty Clearing Station.—A. M. Jones, late Captain Royal Welsh Fusiliers, to be Lieutenant.

Welsh Field Ambulance.—Lieutenant J. B. Kelly to be Captain.

Welsh Casualty Clearing Station.—Major A. P. Swanson to be temporary Lieutenant-Colonel, February 25th, 1915 (substituted for announcement in the *London Gazette* of February 24th, 1915).

Welsh Border Mounted Brigade Field Ambulance.—Captain F. H. Lacey, M.B., from a general hospital to be Captain. Lieutenant D. P. H. Gardiner, M.B., to be temporary Captain, December 7th, 1914.

(substituted for announcement in the *London Gazette* of January 12th, 1915).

Welsh Field Ambulance.—Major H. T. Samuel to be temporary Lieutenant-Colonel whilst commanding a field ambulance.

East Anglian Field Ambulance.—Lieutenant W. K. Legassick to be Captain and remain seconded.

North Midland Field Ambulance.—Captain F. W. Johnson, M.B., to be temporary Major.

South Midland Field Ambulance.—Captain A. A. Hingston, M.B., to be temporary Major, November 10th, 1914 (substituted for announcement in the *London Gazette* of November 9th, 1914).

South Midland Mounted Brigade Field Ambulance.—J. M. H. Reid, M.B., late temporary Lieutenant R.A.M.C., to be Lieutenant.

West Riding Casualty Clearing Station.—Major L. P. Demetriadi, M.D., to be Lieutenant-Colonel, May 3rd, 1915 (substituted for announcement in the *London Gazette* of May 28th, 1915).

West Riding Field Ambulance. Major (temporary Lieutenant-Colonel) A. B. S. Stewart relinquishes his temporary rank on ceasing to command a field ambulance. Captain H. N. Goode, M.B., F.R.C.S., to be temporary Major whilst commanding a field ambulance.

East Lancashire Field Ambulance.—Lieutenant A. W. Berry, M.B., to be Captain.

Northumbrian Field Ambulance.—To be Lieutenants: R. Welch, M.B., J. S. Burton.

Lowland Casualty Clearing Station.—Major J. McKie, M.B., to be Lieutenant-Colonel, April 26th, 1915 (substituted for announcement in the *London Gazette* of May 8th, 1915).

Lowland Field Ambulance. T. M. Metcalfe to be Lieutenant.

Highland Casualty Clearing Station.—Captain (temporary Major) J. Innes, M.B., relinquishes his commission on account of ill health. Captain A. Don, M.B., F.R.C.S.E., to be temporary Major, April 24th, 1915 (substituted for announcement in the *London Gazette* of May 17th, 1915). A. E. Campbell, M.B., late temporary Lieutenant R.A.M.C., to be Lieutenant.

Highland Field Ambulance.—J. Anderson, M.B., to be Lieutenant. Attached to Units other than Medical Units. —Major R. W. Forrest, M.B., and Captain E. P. I. Coker relinquish their commissions on account of ill health. Major M. B. Ray, M.D., to be temporary Lieutenant-Colonel whilst commanding a casualty clearing station. Lieutenant J. B. Smith, M.B., to be Captain; Captain J. A. Thomson, M.B., to take rank and precedence in the R.A.M.C. and the T.F. as if his appointment as Captain bore date April 14th, 1916. Captain H. G. L. Allford, from a field ambulance, to be Captain. Lieutenant A. E. Evans, M.B., to be Captain. H. W. Taylor to be Lieutenant. Lieutenant D. T. Corke is dismissed the service by sentence of a general court-martial.

Vacancies and Appointments.

NOTICES REGARDING APPOINTMENTS.—Attention is called to a Notice (see Index to Advertisements—Important Notice re Appointments) appearing in our advertisement columns, giving particulars of vacancies as to which inquiries should be made before application.

VACANCIES.

BARNSELY COUNTY BOROUGH.—Assistant Tuberculosis Officer and Resident Medical Officer at Mount Vernon Sanatorium. Salary, £300 per annum.

BIRMINGHAM AND MIDLAND EYE HOSPITAL.—Resident Surgeon. Salary, £200 to £300 per annum.

BOLINGBROKE HOSPITAL, Wandsworth Common, S.W.—(1) Resident Medical Officer. (2) House-Surgeon. Salary, £300 and £200 per annum respectively.

BOLTON INFIRMARY AND DISPENSARY.—Third House-Surgeon. Salary, £180 per annum.

BRISTOL ROYAL INFIRMARY.—House-Surgeons and House-Physicians. Salary, £120 per annum.

BURY INFIRMARY.—Junior House-Surgeon. Salary, £150 per annum.

DERRYSHERE ROYAL INFIRMARY.—House-Surgeon. Salary, £200 per annum.

DUDLEY: GUEST HOSPITAL.—Senior Resident Medical Officer. Salary, £150 per annum.

HUDDERSFIELD ROYAL INFIRMARY.—Senior House-Surgeon. Salary, £150 per annum.

HULL: VICTORIA HOSPITAL FOR SICK CHILDREN.—House-Surgeon. Salary, £100 per annum.

LEEDS HOSPITAL FOR INFECTIOUS DISEASES AND TUBERCULOSIS.—Assistant Medical Officers. Salary, £250 per annum.

LONDON TEMPERANCE HOSPITAL, Hampstead Road, N.W.—Assistant Resident Medical Officer. Honorarium, £120 per annum.

MANCHESTER CHILDREN'S HOSPITAL.—Resident Medical Officer (locumtenent).

MANCHESTER NORTHERN HOSPITAL FOR WOMEN AND CHILDREN.—Lady House-Surgeon. Salary, £120 per annum.

OXFORD EYE HOSPITAL.—House-Surgeon.

PLYMOUTH: SOUTH DEVON AND EAST CORNWALL HOSPITAL.—House Physician. Salary, £150 per annum.

QUEEN'S HOSPITAL FOR CHILDREN, Hackney Road, E.—House-Physician and House Surgeon. Salary, £100 per annum.

ST. BARTHOLOMEW'S HOSPITAL, E.C.—Assistant Administrator of Anaesthetics (non-resident).

ST. PAUL'S HOSPITAL FOR SKIN AND GENITO-URINARY DISEASES, Red Lion Square, W.C.—Honorary Casualty Out-patient Surgeon.

SHEFFIELD ROYAL INFIRMARY.—House-Physician. Salary, £120 per annum.

SOUTH LONDON HOSPITAL FOR WOMEN.—Pathologist (female). Salary, £250 per annum.

SUNDERLAND: ROYAL INFIRMARY.—Lady House-Surgeon. Salary, £150 per annum.

WIGAN: ROYAL ALBERT EDWARD INFIRMARY AND DISPENSARY.—Senior House-Surgeon. Salary, £250 per annum.

CERTIFYING FACTORY SURGEONS.—The Chief Inspector of Factories announces the following vacant appointment: Ormskirk (Berwick).

MEDICAL REFEREES.—Medical Referees under the Workmen's Compensation Act, 1905, for County Court Circuit No. 50, attached more particularly to the Eastbourne, Hastings, and Bye County Courts. Applications to the Private Secretary, Home Office, by July 1st.

To ensure notice in this column—which is compiled from our advertisement columns, where full particulars will be found—it is necessary that advertisements should be received not later than the first post on Wednesday morning. Persons interested should refer also to the Index to Advertisements which follows the Table of Contents in the JOURNAL.

APPOINTMENTS.

CRAGG, E. H., M.D., B.R.U., M.R.C.S., L.R.C.P., Certifying Factory Surgeon for the Billingham District, co. Lincoln.

DAVIES, A. L., M.R.C.S., L.R.C.P., District and Workhouse Medical Officer of the Bala Union.

GARDEN, D. S., M.B., Ch.B., District Medical Officer of the Halifax Union.

GLOVER, V. J., M.D., Liverpool, Medical Officer of Health and School Medical Officer for Waterloo and Seaford.

UMANSKI, Miss Augusta, M.B., B.S., Leeds, Assistant Medical Officer at the Leeds Infectious Diseases Hospital, Seacroft.

BIRTHS, MARRIAGES, AND DEATHS.

The charge for inserting announcements of Births, Marriages, and Deaths is 5s., which sum should be forwarded with the notice not later than the first post on Wednesday morning in order to ensure insertion in the current issue.

BIRTHS.

BURGESS.—On June 19th, at Milverton Lodge, Victoria Park, Manchester, the wife of Arthur H. Burgess, Major R.A.M.C., of a daughter.

ELLIS.—On June 15th, at 47, Wheelley's Road, Edgbaston, Birmingham, the wife of F. W. Ellis, M.D., F.R.C.S.E. (Lieutenant-Colonel R.A.M.C.(T.)), of a son.

FRENCH.—On June 15th, at 44, Ashley Gardens, S.W., the wife of Major E. G. French, M.D., F.R.C.S.E., R.A.M.C., of a daughter.

HAY.—On the 17th June, at 14, Vicarage Gardens, Kensington, W., the wife of Dr. K. R. Hay, of a daughter.

MARRIAGES.

FRASER-BAILEY.—On June 13th, at Golden Hill Parish Church, by the Rev. J. H. Bailey, Vicar of Norton, Letchworth, brother of the bride, and the Rev. Canon Hughes, Rector of Tarporley, Captain Forbes Fraser, R.A.M.C., of Bath, to Agnes Mary, daughter of Rev. G. R. Bailey, Vicar of Golden Hill and Rural Dean of Newcastle, and Mrs. Bailey.

MACKEY-TRAIN.—At the United Free Church, Southend, Argyll, on June 1st, by the Rev. J. G. Train (formerly of Buckhaven, Hull, and Norwood, S.E.), Duncan Matheson Mackay, M.D., Hull, to Anna Gilkison, third daughter of the Rev. J. G. Train.

MACWILLIAM-MILLER.—June 14th, 1916, at All Hallows Church, Allerton, Liverpool, by the Rev. Canon Gibson-Smith, Henry Herbert MacWilliam, M.B., D.P.H. Medical Officer, Walton Infirmary, Liverpool, third son of Rev. J. W. A. MacWilliam, of Drumsesk, Rostrevor, to Isobel, younger daughter of the late Alexander Allan Miller, of Liverpool.

DIARY FOR THE WEEK.

MONDAY.

AUXILIARY R.A.M.C. FUND, Royal Army Medical College, 3.45 p.m.—Scheme submitted by Provisional Committee.

POST-GRADUATE COURSES AND LECTURES.

LONDON SCHOOL OF TROPICAL MEDICINE, Royal Albert Dock, E.

DIARY OF THE ASSOCIATION.

Date.	Meetings to be Held.
JUNE.	
23 Fri.	London: Executive Subcommittee of Central M War Committee, 2.45 p.m.
27 Tues.	London: Metropolitan Counties Branch, Annual Meeting, 4 p.m. North Wales Branch, University College, Upper Bangor Annual Meeting, 2.30 p.m.; Address by Sir William Osler on the Proposed National Medical School for Wales, 3 p.m. West Somerset Branch, Annual Meeting, Taunton, 3.30 p.m.
28 Wed.	London: Council Meeting, 11 a.m. Kent Branch, Annual Meeting, Broadstairs, after meet. at 8.30 p.m.
29 Thur.	East York Division, Lloyd Hospital, Bridlington, 12.30 p.m.
30 Fri.	London: Executive Subcommittee of Central Medical War Committee, 2.45 p.m. Buckinghamshire Division, Annual Meeting, Aylesbury, 4 p.m. Worcestershire and Herefordshire Branch, Annual Meeting, Droitwich, 3 p.m.; Worcester Division, Annual Meeting, 2 p.m.
JULY.	
5 Wed.	London: Central Medical War Committee, 2 p.m. Sussex Branch, Annual Meeting, Eastbourne, 2.30 p.m.
6 Thur.	Midland Branch, Annual Meeting, Derby, 3 p.m.
7 Fri.	London: Executive Subcommittee of Central Medical War Committee, 2.45 p.m.
12 Wed.	Southern Branch, Annual Meeting, Winchester, 2 p.m.
19 Wed.	Dorset and West Hants Branch, Summer Meeting, 3 p.m.
28 Fri.	ANNUAL REPRESENTATIVE MEETING, Connaught Great Queen Street, London, W.C., 10 a.m., and 4 days as may be required.
29 Sat.	ANNUAL GENERAL MEETING, Connaught Rooms, Queen Street, London, W.C., 2 p.m.

[illegible]

1.
2.
3.
4.
5.
6.
7.

R
31
B93
1916
v.1
cop.2

British medical journal
1916, v.1

Biological
& Medical
Serials

PLEASE DO NOT REMOVE
CARDS OR SLIPS FROM THIS POCKET

UNIVERSITY OF TORONTO LIBRARY

STORAGE

HANDBOUND
AT THE



UNIVERSITY OF
TORONTO PRESS

